

Welcome to the 2018 Landscape Summit



AGENDA

- Welcome from District Board Chair Richard Santos
- State of the Valley's Water – Garth Hall
- Keynote Address – Kevin Breen
- Break
- Case Study Presentations
- Small Group Exercise
- Lunch and Self-Guided Landscape Tour

State of the Valley's Water

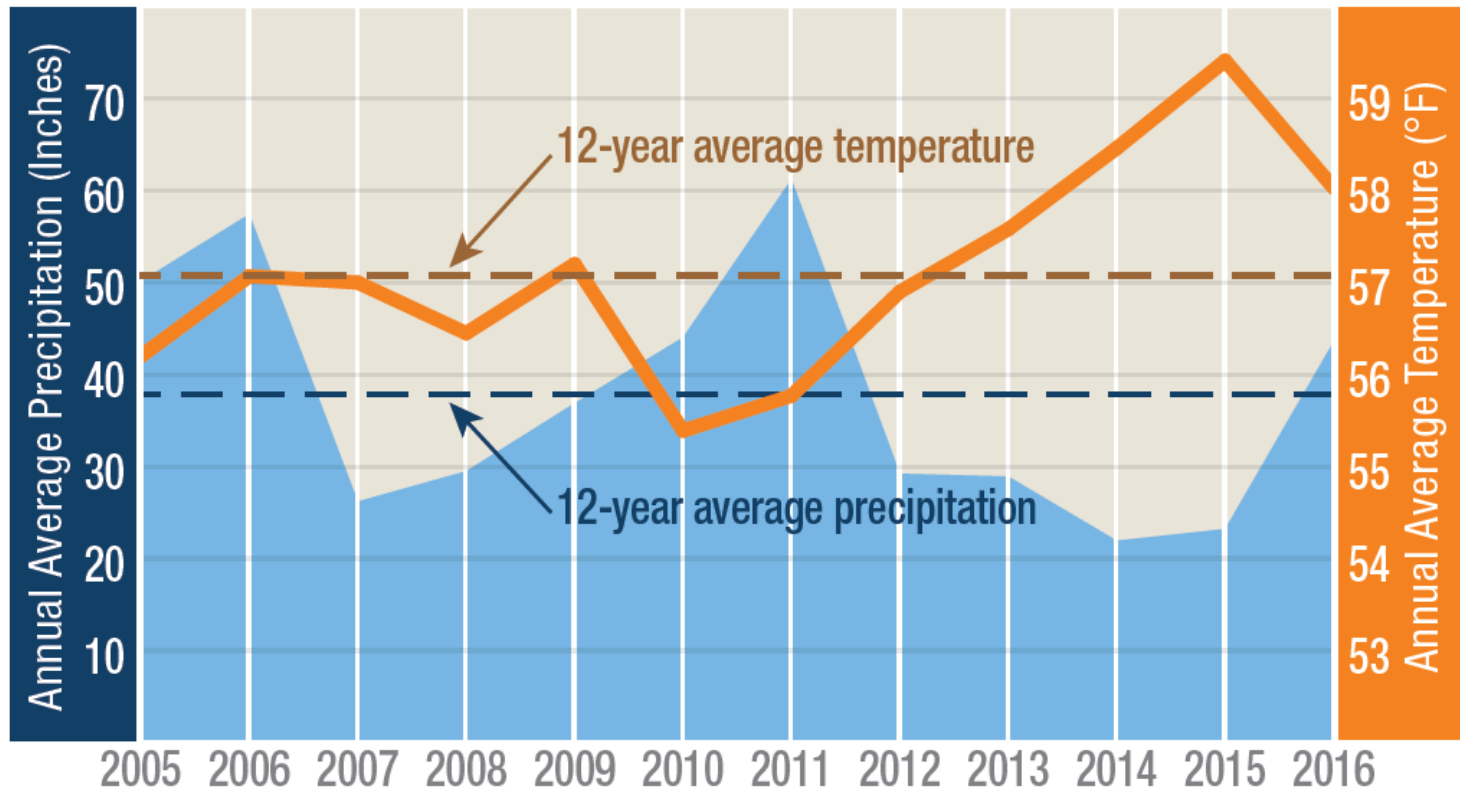
Garth Hall

Deputy Operating Officer

Water Supply Division

Santa Clara Valley Water District

California's Historic 5 Year Drought

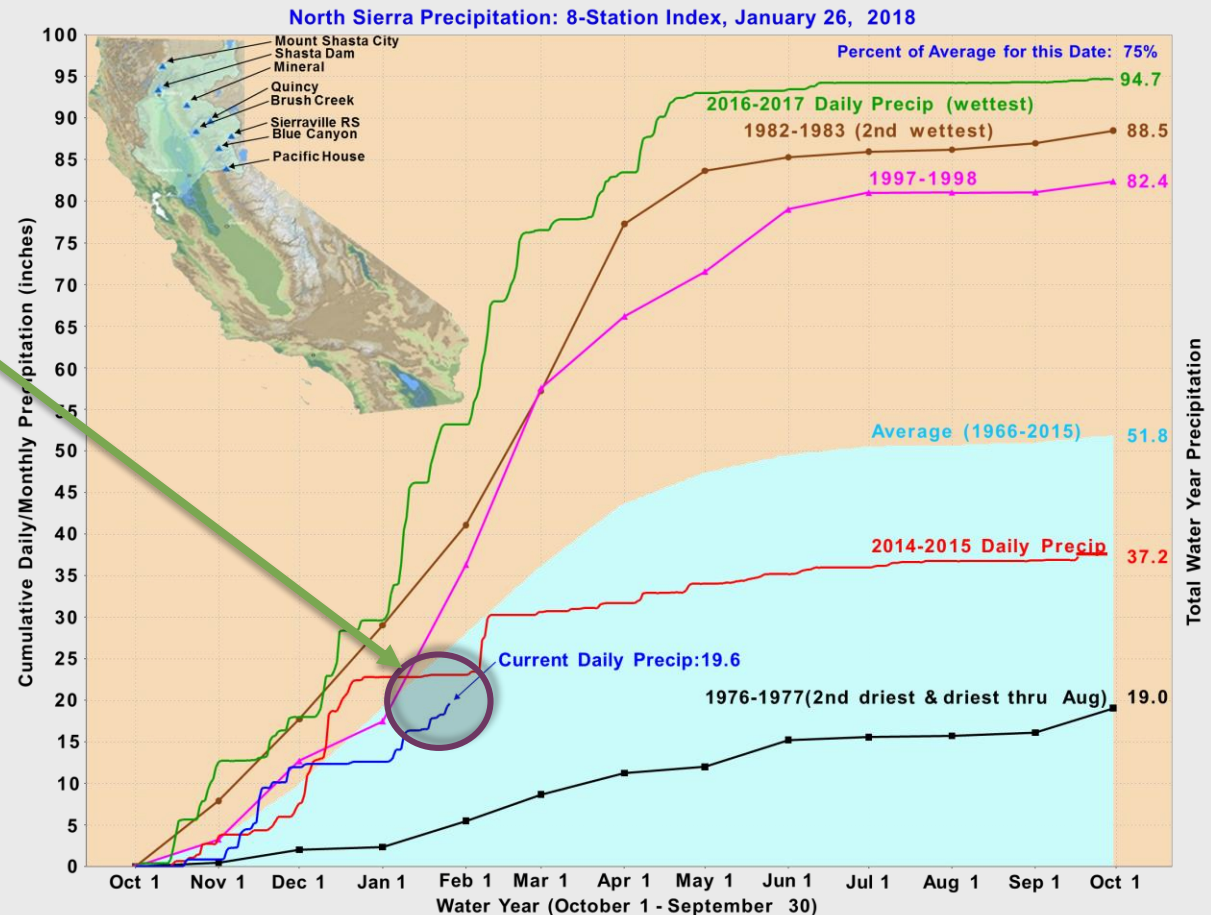
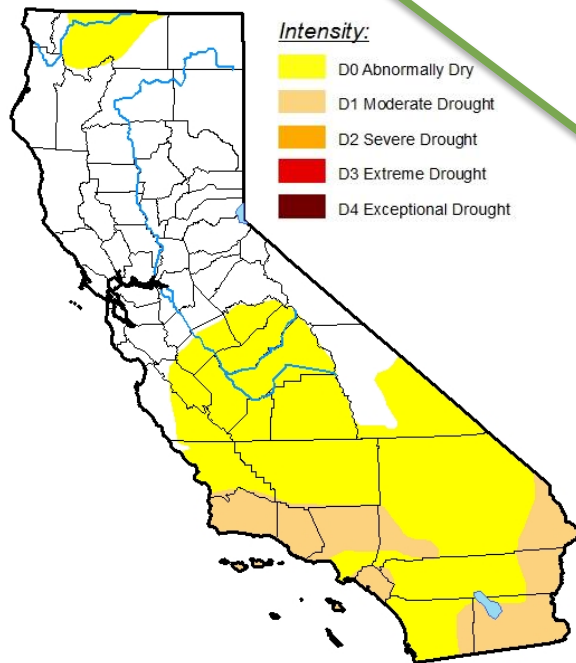


California has experienced near-record temperatures in recent years.
Source: California Department of Water Resources

Current Statewide Conditions

Due to a dry December across much of the state, snow and hydrologic conditions are declining. The US Drought Monitor has expanded drought conditions as a result of low snow and precipitation values, as well as high evaporative demand due to above-normal temperatures

U.S. Drought Monitor California January 23, 2018



Also, the January 3, 2018, northern Sierra Nevada manual survey at Phillips Station snowpack's water content was 3 percent of average. The current northern California snowpack is estimated to be at 29% of average. The next manual survey is February 1st.

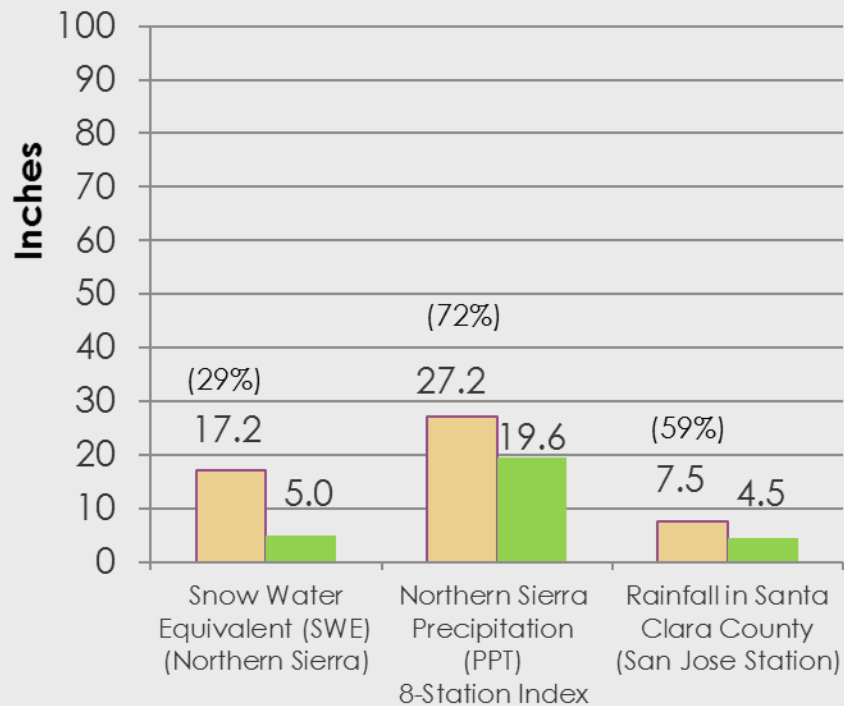
2017/18 Hydrologic and Reservoir Conditions

HYDROLOGIC CONDITIONS BELOW AVERAGE

Hydrology

As of January 29, 2018

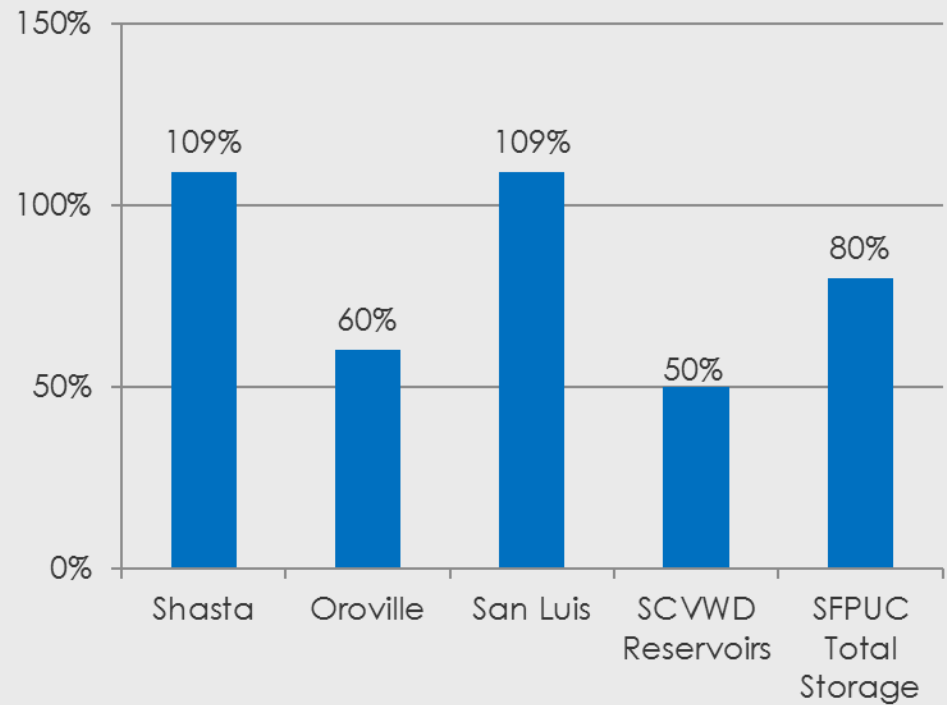
Normal to Date Current to Date



Reservoir Storage

As of January 29, 2018

Current as % of Average to Date



2017 Retail Water Use and Reductions

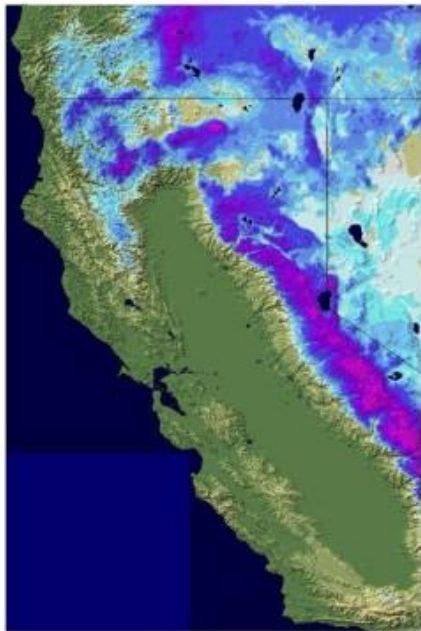
THE COMMUNITY HAS EXCEEDED THE CALL FOR 20%!

