



CALIFORNIA STATE UNIVERSITY
FULLERTON™

Campus Water Management In a Changing Climate

Kyle Mann
04/28/2016



Orange County State College was established in 1947
as the first of the California State University System.
The college was renamed California State College,
Orange County in 1967. In 1991, the college was
renamed California State University, Fullerton.
The college is a member of the California State
University System and is a member of the
California State University System.

Dr. William E. Campbell 1967-1973
Dr. Charles W. Burt 1973-1979
Dr. John W. Burt 1979-1985
Dr. John W. Burt 1985-1991
Dr. William E. Campbell 1991-1997

CALIFORNIA STATE UNIVERSITY



California State University, Fullerton

- 236 acres
- Sports Fields/ Arboretum
- Student population: 39,000
- 29 permanent buildings
- 3,000 full time staff



Water Mandates

- Governor's EO B-29-15
- Immediate 25% Reduction of Water Usage through February 28, 2016
- Reduction Based on 2013 Baseline



Local Water Authorities

- City of Fullerton
 - 28% Reduction
 - Smart Water Meter
- Metropolitan Water District
 - Rebates
 - Audits



Water Consumption

- Campus Water Usage for 2013 Baseline: 133,000,000 Gallons
- Requires Campus Water Usage Reduction of 38,000,000 Gallons
- 30% People
- 10% Air Conditioning
- 60% Landscape

Now What?

- Turn off Water
 - Where?
 - How long?
- Measure Water
 - No sub meters on campus
 - What kind?
 - Where to put them?
 - How many?



Water Conservation Strategies

- Replace Restroom Fixtures
3% Water Reduction
\$3 Million in Costs
- Replace Turf with Xeriscaping
30% Water Reduction
\$1.5 Million in Costs

