# UCB Water Conservation Project Highlights

## College Water Efficiency Group
## -June Case Study-

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The Green Initiative Fund
University of California, Berkeley

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1868

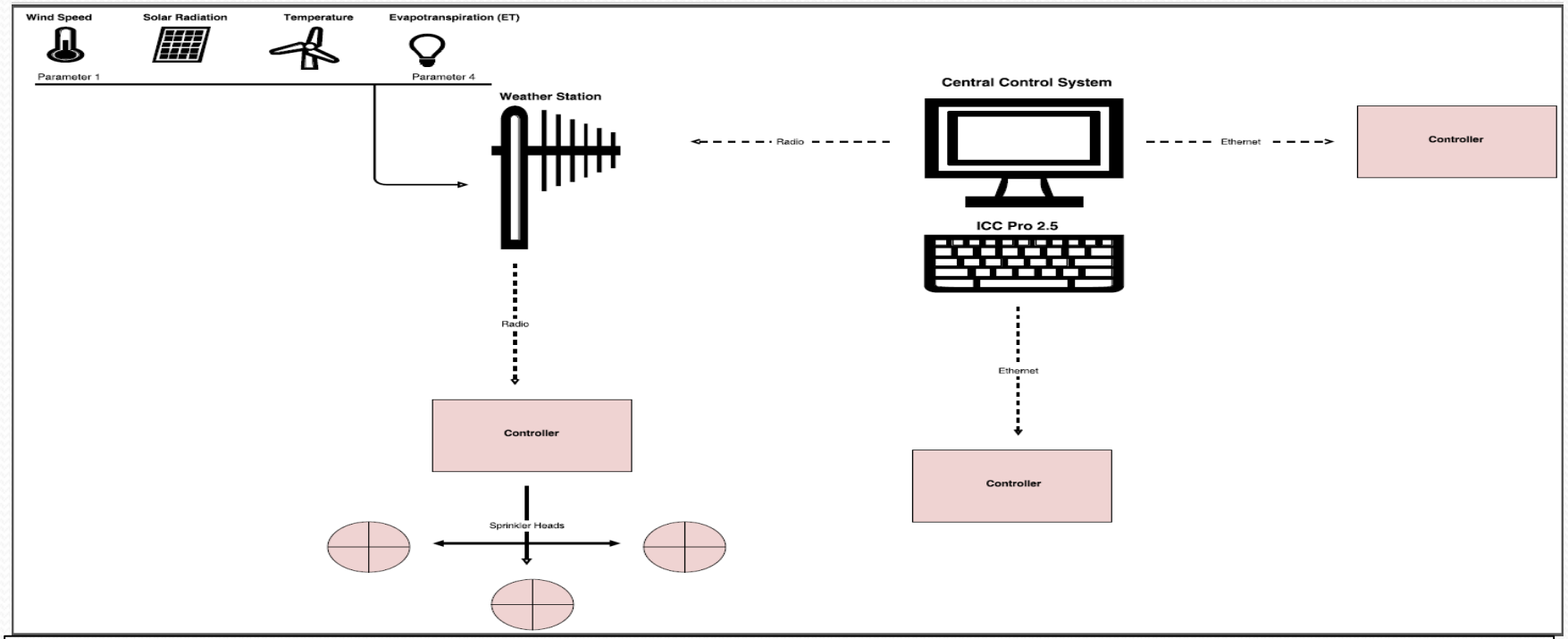
# Presentation Outline

- Low Water Irrigation Project
- Life Science Addition Project
- Other highlights
- Q&A