<u>2017</u>	<u>North County Ground water</u>	<u>South County Ground water</u>	<u>Treated Water</u>	SFPUC	SJWC Surface	<u>2017 Monthly Use</u>	<u>2017 Cumulative Use</u>	<i>Cumulative District Source Savings</i>	<i>Cumulative NonDistrict Source Savings</i>	<u>All Sources Cumulative %Savings from 2013 <+> savings</u>
Jan	3,194	1,283	5,993	2,446	134	13,050	13,050	-3%	51%	15%
Feb	3,164	1,145	5,097	2,276	80	11,761	24,811	7%	52%	21%
Mar	3,750	1,354	5,770	3,077	342	14,293	39,104	17%	42%	24%
Apr	5,610	1,433	4,801	3,134	317	15,295	54,399	24%	39%	28%
May	5,424	2,037	10,485	4,524	318	22,789	77,188	25%	35%	27%
Jun	6,121	2,190	11,142	5,193	271	24,917	102,106	24%	29%	25%
Jul	6,978	2,403	12,220	4,869	155.3	26,625	128,731	23%	28%	24%
Aug	6,904	2,359	12,061	5,225	73.1	26,622	155,353	22%	27%	23%
Sep	6,409	2,183	11,382	4,861	38.7	24,873	180,226	21%	25%	22%
Oct	6,274	2,062	10,269	4,078	10.7	22,695	202,921	21%	25%	22%
Nov	4,949	1,463	6,633	3,063	20.6	16,130	219,051	21%	25%	22%
Dec	6,101	1,444	4,964	3,112	143	15,932	234,983	21%	23%	21%
*Jan to Current Totals	64,878	21,356	100,819	45,859	1,902	234,983				
<i>%Savings by Source of Supply</i>	25%	7%	21%	16%	76%	21%				

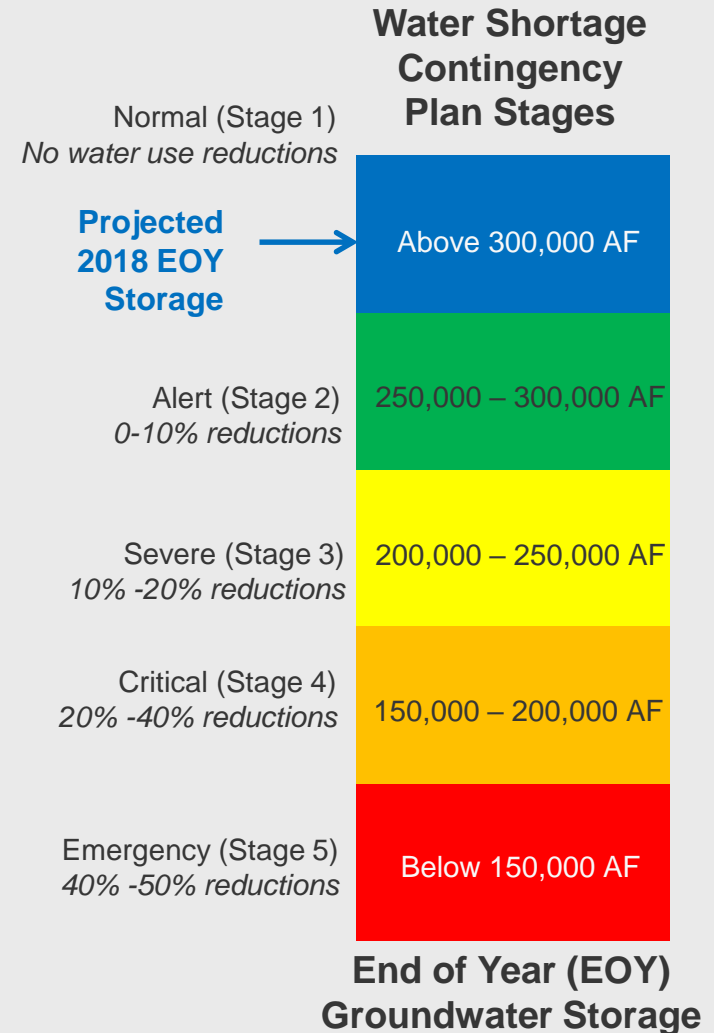
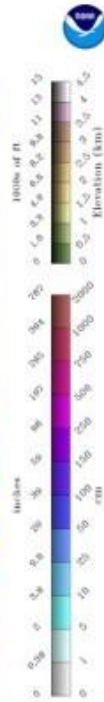
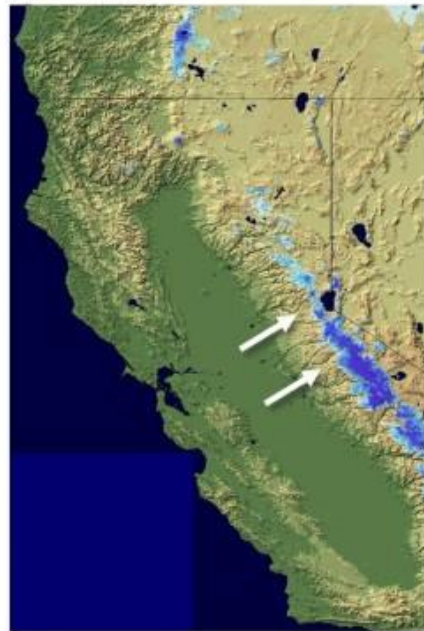
2018 Initial Local Outlook

20% - Current SWP Allocation (20 TAF)
 Not available - Initial CVP Allocation
 ~250 TAF - Semitropic Storage
 330-340 TAF - End of Year Groundwater Storage

Snow Depth 01-18-2017



Snow Depth 01-18-2018



SCVWD Board of Directors Response

- ▶ June 13, 2017, the board extended the call for 20% reductions, but removed recommendations for mandatory actions by retailers and municipalities. They also recommended that many water waste restrictions be permanent and called for making water conservation a way of life. Continue to make conservation a way of life

State Transitions to Conservation as a Way of Life

Governor Executive Order

State Board **transitions away from monthly and annual percent reductions**

Move towards water use efficiency and water budgeting targets after 2020- performance based targets will be in place.



Making Water Conservation a California Way of Life

Implementing Executive Order B-37-16

FINAL REPORT
April 2017



Potential Permanent Prohibitions

- ▶ Prohibitions Under Consideration Include:
 - ▶ Hosing off sidewalks, driveways and sidewalks;
 - ▶ Application of potable water to outdoor landscapes during and within 48 hours after measurable (1/4") rainfall;
 - ▶ Watering landscapes in a manner that causes runoff;
 - ▶ Irrigating turf on public street medians (with certain exceptions);
 - ▶ Using non-recirculated water in a fountain or other decorative water feature;
 - ▶ Using a hose to wash vehicles without a shut-off nozzle (or equivalent)

SCVWD Response to 2017 Summit

► Education/Outreach

- VOW Campaign
- Demo Garden Map Tool
- District Demo Garden – signs, online, flyer
- SouthBayGreenGardens
 - Website
- Graywater Program
 - Presentations
 - Flyers
 - Video on website



SCVWD Response to 2017 Summit, cont.

► Landscape Rebate

Program Improvements:

- Development of online application done
- Top 100 Plant list in the works



► Landscape Maintenance Consultation Program

► Research Efforts:

- Study to quantify the water savings from Landscape Rebate Program – complete, to be published soon.

Thank you so much!!

Questions?

Kevin Breen

La Rinconada Country Club

CONSERVATION EFFORTS AT LA RINCONADA COUNTRY CLUB Kevin Breen CGCS



Drought planning
Conservation sustainability
Technology for water savings

Kevin P Breen



30yrs in the golf business

27yrs as a superintendent

6yrs in the south bay at La Rinconada

1987 Degree in meteorology from University of Nebraska

1992 Degree in horticulture from Colorado State

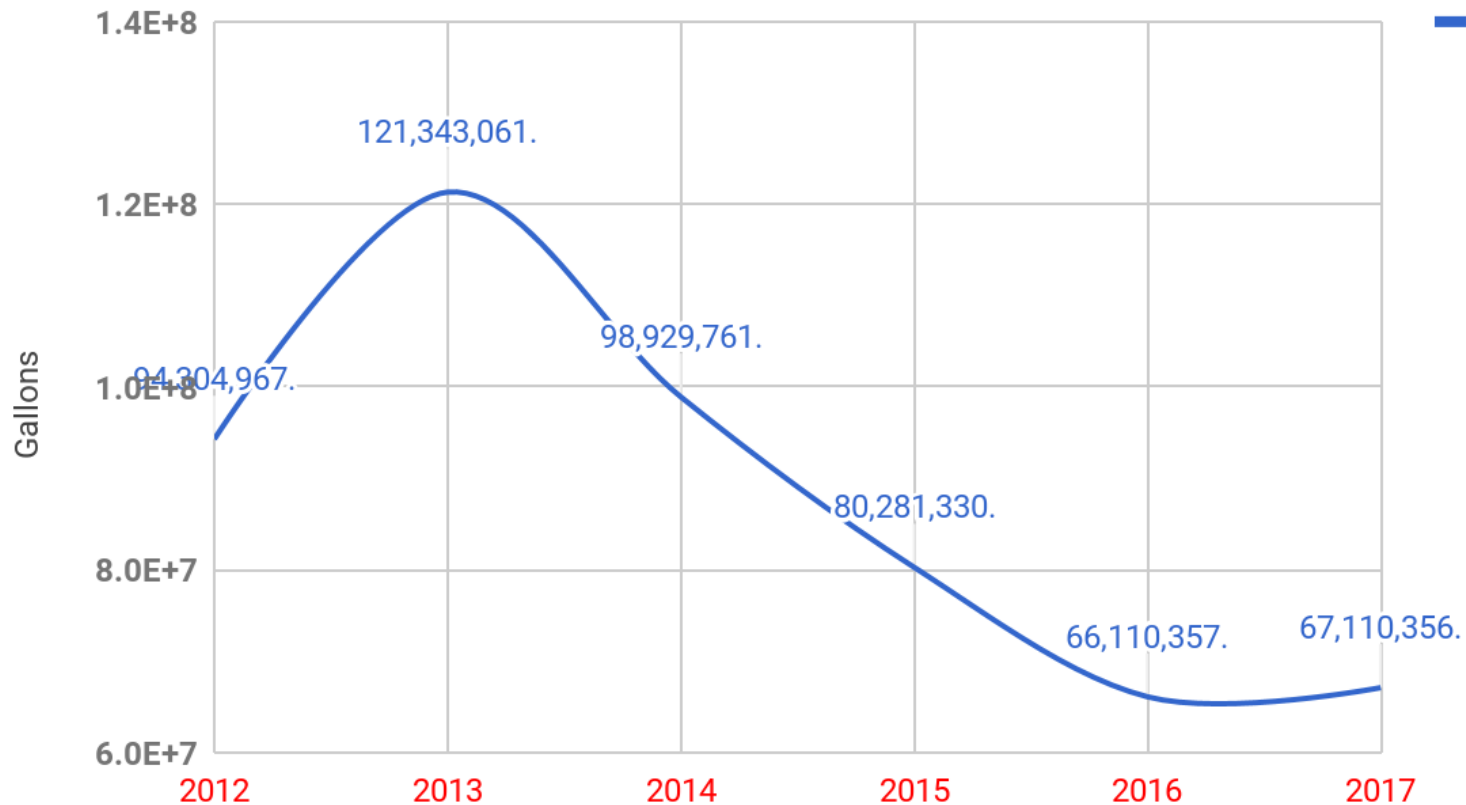
Water Audit 2012

❓ Why Do An Audit?

- ❑ Rebate for irrigation control units
- ❑ To improve your product
- ❑ Establish a relationship with the water district
 - Resources the district has to offer
 - Don't wait until a crisis

Historical water use at La Rinconada

Annual Irrigation 2012 through 2017



Drought Plan

□ Groundwork

□ Prioritize

- Greens, tees, fairways, roughs
- Take the hardest to water areas out of irrigation
 - Tree wells, areas where play is not occurring

□ Inventory

- Measure areas using Google earth
- Estimate water savings as a percentage of area

Conservation Area Treatments

- Native grasses
 - Fairly inexpensive
 - Plugs vs Seed
- Woody plants
 - Low maintenance and long lasting
 - Take a long time to establish
- Chipped beds
 - Can seem contrived if done poorly
 - Ongoing maintenance Color and Weeds.

Architectural Long Range Plan

The District will continue to monitor service water usage to the approved water quantity in 2017 through December 31, 2017 against the amount approved herein. The District may suspend surface water deliveries if the amount is exceeded.

Your service is subject to the District's Surface Water Rules and Regulations. Please note that the District's Rules and Regulations for Service of Surface Water state that "The District will not be liable for... structure of water either temporary or permanent, or for failure to deliver such...

HOLE 10 CONCEPT PLAN LA RINCONADA COUNTRY CLUB

REBUILD AND ENLARGE THE EXISTING FORWARD TEE AS TWO TEES TO INCREASE THE DIVERSITY IN LENGTH FOR PLACEMENT OF THE TEE MARKERS, AND TO PROVIDE A MORE REASONABLE CHALLENGE FOR WOMEN PLAYERS TO REACH THE LANDING AREA.

GRADE AND SOFTEN THE SLOPE OF THE HILLSIDE IN FRONT OF THE TEES TO ENHANCE PLAYABILITY AND APPEARANCE, AND TO IMPROVE VISIBILITY.

ADD A FAIRWAY BUNKER SHORT RIGHT OF THE LANDING AREA TO ENHANCE THE STRATEGY FOR TEE SHOTS, TO HELP CONTAIN ERRANT SHOTS AND TO REINFORCE THE DRAMATIC RISK REWARD CHARACTER OF THE HOLE.

REMOVE EXISTING TREE TO ACCOMMODATE WIDENING OF THE LANDING AREA AND TO OPEN UP VIEWS OFF SITE TO ADJACENT PEAKS.

SELECTIVELY THIN EXISTING TREES TO OPEN VISIBILITY OF THE GOLF HOLE.

REMOVE REDWOOD TREE ENCROACHING ON THE COAST OAKS.

