Welcome to the Landscape Summit

Santa Clara Valley Water District SM

AGENDA

- State of Water in CA/Santa Clara Co.
- Case Studies
- Break
- Small Group Break Out Session
- Lunch
- Report out from Small Groups
- End of Summit – prize drawing
- Vendor Fair

State of Water in CA/Santa Clara Co.

Ashley Carter Shannon

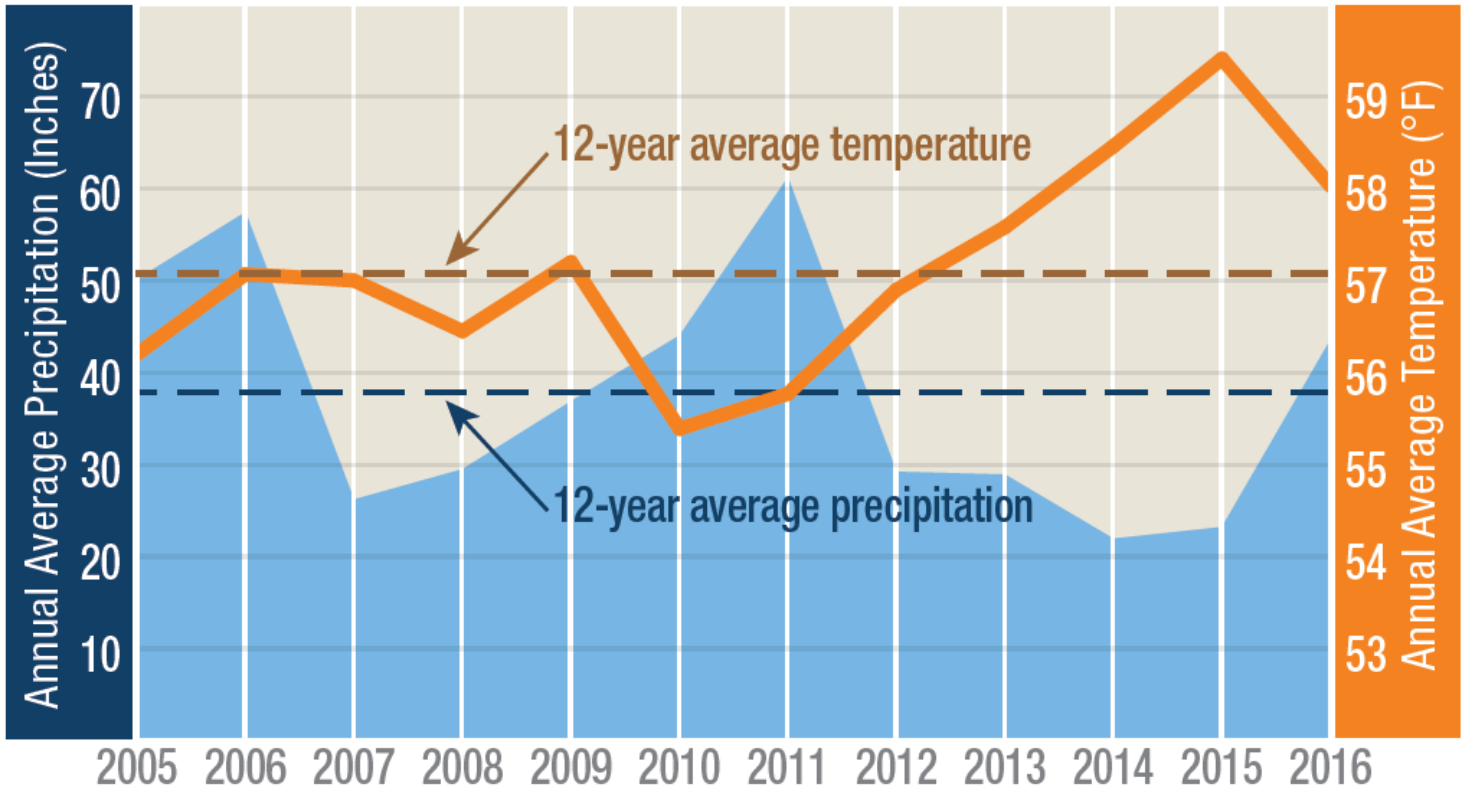
