

# UC Santa Cruz 2005 LRDP EIR

## Annual Mitigation Monitoring Report, 2011-12

### Introduction and Summary

The California Environmental Quality Act (CEQA) requires that a Lead Agency establish a program to monitor or report on mitigation measures adopted as part of the environmental review process to avoid or reduce the severity and magnitude of potentially significant environmental impacts associated with project implementation. CEQA (Public Resources Code Section 21081.6 (a) (1)) requires that a mitigation monitoring or reporting program be adopted at the time that the agency determines to carry out a project for which an EIR has been prepared to ensure that mitigation measures identified in the EIR are implemented.

The Regents of the University of California (The Regents) certified the UC Santa Cruz 2005 Long Range Development Plan (2005 LRDP) Environmental Impact Report (EIR) and approved the 2005 LRDP in September 2006; a Mitigation Monitoring Program (MMP) for the 2005 LRDP EIR was adopted at the same time (<http://lrpd.ucsc.edu/Final2005EIR/2005feir-IV-4.0-mmp.pdf>). The Mitigation Monitoring Program (MMP) for the UC Santa Cruz 2005 LRDP is presented as a table that includes the full text of the mitigation measures identified in the Final EIR. The Campus may modify the means by which it will implement a mitigation measure, as long as the alternative means of implementing the measure ensures compliance during project implementation. The MMP includes the following information:

**Mitigation Number:** The number assigned to the mitigation measure in the Final 2005 LRDP EIR.

**Applicability/ Project Type:** The applicability of the mitigation, whether to general campus operations, to certain types of projects (e.g., only housing projects), or to all development projects under the 2005 LRDP.

**Location:** The specific parts of campus to which the mitigation measure applies (e.g., in or near the Cowell Lime Works Historic District).

**Mitigation Measure:** The full text of the mitigation measure as given in the Final EIR.

**Mitigation Procedure:** A summary of the steps to be taken to implement the mitigation measures.

**Responsible Party:** Assignment of responsibility for implementation of the mitigation measure to a specific campus unit.

**Mitigation Timing:** For general campus mitigations, when the mitigation must be implemented (e.g., an event that triggers the mitigation, intervals at which implementation is required, or a deadline for completion). For project-specific mitigations, the stage(s) of project development during which the mitigation action will be taken.

**Monitoring and Reporting Procedure:** Procedures for documenting and reporting mitigation activities.

Mitigations are divided into two categories: *general campus measures*, which are implemented by the campus on an ongoing basis, and *project-specific measures*, which are implemented in conjunction with the development of individual campus construction projects. Examples of general campus mitigation measures are: 1) changes to campus operations and retrofitting existing facilities to reduce campus water use, and 2) the campus' transportation demand (TDM) program, which is designed to reduce the number of vehicle trips to the campus. Examples of project-specific mitigation measures are: 1) the protection of specific biotic resources or cultural resources during construction of a building, and 2) specific notice of anticipated construction noise for nearby residents. A few mitigations have both general and project-specific elements. The mitigation monitoring program for a development project may include both project-specific measures identified in the LRDP EIR, and mitigation measures identified in the project-level CEQA document, which applies only to that project.

The responsibilities of mitigation implementation, monitoring and reporting extend to numerous UC Santa Cruz departments and offices. The unit director or department lead officer of the identified unit or department is directly responsible for ensuring that the responsible party complies with the mitigation. Physical Planning and Construction is responsible for the overall administration of the program and for assisting other campus staff with their responsibilities, to ensure that they understand their charge and complete the required procedures accurately and on schedule.

In addition to overseeing the specific procedures for implementation of each mitigation measure, Physical Planning and Construction is responsible for preparing this Annual Mitigation Monitoring Report. The purpose of the Annual Mitigation Monitoring Report is to report on progress in implementation of general campus mitigation measures (that is, those measures that are not tied to specific development projects) and, for each project under development during the preceding period, to identify applicable mitigation measures and document the status of compliance for each project. The Annual Mitigation Monitoring Report is available for review by appointment at the office of Physical Planning and Construction on campus and posted on the campus website (<http://lrdp.ucsc.edu/mitigation-monitoring.shtml>).

For each general campus measure, a representative of the responsible campus unit completes a report form each year for compiling into the report. For each project, a checklist is prepared for all 2005 LRDP EIR and project-level mitigations applicable to the project. Reporting on the status of project-specific mitigations is the responsibility of each project manager, who updates the checklist on a quarterly basis.

Note that more than one campus unit may be assigned responsibilities for implementation of a given mitigation measure. In some cases, several units may be responsible for the same action (e.g., Colleges Housing and Educational Services [CHES] - (formerly Colleges and University Housing Service [CUHS]), Physical Plant Grounds Services, the Arboretum and the Center for Agriculture and Sustainable Food Systems are all required to comply with mitigations that regulate landscape irrigation). In other cases, implementation of the mitigation measure requires multiple actions, each of which may

be the responsibility of a different unit. Each unit reports annually on each of its mitigation responsibilities; therefore, there may be multiple reports on annual compliance with a given mitigation measure, and more than one status category may be assigned to a single mitigation in any particular year.

The annual report also provides a description of activity undertaken by each responsible department relative to each mitigation measure and, if applicable, links to detailed reports or other supporting documentation of mitigation activity.

### ***Explanation of Terms Used in Annual Mitigation Monitoring Report***

The status of each mitigation measure is assessed each year, as: **Completed-No Further Action, Complete-Ongoing, In Progress, Not Triggered, or Other** (see definitions, below).

**Completed – No Further Action:** The mitigation commitment has been fulfilled, either in the current reporting year or previously, and no further action is required in future years. These are generally one-time actions that were to be completed within a certain period of time after approval of the 2005 LRDP.

**Completed-Ongoing:** Mitigation commitments were implemented or monitored during the current reporting year, and additional actions are required in future years to fulfill the commitment. Mitigations in this category are generally measures that are to be implemented on an ongoing basis through the life of the 2005 LRDP, or measures that may take several years to complete.

**In Progress:** Ongoing or one-time mitigation commitments that have been partially implemented during the current reporting year. The "Summary of Mitigation Activities" section of this report further describes the campus's progress in implementing such mitigation measures.

**Not Triggered:** The need to take action to fulfill the mitigation commitment did not occur during the reporting year. Mitigations in this category may apply only after a certain time period has elapsed, only when the campus begins to develop a particular part of the campus, or only under particular circumstances, such as a drought emergency.

**Other:** The status of one mitigation (LRDP Mitigation AES-6E) is described as "Other." In previous years this measure was listed as a general campus mitigation as well as a project-specific mitigation, although it is implemented only on a project-by-project basis. Beginning in the 2009-10 reporting year, the mitigation is monitored only at the project level.