SCALE IN FEET
0 50 100 200

DATE: JUNE 2017

LOVE & KINGTON
GOLF COURSE DESIGN LAND PLANNING

- Reconstruction of Hole 18 Tee Complex.
- Reconstruction of the Practice Putting Green.
- Replacement of the irrigation.

Approved Planting List

Started with the SCVWD plant list

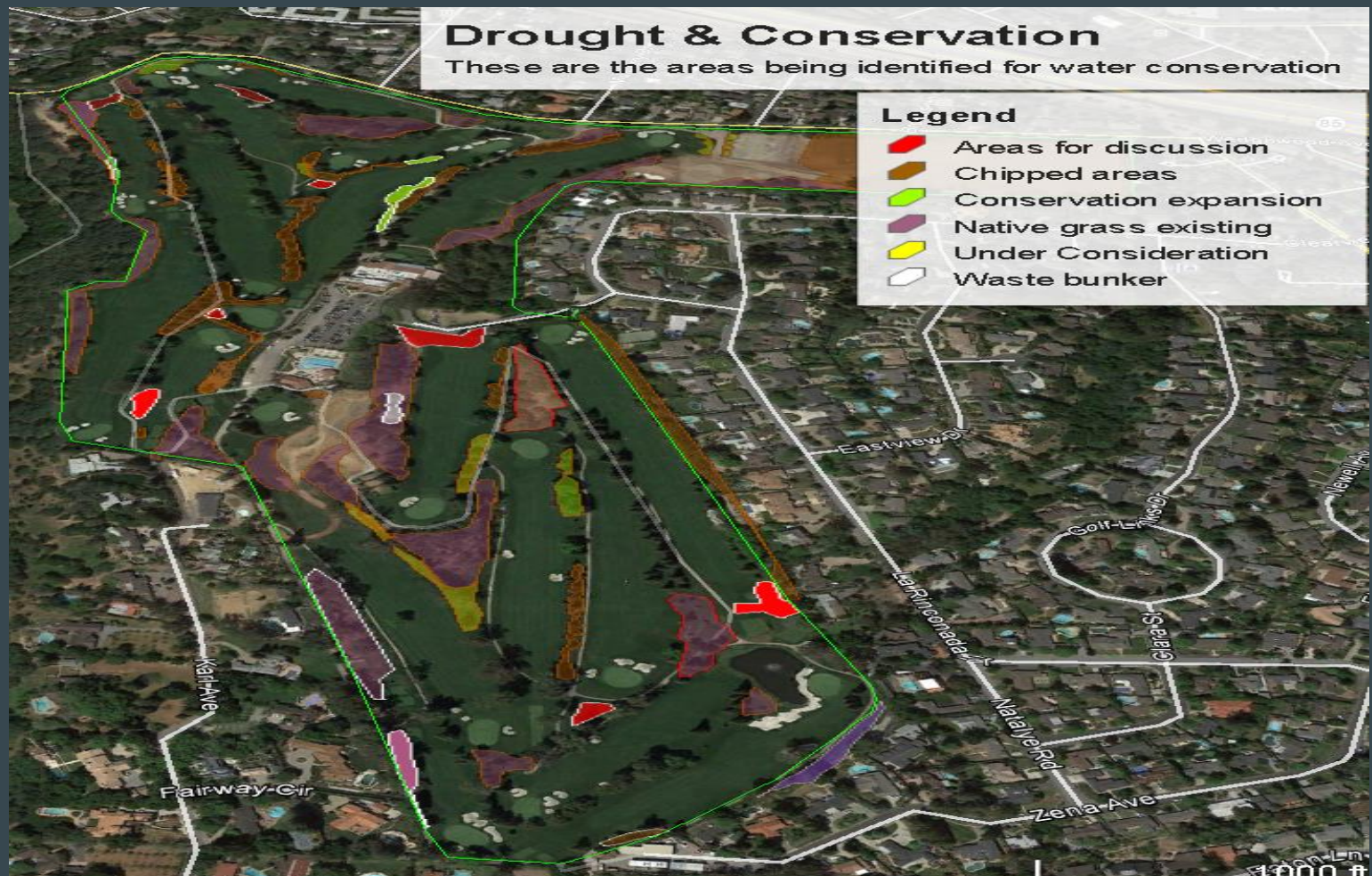
Chose plants appropriate for La Rinconada

Demonstrated plantings on site

Gained consensus

Now have a living document to work from

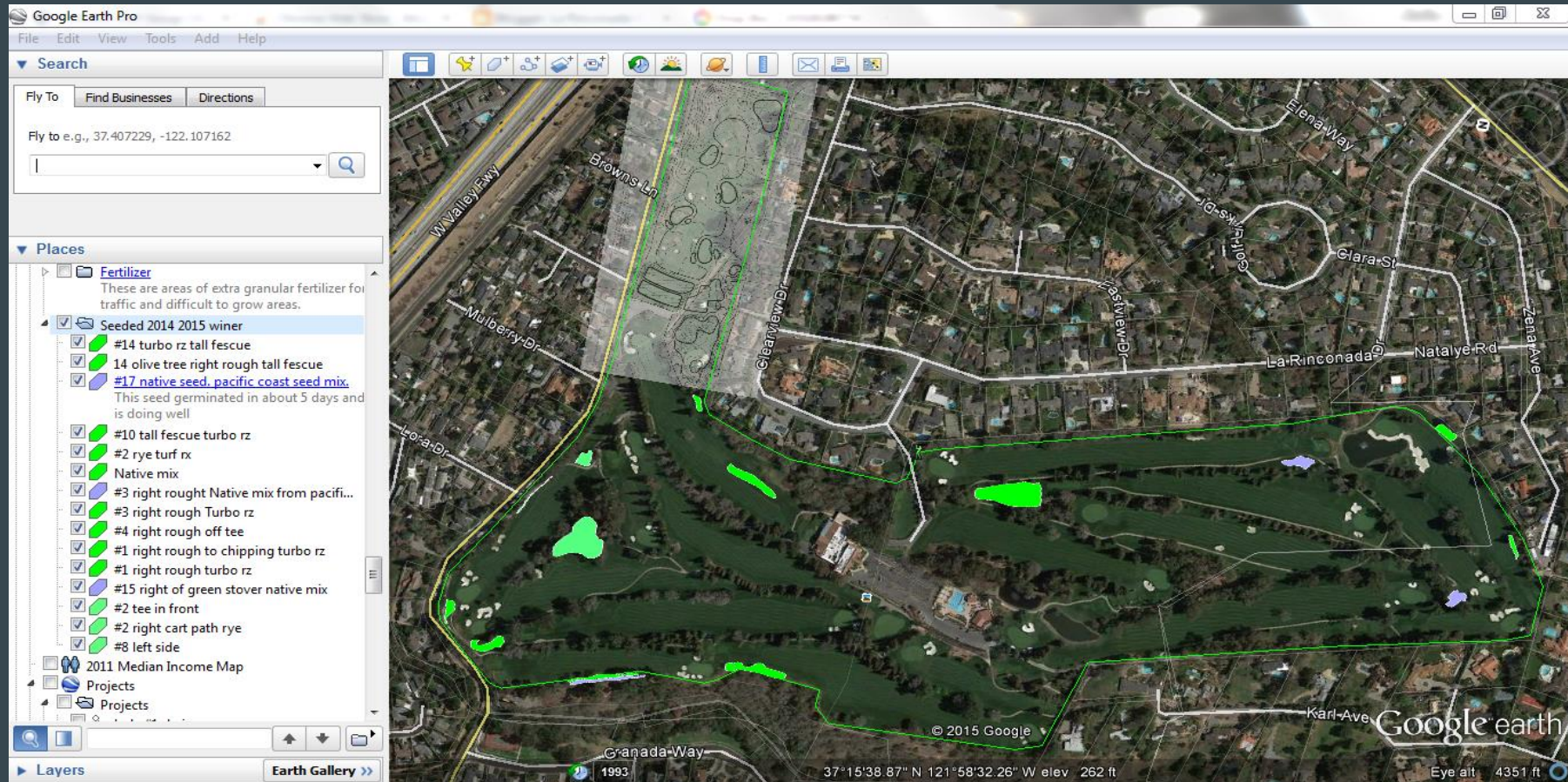
Gaining Consensus



Google Earth Inventory



Native Seed areas fall 2016



Chip Bed Establishment



Pros and Cons of Wood Chips

Wood chips

Easy to establish these areas

Readily available

Color retention and rejuvenation

Weed growth

Newly Established Bed



Native Low Input Grass



Test and Demonstrate



Drone Considerations

Develop your own or contract?

Getting your FAA UAV License






Technology changes fast

Off The Shelf Customized





Camera For Agricultural Survey

[Drones](#) [Cameras](#) [Mounts](#) [Accessories](#) [Examples](#) [Software](#) [Guides](#) [News](#) [Contact](#)



Survey2

MAPIR

Chat with us!  

Program Flight Plan



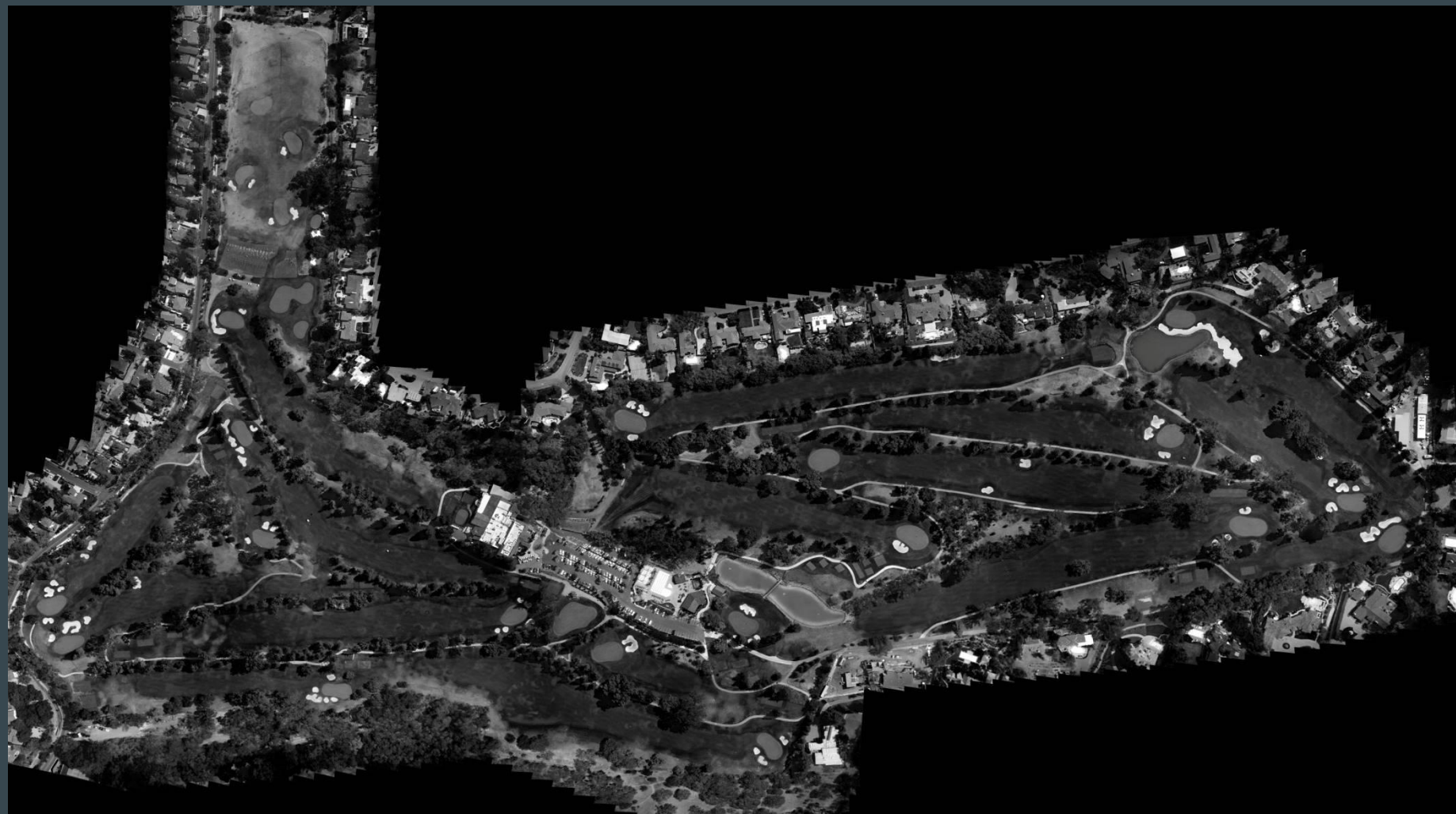
Flight Plan

Altitude is just below 400 feet.