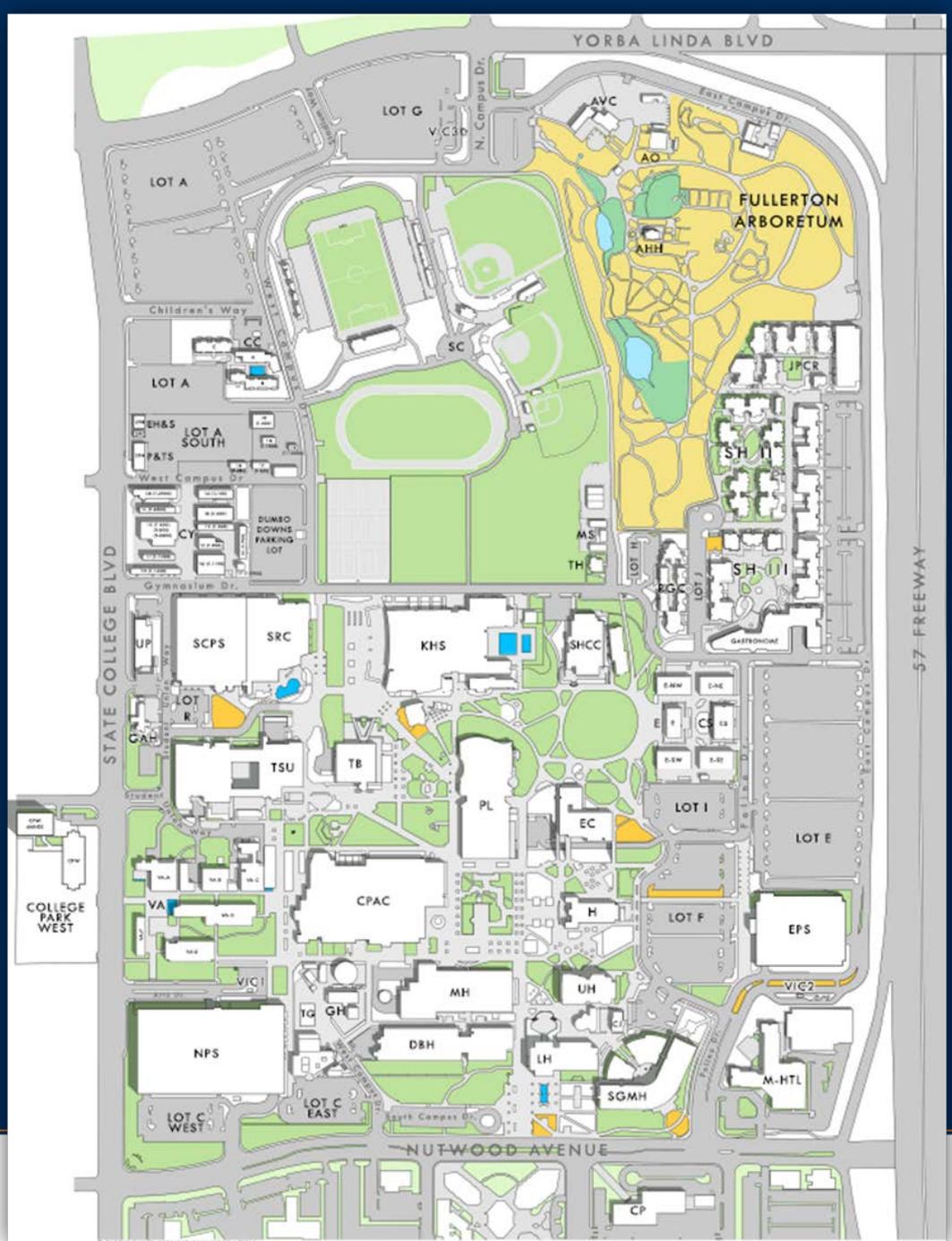


Turf Removal Rebate

- 30 acres of Turf
- 500,000 sqft removal
- \$2 per sqft
- \$1,000,000 rebate



Turf Before



Turf After



Engage End Users

- Electronic Communication
 - Email
 - Social Media
- Signage
 - City Signs
 - CSUF Signs



 **CSUF Sustainable Facilities** Like Page
Yesterday at 10:07am · Fullerton, California · 🌐

Wondering what the "green stuff" on the campus areas with removed turf?
#TitansSaveWater #KeepSavingCA #CSUFsustainability

California State University, [Fullerton](#) Cal State [Fullerton](#) Geography Club
Center for Sustainability, Cal State [Fullerton](#)



CSUF News Center - Greening the Campus — And Still Saving Water

Cal State Fullerton is demonstrating that you can do your part to reduce water usage during the state's drought, without sacrificing aesthetics.

[NEWS.FULLERTON.EDU](#)

Landscape Materials

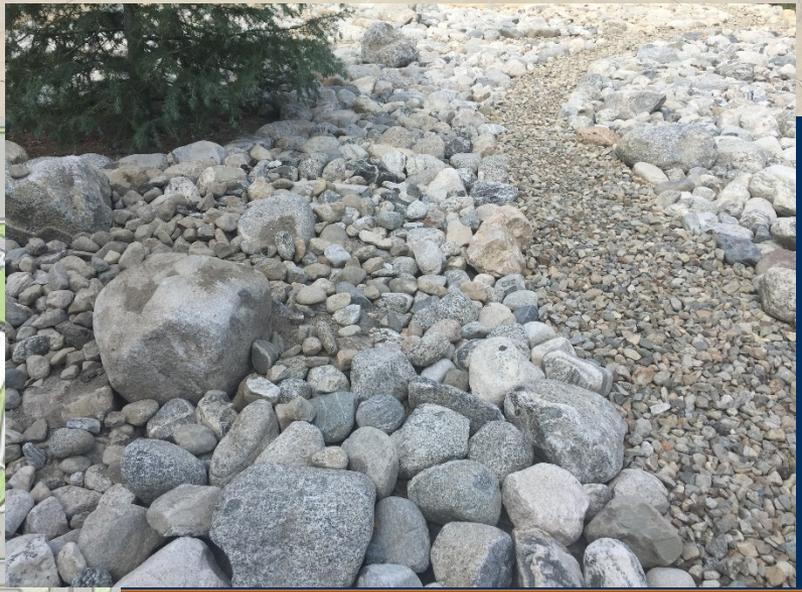


- Gravel
- bioswale
- planting
- meadow a
- meadow b
- shredded wood mulch
- decomposed granite