### ***Summary of 2011-12 Mitigation Activities***

#### **General Campus Mitigation Measures**

In 2011-12, the Campus fulfilled its mitigation commitments by implementing and/or monitoring the 61 general campus mitigation measures adopted by The Regents in connection with its approval of the 2005 LRDP. These 61 mitigation measures contain a total of 76 individual mitigation commitments. In addition, the Campus implemented

and/or monitored ten mitigations adopted by The Regents in connection with its approval of the 2300 Delaware Avenue Project in February 2007. This brings the total number of individual mitigation commitments to 86.

Nine of these commitments were completed during the 2011-12 reporting period or in a previous year and require no further action in future years, 64 ongoing mitigation commitments were implemented during the 2011-12 reporting year but require further action in future years, three were in progress but not completed during the reporting period, and nine were not triggered. As explained above, one mitigation previously listed as a general campus mitigation is now monitored at the project level.

Table 1, Mitigation Status Summary

[[http://lrpd.ucsc.edu/MonitoringReports/MMP\\_Table1\\_2010-11.pdf](http://lrpd.ucsc.edu/MonitoringReports/MMP_Table1_2010-11.pdf)] lists all of the general campus mitigations and their status for the 2010-11 reporting year. A complete description of general campus mitigation activities conducted during this reporting year is presented below, under the heading *Complete Description of 2011-12 General Campus Mitigation Activities*.

The status of each mitigation measure that was not implemented completely during this reporting year is described in the following paragraphs:

**LRDP Mitigation AIR-5B** requires that, if the Campus does not replace the existing cogeneration system with a new system with lower emissions within three years, the Campus shall conduct source tests for acrolein, a toxic air contaminant, for the Central Plant emergency generator and the cogeneration engine, and re-evaluate the health risk that could result from emissions of toxic air contaminants under the 2005 LRDP. If the estimated risk exceeds the significance threshold established by the Monterey Bay Unified Air Pollution Control District, the Campus must 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. The Campus has not been able to re-evaluate the health risk because there is currently no accepted method for interpreting acrolein source test data. A project to replace the existing cogeneration engine with a combustion steam turbine, which would significantly reduce emissions of toxic air contaminants, was in design in 2011-12, with construction to begin in 2012-13.

**LRDP Mitigation TRA-4F** requires that the Campus implement integrated transit, bicycle and pedestrian way-finding systems, including a pedestrian plan, on the main campus. In 2011-12, following adoption of revised official street names, and a new road sign standard, funding was approved to fabricate and install new road signage. Installation of the new street signs began in Spring 2012 and will continue through 2012-13. Preliminary work for a Campus Pedestrian Plan started in Winter 2011.

**LRDP Mitigation UTIL-9H** requires the Campus to complete the retrofit of 3.5-gpf toilets in all on-campus student housing within five years of approval of the 2005 LRDP in September 2006. Retrofits have been completed in most of the buildings, including Crown College residence halls in summer 2011. However, further replacement of toilets in student housing cannot be completed without major accessibility improvement of the student housing at Merrill, Kresge, and Oakes. CHES is addressing this in the following plan: Toilets at Merrill College will be replaced as part of the Merrill College Residence

Halls Capital Renewal Project. Toilets in Residence Halls A and B will be replaced in summer 2013. Toilets at Merrill Residence Halls C and D will be replaced in summer 2014. Replacement of toilets at Kresge College will be included in an upcoming major capital renewal project. CHES is currently developing a plan for replacement of toilets at Oakes College Apartments as part of a phased project that will include code-required accessibility improvements.

## Project Mitigation Monitoring

In 2011-12, the Campus monitored project-specific LRDP EIR mitigation measures for the following projects, which were in planning, design or construction:

**Infrastructure Improvements, Phase 1.** This project, which includes improvements to the Campus domestic water system, construction of a new cooling tower, and improvements to the storm water drainage system, was approved in March 2007. Construction of the domestic water system improvements was completed in the summer of 2008. Construction of the Phase 1 storm water improvements began in summer 2009 and was completed in fall 2010. Construction of the cooling tower began in fall 2008 and was completed in summer 2012.

**Infrastructure Improvements, Phase 2.** This project includes improvements to the Campus electrical distribution system and the heating hot water system, and additional storm water drainage improvements. Design was completed in 2011-12. Approval of the storm water drainage improvements in July 2008 included adoption of a mitigation monitoring and reporting program. The heating hot water, electrical, and natural gas system improvements were approved in November 2012. Construction is planned to begin in 2013.

**Biomedical Sciences Facility.** This project was approved in January 2007 and construction began in December 2008. All mitigation measures were fully implemented by December 2011 and construction was completed in summer 2012.

**2300 Delaware Project.** The 2300 Delaware Project was approved in February 2007. Under this project, the Campus is redeveloping Building C in phases. Mitigations for the 2300 Delaware Project are implemented and monitored on an ongoing basis as general campus mitigations and in conjunction with specific redevelopment activities. The first phase of redevelopment, the Thin Films and Materials Lab, was completed in summer 2011.

**Cogeneration Plant Replacement Phase 1 Project.** The Cogeneration Plant Replacement Phase 1 Project was approved in December 2011. The design process continued through the summer of 2012. Construction began in summer 2012.

Table 2, *Project Implementation of LRDP EIR Mitigation Measures*

[[http://lrdp.ucsc.edu/MonitoringReports/MMP\\_Table2\\_2011-12.pdf](http://lrdp.ucsc.edu/MonitoringReports/MMP_Table2_2011-12.pdf)], lists the LRDP EIR mitigations incorporated into each of the projects approved under the 2005 LRDP EIR.

Table 3, *Project-Specific Mitigation Summary*

[[http://lrdp.ucsc.edu/MonitoringReports/MMP\\_Table3\\_2011-12.pdf](http://lrdp.ucsc.edu/MonitoringReports/MMP_Table3_2011-12.pdf)], lists and briefly

describes the project-specific mitigation measures identified in project-level CEQA documents. These tables also report the status of each mitigation measure as of the date of this report.

### ***Complete Description of 2010-11 General Campus Mitigation Activities***

#### **AES-5D: Continue Site Stewardship Program.**

**Responsible Unit: Physical Plant**

**Status: Completed - Ongoing**

##### **Description of Status for 2011-12**

The Grounds Site Stewardship Program (GSSP) continued to be staffed on a half time basis by campus gardener, Bill Reid, with oversight by Asst. Supt, Dave Roe. The program averaged two, 2-unit interns from Environmental Studies each quarter. Ten separate volunteer days were organized, generating a total of 285 volunteer hours on tasks ranging from invasive plant and weed removal to restoration projects of planting native species, spreading mulch, narrowing paths, propagating and planting native species and installing erosion control features.

#### **AES-6B: Minimize light pollution in new development projects.**

**Responsible Unit: PP&C**

**Status: Completed - Ongoing**

##### **Description of Status for 2011-12**

Campus standards for lighting have not changed during the past year. They include the lighting design requirements specified in the mitigation, for both path and street lighting. General Building Requirements Part II F and Campus Standards Handbook Section 16530 require that lighting be required for safety only and that decorative lighting be used only under certain circumstances and upon approval of Campus Architect. Site Requirements Part III H states that lighting with non-glare downlighting characteristics is preferred for all areas around buildings.