# Low Water Irrigation Campus Project

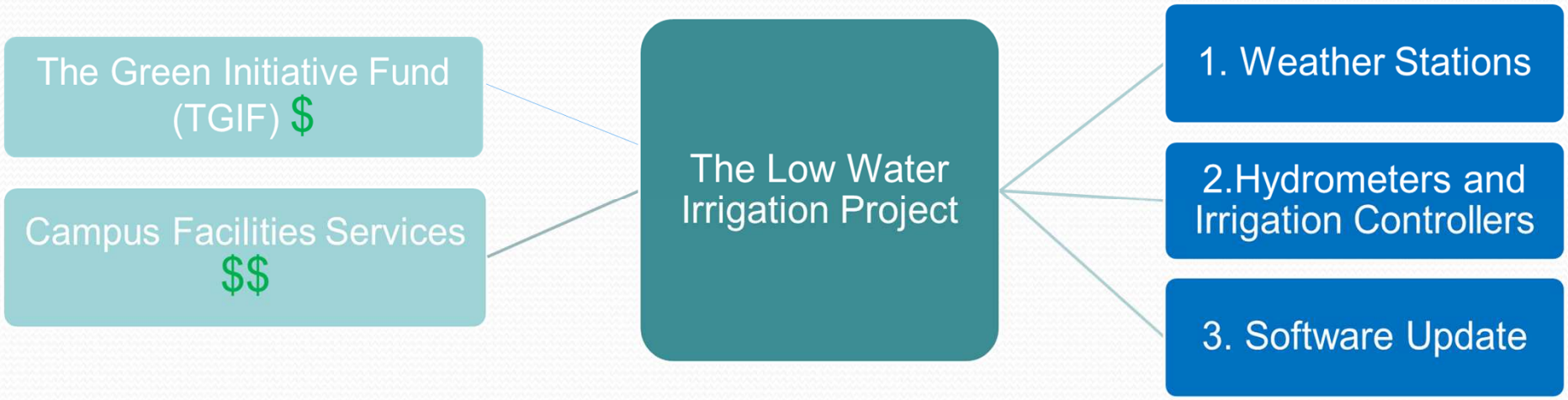
2013-2015

# Background




*The UC Berkeley campus has a centralized irrigation computer that communicates with* ***weather stations*** *to control* ***40 field controllers.*** *The controllers oversee approximately* ***1400 valves*** *and serve over* ***42,000 sprinkler heads.***

# Project Summary

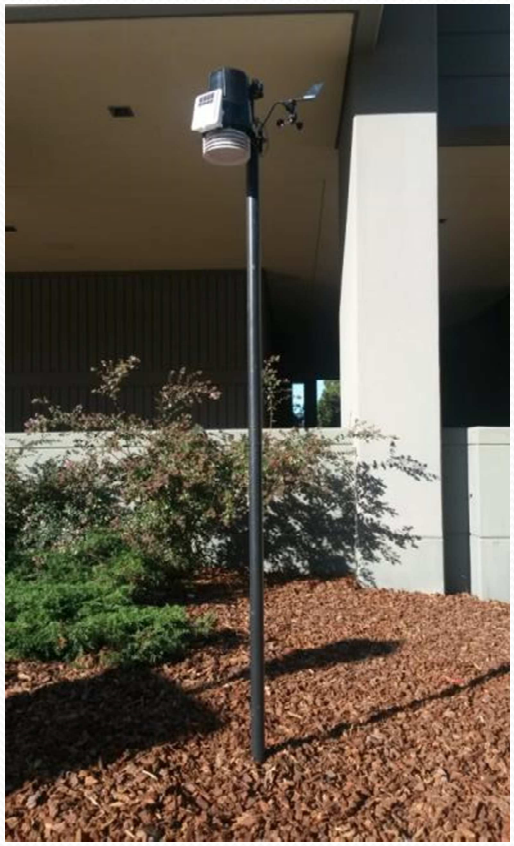


# 1. Weather Stations

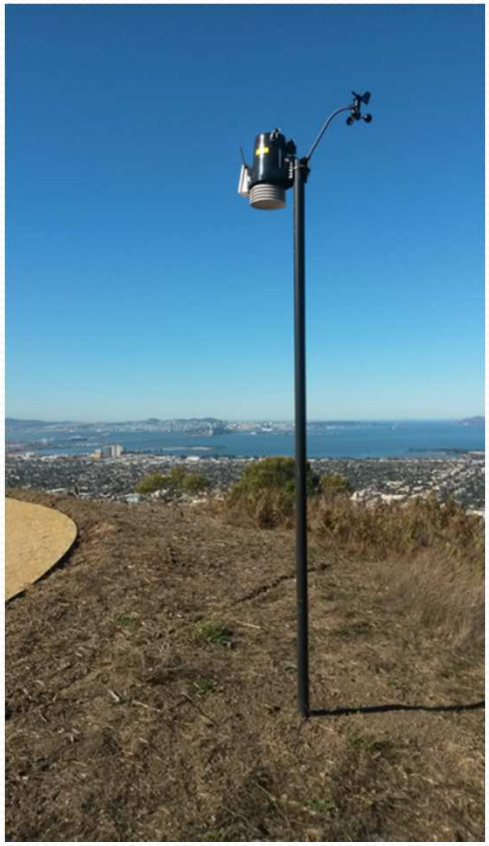
- Each weather station (WS) provides reliable weather information on:
  - Rainfall
  - Solar and UV Radiation
  - Outside Temperature
  - Wind
  - Daytime Evaporative Transpiration (ET)