Water Conservation Specialist II

Water Supply Planning

and Conservation Unit

Santa Clara Valley Water District

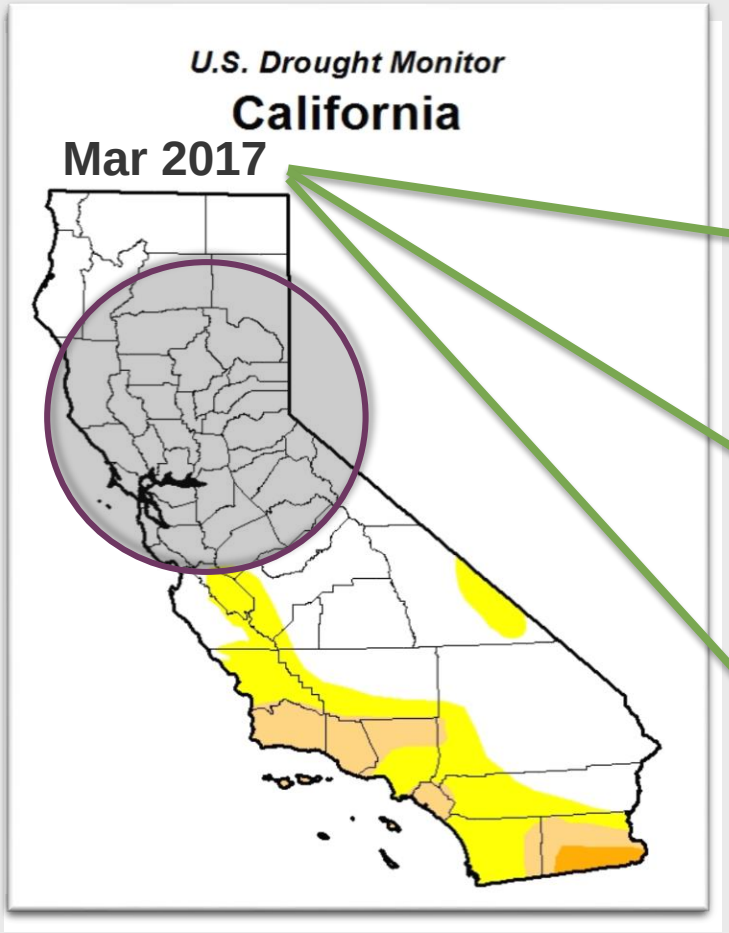
California's Historic 5 Year Drought

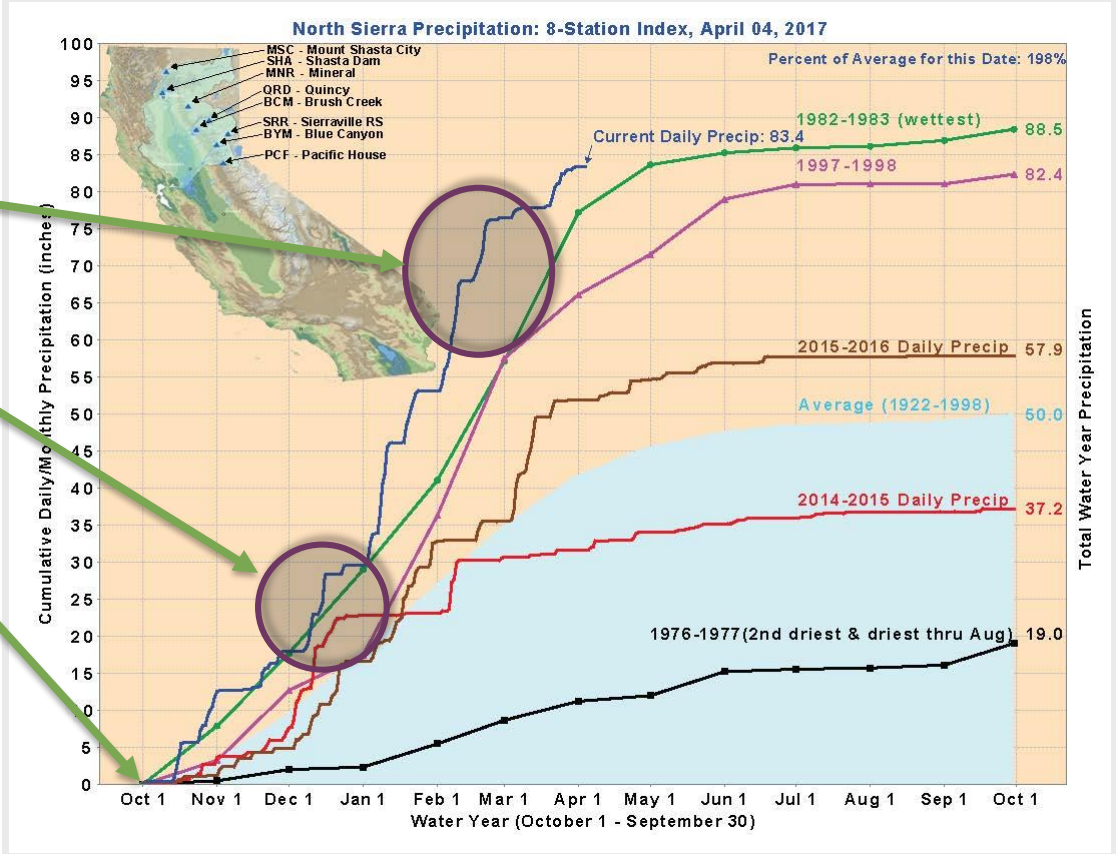


California has experienced near-record temperatures in recent years.
Source: California Department of Water Resources

End of 2012 to 2016 Drought Emergency

Drought is a deficiency in precipitation over an extended period, usually a season or more, resulting in a water shortage causing adverse impacts on vegetation, animals, and/or people. It is a normal, recurrent feature of climate that occurs in virtually all climate zones, from very wet to very dry. NOAA