#### **AES-6D: Turn off field lights at 11 PM.**

**Responsible Unit: OPERS**

**Status: Not Triggered**

##### **Description of Status for 2011-12**

OPERS does not have any field lights at this time.

#### **AES-6E: DAB review outdoor lighting**

**Responsible Unit: PP&C**

**Status: Other**

##### **Description of Status for 2011-12**

This mitigation is now implemented and monitored at the project level

#### **AIR-1: Construction dust control.**

**Responsible Unit: PP&C**

**Status: Completed - Ongoing**

##### **Description of Status for 2011-12**

Currently each project manager is individually adding the applicable mitigation measures to Division 1, and implementation is documented in the project mitigation monitoring

report. PP&C has drafted an update of the Division 1 template that includes these measures. For each project, the Project Manager will review the template, select the applicable measures, and will continue to report on the selected measures and their implementation in the project mitigation monitoring report.

**AIR-4A: Work with AMBAG on regional population forecasts.**

**Responsible Unit: PP&C**

**Status: Completed - No Further Action**

**Description of Status for 2011-12**

This mitigation was completed in 2008-09. AMBAG issued a new consistency determination for the 2005 LRDP in April 2009 stating that the 2005 LRDP is consistent with the 2008 regional forecasts and Air Quality Management Plan. No further action is required.

**AIR-4B: Work with MBUAPCD on campus growth-related emissions.**

**Responsible Unit: PP&C**

**Status: Completed - No Further Action**

**Description of Status for 2011-12**

This mitigation was completed in 2008-09. AMBAG issued new consistency determination for the 2005 LRDP in April 2009 stating that the 2005 LRDP is consistent with the 2008 regional forecasts and Air Quality Management Plan. No further action is required.

**AIR-5A: Generator testing schedule.**

**Responsible Unit: Physical Plant**

**Status: Completed - Ongoing**

**Description of Status for 2011-12**

The generators are tested per the mitigation measure and Physical Plant is abiding by Table 4.3-22 from the LRDP EIR. Generator testing is documented in Physical Plant's preventive maintenance files.

**AIR-5B-PP: Cogeneration system emissions**

**Responsible Unit: Physical Plant**

**Status: In Progress**

**Description of Status for 2011-12**

The cogeneration system has not been replaced. An acrolein test was completed on January 21, 2010 as part of the annual source test. Test reports were sent to the Monterey Unified Air Pollution Control District and EH&S has been notified. The Campus has not recalculated the hazard index because there is currently no accepted method for estimating health risks due to acrolein. A project to replace the existing cogeneration system with a new system with lower emissions was in design in 2011-12, with site and foundation work scheduled to start in Fall 2012.

**AIR-6: Minimize construction air pollutant emissions.**

**Responsible Unit: PP&C**

**Status: Completed - Ongoing**

**Description of Status for 2011-12**

Currently each project manager is individually adding the applicable mitigation measures to Division 1 and reporting on their implementation in the project mitigation monitoring

report. PP&C has drafted an update of the Division 1 template that includes these measures. For each project, the Project Manager will review the template, select the applicable measures, and will continue to report on the selected measures and their implementation in the project mitigation monitoring report.

**AIR-7: Reduce toxic air contaminant emissions.**

**Responsible Unit: PP&C**

**Status: Completed - Ongoing**

**Description of Status for 2011-12**

Campus Standards Handbook Section 16600 specifies the use of natural gas and/or propane for emergency and stand-by generators.

**BIO-15: Arboretum fencing allow mammal movement**

**Responsible Unit: Arboretum**

**Status: Completed - Ongoing**

**Description of Status for 2011-12**

During 2011-12, only portions of the temporary fencing that was installed in previous years remained in place. Many areas are unfenced and there is plenty of access around and through the area. The Arboretum is still planning for a permanent deer fence, which will be designed to allow corridors for deer around the planted areas and allow movement of smaller mammals through the fence. Plantings within the area are being created with large tracts of open grassland vegetation linked to one another to provide continuity of grassland from the area west of Empire Grade to the Great Meadow.

**BIO-7A: Ohlone tiger beetle protection in Marshall Field.**

**Responsible Unit: Physical Plant/Police**

**Status: Completed - Ongoing**

**Description of Status for 2011-12**

During December 2005, Physical Plant successfully petitioned USF&WS for a minor amendment to the UCSC Ranch View Terrace Habitat Conservation Plan to discontinue temporary fencing during the Ohlone tiger beetle's active season, while continuing to maintain permanent OTB signs. This amendment was based on scientific findings that the use of recreational trails is beneficial in maintaining the bare ground habitat important to OTB. The temporary fences were discontinued in Marshall Field as well as in the grasslands that are managed under the HCP. In previous years, the purpose of patrolling by Physical Plant was to maintain the temporary OTB fences and signs. In the absence of these temporary measures, formal Physical Plant patrols have been discontinued and additional police patrolling is not warranted. Campus continues to monitor OTB presence on Campus and to adapt management based on ongoing research.

**BIO-7B: USFWS consultation on Arboretum fencing**

**Responsible Unit: Arboretum**

**Status: Completed - No Further Action**

**Description of Status for 2011-12**

Mitigation was completed in 2006-07. UCSC staff consulted informally with USFWS staff, who said that agency had no concerns with any fencing in the area with respect to special-status species identified under the Endangered Species Act.

**BIO-8A: Cave signs and educational material.**

**Responsible Unit: CNR/Physical Plant/PP&C**

**Status: Completed - Ongoing**

**Description of Status for 2011-12**

An informational sign about cave species was installed at the cave entrance in 2009. The sign was still in place in 2011-12. The CNR website includes information on the cave species and the threat posed to them by recreational use of the caves. The web page is at: <http://ucreserve.ucsc.edu/UCSCCNR/caves.html>. A story entitled Classrooms Without Walls that will be published in Fall 2012 in UCSC's Review Magazine describes an annual trip to the cave by a graduate class in investigative journalism and includes a blurb about the sensitivity of the cave flora and fauna to human disturbance. CNR staff conduct occasional guided visits of the caves for university classes, during which students are informed about ways to minimize impacts while taking advantage of the opportunity to learn about the area's unique geology and its rare subterranean organisms. Limited access to the caves is permitted for research purposes. Trash was removed from the cave entrance in March and August 2012.

PP&C staff consulted with USFWS staff in 2007, as described above, under mitigation BIO-7B. PP&C staff requested a consultation with CDFG staff in 2007, but CDFG staff did not respond to this request.

**CULT-1B-PP : Archaeological resource training for campus employees.**

**Responsible Unit: Physical Plant**

**Status: Completed - Ongoing**

**Description of Status for 2011-12**

Training was held 4/18/2012 at Social Science 2. Thirty-five staff attended.

**DA-HYD-2: Prevent off-site migration of landscape chemicals (2300 Delaware)**

**Responsible Unit: Physical Plant**

**Status: Completed - Ongoing**

**Description of Status for 2011-12**

Grounds Services uses integrated pest management (IPM) practices for routine maintenance that involve only a very few 'spot sprayings' of low toxicity pesticides.