# Low Water Irrigation Project

Campanile

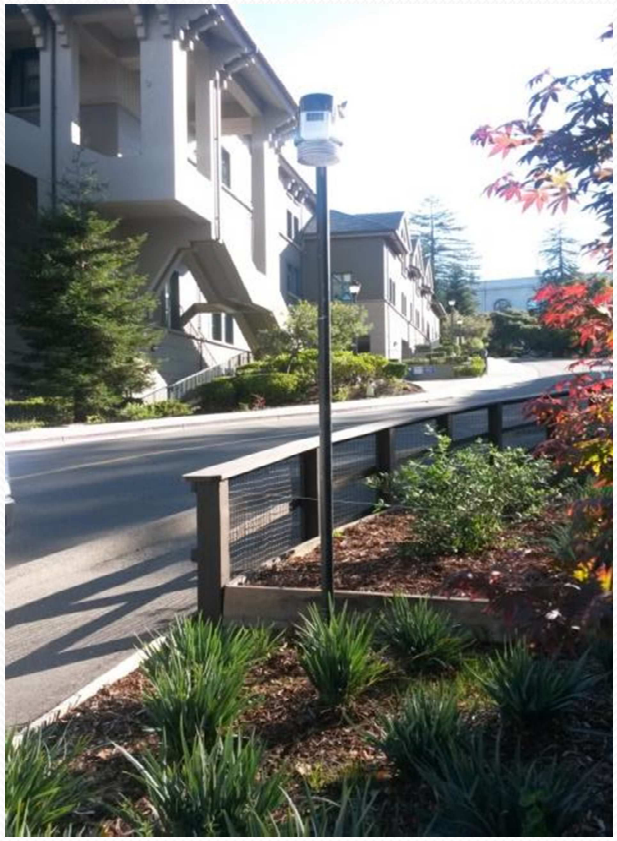


Evans Hall

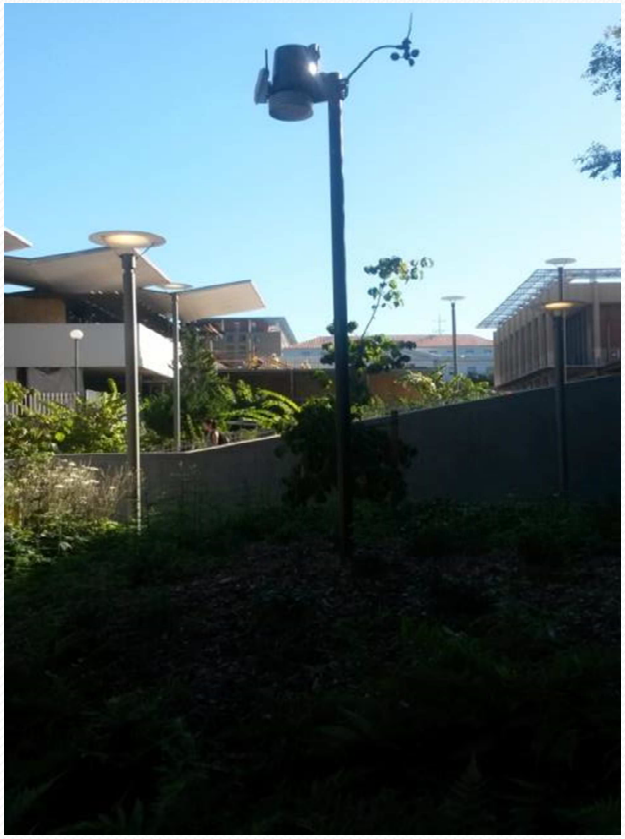


Lawrence Laboratory

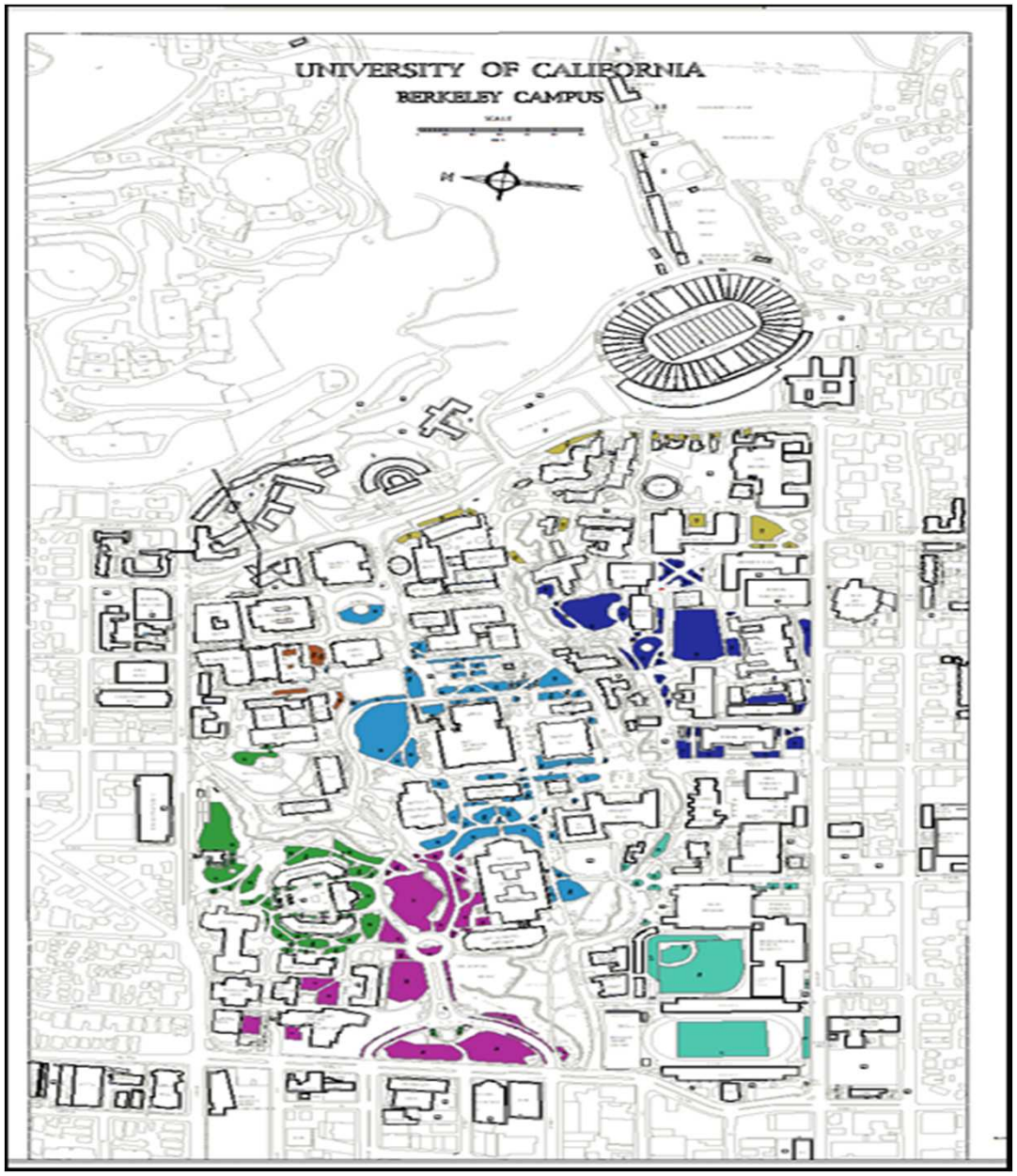
# Low Water Irrigation Project



Haas School of Bus.



Zellerbach




Used GIS Mapping Software, ArcMap 10.2, to show the scope of each stations controllers