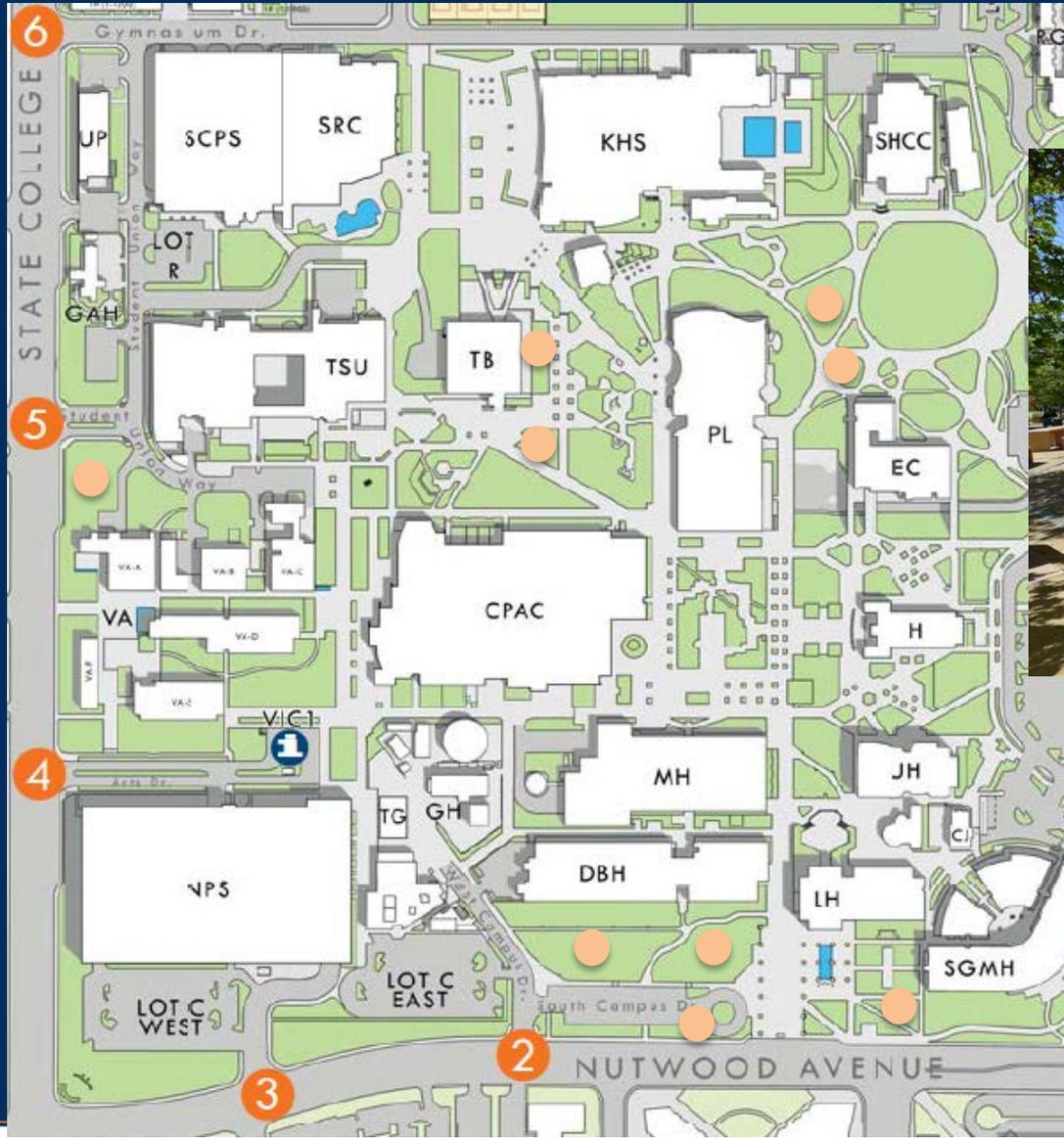
Special Planting



Bioswale



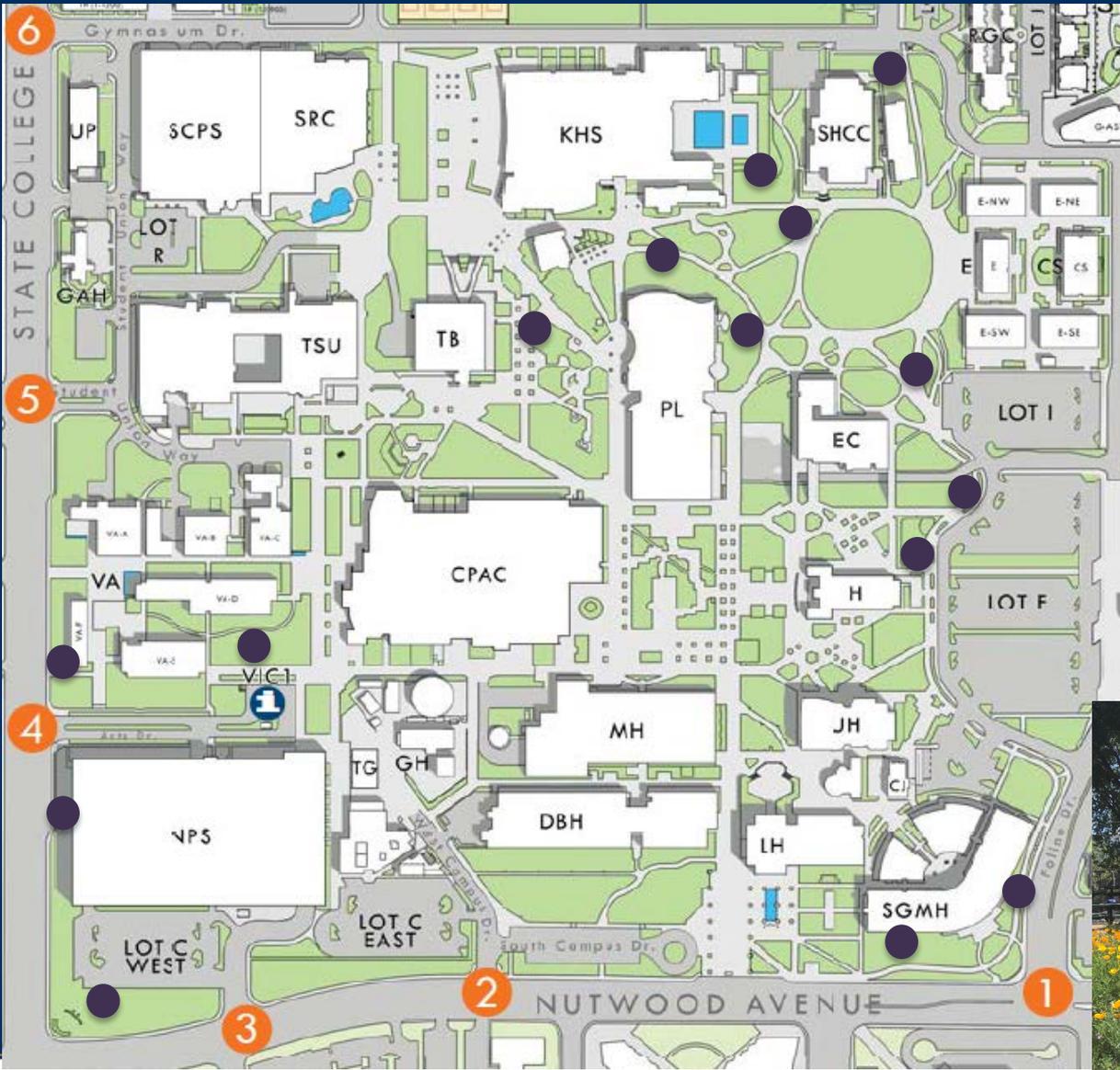
Decomposed Granite



Mulch



Meadow