**DA-REC-1A: Trash and litter collection at Antonelli Pond.**

**Responsible Unit: Physical Plant**

**Status: Completed - Ongoing**

**Description of Status for 2011-12**

UC Santa Cruz Grounds Services continued to provide trash and litter collection services for a container on the east side of Antonelli Pond.

**DA-REC-1B: Contribute toward providing and maintaining picnic and trail facilities at Antonelli Pond.**

**Responsible Unit: Physical Plant**

**Status: Completed - Ongoing**

**Description of Status for 2011-12**

UC Santa Cruz Grounds staff consulted with the Land Trust of Santa Cruz County manager Lynn Overtree regarding the Campus's fair share contribution toward providing and maintaining picnic and trail facilities at Antonelli Pond. The contribution agreed upon was for the university to clear and remove the brush that had overgrown the original

pathway on the east side of the pond. UCSC Grounds cleared and removed brush again in August 2011. Grounds Services also supplied 80 yards of mulch and supervision for volunteers to mulch the east trail in August 2011.

**DA-REC-2D: Coordination of volunteer activities at Antonelli Pond.**

**Responsible Unit: Physical Plant**

**Status: Completed - Ongoing**

**Description of Status for 2011-12**

UCSC Grounds Services coordinated with the Land Trust of Santa Cruz County manager Lynn Overtree regarding a volunteer day on August 27, 2011. UCSC provided 80 yards of mulch and supervision for a volunteer crew to spread mulch for a trail restoration project. The volunteer day occurred in August, which was before UCSC students return to campus. Volunteer days are seasonally restricted due to potential California red-legged frog activity during rainy months from October to May.

**DA-TRA-1A: Campus contribution to cost of intersection improvements (2300 Delaware).**

**Responsible Unit: TAPS**

**Status: Completed - Ongoing**

**Description of Status for 2011-12**

UCSC paid the City of Santa Cruz \$419,000 in 2008-09 as mitigation for trips related to existing levels of traffic generated by activities at the 2300 Delaware facility. Pursuant to Section 4.4 of the 2008 Comprehensive Settlement Agreement, the University made an additional payment of \$14,755 in September 2011 to mitigate trips related to the Thin Films and Materials Lab Project in Building C of that facility.

**DA-TRA-1B: TDM measures (2300 Delaware).**

**Responsible Unit: TAPS**

**Status: Completed - Ongoing**

**Description of Status for 2011-12**

No commuter surveys were conducted during 2011-12.

Employees of 2300 Delaware are eligible for the same TDM programs provided for other UCSC staff and faculty, including:

- Subsidized SCMTD Faculty/Staff bus passes;
- Commuter Vanpool program;
- Emergency Ride Home program (for participants in other TDM programs);
- Zipcar ridesharing program; and
- Zimride ridematching services.

Additionally, two bicycle safety classes were held during 2011-12 at the site.

**DA-TRA-2: Parking monitoring and management (2300 Delaware).**

**Responsible Unit: TAPS**

**Status: Completed - Ongoing**

**Description of Status for 2011-12**

Parking utilization surveys were conducted mid-morning and mid-afternoon on five weekdays in Spring 2012, finding an overall utilization rate of 72.5%.

**DA-TRA-3: Public transit to serve 2300 Delaware.**

**Responsible Unit: TAPS**

**Status: Completed - Ongoing**

**Description of Status for 2011-12**

SCMTD continued to provide supplemental Route 20D transit service via the UCSC service agreement during 2011-12. While SCMTD implemented service reductions throughout Santa Cruz County in September 2011, UCSC's supplemental Route 20D continued to operate and SCMTD is considering some additional service along the Western Drive corridor during 2012-13.

**DA-UTIL-1A: Water conservation at 2300 Delaware.**

**Responsible Unit: Physical Plant**

**Status: Completed - Ongoing**

**Description of Status for 2011-12**

The irrigation system is responsive to daily weather data (RainMaster Evolutions Central Irrigation System), has an automated leak detection feature, and shuts down automatically if a leak is detected. Under its preventative maintenance program, Grounds Services tests and adjusts the sprinkler system to reduce overspray and maximize distribution efficiency. Irrigation technicians respond quickly to any reports of suspected undesirable water flows.

**DA-UTIL-1C: Evapotranspiration irrigation system (2300 Delaware).**

**Responsible Unit: Physical Plant**

**Status: Completed - No Further Action**

**Description of Status for 2011-12**

Two evapotranspiration irrigation controllers with flow control sensors and radio communication to the central system were installed under contract to Grounds Services, 2006.

**HAZ-10A: Annual/biennial building inspections**

**Responsible Unit: Fire Dept**

**Status: Completed - Ongoing**

**Description of Status for 2011-12**

Inspections of buildings were conducted as specified in the mitigation. Documentation is maintained in the UCSC Fire Department records management system.

**HAZ-10B : Develop and implement Vegetation Management Plan**

**Responsible Unit: Physical Plant**

**Status: Not Triggered**

**Description of Status for 2011-12**

Development on north campus was not under construction during the reporting year. The Campus has developed a Northeast Campus Area Plan that identifies a potential site for a new Social Sciences building north of the existing Fire Station but design of this building has not commenced. No action was required in 2011-12.

**HAZ-10C : Wildland fire prevention signage.**

**Responsible Unit: Physical Plant**

**Status: Not Triggered**

**Description of Status for 2011-12**

Development on north campus was not under construction during the reporting year. No action was required.

**HAZ-2: Enhance hazardous waste minimization program.**

**Responsible Unit: EH&S**

**Status: Completed - Ongoing**

**Description of Status for 2011-12**

Total hazardous chemical waste generated for FY11-12 from main campus was 26 tons. This number does not include lead, asbestos or universal waste. A waste neutralization system installed in the Earth and Marine Sciences building in 2012 will dramatically reduce the volume of corrosive liquids generated by the Department of Earth Sciences in future years.

This year 44 faculty, staff and students took the instructor led Hazardous Waste Management Training Class. A new online training course was initiated in September 2012.

The chemical hazardous waste website was re-vamped, including up-to-date information on waste determination, storage and management requirements, labeling and a robust waste minimization section (<http://ehs.ucsc.edu/programs/waste-management/hazwaste.html>).

The annual EH&S expo's topics this year touched on minimization and containment of glass waste and the introduction of the Green Lab Certification Pilot Program. Plans for the future include compliance with the new State Paint Stewardship Program, and a Green Lab Certification Pilot Program.

**HAZ-9A: Construction road closure procedures.**

**Responsible Unit: PP&C**

**Status: Completed - Ongoing**

**Description of Status for 2011-12**

The Division 1 template for construction contracts includes the requirements specified in the mitigation.