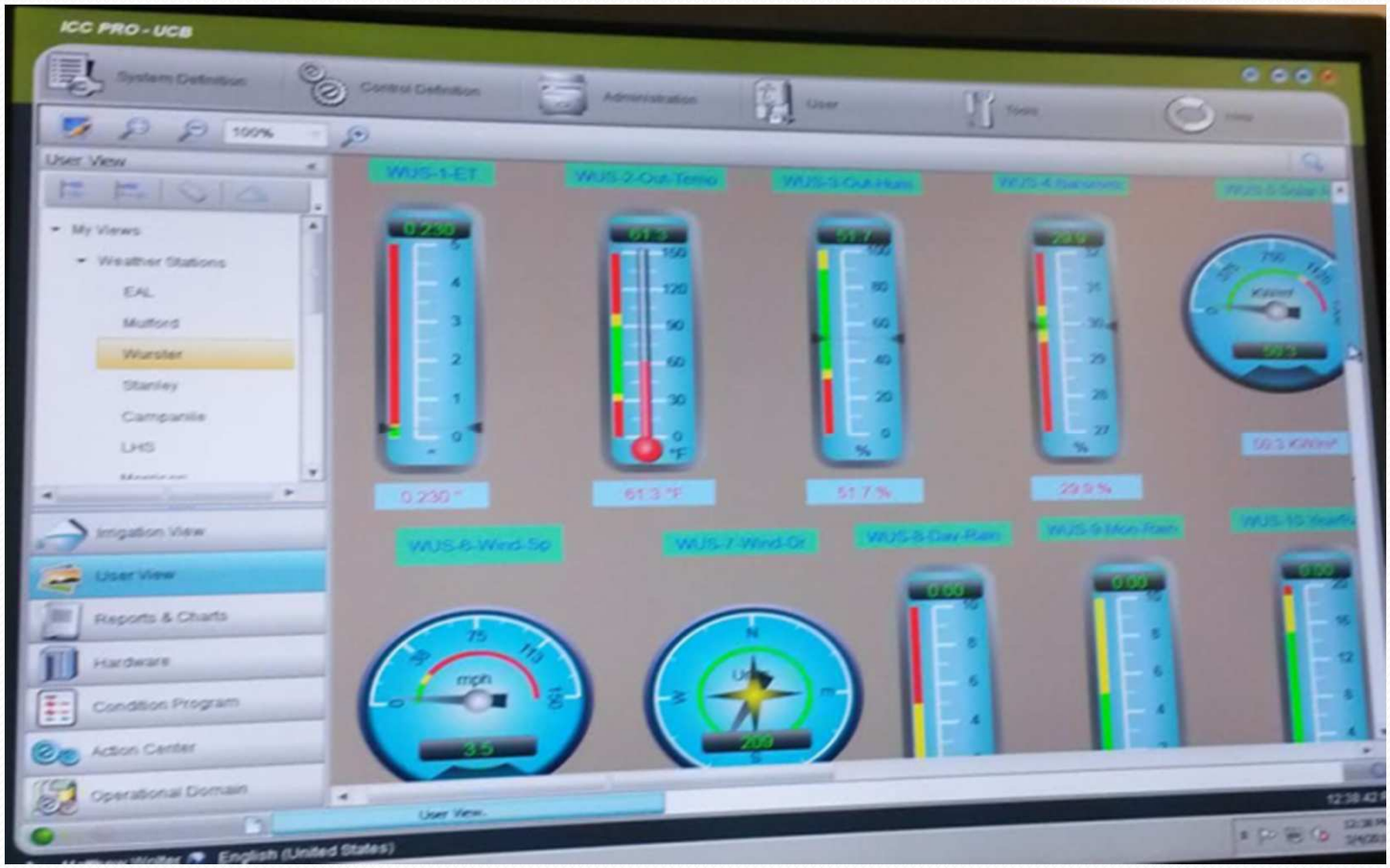
# 2. Hydrometers and Irrigation Controllers

- ARAD Hydrometers (electronic flow meters/ master valves) monitor and measure the flow rate remotely.
- Old generation irrigation controllers (Scorpio, MIR 500) were upgraded to new generation (XM, ACE, M) which have Ethernet and radio capabilities and have reliable communication.

