

# UC Santa Cruz 2005 LRDP EIR

## Annual Mitigation Monitoring Report, 2012-13

### 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://lrpd.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 2012-13 Mitigation Activities***

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

In 2012-13, 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 2012-13 reporting period or in a previous year and require no further action in future years, 63 ongoing mitigation commitments were implemented, four 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

[\[http://lr.dp.ucsc.edu/MonitoringReports/MMP\\_Table1\\_2012-13.pdf\]](http://lr.dp.ucsc.edu/MonitoringReports/MMP_Table1_2012-13.pdf) lists all of the general campus mitigations and their status for the 2012-13 reporting year. A complete description of general campus mitigation activities conducted during this reporting year is presented below, under the heading *Complete Description of 2012-13 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 Delaval engine (existing cogeneration system) is currently shut down and is officially in the standby-only mode of operation. This means that the engine will only be run in the event of a campus power outage, to serve the critical Science Hill feeder. A project to replace the existing cogeneration system with a new system with lower emissions is under construction. The Campus anticipates that the new system will be operational by Summer 2014. 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.

**LRDP Mitigation TRA-4F** requires that the Campus 1) develop a pedestrian plan for the campus within two years of 2005 LRDP approval; 2) annually, evaluate existing way-finding systems, identify need for improvements, and prioritize improvements for implementation; and 3) implement systems as needed according to priority. Preliminary work for a Campus Pedestrian Plan started in Winter 2011 but the plan has not been completed. The Campus has identified the key elements of an improved way-finding system, adopted revised official street names for all on-campus streets and roadways, and installed new road signs on all roadways.

**LRDP Mitigation UTIL-9F** requires that the Campus revisit the results of the water audit conducted under UTIL-9D at intervals of five years, 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. In 2012-13, the Campus began work on an update of the 2007 Campus water use efficiency study, by assessing the results of the “high-priority” projects identified in the 2007 study and other water-use reduction projects that the Campus has implemented since 2007, and compiling a list of potential future projects. In 2013-14, the Campus will analyze the costs and water savings of the projects that appear the most promising, and identify specific projects for implementation.

**LRDP Mitigation UTIL-9H** requires the Campus to complete the retrofit of 3.5-gallon-per flush (gpf) toilets in all on-campus student housing within five years of approval of the 2005 LRDP in September 2006. This mitigation has been completed at most student housing facilities. However, at Merrill, Kresge, and Oakes colleges, the retrofits have triggered major accessibility improvements, which has delayed completion of the mitigation. Flushometer valves and toilets at the two largest buildings at Merrill College (A and B) were replaced in summer 2013. Fixtures in Merrill 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, the date of which is still to be determined. The Campus 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 2012-13, the Campus monitored project-specific LRDP EIR mitigation measures for the following projects, which were in planning, design or construction:

**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 began in Summer 2013 and will continue through Summer 2014.

**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 and will continue through Spring 2014.

**Merrill Residence Halls Capital Renewal Project.** This project was approved in January 2013. The first phase of construction began in June 2013 and was completed in Fall 2013. The second phase will begin in Winter 2014 and will continue through Fall 2014.

**Telecommunications Infrastructure Improvements Phase A.** The Telecommunications Infrastructure Improvements Phase A project was approved

in July 2013. Construction began in Fall 2013 and will continue through Spring 2014.

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

[\[http://lrdp.ucsc.edu/MonitoringReports/MMP\\_Table2\\_2012-13.pdf\]](http://lrdp.ucsc.edu/MonitoringReports/MMP_Table2_2012-13.pdf) lists the LRDP EIR mitigations incorporated into each of the projects approved under the 2005 LRDP EIR.

Table 3, *Project-Specific Mitigation Summary*

[\[http://lrdp.ucsc.edu/MonitoringReports/MMP\\_Table3\\_2012-13.pdf\]](http://lrdp.ucsc.edu/MonitoringReports/MMP_Table3_2012-13.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 2012-13 General Campus Mitigation Activities***

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

**Responsible Unit: Physical Plant**

**Status: Completed - Ongoing**

#### **Description of Status for 2012-13**

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 three, 2-unit interns from Environmental Studies each quarter. Nine separate volunteer days were organized, for a total of 267 volunteer hours. Tasks ranged 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 2012-13**

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 installed for safety only and that decorative lighting may 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 2012-13**

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 2012-13**

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 2012-13**

PP&C has completed an update of the Division 1 template that includes this requirement. For each project, the Project Manager reviews the template, selects the applicable measures, and reports 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 2012-13**

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 2012-13**

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 2012-13**

Physical Plant's generator testing schedule complies with this mitigation.