**HAZ-9B: Test and update EOP.**

**Responsible Unit: Fire Dept**

**Status: Completed - Ongoing**

**Description of Status for 2011-12**

The Campus EOP can be viewed at <http://emergency.ucsc.edu/plans>. No updates to the EOP were made in 2011-12. The EOP was tested through exercises and actual events which occurred during the reporting period.

**HAZ-9C: EOPs for 2300 Delaware and north campus.**

**Responsible Unit: Fire Dept**

**Status: Completed - Ongoing**

**Description of Status for 2011-12**

Construction of the north loop road has not begun. Renovation of a portion of Building C at 2300 Delaware was completed in summer 2011. The Campus Emergency Operations Plan covers all UC Santa Cruz facilities, including 2300 Delaware.

**HAZ-9D: Secondary emergency egress route for north campus.**

**Responsible Unit: PP&C**

**Status: Not Triggered**

**Description of Status for 2011-12**

North campus development was not under construction during 2010-11. Mitigation has not been triggered.

**HYD-2A: Construction site controls, sites less than 1 acre.**

**Responsible Unit: PP&C**

**Status: Completed - Ongoing**

**Description of Status for 2011-12**

This mitigation is implemented through the Campus Storm Water Management Plan, Best Management Practice (BMP) 48, Campus Standards Handbook and Construction Contracts for Storm Water Management. This BMP specifies that projects must comply with Appendix D of the Campus Standards-Erosion and Sediment Control Standards For Projects Under One Acre. BMP 48 also outlines the University's mechanism for enforcement of this requirement through our contracts.

**HYD-2B: Erosion controls for grading on hillsides.**

**Responsible Unit: PP&C**

**Status: Completed - Ongoing**

**Description of Status for 2011-12**

Sediment control measures are a required element of the campus Storm Water Pollution Prevention Plan template, which must be prepared for all projects disturbing more than 1 acre of land. Sediment control measures are included in the Erosion and Sediment Control Standards for Projects Under One Acre.

**HYD-3A: Signs and public education about importance of staying on paved roads and approved paths.**

**Responsible Unit: Physical Plant/PP&C**

**Status: Completed - Ongoing**

**Description of Status for 2011-12**

Ad hoc trails in an area near Kerr Hall were eliminated, fenced off, and planted. Signs were also placed at that site. New entry gates were built for the signed Seep Zone Trail. Maintenance was performed on Jordan Gulch trail, where a sign was installed previously. The work included mulching, digging water bars, cleaning off stone steps, restoring edging along path, installing rope in thimble rod, and cleaning out obstructions at creek and trail junctions. Weed tarp was installed at the south west corner of 2300 Delaware property adjacent to Antonelli pond and Delaware. A temporary fence and signage were installed around this project.

The following text is included on the Upper Campus Walking Map: "Please stay on roads or established trails. The creation of unofficial pathways can destroy both natural groundcover and the underlying soil." These maps are available at:

<http://maps.ucsc.edu/content/printable-maps>. This text will be added to the next update of the UCSC Walking Map, which shows the central campus.

**HYD-3B: Erosion control measures for fire roads.**

**Responsible Unit: Physical Plant**

**Status: Completed - Ongoing**

**Description of Status for 2011-12**

Work on existing fire roads included re-defining water bars and rolling depressions and clearing debris accumulated against the silt fencing at drainage outlets off the fire roads. Silt fencing was removed and replaced as needed. Culverts and drainage inlets were cleared of vegetation and debris.

**HYD-3D: Low-impact development measures for new development.**

**Responsible Unit: PP&C**

**Status: Completed - Ongoing**

**Description of Status for 2011-12**

The campus' low impact development protocol has been completed and incorporated into the Executive Design Professional Agreement (EDPA) for all applicable projects.

**HYD-5C: Aquifer monitoring.**

**Responsible Unit: PP&C**

**Status: Not Triggered**

**Description of Status for 2011-12**

Campus did not use the well to supply water in the reporting year. Therefore, this mitigation has not been triggered.

**NOIS-1 : Construction noise controls.**

**Responsible Unit: PP&C**

**Status: Completed - Ongoing**

**Description of Status for 2011-12**

Currently each project manager is adding the applicable mitigation measures to Division 1 of individual construction contracts and reporting on their implementation in the project mitigation monitoring report. PP&C has drafted an update of the Division 1 template that includes these measures. For each project, the Project Manager will review the template, select the applicable measures, and will continue to report on the selected measures and their implementation in the project mitigation monitoring report.

**NOIS-2: Contractors use City-designated truck routes.**

**Responsible Unit: PP&C**

**Status: Completed - Ongoing**

**Description of Status for 2011-12**

Currently each project manager is adding the applicable mitigation measures to Division 1 of individual construction contracts and reporting on their implementation in the project mitigation monitoring report. PP&C has drafted an update of the Division 1 template that includes these measures. For each project, the Project Manager will review the template, select the applicable measures, and will continue to report on the selected measures and their implementation in the project mitigation monitoring report.

**POP-3A: Campus housing accommodate 50% of undergraduates and 25 percent of graduate students.**

**Responsible Unit: CUHS**

**Status: Completed - Ongoing**

**Description of Status for 2011-12**

Monitoring was conducted that included campus student enrollment and housing capacity for undergraduate and graduate student populations. The total housing capacity in 2011-

12 exceeded 50% of undergraduate student enrollment and 25% of graduate student enrollment.

**POP-3B: Housing collaboration study.**

**Responsible Unit: CUHS**

**Status: Completed - No Further Action**

**Description of Status for 2011-12**

Campus Housing and Market Study Report was completed in September 2008 by consultant group Brailsford and Dunlavey. This mitigation is complete and no further action is required.

**POP-3C: Housing collaboration study.**

**Responsible Unit: CUHS**

**Status: Completed - Ongoing**

**Description of Status for 2011-12**

Campus Housing and Market Study Report was completed in September 2008 by consultant group Brailsford and Dunlavey. No action was required in 2011-12

**REC-2C: Discourage illegal bicycle use on Pogonip trails.**

**Responsible Unit: Physical Plant/TAPS**

**Status: Completed - Ongoing**

**Description of Status for 2011-12**

Four signs were placed in 2006, advising trail users that they are leaving the University and entering Pogonip, and notifying them to adhere to City Park regulations. The signs are on Rincon Rd., U-Con trail, Coolidge Rd. lookout, and Spring Road / trail. Fences were repaired and signs were maintained throughout the current reporting year 2011-12.

The Campus Bike Plan was completed in Fall 2008 and approved as an amendment to the City Bike Plan by the Santa Cruz City Council in December 2008. The campus bike map in the Bike Plan shows the campus/Pogonip boundary but does not show the Pogonip rules regarding bicycle use. The next update to the campus bike map that is posted on the TAPS website or printed will include these rules.

**REC-2D-PP: Coordinate with City on volunteer trail maintenance days.**

**Responsible Unit: Physical Plant**

**Status: Completed - Ongoing**

**Description of Status for 2011-12**

The campus did not participate in any volunteer trail maintenance days at Pogonip this year. Grounds staff contacted the City (Meta Rhodeos, Parks and Rec Dept) for any upcoming volunteer trail maintenance events for the 2012-13 year.