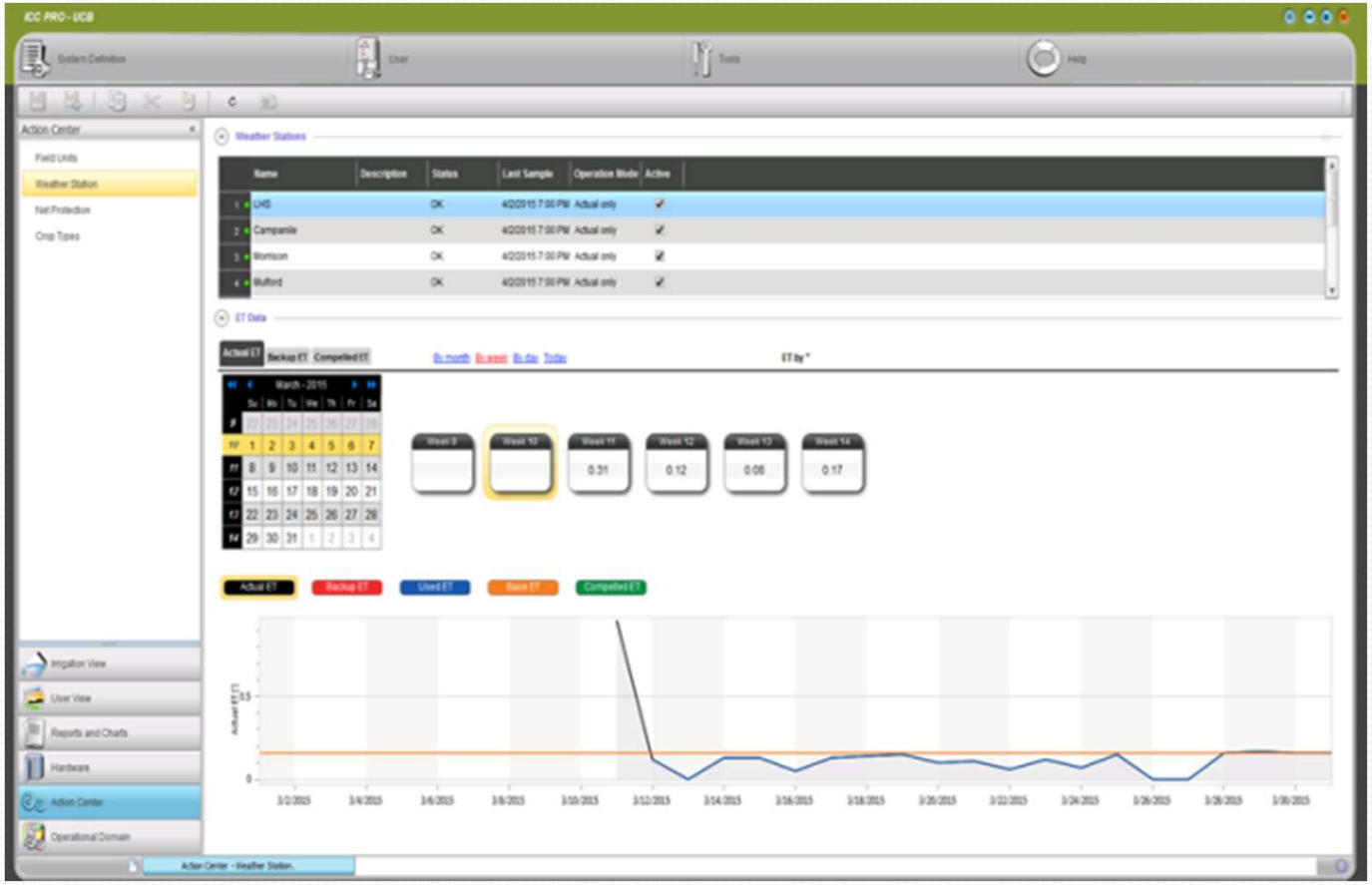
# 3. Software Update

- Benefits and advantages of the new Motorola ICC Pro 3 software:

  - Muti-User programming for Housing and Athletics
  - Improved data collection
  - Monitoring water use down to the valve level
  - User friendly and easy to navigate
  - & more!