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

**Responsible Unit: Physical Plant**

**Status: In Progress**

**Description of Status for 2012-13**

The Delaval engine (existing cogeneration system) is currently shut down and is officially in the standby-only mode of operation. The engine will only be run in the event of a campus power outage to supply the critical Science Hill feeder. A new standby permit is being issued by the MBAUPCD. A project to replace the existing system with a new system with lower emissions is under construction. An acrolein test was completed on January 21, 2010 as part of the annual source test. Test reports were sent to the MBAUPCD 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.

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

**Responsible Unit: PP&C**

**Status: Completed - Ongoing**

**Description of Status for 2012-13**

PP&C has completed an update of the Division 1 template that includes this requirement. For each project, the Project Manager reviews the template, selects the applicable measures, and reports 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 2012-13**

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 2012-13**

During 2013, only part of the existing temporary fencing remained in place. Many areas are unfenced and there is plenty of access for wildlife. The Arboretum is still in the planning phase for a permanent deer fence, which will be designed to allow corridors around the areas for the deer and allow most smaller mammals through the fence. Plantings within the area are being developed 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 2012-13**

During December 2005, Physical Plant successfully petitioned USF&WS for a minor amendment to the UCSC RVT HCP to discontinue the temporary fencing and resort to only using the permanent OTB signs. In addition to the RVT-HCP affected grasslands, the temporary fences were also discontinued in Marshall Field. In previous years, the 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 patrolling of Marshall Field during the Ohlone tiger beetle's active season is not required. 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 2012-13**



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-CNR : Cave signs and educational material.**

**Responsible Unit: CNR /Physical Plant**

**Status: Completed - Ongoing**

**Description of Status for 2012-13**

An informational sign about cave species was installed at the cave entrance in 2009. The sign was still in place and still legible in 2012-13. 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 about the cave, which was published in Fall 2012 in UCSC's Review Magazine included 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 August 2012.

**BIO-8B: Consult with agencies on cave barrier design.**

**Responsible Unit: PP&C**

**Status: Completed - Ongoing**

**Description of Status for 2012-13**

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: Archaeological resource training for campus employees.**

**Responsible Unit: Physical Plant**

**Status: Completed - Ongoing**

**Description of Status for 2012-13**

A training was conducted on 2/20/13 by Alisa Klaus, Environmental Planner, PP&C. Thirty seven 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 2012-13**

Grounds Services IPM practices have resulted in very few 'spot sprayings' of low toxicity pesticides. Any herbicides or chemical fertilizers were applied in a manner as to prevent migration off site.

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

**Responsible Unit: Physical Plant**

**Status: Completed - Ongoing**

**Description of Status for 2012-13**

UC Santa Cruz Grounds Services provided 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 2012-13**

UC Santa Cruz Grounds Ass't Superintendent Dave Roe 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. The work was completed on 4/23/13.

At the request of the Land Trust steward Cameron Chabre, Grounds Services removed a chain across the east side service access to Antonelli Pond at Delaware Avenue and installed three bollards with padlocks in September 2013. This allows pedestrian and bicycle access without having to climb over or around a chain, but still prevents unauthorized vehicle access to the road.

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

**Responsible Unit: Physical Plant**

**Status: Completed - Ongoing**

**Description of Status for 2012-13**

UCSC Site Stewardship Program organized a volunteer day at Antonelli Pond on Feb. 24, 2013. Fourteen volunteers attended for a total of twenty eight hours planting native grasses near the east access road and Delaware Ave. The site was previously tarped with black plastic for a period of six months to kill any existing weeds. The planting has been successful so far with minimal weed re-infestation.

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

**Responsible Unit: TAPS**

**Status: Completed - Ongoing**

**Description of Status for 2012-13**

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 2012-13**

No commuter surveys were conducted during 2012-13.

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.

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

**Responsible Unit: TAPS**

**Status: Completed - Ongoing**

**Description of Status for 2012-13**

Parking utilization surveys were conducted mid-morning and mid-afternoon on five weekdays in Spring 2013, finding an overall utilization rate of 61.5%.