**REC-4: Recreational facilities available to public**

**Responsible Unit: OPERS**

**Status: Completed - Ongoing**

**Description of Status for 2011-12**

Recreational amenities are available for public use. These include the track, outdoor exercise spaces (Park Course) and fields located at the East Field House complex. The public can also purchase a community Wellness Card to access all other facilities at OPERS (pool, Wellness Center, etc.). Information about public access to our facilities is

available on the OPERS website  
(<http://opers1.ucsc.edu/Memberships/MembershipCards.html>)

**TRA-1: Monitoring and improve campus intersections.**

**Responsible Unit: TAPS**

**Status: Completed - Ongoing**

**Description of Status for 2011-12**

Turning movement counts were conducted at Hagar/McLaughlin and Heller/Meyer intersections during Fall 2010. The data has not yet been processed through the TRAFFIX model to calculate current level of service. However, the total number of vehicle trips to/from campus was lower in 2011-12 than the LRDP EIR baseline (2003-04). The next monitoring study will be done in Fall 2013.

**TRA-2A-TAPS: Monitor and contribute to improvements to City intersections.**

**Responsible Unit: TAPS**

**Status: Completed - Ongoing**

**Description of Status for 2011-12**

Turning movement counts were conducted at 35 locations on- and off-campus in Fall 2010. Two weeks of traffic volume data were collected during November 2011 and May 2012 at 7-10 on-campus and 5-8 off-campus locations. The off-campus locations included three locations at the Marine Science Campus, two at the entrances to the 2300 Delaware facility, and the three off-campus legs of the Bay/High intersection (Spring 2012). Annual school-term weekday average daily trips (ADTs) through the two campus entrances equaled 20,201.

The Campus has fulfilled the requirement to contribute its fair share of the cost of intersection improvements by making payments to the City for projected new 2005 LRDP-related trips through 2020, under the 2008 Comprehensive Settlement Agreement.

**TRA-2B: Expand TDM programs.**

**Responsible Unit: TAPS**

**Status: Completed - Ongoing**

**Description of Status for 2011-12**

Expansion of existing TDM programs during 2011-12 continued to help reduce traffic volumes to/from campus. The Commuter Vanpool program operated on 23 routes routes using 12-passenger vans serving more than 240 participants. The Zipcar carsharing program grew in popularity and utilization, with 9 cars accommodating approximately 1,250 members and average 24/7 utilization exceeding 37%. Zimride, an on-line ridesharing application, saw substantial growth during the 2011-12 academic year. The Spring 2012 Mode Split Study indicates that 61.3% of all person-trips to the campus are made via alternative transportation. Primary among these was SCMTD public transit (25.9%), followed by Multi-Occupant Vehicles (22.6%), and "Other TDM Services" including Commuter Vanpools, the Bike Shuttle, and some Day Shuttle ridership (7.8%). Biking and walking comprise 4.2% and 0.8%, respectively. Single Occupant Autos account for only 35.2% of all person-trips. The remaining 3.5% of trips were by Service/Construction/Delivery vehicles and motorcycles.

Traffic volumes through the two campus entrances in the Fall quarter declined 3.8% from the previous reporting year (20,602 ADT in Fall 2011 vs. 21,421 ADT in Fall 2010)

while Spring quarter counts declined 6.0% (19,801 ADT in Spring 2012 vs. 21,074 in Spring 2011).

**TRA-3B: Parking monitoring and construction.**

**Responsible Unit: TAPS**

**Status: Completed - Ongoing**

**Description of Status for 2011-12**

- 1) No changes were made to the parking zone definitions during 2011-12.
- 2) The Spring 2012 Parking Utilization Survey is on file at UCSC Physical Planning & Construction.
- 3) A portion of 2300 Delaware Building C was occupied beginning in Summer 2011, when the Thin Films and Materials Lab Project was completed. This project increased the total population at 2300 Delaware by about six to eight people. As discussed under DA-TRA-1B, a campus-wide commuter survey conducted in Spring 2011 garnered 90 respondents from westside facilities including 2300 Delaware.
- 4) Projects underway or commencing in the near future that generate temporary or permanent parking impacts include:
  - Merrill Housing Renovations will generate temporary impacts on moderately utilized parking lots near Merrill and Crown Colleges beginning in Summer 2013.
  - Storm water management projects will generate temporary impacts on several locations beginning in Summer 2013.
- 5) Based on Spring 2012 parking utilization survey, adequate parking capacity exists in underutilized campus lots to accommodate the increase resulting from loss of parking supply plus projected growth in parking demand.
- 6) Revisions to the CEQA Guidelines published in 2010 eliminate the provision of adequate parking as a significance criterion for traffic impacts, with the intent that use of alternative transportation is more protective of environmental quality. The Campus includes facilities supportive of alternative transportation in each of its new projects, rather than increased close-in parking.

**TRA-3C: Parking management systems.**

**Responsible Unit: TAPS**

**Status: Completed - Ongoing**

**Description of Status for 2011-12**

- 1) Use of two mobile changeable message signs has helped direct visitors to specific areas of campus during major campus events.
- 2) The campus commenced installation of new street name signs throughout the campus in Spring 2012—a critical first step toward improving on-campus wayfinding.
- 3) Various campus staff are working to improve the quality and availability of web-based campus maps, including updates to Google Maps. Additionally, in Spring 2012 TAPS implemented a new “smart-card” system for use with campus parking meters and pay stations to provide improved customer service (unused time returned to user’s card at end of stay) with lower operating costs (reduced cash handling and coin processing). TAPS is also in the process of identifying and procuring a new Point-Of-Sale/Parking Management System for the campus, and anticipated distribution of an RFP in Spring 2013.

**TRA-4A: Monitor transit efficiency.**

**Responsible Unit: TAPS**

**Status: Completed - Ongoing**

**Description of Status for 2011-12**

While on-campus traffic volumes have remained constant or declined (as indicated by semi-annual hose counts), large numbers of pedestrians crossing roadways within the central campus have resulted in longer transit cycle times during class break periods. Although Campus Transit and SCMTD buses continue to provide adequate transit cycle times, in Spring 2012 TAPS implemented a new “Traffic Control” program at selected crosswalks to manage pedestrian and vehicle traffic during class breaks. Studies conducted during Spring 2011 indicate a 20% improvement in Day Shuttle travel times between Oakes College and Cowell College when Traffic Control measures are in place: a 15-minute trip dropped to only 12-minutes with Traffic Control staff in place at three locations.

TAPS is pursuing acquisition of two automated vehicle locations systems for use on Campus Transit vehicles: one developed by graduate students in the School of Engineering intended for public use via a web browser or smartphone, another GPS-based system providing location, speed and vehicle diagnostics in real time. Both these systems are anticipated for implementation during 2012-13.

Due to an 8% service reduction implemented in September 2011, SCMTD experienced declining ridership throughout Santa Cruz County during the 2011-12 period.