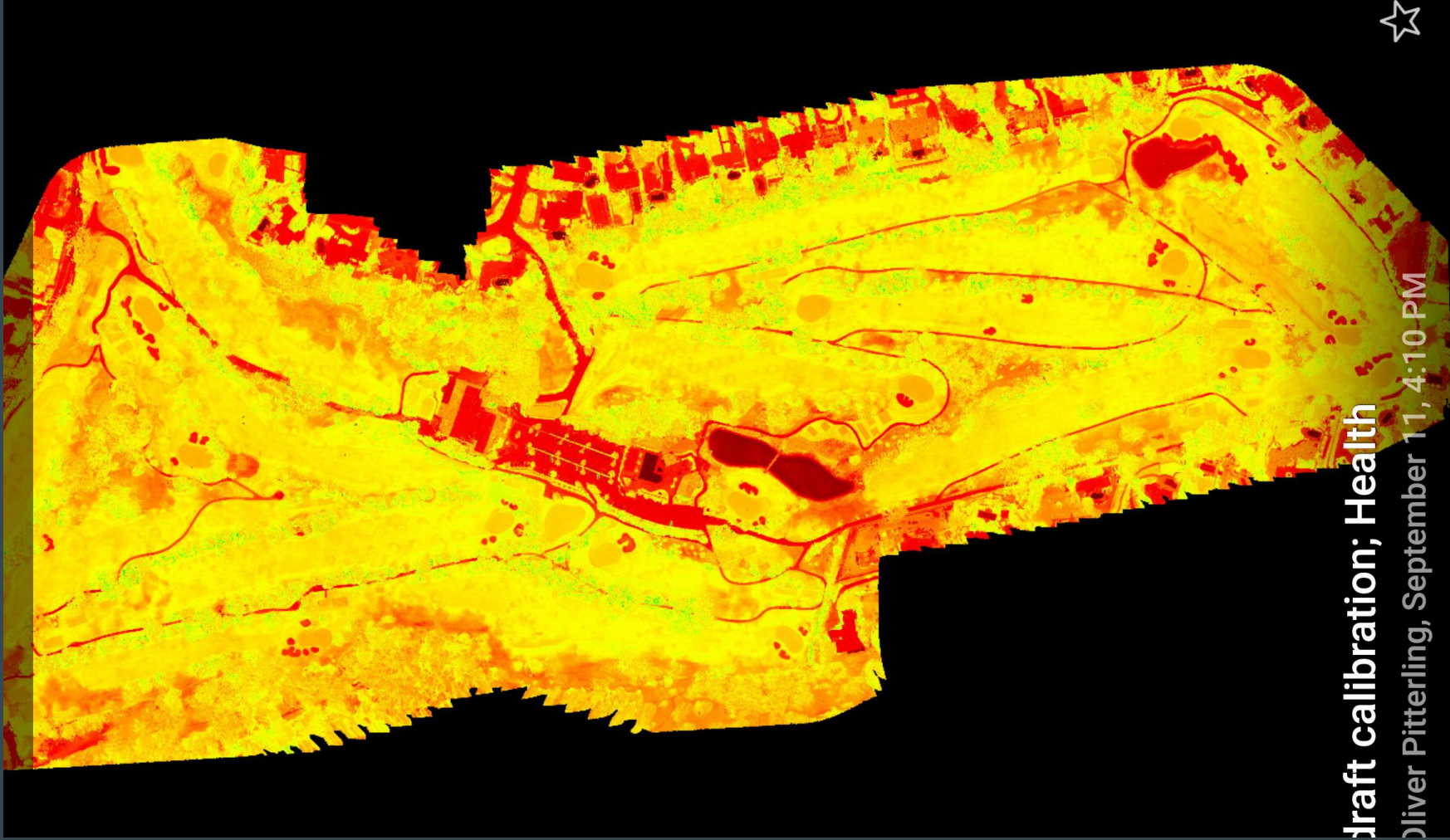
22 minutes to cover the entire golf course

Over 400 photos taken at high resolution

Raw Stitched Photos



Color Enhancement



draft calibration; Health

Oliver Pitterling, September 11, 4:10 PM



Drone Contracting

Cost of contracting vs. Owning

They keep all the technology current

UAV maintenance service

Insurance, FAA registration, etc. taken care of

Still need a UAV pilots license

New startups

Contracted Agriculture Survey

They own the drone

The drone has an autonomous flight plan that you observe

Contract only parts of the year that are relevant

Service and upgrades

Low Budget Alternatives To Drone

Touch it ... Feel it ... Smell it... Still the best

It just takes time to get around

Communicating what you are observing takes time

How about some time savers????

Google Earth Monitor and Inventory

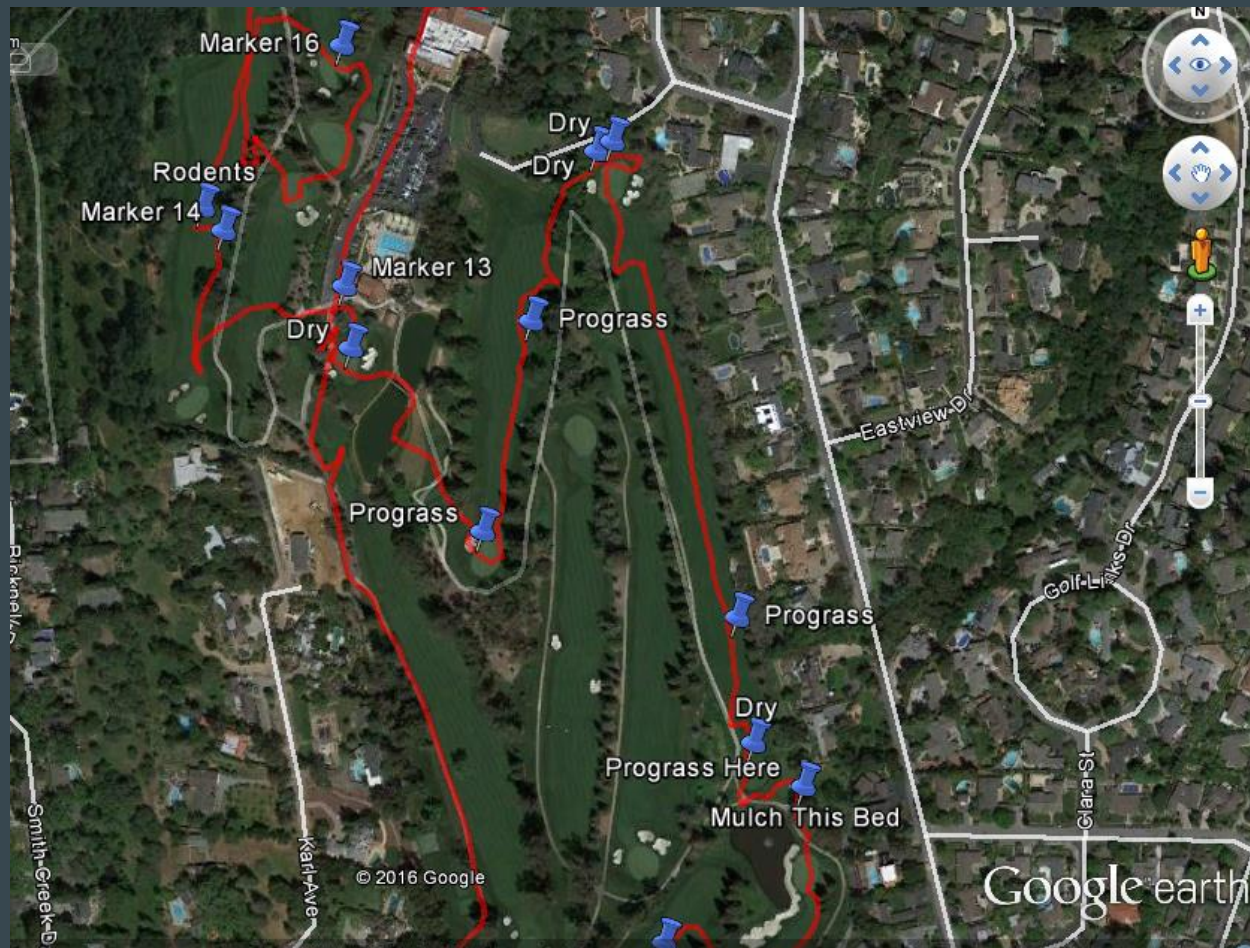
❏ 3D Viewer

- ❏ Record virtual flyovers with projects proposals using photo tools

❏ My Tracks and Geo Tracker

- Insert pins on work areas
- Can share using
 - Email
 - Shared folder
 - Google earth overlay with irrigation map layer

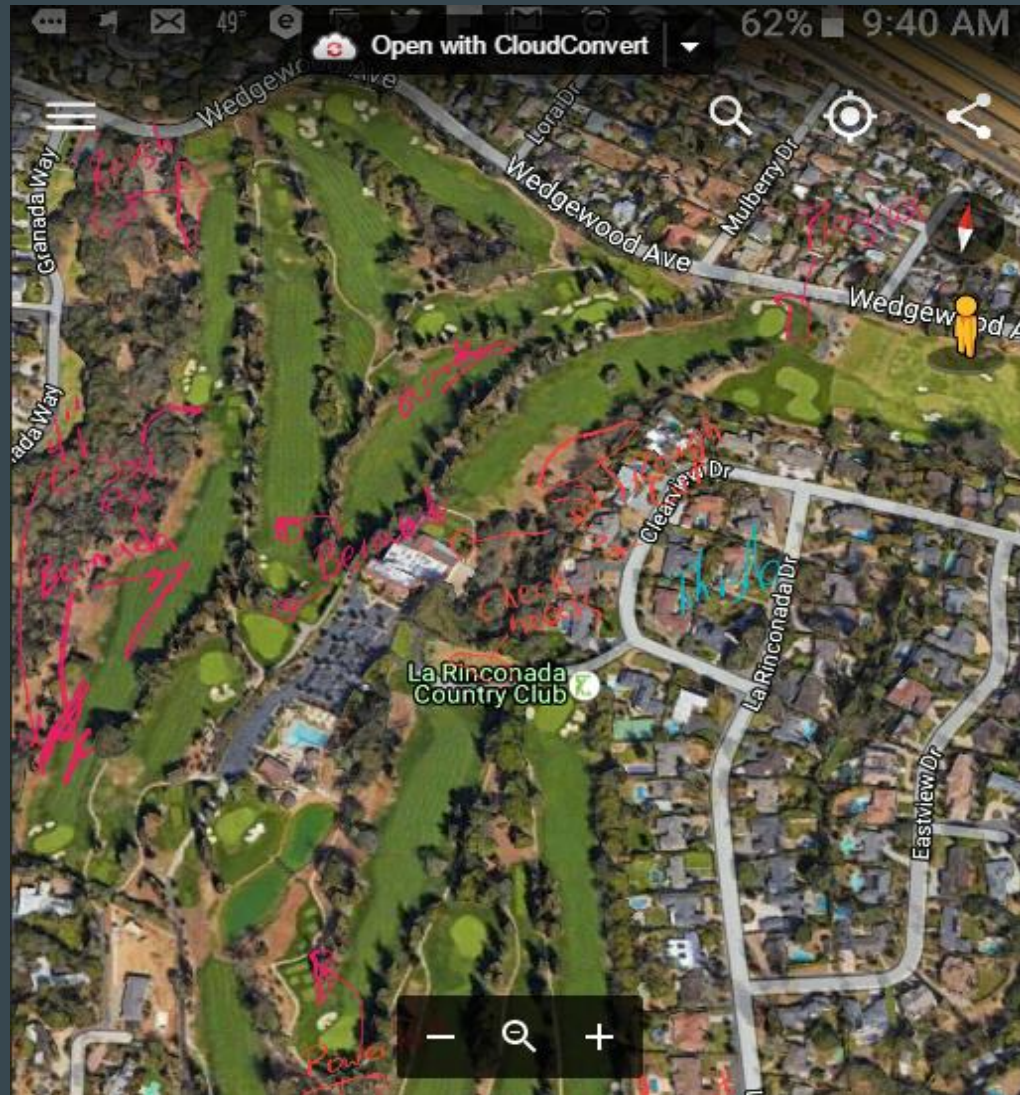
My Tracks or Geo Tracker for Site Survey



Screen Write

- Can use any device that you can write on screen using annotation app.
- ❑ For Google I use a note 5 phone
- ❑ For Apple I use I Annotate
- ❑ Then e mail for delegation

Annotated Aerial for Work Tasks



3D Viewer Using Space Mouse



Let's Review

Start conservation before there is a crisis

Plans. Drought management, plant lists, consensus and demonstration areas

Drones will be good but do they make sense for you now?

Alternatives using free mapping, and communication tools

Final Thoughts

Conservation Has No End

A desire to do better

The ability to balance conservation and product quality

It shouldn't be a burden

Thank You



Kevin P Breen CGCS

kpbreen1@gmail.com

530 448 0124

Break time



LANDSCAPE CASE STUDIES

A photograph of a lush garden. In the foreground, there is a large, dense bush of bright red flowers, likely cardinalis. Behind the flowers is a low, rustic stone wall. In the background, a portion of a house with a grey roof and white trim is visible, surrounded by various green plants and trees. The text "Moderated by Anthony Eulo, City of Morgan Hill" is overlaid in white on the image.

**Moderated by
Anthony Eulo,
City of Morgan Hill**

Samuel Anderson

Gachina Landscape Management

Oak Creek Apartments

Case Study in Water Management and Sustainable Landscape Best Practices



Rebates

- Used SCVWD Hardware Upgrade
 - Weather based irrigation controllers
- Used SCVWD Landscape Conversion
 - “Cash for Grass”
- Maxed out all available SCVWD funds for the site \$50,000
- We had to wait for the FY '15 program to replenish funds and start new FY '16 to start



Turf Conversions

- Removed over 20,000 square feet of turf
- Capped old spray and rotor heads
- Converted to Drip Irrigation
- Used Low-Water approved plants
- Layer of cardboard and mulch installed water improved retention
- Implemented a full Bay-Friendly approach to turf conversion

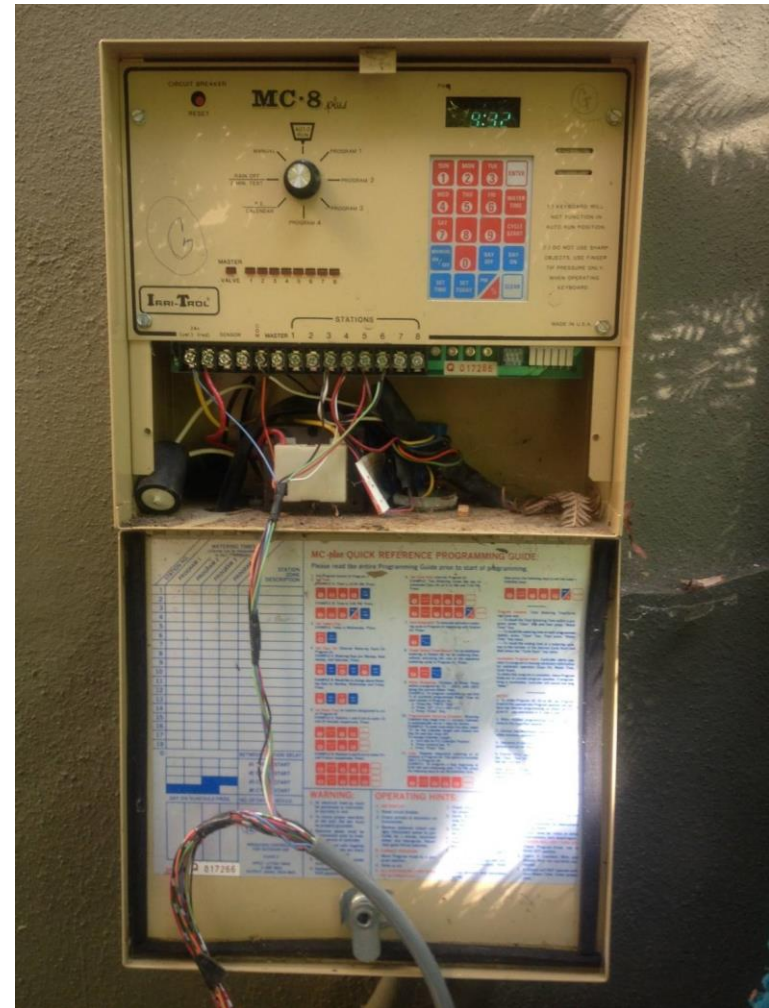


Before and After



Controllers

- Replaced 28 very old controllers
- Replaced with WeatherTRAK Pro3
- Programmed for Water Day Restrictions
- Optimized Water Windows to prevent overtaxing hydraulics
- All 162 valves on the 28 controllers pull water from a single 4" POC