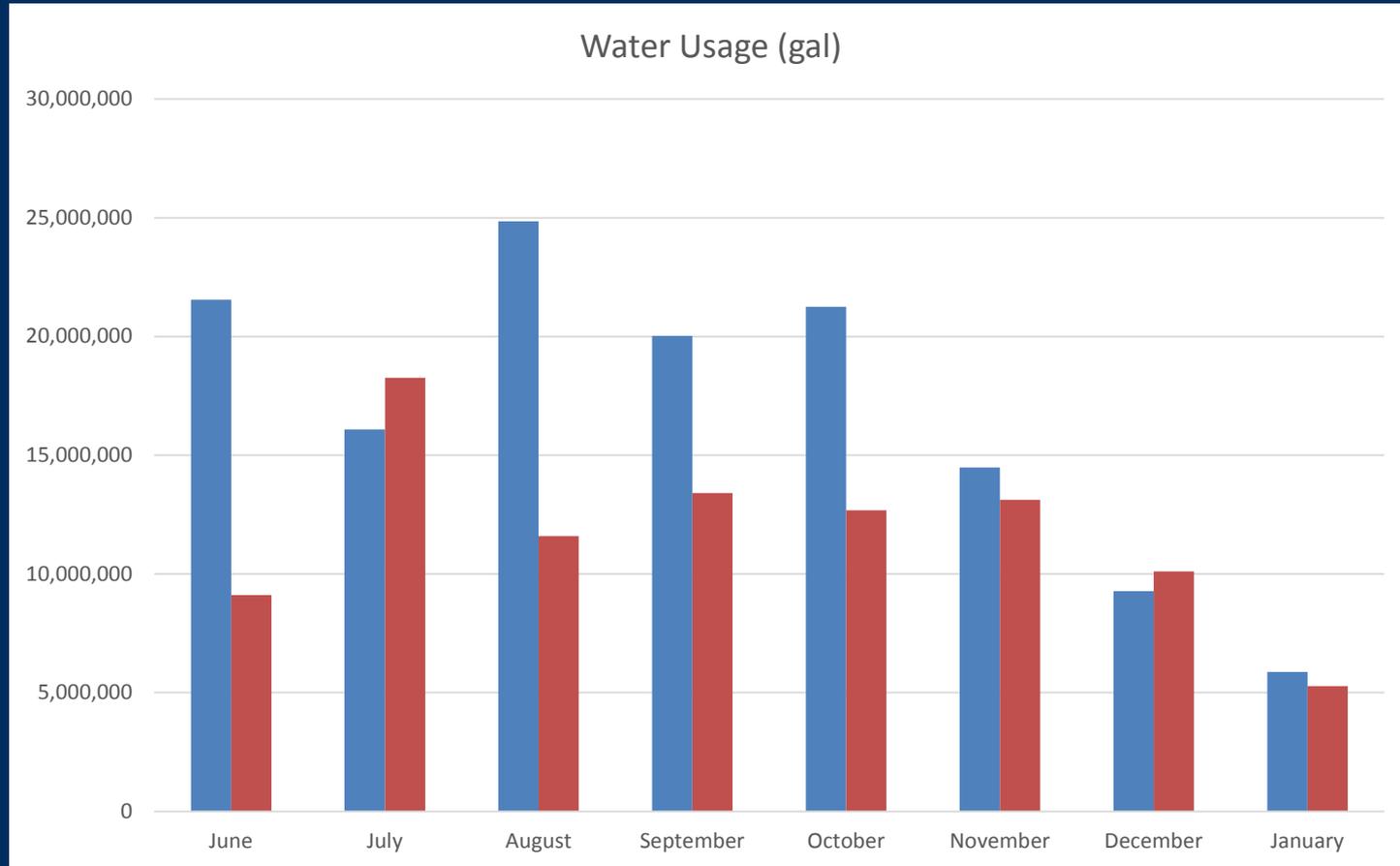
DON'T WALK ON THE GRASS BECAUSE IT'S NOT JUST GRASS

IT'S A BLEND OF OVER 20 CALIFORNIA NATIVE AND ADAPTIVE PLANTS