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

**Responsible Unit: TAPS**

**Status: Completed - Ongoing**

**Description of Status for 2012-13**

SCMTD continued to provide supplemental Route 20D transit service via the UCSC service agreement during 2012-13. While SCMTD implemented service reductions throughout Santa Cruz County in September 2011, UCSC's supplemental Route 20D continued to operate. Two additional Route 20 runs are being considered for implementation weeknights at 9:20pm and 10:20pm during the school term in 2013-14.

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

**Responsible Unit: Physical Plant**

**Status: Completed - Ongoing**

**Description of Status for 2012-13**

The irrigation system at 2300 Delaware is responsive to daily weather data, as well as automated leak detection and shut down. 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.

20 toilets at 2300 Delaware have been replaced with 1.6 gpf fixtures, and four urinals were replaced with 1/8 gpf urinals as part of LRDP Mitigation UTIL9E (implementation of the high-priority recommendations of the 2007 campus water audit). All restroom faucet aerators were replaced with 0.5-gpm aerators in summer 2010.

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

**Responsible Unit: Physical Plant**

**Status: Completed - No Further Action**

**Description of Status for 2012-13**

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 2012-13**

Inspections of buildings are 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 2012-13**

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.

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

**Responsible Unit: Physical Plant**

**Status: Not Triggered**

**Description of Status for 2012-13**

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 2012-13**

EH&S transported and managed 23.9 tons of hazardous wastes from the point of generation to the waste facility and offsite. This number does not reflect lead, asbestos or universal waste generation.

The hazardous waste program has significantly expanded its outreach, training, and waste minimization efforts. The following improvements were made in 2012-13:

- 1) The in-person hazardous waste training has been converted to a web based training accessed through the campus Learning Management System, which will improve access to the information and streamline the data collection. This year 145 faculty, staff and students took the online Hazardous Waste Management Training Class.
- 2) Two pilot programs from last year, clean laboratory plastics and Styrofoam recycling, have become formalized programs and expanded to additional laboratory buildings.
- 3) The has begun to utilize the States PaintCare program to start recycling latex paint thereby diverting this waste stream from the hazardous waste program.
- 4) Two new pilot programs have been initiated: the first will collect and recycle certain types of nitrile gloves; the second is a mercury thermometer exchange program, which is

expected to greatly decrease the time, cost, and amount of hazardous waste generated from mercury thermometer clean ups.

5) The Campus has changed how it collects, containerizes, and disposes of lab debris, and contaminated and uncontaminated glass waste. The new system will use re-usable 5-gallon pails to collect lab debris and contaminated glass, rather than special vendor supplied glass disposal boxes made of cardboard. This will reduce the number of cardboard boxes used to ship glass bottles, and will increase the amount of borosilicate glass the Campus will be able to recycle in the future, when local facilities that are able to recycle this material become available.

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

**Responsible Unit: PP&C**

**Status: Completed - Ongoing**

**Description of Status for 2012-13**

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 2012-13**

The Campus Emergency Response Plan can be viewed at <http://emergency.ucsc.edu/plans/index.html>. An update to the plan was prepared in March 2013, but is still under review. The plan was tested in 2012-13.

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

**Responsible Unit: Fire Dept**

**Status: Completed - Ongoing**

**Description of Status for 2012-13**

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 Response 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 2012-13**

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 2012-13**

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 2012-13**

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 2012-13**

In addition to maintaining signs and fencing from previous years that discourage short-cutting, permanent fencing and signage were installed between Earth and Marine Sciences and Steinhart Way to close off a main ad hoc trail that was a safety hazard and created severe soil erosion. A volunteer day was held on 2/8/13 with eleven volunteers working nineteen hours to restore the path with native grasses grown in the campus greenhouse by Site Stewardship Program interns. Grounds installed non-climb wire fencing on wooden posts to divert students to a paved pathway. Fourteen informational signs were installed on the fencing along the top and bottom of the slopes.

Both the Upper Campus Map (downloadable PDF available at [maps.ucsc.edu](http://maps.ucsc.edu)) and the Campus Walking Map (hardcopy brochure distributed to all new students) contain the following text: "Please stay on roads or established trails. The creation of unofficial pathways can destroy both natural groundcover and the underlying soil."