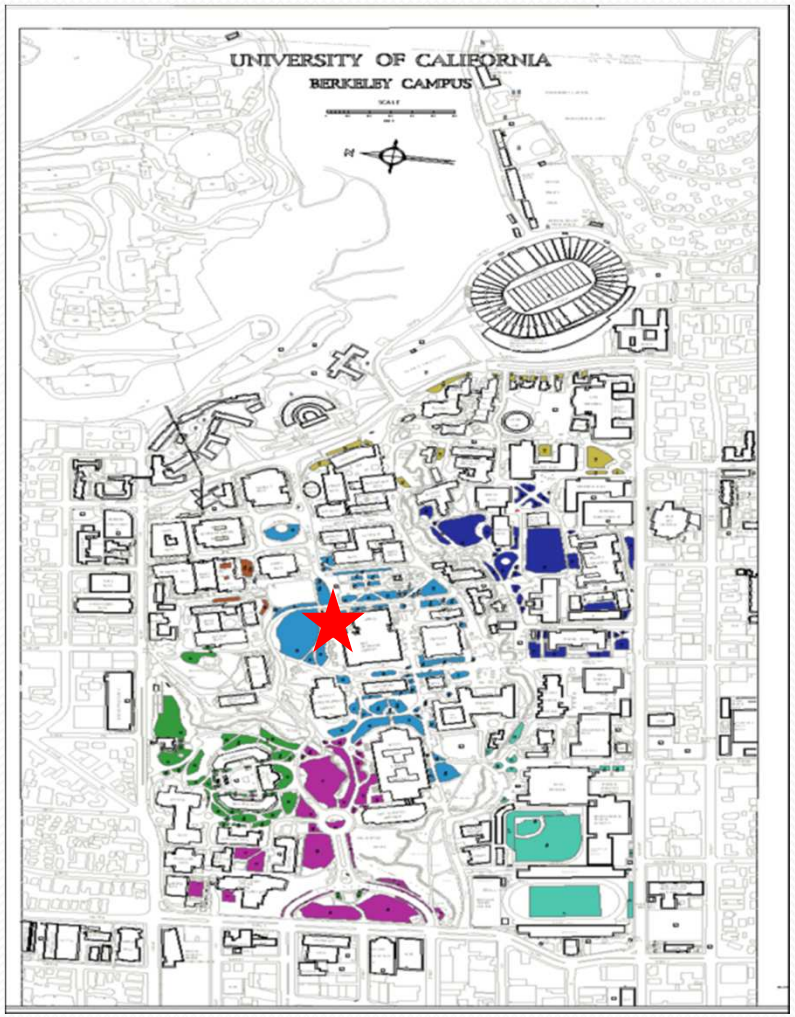



*The user-friendly interface of the new software makes it easy to look at the parameters measured at each weather station.*