**TRA-4B: Improve transit efficiency.**

**Responsible Unit: TAPS**

**Status: Completed - Ongoing**

**Description of Status for 2011-12**

1) As noted in TR-4A, SCMTD implemented an 8% service reduction in September 2011 that impacted ridership throughout Santa Cruz County. While much of the regular service to campus was restored in Spring 2012, UCSC’s total billable ridership dropped 4.9% during 2011-12. SCMTD maintained “supplemental” Route 20D services along the heavily-impacted Western Drive corridor, but eliminated “express” service and the popular but poorly-utilized Night Owl service.

UCSC began operating Night Owl service in September 2011 to maintain late-night transit access between Downtown Santa Cruz and the campus.

2) In addition to participating in service reduction planning, TAPS staff also continued to work with representatives of the City of Santa Cruz, SCMTD and community representatives on a Public Transportation Alternatives work group as required under the 2008 Comprehensive Settlement Agreement. TAPS staff served on two additional technical advisory work groups concerning public transit: an AMBAG project to develop a Public Transit element of the regional traffic model; and a sustainable transportation effort (STARS) under the SCCRTC.

**TRA-4D: Campus roadway and circulation improvements.**

**Responsible Unit: TAPS/Planning and Budget**

**Status: Completed - Ongoing**

**Description of Status for 2011-12**

During 2011-12, TAPS staff continue to work on several roadway and circulation projects:

- Southbound lanes of Coolidge Drive at High Street were restriped and traffic sensors

reset to provide a wider left-turn lane to accommodate “U-turns” by Campus Transit buses.

- Reconstruction of Heller Drive between Meyer Drive and the Core West Parking Structure entrance road in Summer 2011 allowed restriping to provide a Caltrans-compliant Class II bike lane in the uphill direction, as well as safety improvements to the Kerr Hall/Kresge pedestrian crossing of Heller.
- Rehabilitation of McLaughlin Drive between the McLaughlin Bridge and Coolidge Drive took place during Summer 2012.
- TAPS continued to support the City of Santa Cruz Public Works Department in studying the feasibility of installing a modern roundabout at the Bay/High intersection at the Main Entrance to campus.

**TRA-4E: Bicycle circulation improvements.**

**Responsible Unit: TAPS**

**Status: Completed - Ongoing**

**Description of Status for 2011-12**

The UCSC Bike Plan was finalized during Fall 2008 and approved (as an amendment to the City of Santa Cruz Bike Plan) by the City Council in December 2008. The plan may be downloaded at: <http://www2.ucsc.edu/taps/bicycleprograms.html>. An update of this plan is anticipated during 2013-14, in conjunction with the City’s Bike Plan update.

An uphill Class II bike lane was constructed along Chinquapin Drive between McLaughlin Drive and Crown College in Summer 2009.

An uphill Class II bike lane was added to Heller Drive during a two-phase roadway rehabilitation project. The section between Empire Grade and College Eight was completed in Summer 2009, and the section between College Eight and Core West Parking Structure entrance road was completed in Summer 2011.

**TRA-4F: Wayfinding systems.**

**Responsible Unit: TAPS**

**Status: In Progress**

**Description of Status for 2011-12**

Preliminary work on a Campus Pedestrian Plan started in Winter 2011. The Campus has identified the following elements of an improved way-finding system:

- Standardized street names and signage;
- Consistent sign standards for streets, buildings, and supporting infrastructure;
- A hierarchy of area-based directional systems, including but not limited to “You Are Here” informational kiosks at key locations;
- Revisions and updates to Google Maps to reflect both new street names and field-checking.
- Agreement on standards and procedures for defining new street addresses for all campus facilities to better accommodate emergency response wayfinding.

In 2011-12, following adoption of revised official street names, and a new road sign standard, funding was approved to fabricate and install new road signage. Installation of the new street signs began in Spring 2012 and will continue through 2012-13.

**TRA-5B: Special-event parking management.**

**Responsible Unit: TAPS**

**Status: Completed - Ongoing**

**Description of Status for 2011-12**

Based on records collected by the Events Parking coordinator, the campus hosted 813 events during 2011-12 attracting approximately 193,100 attendees, less than in 2010-11. This lower attendance figure appears to reflect more accurate counting by event sponsors than in previous years.

Event sponsors are not currently required to list their events in the online campus calendar. Campus units that don't list their events often impact the events of others (parking, traffic). Work began in 2007-08 to improve the campus calendar, making it easier to use, and triggering notification of the TAPS Event Parking Office for events over a certain size. However, "rogue events" continue to create problems when multiple events occur simultaneously.

Several work groups continue to meet to plan on-going major events (Commencement, Fall Move-In) and to address access impacts associated with campus construction and maintenance projects. During the 2011-12 fiscal year, TAPS' Event Parking staff and ITS staff worked with the Real Estate Office (REO) to identify and implement improvements to the campus event planning process to ensure adequate and timely inclusion of necessary documentation (permits, insurance, etc.).

**TRA-5C: On-line parking permit sales and information.**

**Responsible Unit: TAPS**

**Status: Completed - Ongoing**

**Description of Status for 2011-12**

During 2011-12 TAPS and ITS staff implemented an on-line Guest Parking Permit program for departmental use by the Arts Division. TAPS is also researching new communications tools for notifying permit purchasers when and where their parking permits are available for pick-up at the start of each academic quarter.

TAPS is considering the feasibility of shifting from permit-based to license plate-based parking management systems as it investigates replacement of the current Point Of Sale (POS) and Parking Management systems during the next year.

**TRA-5D: Campus Events Calendar System for traffic and parking management.**

**Responsible Unit: TAPS**

**Status: Completed - Ongoing**

**Description of Status for 2011-12**

Improvements have been made to the Campus Events Calendar system that a) improve the stability of the software and operating system, and b) enhance the user interface for visitors. As these "phase 1" improvements have been developed, implemented and tested, additional improvements have been identified for "phase 2" that enhance the user interface and effectiveness for event management staff and sponsors. No progress has been made on "phase 2" during 2011-12.

Phase 1 improvements have incorporated a system that notifies TAPS of the proposed scheduling of large events on the Campus Calendar. However, as noted elsewhere, the campus administration does not yet require sponsors to post their events to the Calendar system; TAPS is not notified of events not posted to the Calendar system. Additional work is underway to enhance the collection and management of event-related information using both the Campus Calendar and TAPS' Events Parking Management website.

TAPS Events staff have devised traffic and parking management plans on an as-needed

basis for large events (including Move-In and Commencement), as well as for occurrences of multiple, simultaneous event of moderate size. These have included: Move-In, Commencement, Spring Spotlight, an annual Scholarship Dinner, and Reunion Weekend.

**TRA-6B: Fair share contribution to freeway facility improvements.**

**Responsible Unit: TAPS/Planning and Budget**

**Status: Not Triggered**

**Description of Status for 2011-12**

There is no mechanism within Santa Cruz County for establishing and collecting fair share payments from projects that contribute to the need for freeway improvements. Therefore, this mitigation commitment has not been triggered.