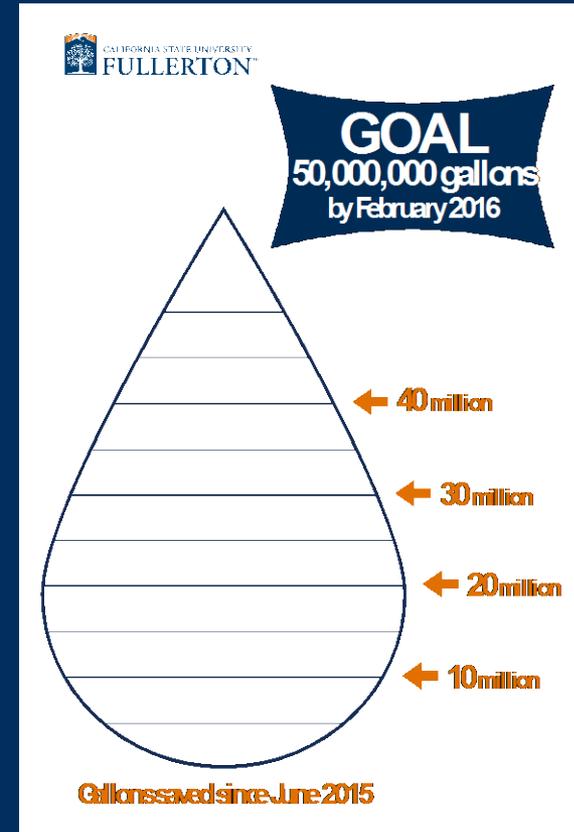
CALIFORNIA STATE UNIVERSITY FULLERTON FACILITIES.FULLERTON.EDU #TITANPRIDE #BEWATERWISE

Water Savings



Water Savings