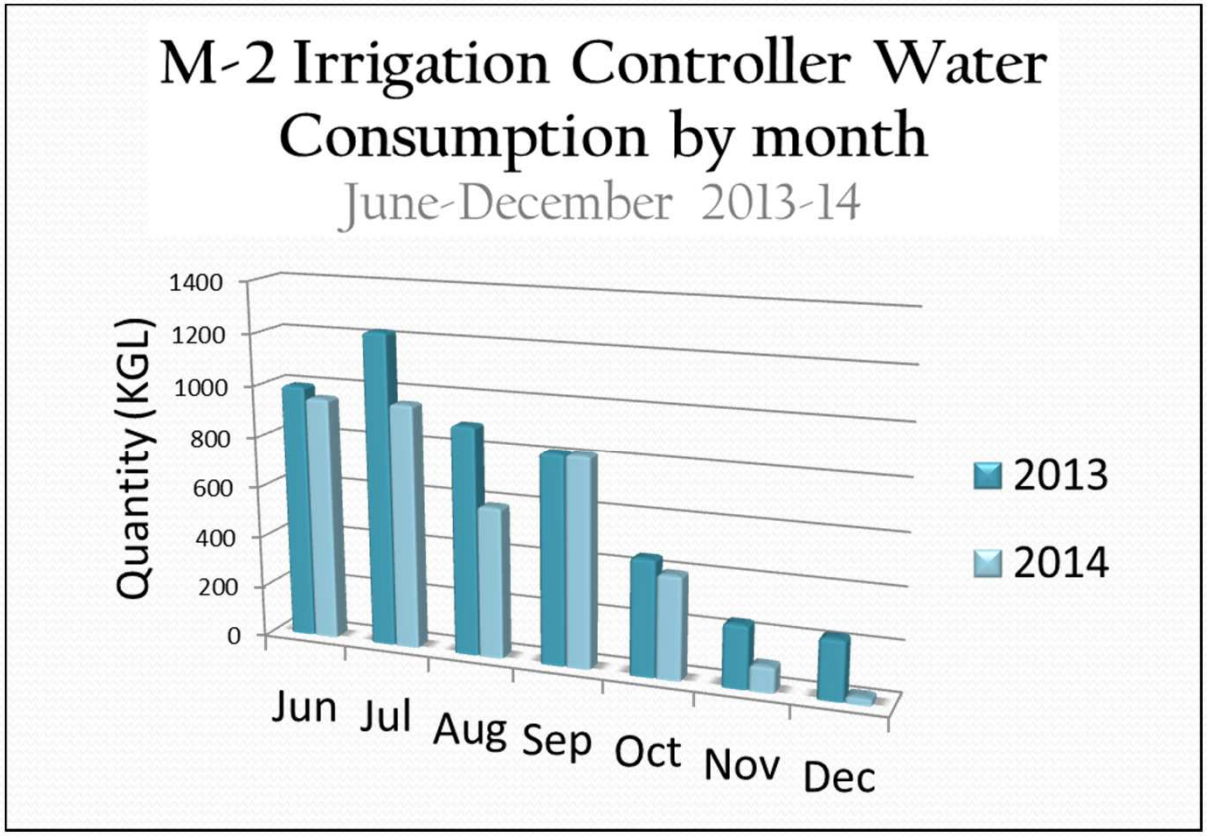



*The new software is able to record and graph metrics like ET daily.*

# Case Study:
## Memorial Glade

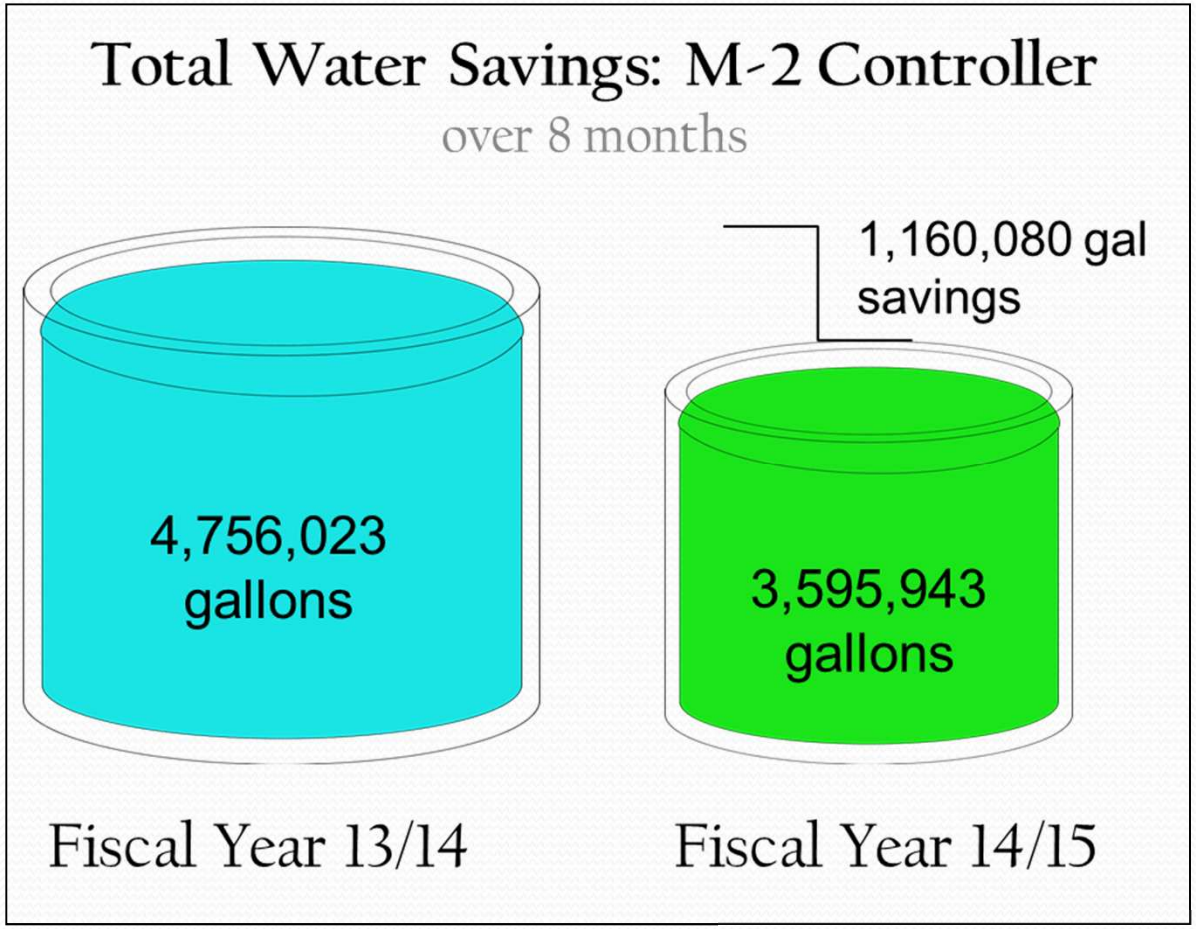


# Case Study:
## Memorial Glade Controller (M-2)




Source: Accumulation Status Report

# Case Study:
## Memorial Glade Controller (M-2)




Source: Water Meter Data

# Low Water Irrigation Project

Made possible by:

Facility Services-Ground Dept.

The Green Initiative Fund
University of California, Berkeley

*The Team*

**Megan Maurino** *Project Manager*

**Matt Wolter** *Lead Irrigation Plumber*

**Gary Imazumi** *Ops Manager*

# Life Science Addition (LSA) Campus Project

2014-2015

# LSA Metering Project

- LSA was found to be the largest water consumer of any lab building on campus in 2012/13, using nearly 5 times as much water as the next highest consumer, Koshland Hall.
- We sought to address all potential sources of heavy water use, and fix them through policy change or equipment repair/replacement.