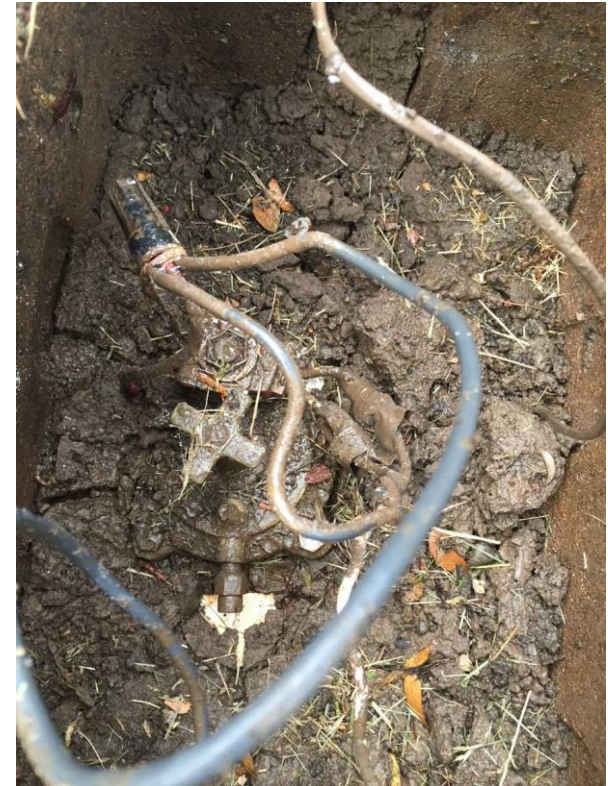
Valves

- Removed many battery operated timers
- Removed or upgrading Add-A-Zone devices
- Replaced old solenoids causing high current alarms
- High current was damaging old controllers without our knowledge
- Replaced more than 25 valves



Wiring Fixes

- Lots of nicked wires causing shorts
- Many disconnected valves
- Lots of battery operated valves removed
- Improper wire connectors
- Added missing splice boxes where none existed but we had direct buried splices



Management Team

- WeatherTRAK Mobile App
- Real-time data via email
- Visibility into runtimes and alarms
- Consolidate 3 controllers into 1 for easier management
- Took full advantage of new technology



Oak Creek honored with National Landscape Award

- Received a Merit award from NALP for large multi-residential in the maintenance category
- Award was based on maintenance quality, best practices, overcoming challenges to the site such as drought restrictions, etc.
- Partnership between Gachina LM, Oak Creek management, HydroPoint and SCVWD was critical in the achievement of this award





Oak Creek Apartments Measurement & Verification

Do it Right. Save More.



M&V Analysis Summary

- **Water Savings**
 - Oak Creek Apartments analyzed, yielding an estimated total savings of
 - **5 million gallons of water saved, or 16% on total baseline**
 - **\$51k in estimated cost savings**
 - Savings analysis starts in May 2016
 - Adjusting settings and addressing alerts may yield more savings
 - Additional savings from operations, plant and property protection not reflected in these numbers
- **Precision Automation Protects Landscape Health**
 - The right amount of water at the right time is critical for healthy landscapes and to minimize plant loss/replacement and unplanned costs
- **Central Internet Control Increases Operational Efficiency**
 - Alerts and dashboards deliver easy discovery of underlying irrigation system issues (improper settings, leaks, breaks, etc.) before waste and damages occur
 - Automatic reporting highlights opportunities to find additional savings and to be proactive
 - Compliance monitoring helps keep on top of possible regulation violations and avoid fines



Sherry Bryan

Ecology Action



Santa Clara Valley Water District Landscape Summit 2.1.2018





4 Projects

1

Residential



2

Commercial



3

Turf Replacement

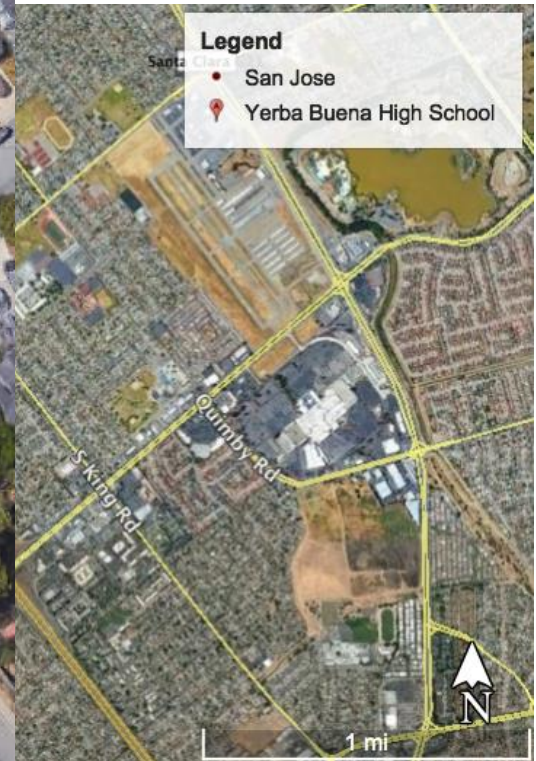


4

Ozone Laundry



Yerba Buena HS Turf Retrofit Project Location



TERRA Project Funding Partners



**Santa Clara Valley
Water District**
SM



Cap and Trade
Dollars at Work



California Conservation Corps is a Key Partner



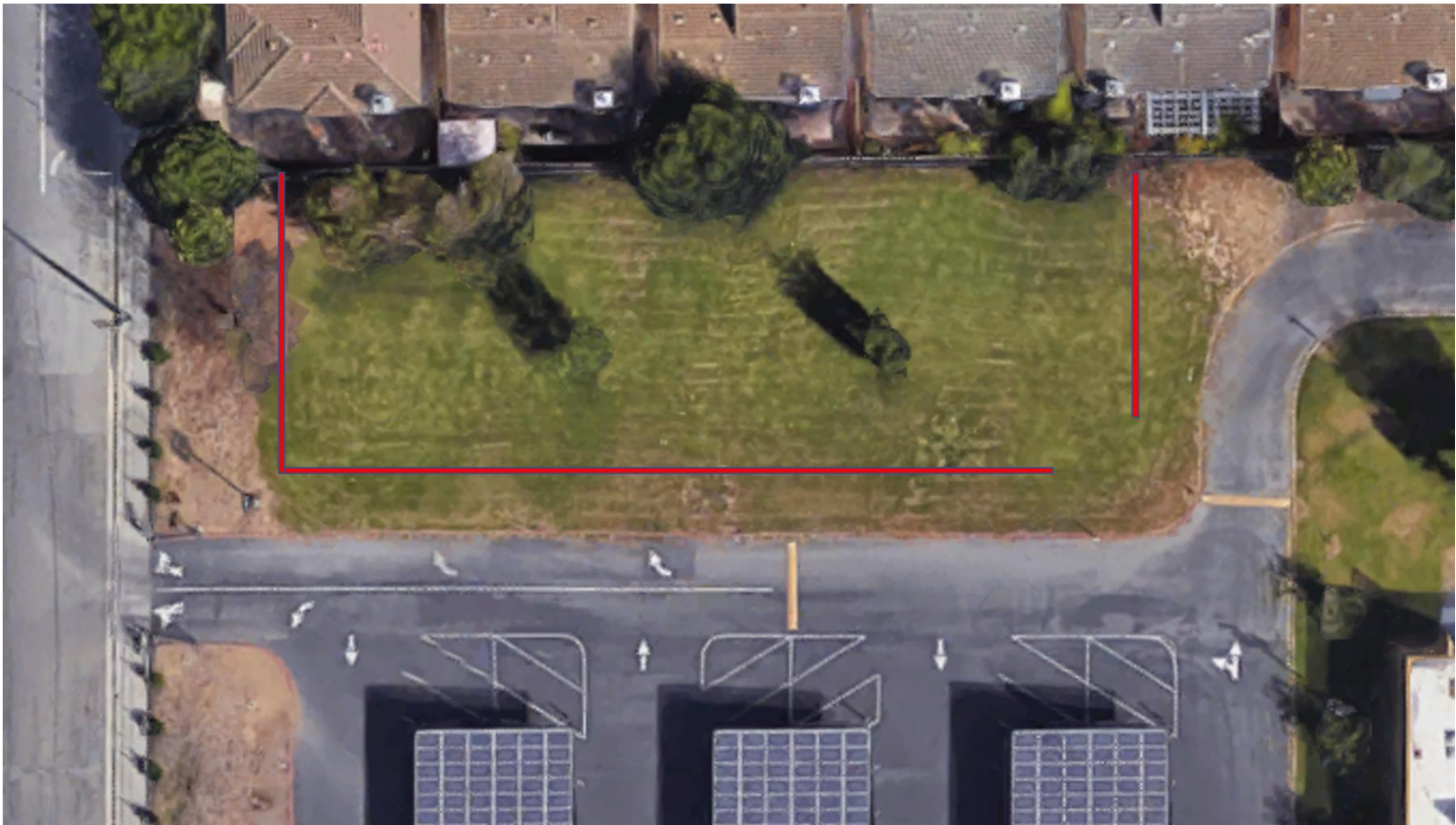
Project Budget

$$\text{\$ } 4/\text{ft}^2 \times 7,560 \text{ ft}^2 = \text{\$ } 30,240$$

- \$2 ft² from SCVWD
- \$2 ft² from DWR
- CCC Rate = \$20/hour/crew member
 - 10 hour days
 - 10 crew members per day minimum

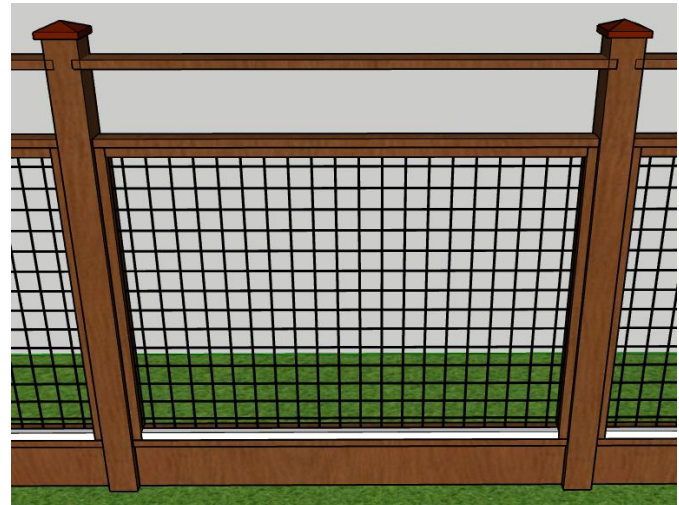
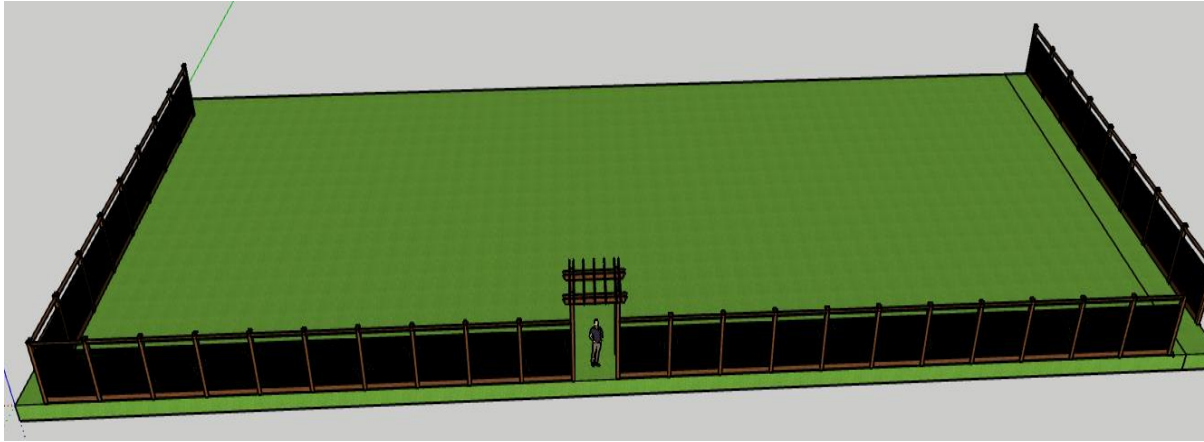


FUTURE HOME OF TERRA PROJECT
Yerba Buena High School
(Teaching Environmentally Responsible and
Respectful Attitudes)



TERRA Project – Yerba Buena High School, San Jose Pre-Construction





TERRA – Original Student Sketch Up Design

TERRA Project Scope of Work

Site Preparation - By Yerba Buena High School Students and Staff



TERRA Project Scope of Work

Site Preparation - By Yerba Buena High School Students and Staff



TERRA Project Scope of Work

Site Preparation – Edging for Sheet Mulching



TERRA Project Scope of Work

Site Preparation – Irrigation Retrofit



TERRA Project Scope of Work

Irrigation Infrastructure Retrofit



Recycled Water Irrigates Ornamentals and Fruit Trees
Outside Fence



TERRA Project Scope of Work

Irrigation Infrastructure Retrofit



Potable Water Zones Created for Ornamental Landscape Inside Fence



TERRA Project Scope of Work

Irrigation Infrastructure Retrofit



Hunter 6-Station Node Controller Powered by Solar Panel

TERRA Project Scope of Work

Completed Planting



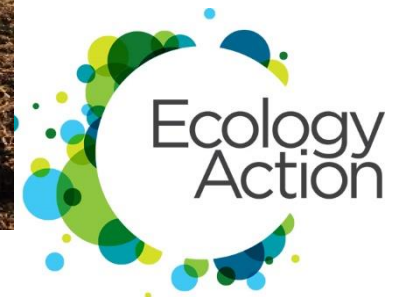
TERRA Project - Yerba Buena High School, San Jose Completed planting and permeable pathways



TERRA Turf Retrofit Estimated Project Savings

238,000 gallons/year (0.73 AF)
14.6 AF over 20 years!

0.35 MTCO₂e from reduced water pumping
9.2 MTCO₂e from reduced mowing maintenance



TERRA Project Challenge – Labor Shortage and Delays



TERRA Project Challenge - Permeable Stair Entry





Thank you!