**UTIL-4: Improve recycling and waste reduction.**

**Responsible Unit: Physical Plant**

**Status: Completed - Ongoing**

**Description of Status for 2011-12**

Efforts to recover recyclables at student move in and move out have increased. Sorting line equipment was purchased and put into operation mid-fiscal year to increase CRV (container) recovery efficiency. Recycle carts across campus now have color coded lids for clarity (grey for paper and blue for containers), along new corresponding graphic labels. Cart recycling has moved to dual stream for higher value material recovery. New front loader truck has allowed efficient transportation to vendors with wider acceptance of recyclable materials. The diversion percentage as reported to UCOP for 2011-2012 was 62% without construction waste, compared to 59% in 2010-11.

**UTIL-9A-CHES/OPERS: Water efficient washing machines**

**Responsible Unit: CHES/OPERS**

**Status: Completed - Ongoing**

**Description of Status for 2011-12**

The current contract for washing machines in student housing ran from July, 2009, through June, 2012. The contract specifies: that all machines must be water saving and energy efficient and certified by the Consortium on Energy Efficiency to have a water factor of 5.5 or less and a Modified Energy Factor (MEF) of 2.15 or greater.

OPERS did not purchase washing machines in the past year.

**UTIL-9A-PP: Leak detection and repair.**

**Responsible Unit: Physical Plant**

**Status: Completed - Ongoing**

**Description of Status for 2011-12**

The campus leak detection and repair practices have not changed since the 2008-09 reporting year. On a monthly basis, the Campus Energy Manager provides a chart showing water usage from all the points where city water entering Campus. The Campus water specialist and plumbing staff compare the usage on a month by month basis. If there is an unexplained increase in any of the zones a visual inspection of the zone is conducted and a leak detection contractor is called in to do an electronic sounding survey. After a leak is found, repairs are immediately scheduled and completed by an

underground utility repair contractor. Information provided by Greg Pawlak, Physical Plant.

**UTIL-9B-Physical Plant/PP&C: Pilot test high-efficiency plumbing fixtures.**

**Responsible Unit: Physical Plant**

**Status: Completed - Ongoing**

**Description of Status for 2011-12**

In previous years, the Campus has tested a number of low-flow flush valves. The High Sierra 1.5 GPM shower head has been adopted into the Campus Standards. The Sloan Uppercut Dual Flush (1.1gpf up & 1.6GPF down) for flush valve type/wall mount toilets has been inserted into the campus standards and was used to retro-fit Campus OMP restroom toilets and also in the Porter College Dormitory Renovations.. The Sloan Model 1000.1001-0.13 Manual H2O Flushometer and urinal (1/8 GPF) have also been adopted by the Campus and are installed in new buildings and retrofit projects. No additional pilot tests were conducted in 2011-12.

**UTIL-9C: Water conservation education program for campus residents.**

**Responsible Unit: CUHS**

**Status: Completed - Ongoing**

**Description of Status for 2011-12**

CHES provided educational materials to residents, including posters, table-tents, flyers and cling-on conservation reminders in bathrooms during 2011-2012. The University Housing Services Resource Conservation Coordinator and CHES-sponsored Green Campus Program students have held conservation tabling events at colleges and all-campus recreational events, and at new-student orientations.

CHES staff member Silas Snyder, the CHES Facilities Resource Conservation, Training, and Safety Coordinator, is the designated as a water conservation educator.

**UTIL-9D: Campus water audit.**

**Responsible Unit: PP&C**

**Status: Completed - No Further Action**

**Description of Status for 2011-12**

Mitigation was completed in 2007.

**UTIL-9E: Implement water audit recommendations.**

**Responsible Unit: CUHS/Physical Plant**

**Status: Completed - No Further Action**

**Description of Status for 2011-12**

Mitigation was completed in 2010-11.

**UTIL-9F: Update water audit**

**Responsible Unit: Physical Plant**

**Status: Not Triggered**

**Description of Status for 2011-12**

Campus began working on an update to the 2007 water audit in Spring 2012. Update will be completed in 2012-13.

**UTIL-9G: Water re-use feasibility study.**

**Responsible Unit: PP&C**

**Status: Completed - No Further Action**

**Description of Status for 2011-12**

The water re-use study was completed in May 2009. No further action is required.

**UTIL-9H-CUHS: Retrofit plumbing fixtures in student housing within 5 years following approval of 2005 LRDP.**

**Responsible Unit: CHES**

**Status: In Progress**

**Description of Status for 2011-12**

CHES retrofitted toilets in Crown College residence halls/faculty apartments (8 buildings) in summer 2011.

Further replacement of toilets in student housing cannot be completed without major accessibility improvement of the oldest college residential facilities at Merrill, Kresge, and Oakes (Apartments). CHES is addressing this in the following plan:

Toilets at Merrill College will be replaced as part of the Merrill College Residence Halls Capital Renewal Project. Toilets in Residence Halls A and B will be replaced in summer 2013. Toilets at Merrill Residence Halls C and D will be replaced in summer 2014.

Replacement of toilets at Kresge College will be included in an upcoming major capital renewal project.

CHES is currently developing a plan for replacement of toilets at Oakes College Apartments as part of a phased project that will include code-required accessibility improvements.

**UTIL-9I-Arbo: Water conservation in drought emergency**

**Responsible Unit: Arboretum/CASFS/CHES/Physical Plant**

**Status: Completed - Ongoing**

**Description of Status for 2011-12**

The City issued a Stage I water shortage warning for May-October 2012, with the goal of achieving a 5% reduction in use system-wide. The Campus response included the following actions:

- Campus manual and central irrigation controllers irrigation were set at 5% below evapotranspiration replacement. CHES also continued to promptly report and repair water leaks, provide promotional and educational material to residents (tabling student orientation events), and maintain water conservation signage in restrooms and dining facilities.
- The Arboretum reduced watering throughout the planted areas, and made special efforts not to leave water on longer than necessary and to fix leaks promptly.
- CASFS continued and intensified its ongoing water conservation efforts, which include:
- Actively seeking out and performing repairs on leaking valves, hoses and sprinkler systems.
  - Instructing all irrigators to avoid all overhead water delivery after 10am and before 5pm, except in the case of critical seedling crops. --Continuing to convert crops and areas historically watered overhead, to more efficient drip irrigation to meet crop needs but prevent evaporation and overspray.
  - In the greenhouse and propagation areas, making an ongoing effort to block crops in close quarters so that water delivery can be focused on as

small a footprint as possible. We are working with our irrigators, through more detailed instruction, to know the life stages and extent of root development of each crop species so that they can deliver water to the appropriate depth relative to the cropping cycle.

- Combining knowledge of plant needs, drought tolerances and the output of our delivery systems to make informed choices about when and how much water to deliver, to prevent over application of water.
- Continuing to build soil organic matter content and moisture holding capacity, so that the water that is supplied is retained in the root zone and accessible to the crops for as long as possible.