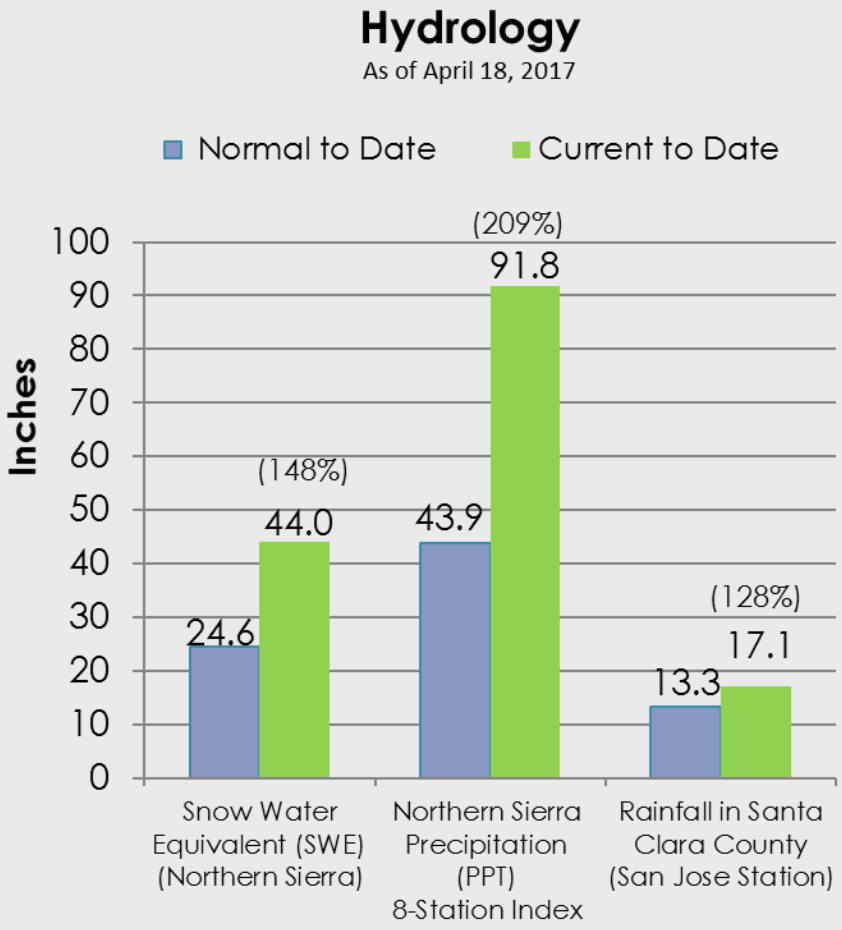


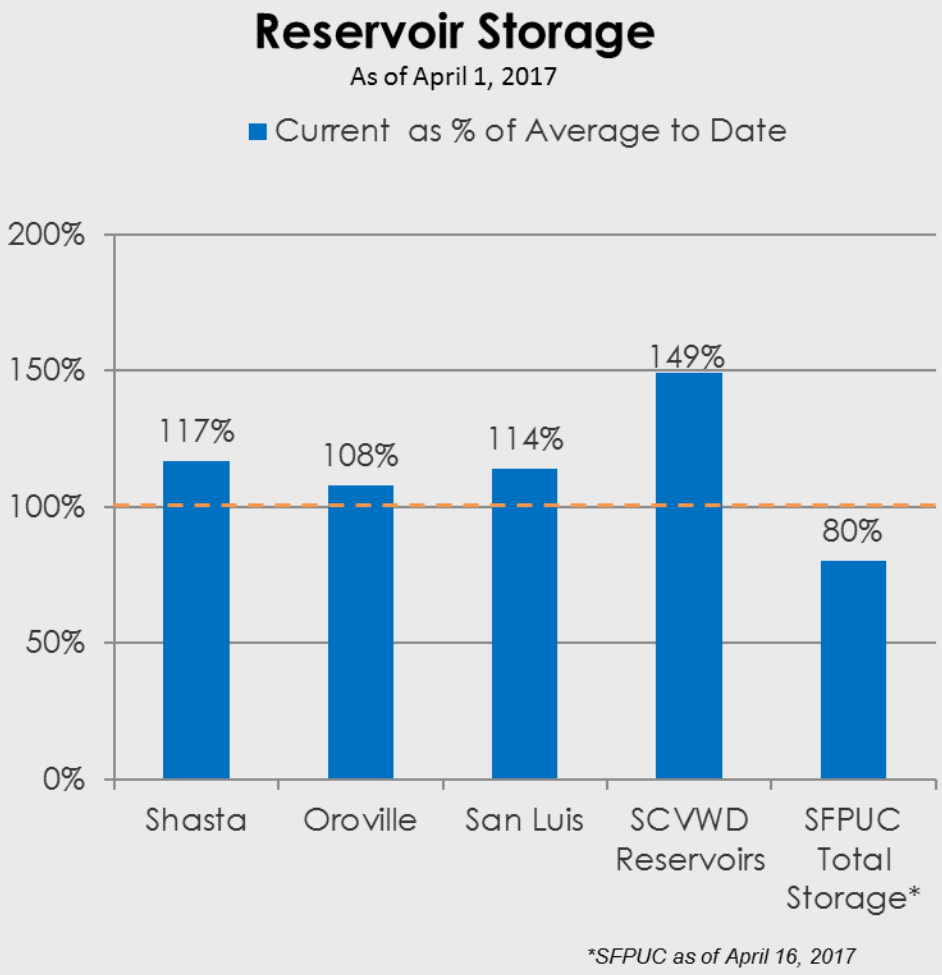


Also, the April 1, northern Sierra Nevada, the manual survey at Phillips Station snowpack's water content as 183 percent of average.