Sherry Lee Bryan

sbryan@ecoact.org

www.ecoact.org

SANTA CLARA VALLEY WATER NEWS

ARTICLES ABOUT SANTA CLARA VALLEY WATER DISTRICT



POSTED ON DECEMBER 15, 2017 BY VALLEY WATER NEWS

PROJECT TERRA: POSSIBLY, THE BEST LANDSCAPE PROJECT EVER





Sherri Osaka

Sustainable Landscape Design

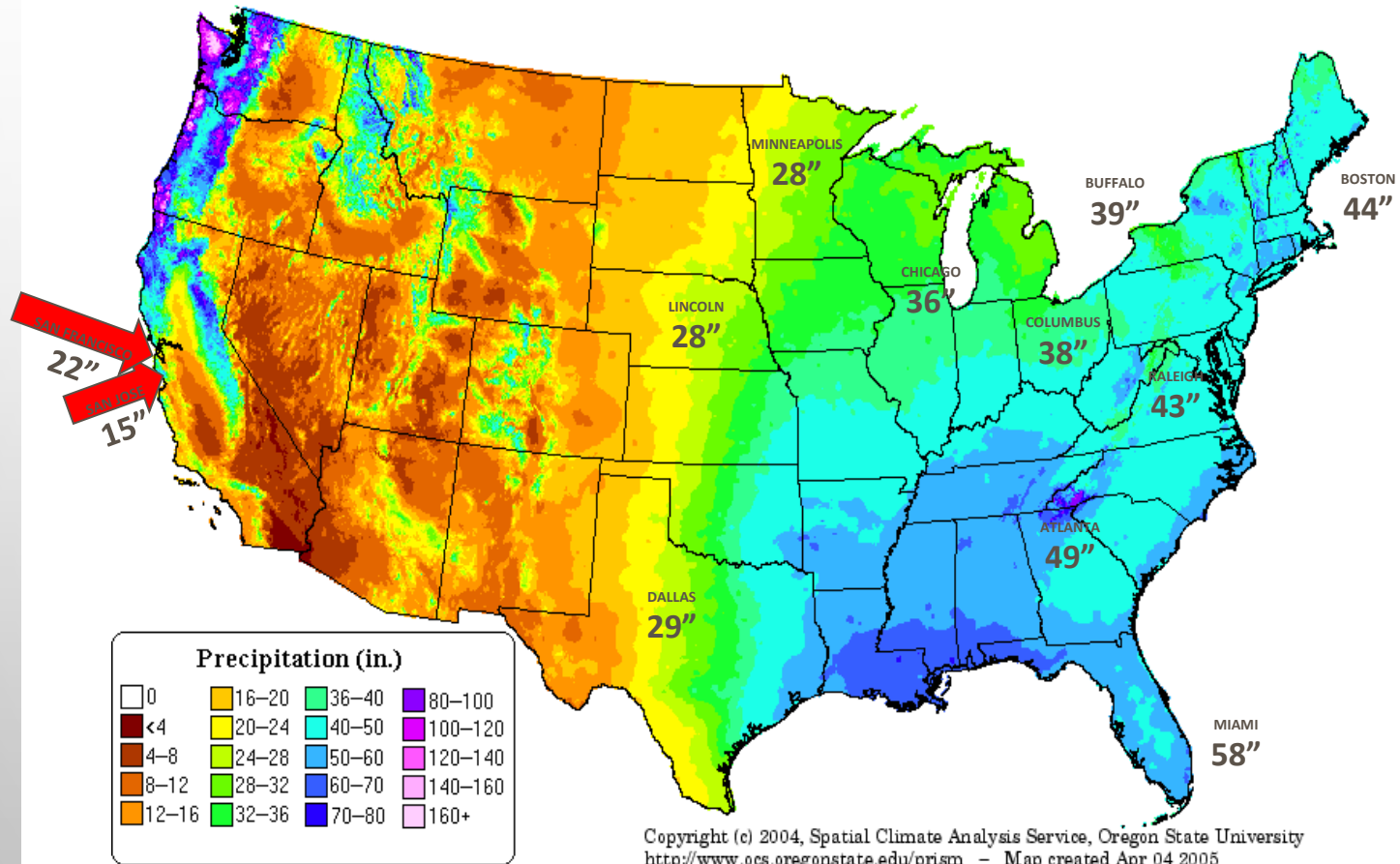
The background of the slide is a light gray gradient, decorated with numerous realistic water droplets of various sizes. Some droplets are clustered in the top left corner, while others are scattered across the bottom right. The droplets have highlights and shadows, giving them a three-dimensional appearance.

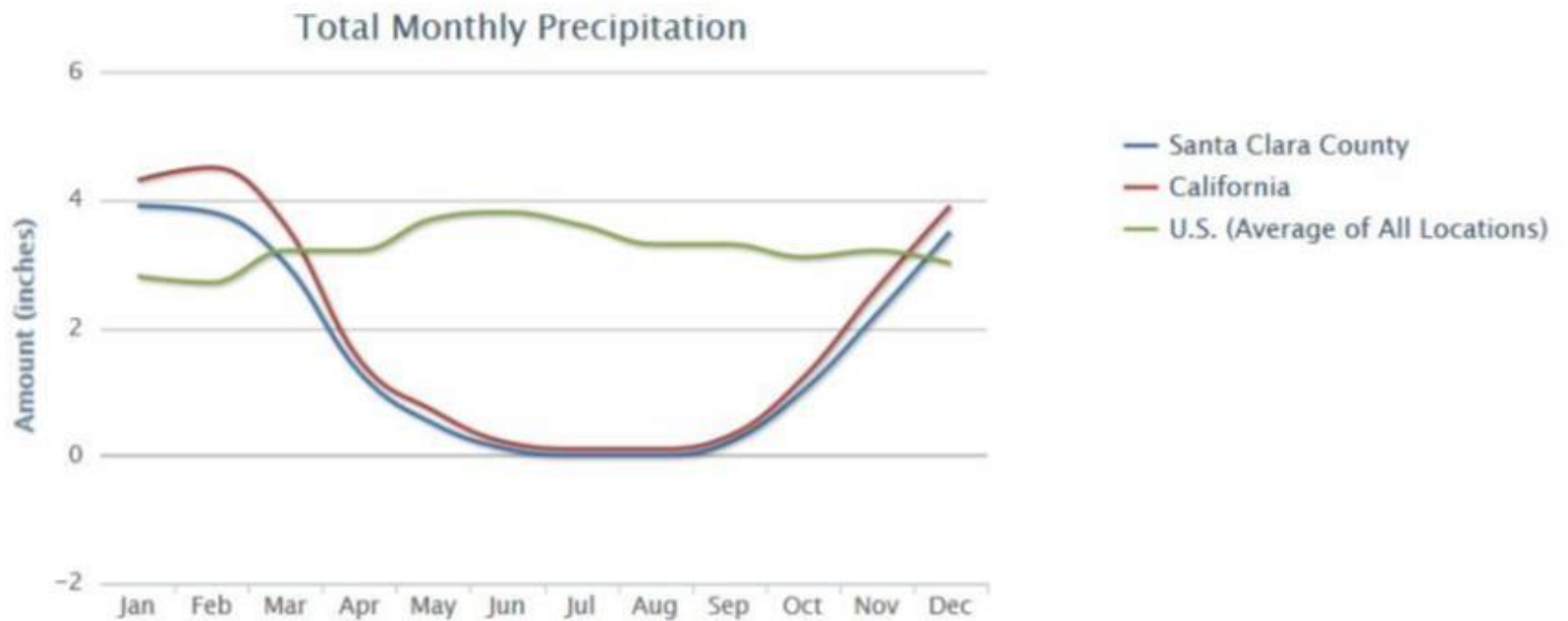
SAVING WATER FOR OVER 20 YEARS

100,000 GALLONS/ YEAR

SHERRI OSAKA, LANDSCAPE ARCHITECT, SUSTAINABLE LANDSCAPE DESIGNS

ANNUAL PRECIPITATION



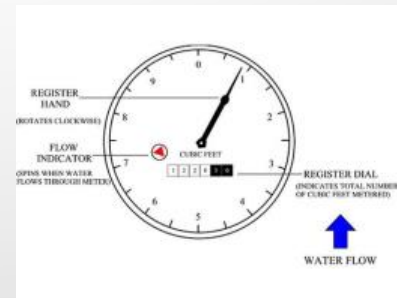


<http://www.usa.com/santa-clara-county-ca-weather.htm>

728980000040000000000000000000001064010

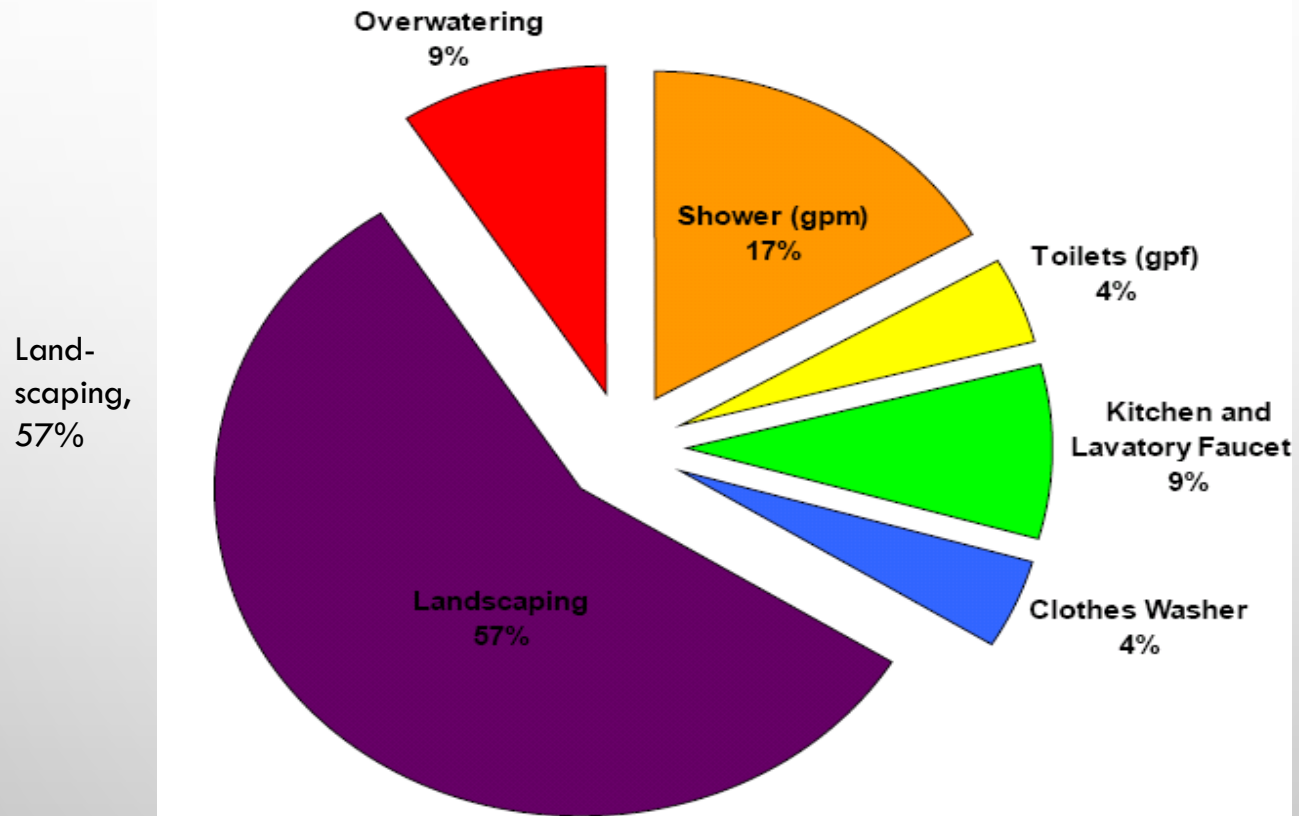
CHECK FOR LEAKS

READ YOUR WATER METER ONCE PER YEAR

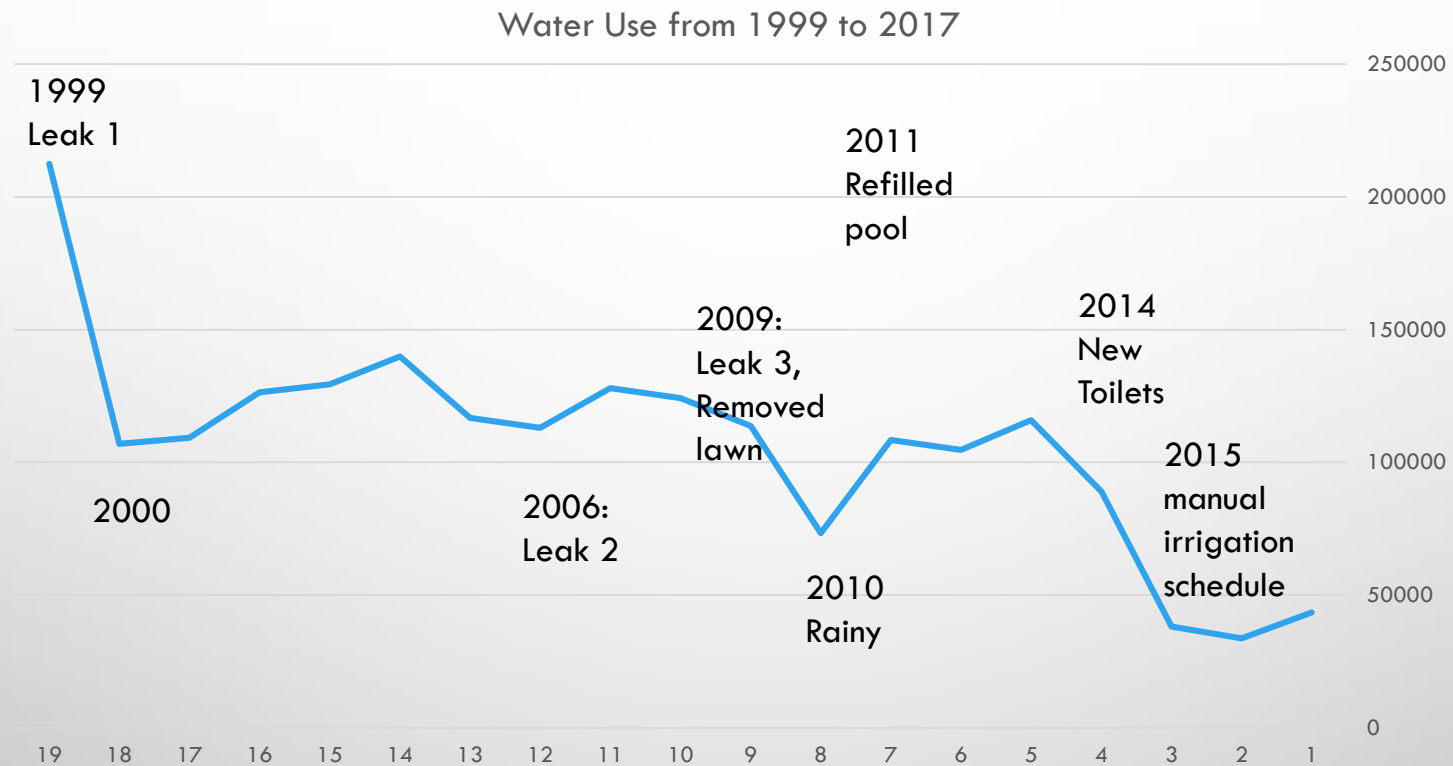


EPA says that one in every 10 homes has a leak that is wasting at least 90 gallons of water per day.