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

**Responsible Unit: Physical Plant**

**Status: Completed - Ongoing**

**Description of Status for 2012-13**

Erosion damage to water bars was inspected and repaired and culverts were cleaned. Silt fences on the upper campus fire roads were cleaned and repaired/replaced. Annual road maintenance was also done on the fire roads.

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

**Responsible Unit: PP&C**

**Status: Completed - Ongoing**

**Description of Status for 2012-13**

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

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

**Responsible Unit: PP&C**

**Status: Not Triggered**

**Description of Status for 2012-13**

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 2012-13**

PP&C has completed an update of the Division 1 template that includes this requirement. For each project, the Project Manager reviews the template, selects 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 2012-13**

PP&C has completed an update of the Division 1 template that includes this requirement. For each project, the Project Manager reviews the template, selects 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 percent of undergraduates and 25 percent of graduate students.**

**Responsible Unit: CHES**

**Status: Completed - Ongoing**

**Description of Status for 2012-13**

The total housing capacity in 2012-13 exceeded 50% of undergraduate student enrollment and 25% of graduate student enrollment.

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

**Responsible Unit: CHES**

**Status: Completed - No Further Action**

**Description of Status for 2012-13**

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: CHES**

**Status: Completed - Ongoing**

**Description of Status for 2012-13**

Campus Housing and Market Study Report was completed in September 2008 by consultant group Brailsford and Dunlavey. In 2012-2013, the campus initiated the process to hire a consultant to perform this scope. The goal is to have the consultant complete the scope during 2013-2014.

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

**Responsible Unit: Physical Plant/TAPS**

**Status: Completed - Ongoing**

**Description of Status for 2012-13**

Four signs were placed in 2006, advising the population they are leaving the University, entering Pogonip and notified to adhere to City Park regulations. The signs are on Rincon Rd., U-Con trail, Coolidge Rd. lookout, and Spring Road / trail. Fences were inspected. Repairs were made on the fence at the lookout area on 3/1/13 and 10/28/13. Signs were maintained throughout the current reporting year 2012-13.

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 th

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

**Responsible Unit: Physical Plant**

**Status: Completed - Ongoing**

**Description of Status for 2012-13**

On 10/24/12 Dave Roe emailed City of Santa Cruz Parks & Recreation supervisor Meta Rhodeos, offering Site Stewardship volunteer help to assist with re-vegetation of a new re-aligned trail, and requested that Ms. Rhodeos notify him of any Pogonip volunteer activities that could utilize Site Stewardship Program interns or other volunteer groups on campus. No reply was received.

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

**Responsible Unit: OPERS**

**Status: Completed - Ongoing**

**Description of Status for 2012-13**

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 2012-13**

Turning movement counts were conducted at Hagar/McLaughlin and Heller/Meyer intersections during Fall 2010. The data was not processed through the City of Santa Cruz's TRAFFIX model to calculate current level of service. However, the total number of vehicle trips to/from campus was lower in 2012-13 than the LRDP EIR baseline (2003-04).

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

**Responsible Unit: TAPS**

**Status: Completed - Ongoing**

**Description of Status for 2012-13**

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 2012 and May 2013 at 12 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 2013). Annual school-term weekday average daily trips (ADTs) through the two campus entrances equaled 19,209.

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 2012-13**

UCSC's TDM programs continued to help reduce traffic volumes to/from campus during 2012-13. The Commuter Vanpool program operated on 23 routes using 12-passenger vans serving more than 240 participants. The Zipcar car-sharing program, currently in its 6th year at UCSC, grew in popularity and utilization, with 9 cars accommodating approximately 1,350 members and average 24/7 utilization exceeding 32%. Zimride, an on-line ridesharing application, gained more than 1,800 new users during the 2012-13 fiscal year.

The Spring 2013 Mode Split Study indicates that 62.3% of all person-trips to the campus are made via alternative transportation. Primary among these was SCMTD public transit (27.4%), followed by Multi-Occupant Vehicles (22.5%), and "Other TDM Services" including Commuter Vanpools, the Bike Shuttle, and some Day Shuttle ridership (7.6%). Biking and walking comprise 4.1% and 0.7%, respectively. Single Occupant Autos account for only 34.0% of all person-trips. The remaining 3.6% of trips were by Service/Construction/Delivery vehicles and motorcycles.