2016/17 Hydrologic and Reservoir Conditions

HYDROLOGIC CONDITIONS ABOVE AVERAGE





SFPUC as of April 16, 2017

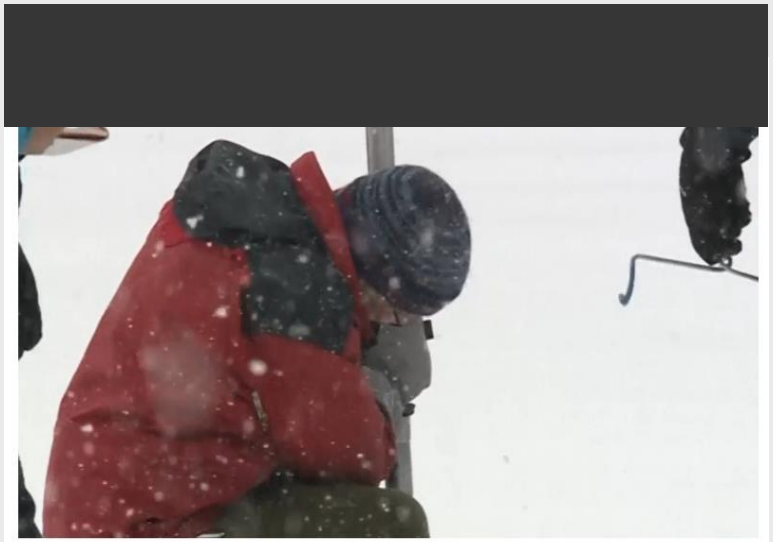
Governor Executive Order

Terminate Drought State of Emergency (except some counties)

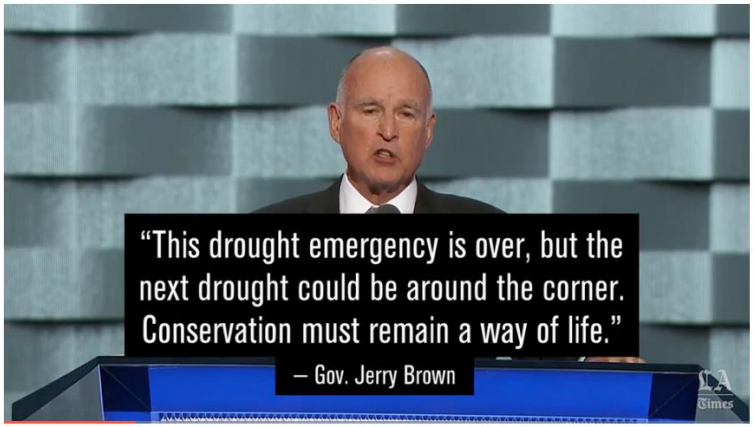
Rescinds Emergency Proclamation and Executive Orders

Keeps provisions in EO B-37-16, such as: monthly reporting and water waste prohibitions.

Rescinds mandatory conservation and stress tests



(Reuters)



(April 7, 2017; LA Times)