New Home Water Use - 174,000 Gallons/year



Source: California Building Industry Association report, January 2010



WATER SAVINGS: 100,000 GALLONS/ YR, \$600/ YR

SAN JOSE: 10,000 SF LOT W/ POOL



Before circa 1994



Before circa 2007

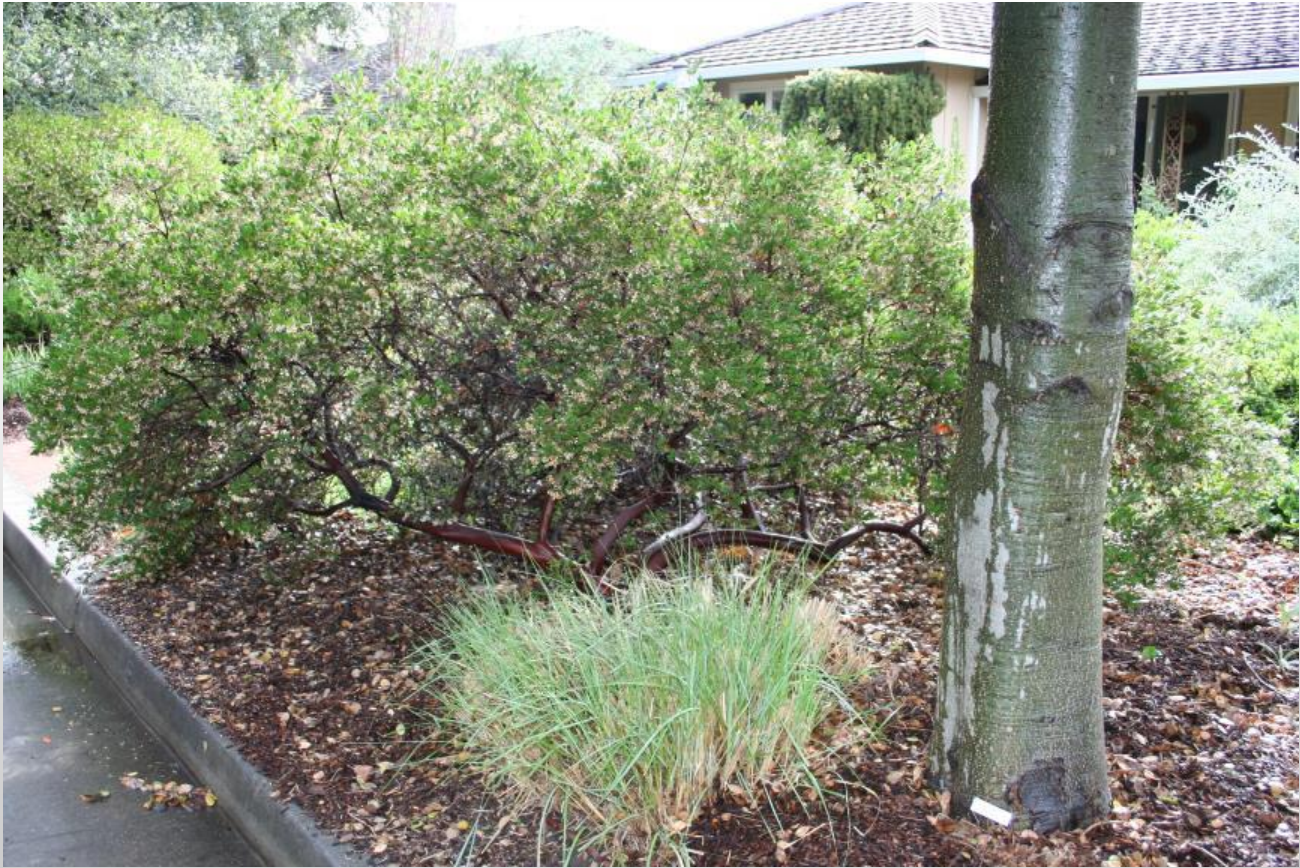


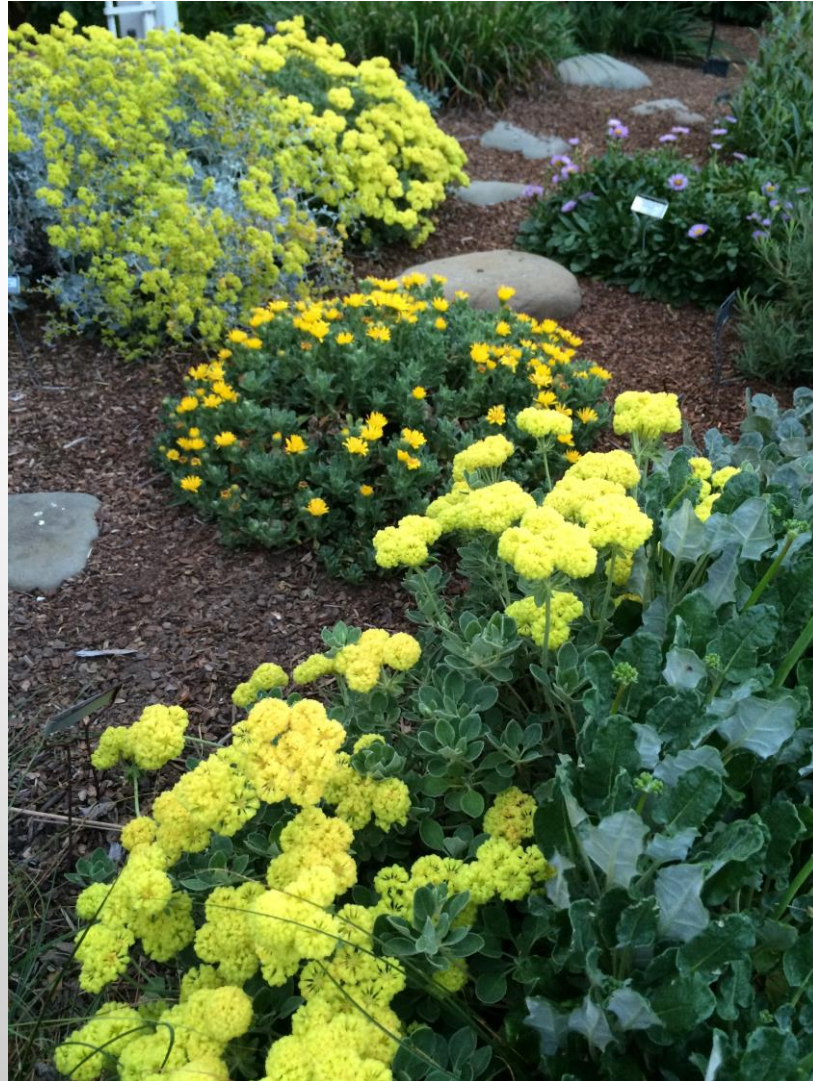














The California Native Plant Society (Santa Clara Valley Chapter)
in association with
UCCE Master Gardeners of Santa Clara County
presents the



14th Annual Going Native Garden Tour

Saturday, April 9, 2016, 10am-4pm:

NORTHERN GARDENS: Sunnyvale, Mountain View,
Palo Alto, Los Altos, and San Mateo County

Sunday, April 10, 2016, 10am-4pm:

SOUTHERN GARDENS: Cupertino, Santa Clara,
Campbell, San Jose and south

SPONSORS:

Bay Area Water Supply &
Conservation Agency • Lyngbo
Garden Materials • Santa Clara
Valley Water District • Santa
Clara Valley Urban Runoff
Pollution Prevention Program •
Friends of Master Gardeners •
Gold Rush Nursery • Central
Coast Wilds Nursery • East Bay
Wilds Nursery • Acterra •
Middlebrook Gardens •
Mediterranean Garden Society •
Lerner Seeds

SUPPORTERS:

Don Edwards San Francisco Bay
National Wildlife Refuge • Native
Revival Nursery • Our City
Forest • Yorta Bueso Nursery •
Capitol Wholesale Nursery •
Gardening With Natives •
Altamira Valley Nursery • Bay
Natives Nursery • Waterlily
Watch • Santa Clara Valley
Audubon Society

To sponsor or support the tour,
contact info@gngt.org

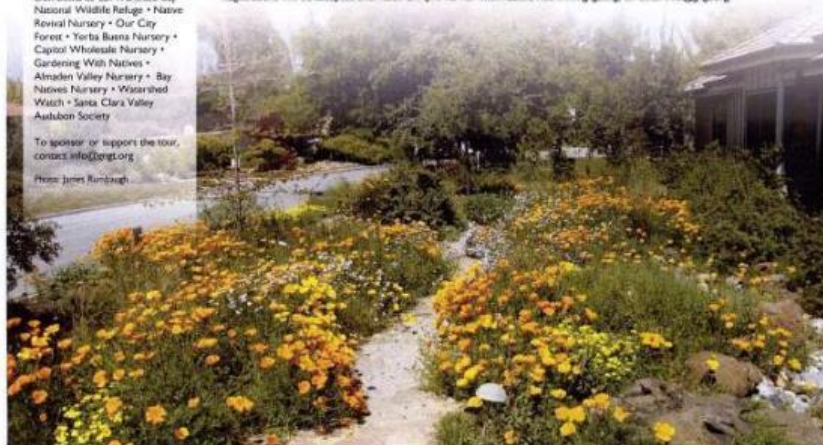
Photo: James Runkel

VISIT HOME GARDENS WITH CALIFORNIA NATIVE PLANTS

- WATER-WISE
- BEAUTIFUL
- HABITAT RICH
- LOW MAINTENANCE
- CHOOSE FROM OVER 50 GARDENS
- SANTA CLARA VALLEY & PENINSULA
- SELF-GUIDED TOUR
- OPEN GARDEN FORMAT

**Free admission • Register at www.gngt.org
Plant sales and talks at select gardens**

Garden information, maps, and directions will become available to registrants the week of March 21.
Registrations will be accepted until noon of April 10. For information, visit www.gngt.org, or email info@gngt.org.



16th Annual
Going Native
Garden Tour
2018:

Saturday, April 7
North

Sunday, April 8
South

- LESSONS LEARNED:
- CAREX PANSA
 - NEEDS A ROOT BARRIER
 - MOW WITH A GAS MOWER OR ELECTRIC HEDGE TRIMMERS ONCE OR TWICE PER YEAR, NOT IN LATE SPRING!
- COASTAL NATIVES NEED MORE WATER IN THE SUMMER AND SHOULD BE ON A SEPARATE IRRIGATION ZONE
- “DEAD” LOOKING COASTAL NATIVES WILL COME BACK IN THE FALL
- LOW GROWING MANZANITAS AND CEANOTHUS ARE COASTAL
- CHAPARRAL PLANTS CAN GO WITH ALMOST NO WATER, BUT APPRECIATE MONTHLY IRRIGATION
- CREATE AREAS THAT DON'T REQUIRE IRRIGATION AFTER ESTABLISHMENT: VERY LOW WATER PLANTS SUCH AS: OAKS, SHRUBBY MANZANITAS, DEER GRASS, SUBSHRUB NATIVE SAGES, ETC.
- ORGANICALLY MAINTAINED SOIL HOLDS A LOT OF WATER AND THE SOIL LEVEL WILL ALSO RISE
- KEEP WATER ON-SITE WITH DRY WELLS, DOWN SPOUT EXTENDERS, RAIN GARDENS, ETC.

Golden Love

Love's Gardens

Water Neutral: A Case Study

2018 Landscape Summit

February 1, 2018

**A Water Neutral Garden uses zero
municipal or well water**



Design Principle

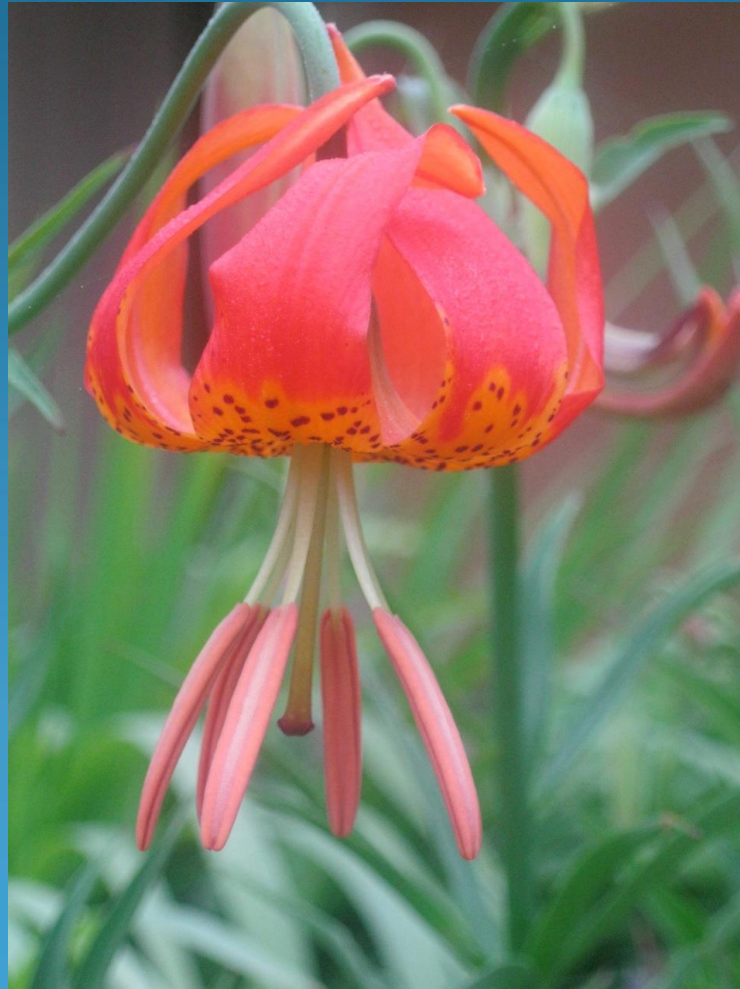
Supply = Demand



**Water Neutral is a solution,
practical action.**



It is transitional, a goal.