- 46,000,000+ to date
- 33% reduction
- \$155,000+ saved
- 4 year ROI



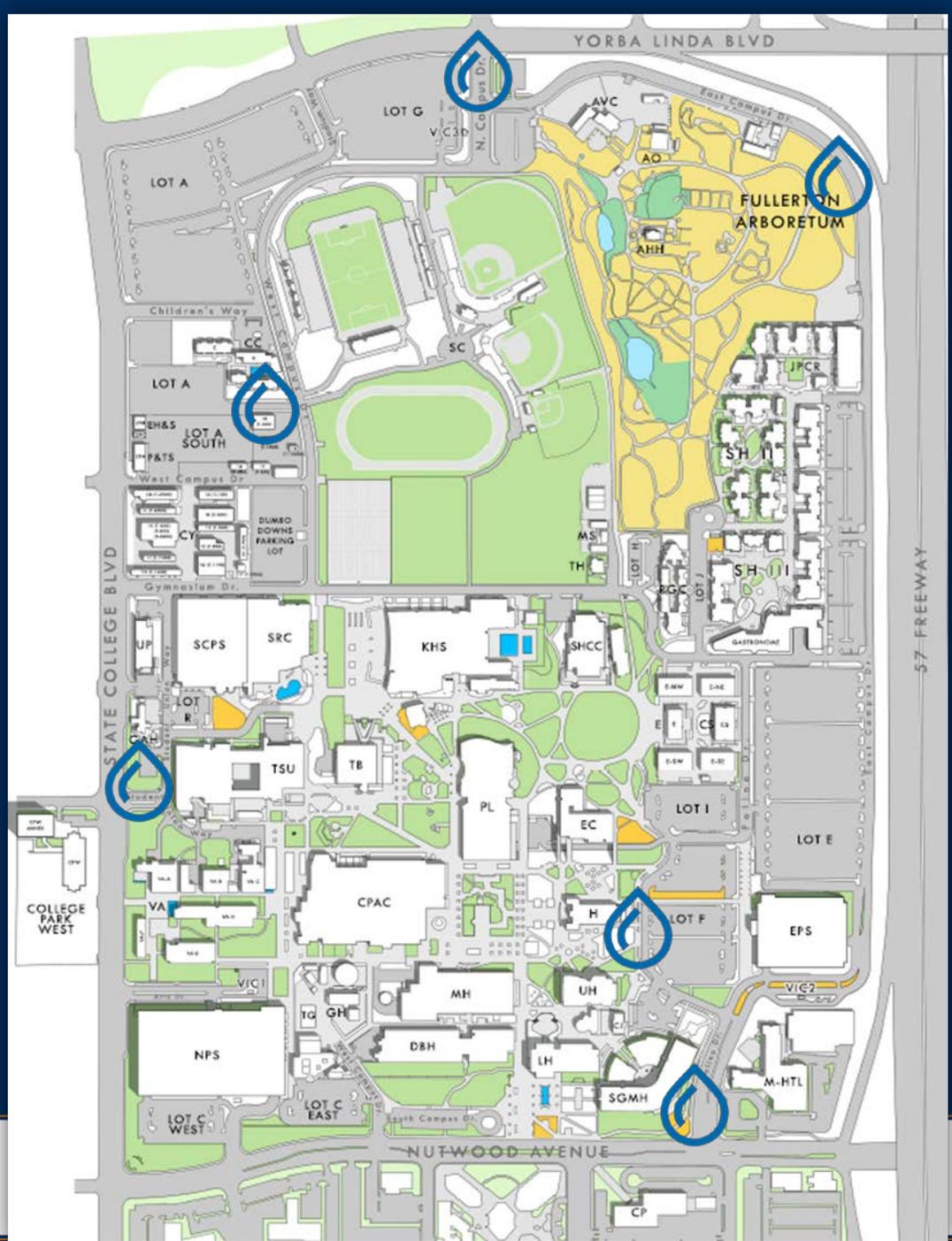
How do we keep the momentum going?