Permanent Prohibitions on Water Waste

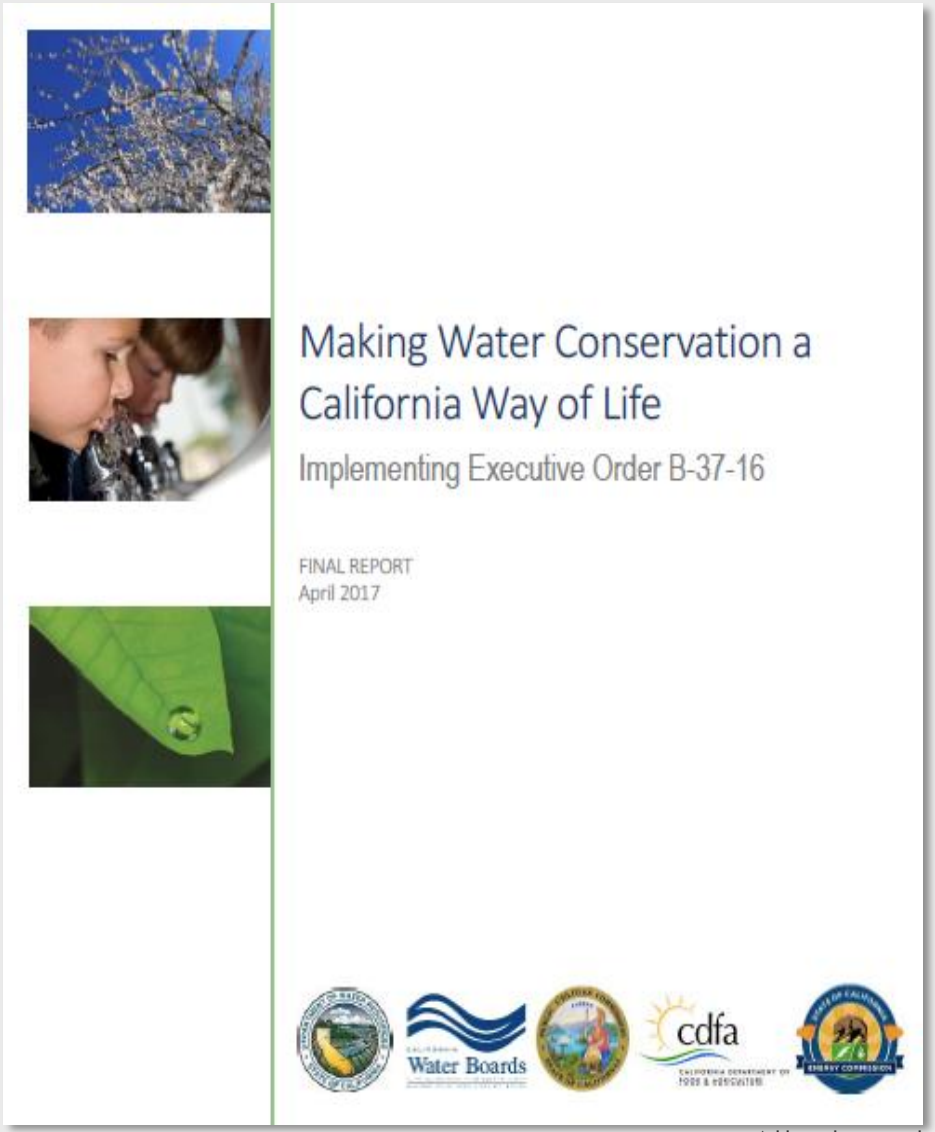
- Permanent Landscape Related Prohibitions:
  - Hosing off sidewalks, driveways and other hardscapes;
  - Application of potable water to outdoor landscapes during and within 48 hours after measurable rainfall;
  - Watering lawns in a manner that causes runoff;
  - Irrigating ornamental turf on public street medians;
  - Using non-recirculated water in a fountain or other decorative water feature;

State Transition 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.



2017 Local Outlook

85% - SWP Allocation (85 TAF)

100% - CVP M&I Allocation (152.5 TAF)

Up to 74% - Semitropic Storage (put up to 60 TAF)

308 TAF- End of Year Groundwater Storage

Water Shortage Contingency Plan Stages

Normal (Stage 1)
No water use reductions

Projected 2017 EOY Storage →

	Above 300,000 AF
Alert (Stage 2) *0-10% reductions*	250,000 – 300,000 AF
Severe (Stage 3) *10% -20% reductions*	200,000 – 250,000 AF
Critical (Stage 4) *20% -40% reductions*	150,000 – 200,000 AF
Emergency (Stage 5) *40% -50% reductions*	Below 150,000 AF

End of Year (EOY) Groundwater Storage

2016 Retail Water Use and Reductions

THE COMMUNITY HAS EXCEEDED THE CALL FOR 20%!