Traffic volumes through the two campus entrances in the Fall quarter declined 7.8% from the previous reporting year (19,006 ADT in Fall 2012 vs. 20,602 ADT in Fall 2011) while Spring quarter counts declined 2.0% (19,413 ADT in Spring 2013 vs. 19,801 in Spring 2012).

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

**Responsible Unit: TAPS**

**Status: Completed - Ongoing**

**Description of Status for 2012-13**

No changes were made to the parking zone definitions during 2012-13. The Spring 2013 Parking Utilization Survey is on file at UCSC Physical Planning & Construction.

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.

Projects underway or commencing in the near future that generate temporary or permanent parking impacts include:

- Merrill Housing Renovations will continue to generate temporary impacts on moderately utilized parking lots near Merrill and Crown Colleges beginning in 2013-14.
- Storm water management projects will continue to generate temporary impacts on several locations in 2013-14.

Based on Spring 2013 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.

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 2012-13**

Use of two mobile changeable message signs has helped direct visitors to specific areas of campus during major campus events.

The campus completed installation of new street name signs throughout the campus in Summer 2013—a critical step toward improving on-campus wayfinding.

Numerous 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. An early phase of this effort under consideration for implementation during 2014 may include the purchase and implementation of networked, hand-held units for sale of Event parking permits in the field.

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

**Responsible Unit: TAPS**

**Status: Completed - Ongoing**

**Description of Status for 2012-13**

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 2010 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 has been testing 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. Testing of both systems was completed during 2012-13, with full implementation planned for 2013-14. Following an 8% service reduction in September 2011, SCMTD ridership dropped approximately 5% during 2011-12. However, UCSC's SCMTD ridership grew by 5.5% during 2012-13.

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

**Responsible Unit: TAPS**

**Status: Completed - Ongoing**

**Description of Status for 2012-13**

As noted under TR-4A, UCSC's SCMTD ridership recovered during 2012-13, with a 5.5% increase—making up for the 4.9% decline resulting from the 8% service reduction in place between September 2011 and April 2012.

UCSC began operating Night Owl service in September 2011 to maintain late-night transit access between Downtown Santa Cruz and the campus. Night Owl ridership during 2012-13 was the second-highest in the ten-year history of the service, accommodating nearly 47,000 passengers.

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 & Budget**

**Status: Completed - Ongoing**

**Description of Status for 2012-13**

No new roadway or circulation improvements were implemented during 2012-13.

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

**Responsible Unit: TAPS**

**Status: Completed - Ongoing**

**Description of Status for 2012-13**

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 was anticipated during 2012-13, in conjunction with the City's Bike Plan update; however, the City postponed their update until at least 2013-14.

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 2012-13**

Preliminary work for 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 2010-11, preliminary work was started on modifying the campus signage standards to improve wayfinding, including review and approval of names for all on-campus streets and roadways. Funding was approved to fabricate and install new road signage following adoption of revised official street names, and a new road sign standard. Installation of the new street signs began in Spring 2012 and was completed during 2012-13.

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

**Responsible Unit: TAPS**

**Status: Completed - Ongoing**

**Description of Status for 2012-13**

Based on records collected by the Events Parking coordinator, the campus hosted 993 events during 2012-13 attracting approximately 245,000 attendees.

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 2012-13 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 2012-13**

During 2012-13 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 several years. An early phase of these improvements may include development and implementation of networked, hand-held devices for issuing Event Parking permits in the field.

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

**Responsible Unit: TAPS**

**Status: Completed - Ongoing**

**Description of Status for 2012-13**

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 was made on “Phase 2” during 2012-13.

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-TAPS: Fair share contribution to freeway facility improvements.**

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

**Status: Not Triggered**

**Description of Status for 2012-13**

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. This mitigation was not required in 2012-13.

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

**Responsible Unit: Physical Plant**

**Status: Completed - Ongoing**

**Description of Status for 2012-13**

Efforts to recover recyclables at student move in and move out have increased. Ecology Action (EA) of Santa Cruz has assisted Grounds Services with waste assessment and targeting of recycling efforts. Ecology Action provided additional recycling bins, recycling dumpsters, and signage for use in UCSC housing areas. A partnership with EA and Grounds services was initiated to fund a roll off truck to haul housing recyclables (CRV). Grounds Services Maintained a CRV License and increased CRV tonnage hauled. The diversion percentage as reported to UCOP was 54% without construction waste and 84% with construction materials. UCSC participated in Recycle Mania, an national collegiate recycling competition.