Water Metering

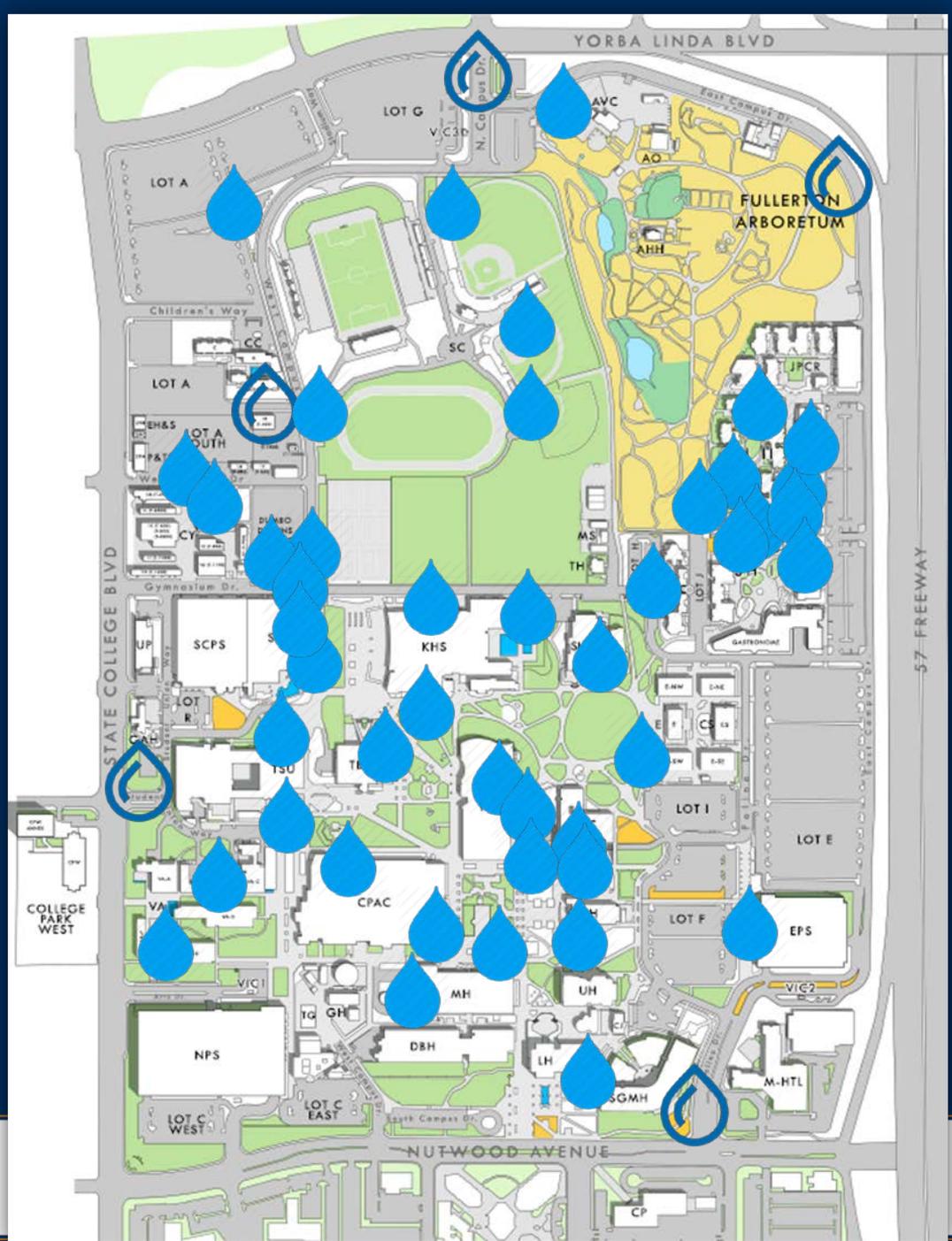
- Meter all irrigation on campus
 - 30+ backflow devices
- Type of meter
 - Smart meter
 - Handle current load
 - Dashboard
 - Alerts