# LSA Project #1: Vacuum Pump

- A large vacuum pump in the basement of LSA runs on a single-pass cooling system, taking in city water and dumping it down the drain.


We seek to remove this outdated and wasteful system, and replace it with one which operates on the building cooling loop.

# LSA Project #2: Cooling Towers

- A pair of cooling towers on the LSA rooftop are used to meet the building's comfort and equipment cooling demand.
- Both towers are old, prone to mechanical issues, and experience high rates of evaporation, resulting in water loss.

# LSA Project #2: Cooling Towers

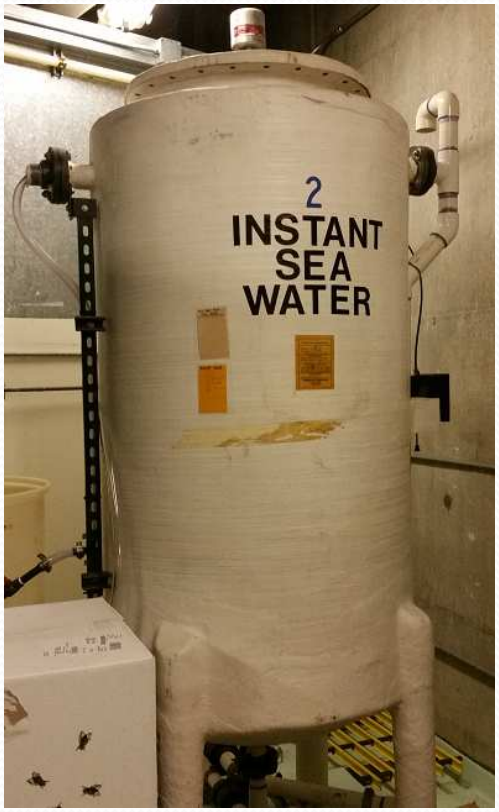
- New meters were installed to monitor the rate at which city water enters each tower.
- A leak was repaired by replacing a Float Valve.

# LSA Project #3: Aquatics Lab Policy

- The aquatics labs in the LSA basement run on an intensive cycle of water addition and replacement.
- Before the start of this project, the labs ran on a daily tank cleaning cycle.

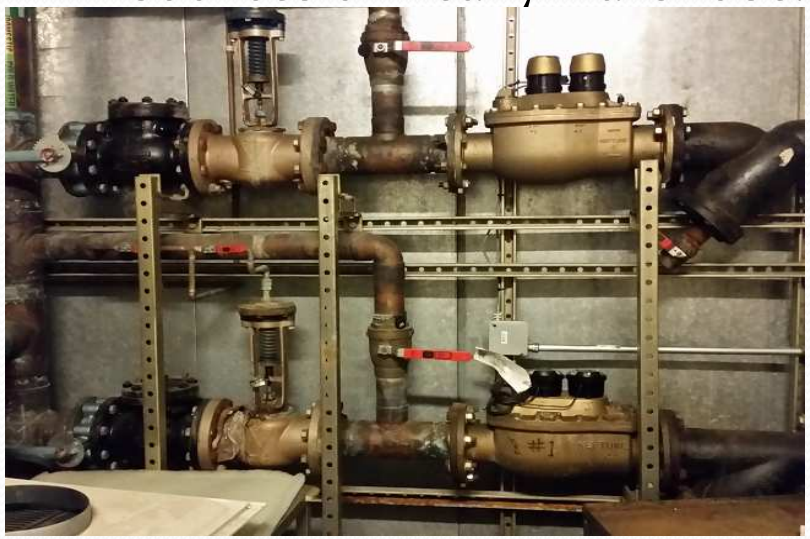
# LSA Project #3: Aquatics Lab Policy

- To curb this excessive consumption, the labs agreed to switch to an every-other-day cleaning cycle, to see if this has any impact on the current water consumption.



# LSA Metering Project

- Through monitoring of the building's meters, we were able to quantify the impact of our changes and discover new sources of heavy water use.



With the completion of these projects an others, meter readers were able to record that the last water consumption data from May, 2015 indicated a **total reduction of 50% in water use** by the building.

# LSA Projects

Thanks to:

- Dave Smith
- Chris Roy
- Maria Alvarez
- Connor Howerton
- Megan Maurino
- Sara Shirazi
- Kevin Ng
- Diane Coppini

# Other Conservation Projects @ UCB

## (&potential areas for conservation at your own school)

- Bathroom  Flushometer Retrofit—High Use Bathrooms
- Cooling Tower Inventory and Repair List—All of Central Campus
- Compressor Project (pump replacement/piping/cooling loop)—Giauqe Lab
- Chiller Repair—Hearst Mining
- Condensate Leak Repair—University Drive
- Lawns to Meadows Projects—Landscaping
- Cooling Loop Conversions—Once through cooling

# Thank you!

## Questions?

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