**UTIL-9A-CHES: Water conservation programs.**

**Responsible Unit: CHES/OPERS/Physical Plant**

**Status: Completed - Ongoing**

**Description of Status for 2012-13**

The University entered into a Laundry Services Agreement for student housing facilities on July 1, 2009 for a term of three years. In July, 2012 the term was extended through

July 1, 2014. The agreement 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.

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. If Campus plumbers cannot locate the leak, 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: Pilot test high-efficiency plumbing fixtures**

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

**Status: Completed - Ongoing**

**Description of Status for 2012-13**

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 by the Campus. 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 2012-13. Information provided by Steve Paul, Campus Engineer.

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

**Responsible Unit: CHES**

**Status: Completed - Ongoing**

**Description of Status for 2012-13**

In 2012-13, CHES provided educational materials to residents including posters, table-tents, and flyers, and installed cling-on conservation reminders in bathrooms. Silas Snyder, CHES Facilities Resource Conservation, Training, and Safety Coordinator, has been designated as a water conservation educator. He has held conservation tabling events at colleges and also worked with the Student Environmental Center to roll out the “Drop Your Own Drip” water conservation residential competition.

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

**Responsible Unit: PP&C**

**Status: Completed - No Further Action**

**Description of Status for 2012-13**

Mitigation was completed in 2007.

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

**Responsible Unit: CHES/Physical Plant**

**Status: Completed - No Further Action**

**Description of Status for 2012-13**

Completed in 2010-11.

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

**Responsible Unit: Physical Plant**

**Status: Completed - No Further Action**

**Description of Status for 2012-13**

Completed in 2010-11

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

**Responsible Unit: Physical Plant**

**Status: In Progress**

**Description of Status for 2012-13**

In 2012-13, the Campus began work on an update of the 2007 Campus water use efficiency study, by assessing the results of the “high-priority” projects identified in the 2007 study and other water-use reduction projects that the Campus has implemented since 2007, and compiling a list of potential future projects. In 2013-14, the Campus will analyze the costs and water savings of the projects that appear the most promising, and identify specific projects for implementation.

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

**Responsible Unit: PP&C**

**Status: Completed - No Further Action**

**Description of Status for 2012-13**

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

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

**Responsible Unit: CHES**

**Status: In Progress**

**Description of Status for 2012-13**

Implementation of this mitigation has triggered major accessibility improvements at some of the Campus’ oldest residential facilities. Flushometer valves and toilets at the 2 largest buildings at Merrill College (A and B) were replaced in summer 2013. Valves in Merrill 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. The project date is still to be determined. 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: Water conservation in drought emergency**

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

**Status: Completed - Ongoing**

**Description of Status for 2012-13**



The City issued a Stage 1 water shortage warning effective in May 2013, with the goal of achieving a 5% reduction in use system-wide. The Arboretum, CASFS, CHES, and Physical Plant responded to this declaration as follows:

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. Information provided by Brett Hall, Arboretum Director.

CASFS inventoried leaks and hoses without shutoffs for all three of its locations. In addition, CASFS coordinated with all of the residential college garden managers to perform the same inventory.

In addition, CASFS has continued to follow its existing water conservation practices:

1. Extensive use of drip irrigation (>80% of all irrigation)
2. Careful monitoring to determine water use frequency and application rates
3. Very limited use of summer cover crops
4. Limited use of pre-irrigation as a weed control strategy
5. Dry farming crops where appropriate to conserve water
6. Blocking greenhouse crops in close quarters so that water delivery is focused on as small a footprint as possible

CASFS has also reinstated an irrigation-monitoring program to read and record water use figures from seven sub-meters that were installed in 2008-2009. Data from this year has been collected but not yet analyzed. As an additional water saving measure this year, CASFS has begun the replacement of all gaskets (to be completed before 4/1/14) on aluminum irrigation pipe to minimize water loss in overhead applications.

Physical Plant and Housing Facilities staff adjusted landscape irrigation schedules at housing facilities to reduce water usage. Throughout the Campus, Grounds Services altered the settings on its irrigation controllers by up to 15 percent.