Guiding principles

Abundance & Possibilities

Purpose of Project

- ✕ Reduce environmental foot print
- ✕ Save \$
- ✕ Harness all possible sources of water
- ✕ Reduce impact on septic system
- ✕ Self-sufficiency

Scope of Work

Harvest Grey and Rain Water

Change drip system and faucets to rainwater



Budget and Funding

- ✕ Rain water harvesting \$7,043
- ✕ Greywater harvesting \$2,745
- ✕ Co-Creation to reduce costs
- ✕ Self funded

Job # 1 — Site Analysis



Most plants are low water use



Soil is sandy loam over sandy clay loam

Map Unit Description: Elkhorn-Pfeiffer complex, 30 to 50 percent slopes—Santa Cruz County, California

Santa Cruz County, California

136—Elkhorn-Pfeiffer complex, 30 to 50 percent slopes

Map Unit Setting

National map unit symbol: h9dv
Elevation: 50 to 5,000 feet
Mean annual precipitation: 14 to 55 inches
Mean annual air temperature: 57 to 64 degrees F
Frost-free period: 245 to 275 days
Farmland classification: Not prime farmland

Map Unit Composition

Elkhorn and similar soils: 45 percent
Pfeiffer and similar soils: 25 percent
Minor components: 13 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Elkhorn

Setting

Landform: Terraces
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Marine deposits

Typical profile

H1 - 0 to 21 inches: sandy loam
H2 - 21 to 61 inches: sandy clay loam, clay loam
H2 - 21 to 61 inches:

Properties and qualities

Slope: 30 to 50 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat):
Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Very high (about 15.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: C
Ecological site: FINE LOAMY (R014XD034CA)
Hydric soil rating: No

Indoor Water Consumption

- × Washing machine 26-39 gallons per week
- × Shower 175 gallons per week
- × Bathroom Sink 36 gallons per week
- × Total 237 - 250 gallons of GW per week

Rain Water Harvesting Design Checklist

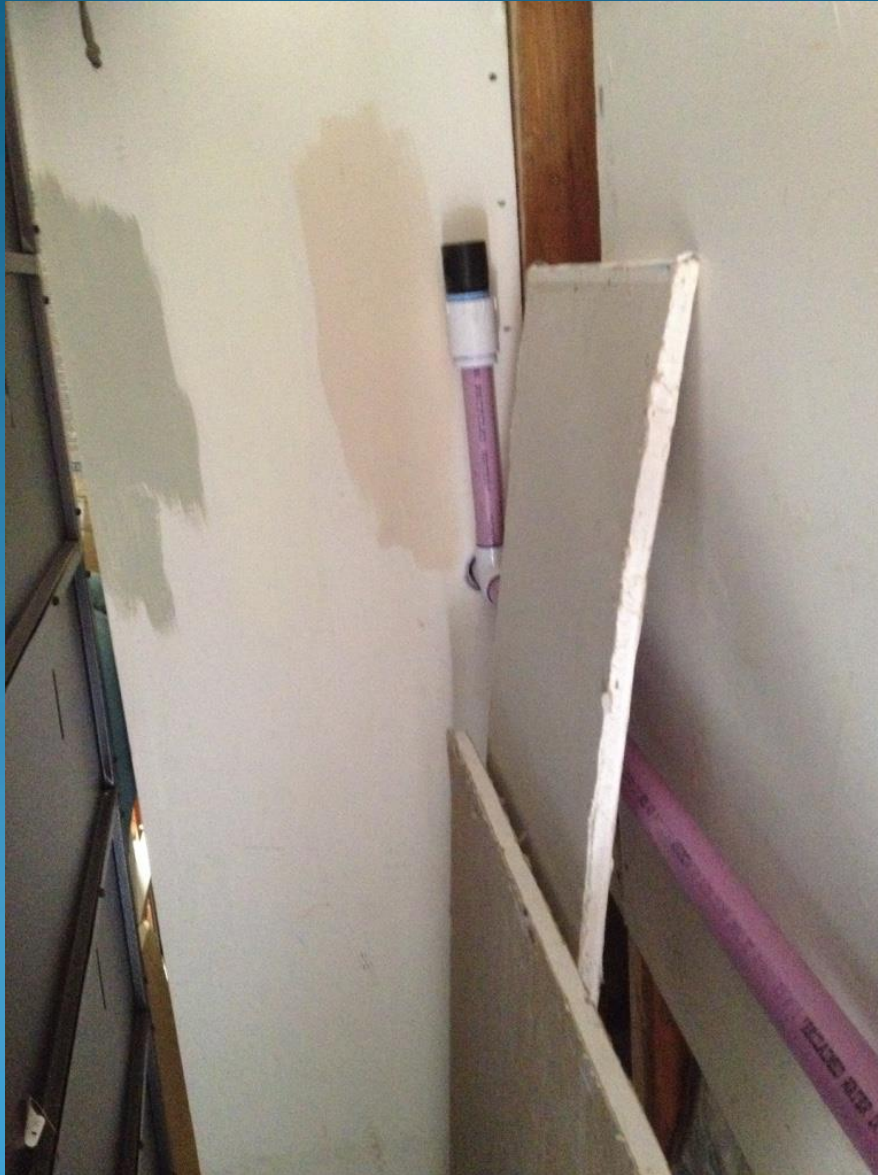
- ✕ Measure roof area, roofing material?
- ✕ Condition of gutters, do they need screening
- ✕ Locate all downspouts to be connected
- ✕ Size first flush diverter
- ✕ Volume of water from downspouts, size piping
- ✕ Location of tank(s)
- ✕ Pressure booster pump needed? Electricity
- ✕ Where is overflow going?

Design Notes

- × 1510 square foot roof
- × 14-55 inches of rain per year
- × 825 gallons per 1" rainfall
- × 11,550 - 45,375 gallons per year
- × 15.8 inches of potential storage in soil profile
- × 13,035 gallons of water per 1,000 square feet

Greywater Harvesting









Rainwater Harvesting













Water Savings

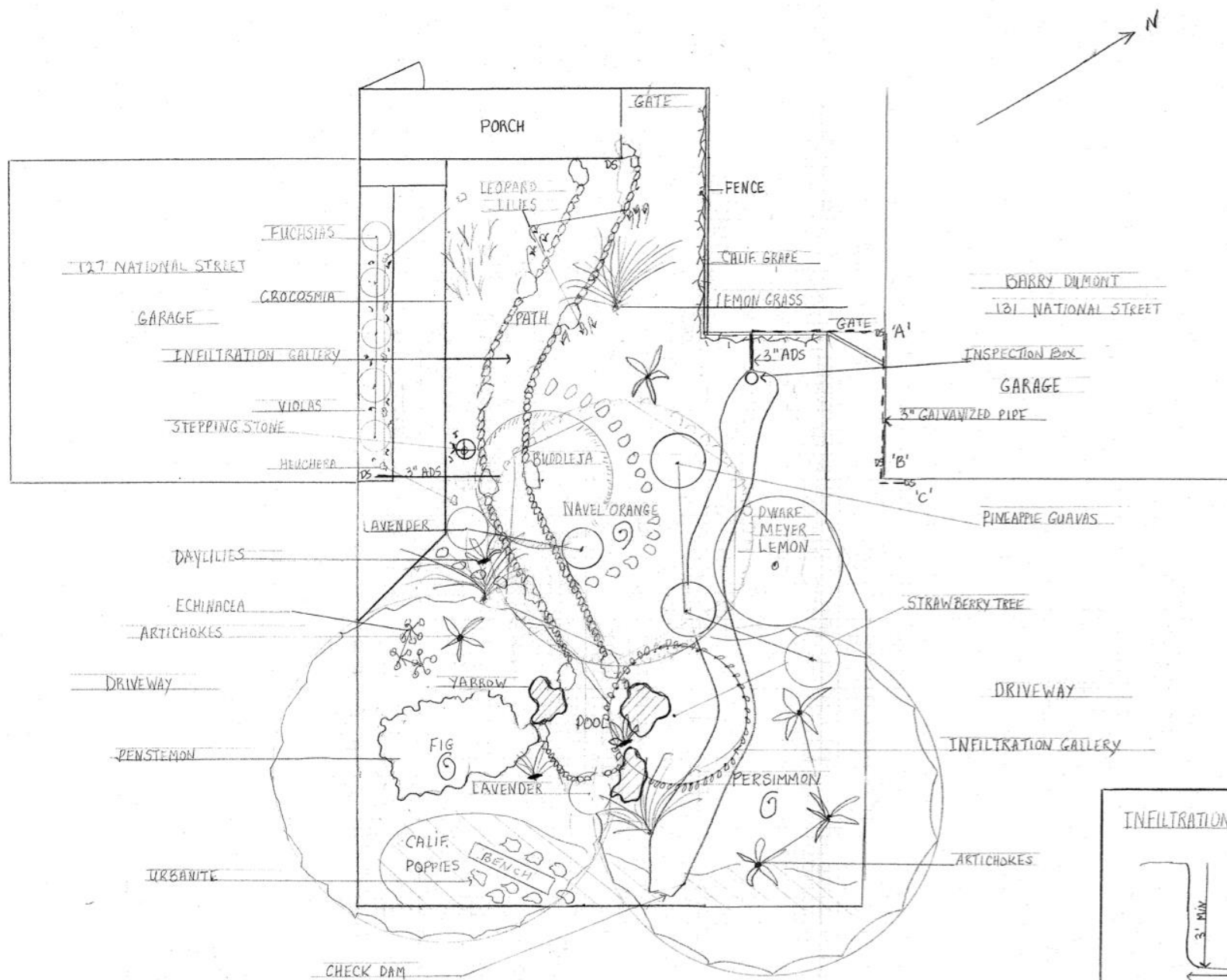
- ✕ We will know next year
- ✕ Owners are water managers

Challenges/Learning

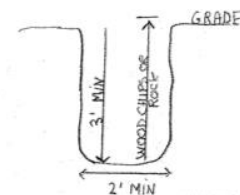
- ✗ Still learning the basics of co-creation
- ✗ Use a pre-filtration filter that can handle surges better



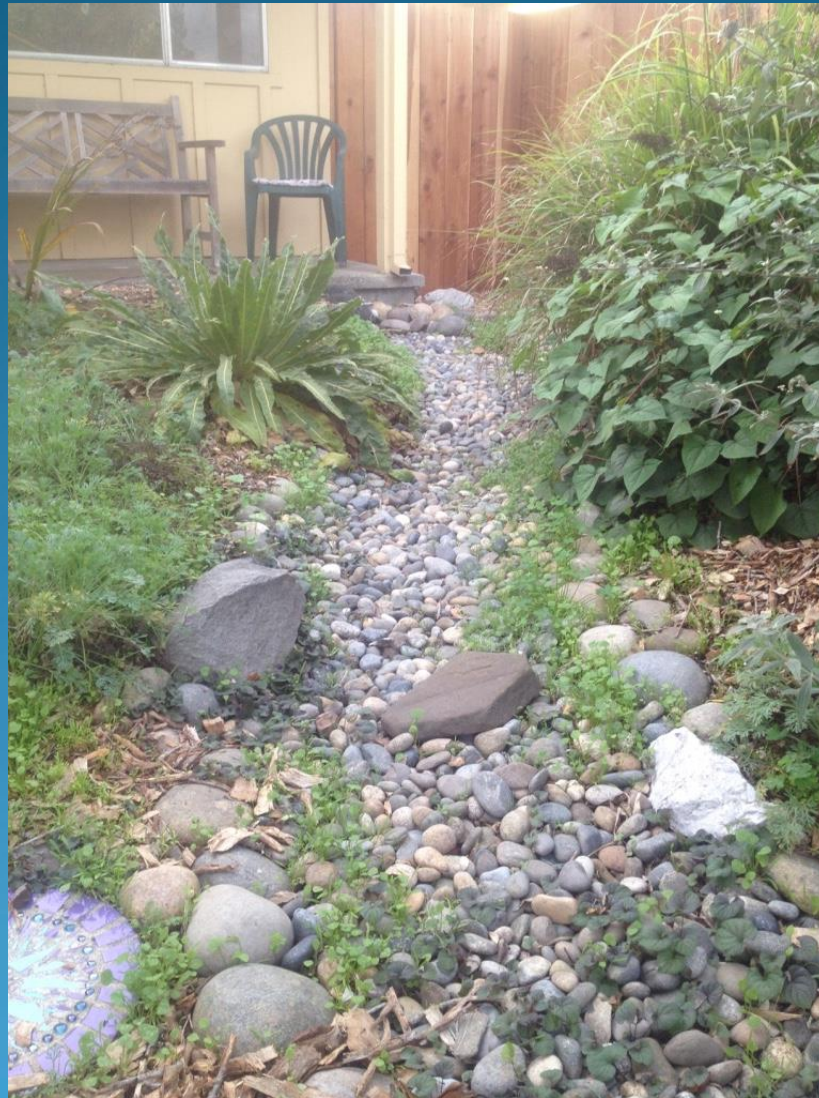
100% Water Neutral



INFILTRATION GALLERY DETAIL



SCALE 1/2" = 1.0'



Costs: 127 National St. Infiltration Gallery

- ✕ Rock—used on-site material (free)
- ✕ Piping—5' scrap left over from job (free)
- ✕ Downspout adapter \$3.99
- ✕ Elbow \$5.89
- ✕ TOTAL COST \$9.99



Think Abundance and Possibilities

YOU are part of the transformation

Need more information?

- × websoilsurvey.nrcs.usda.gov
- × HarvestingRainwater.com
- × arsca.org (water harvesting info)
- × rcdsantacruz.org (for free drainage manual)
- × oasisdesign.net
- × lovesgardens.com
- × goldenlove@lovesgardens.com
- × Golden Love (831) 471-9100

CASE STUDIES

Questions and Answers

Small Group Work Session

Landscape Scenarios

End of Summit

- 1) Thank you so much for attending!
- 2) Keep an eye out for our follow up emails in the coming weeks.
- 3) Please turn in your Feedback Forms