Water Meters Before



Water Meters After



Water Meter Dashboard

Id	Consumer Name	Address	VN ID	Size (")	LCD Read	24Hr	Read Date	Conditions	
Neptune Turbine	Arboretum	Cal State Fullerton	1008022	8	13266808	83640.5	02-04-2016		
Metron 5/8 X 3/4	Aloha Java Bottle Refill...	Cal State Fullerton	1009400	R	1544.3	9.15	02-04-2016	-	
Metron 1000 4"		Cal State Fullerton	1009935	4	1503382	17802.29	02-04-2016		
Metron 1000 4"	Softball Field	Cal State Fullerton	1009937	4	2765044	3161.58	02-04-2016		
Metron 1000 4"	McCarthy Hall	Cal State Fullerton	1009940	4	718616	2895.14	02-04-2016		
Metron 1000 4"	Lot A	Cal State Fullerton	1009941	3	245202	85	02-04-2016	-	
Metron 500 3"	Track	Cal State Fullerton	1009942	3	1063571	1360.98	02-04-2016		
Metron 500 3"		Cal State Fullerton	1009943	3	200383	761.88	02-04-2016		
Metron 500 3"	Baseball	Cal State Fullerton	1009945	3	2477088	7847.53	02-04-2016		
Metron 500 3"	Engineering SW	Cal State Fullerton	1009947	3	820214	4676.89	02-04-2016		
Metron 130 2"	SHC East Irrigation	Cal State Fullerton	1009950	2	129334	0	02-04-2016		
Metron 130 2"	PA SW Irrigation	Cal State Fullerton	1009951	2	2148	0	02-04-2016		
Metron 130 2"	KHS North Gym Irriga...	Cal State Fullerton	1009953	2	21908	0	02-04-2016		
Metron 130 2"	McCarthy North Irriga...	Cal State Fullerton	1009954	2	3424	0	02-04-2016		
Metron 130 2"	RGC SW Irrigation	Cal State Fullerton	1009955	1.5	85697	681.91	02-04-2016		



Consumer: Neptune Turbine 8" - Arboretum - 1008022

Your Account Information: Account Number: Neptune Turbine 8" Consumer Name: Arboretum Address: Cal State Fullerton VN ID: 1008022 Water Budget: High

Meter: innov8-VN Neptune 8" LCD Read: 13266808 G @02/04/20... Billing Read: 13266 G x 1000 Status:

Consumption History: Last updated Thu Feb 04 2016 22:35:18 Refresh Page

Time Interval: 1 WEEK Date Interval: From Date: 1/29/2016 To Date: 2/4/2016

Total Consumption: 281019.19 G Export PDF

Flow Rate GPM

Consumption

- OVERVIEW
- ACCOUNT LOOKUP
- MAPS
- BILLING
- STATUS
- ASHBOARD
- CONSUMPTION HISTORY
- LEAK ANALYSIS
- WATER BUDGET
- LOW FLOW RATE ANALYSIS
- ENVIRONMENTAL
- NOTIFICATIONS

Moving Forward

- Water Competitions
- Reclaim water infrastructure
- Retention plans
- Pilot Partnership
- Bioswale implementation
- 20% by 2020



Questions?



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