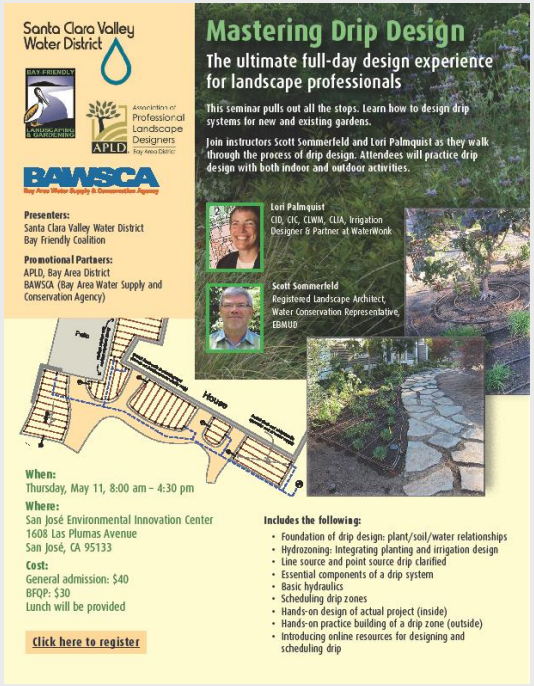
2016	North County Ground water	South County Ground water	Treated Water	SFPUC	SJWC Surface	2016 Monthly Use	2016 Cumulative Use	*Cumulative District Source Savings*	*Cumulative NonDistrict Source Savings*	All Sources Cumulative %Savings from 2013 <+> savings
Jan	3,894	1,085	4,789	2,458	489	**12,715**	**12,715**	*4%*	*44%*	**18%**
Feb	3,238	1,041	5,037	2,581	951	**12,848**	**25,563**	*10%*	*37%*	**19%**
Mar	3,562	1,149	4,950	3,053	1,282	**13,996**	**39,559**	*22%*	*24%*	**23%**
Apr	4,367	1,315	5,050	3,355	1,857	**15,944**	**55,503**	*30%*	*17%*	**27%**
May	3,864	1,622	7,855	4,396	1,919	**19,654**	**75,157**	*35%*	*12%*	**29%**
Jun	5,291	1,849	10,264	4,472	1,005	**22,882**	**98,039**	*34%*	*11%*	**28%**
Jul	6,405	2,060	11,365	4,647	0.3	**24,477**	**122,516**	*32%*	*14%*	**28%**
Aug	5,447	2,178	11,834	4,648	0.3	**24,107**	**146,623**	*31%*	*16%*	**28%**
Sep	3,696	2,062	12,328	4,591	0.3	**22,678**	**169,301**	*30%*	*16%*	**27%**
Oct	2,905	1,788	10,561	3,277	0.3	**18,532**	**187,833**	*30%*	*18%*	**27%**
Nov	3,265	1,393	7,099	2,695	1.8	**14,454**	**202,286**	*30%*	*19%*	**28%**
Dec*	3,539	1,333	6,190	2,428	60	**13,550**	**215,836**	*30%*	*20%*	**28%**
***Jan to Current**	**49,472**	**18,874**	**97,321**	**42,602**	**7,566**	**215,836**				
%Savings by Source of Supply	**43%**	**18%**	**23%**	**22%**	**3%**	**28%**				

SCVWD Board of Directors Response

- January 31, 2017, the Board of Directors approved a resolution calling for 20 percent reduction and continued certain water waste prohibitions, but removed the recommendation that retailers implement mandatory measures. The Board also called for continued restrictions on watering schedules to a maximum of three times a week.
- Continue to make conservation a way of life

SCVWD Response to 2016 Summit

- Education/Outreach
  - VOW Campaign
  - Increased nursery outreach
  - Greywater Workshops and handouts
  - Landscape Design/Maintenance Assistance Program
  - Water Wise Survey Program
  - Landscape professional training workshops



SCVWD Response to 2016 Summit, cont.

- Landscape Rebate Program Improvements:
  - Development of online application in progress
  - In-Line Drip Rebate added
  - Top 100 Plant list in the works
  - Low water use plant signs for nurseries
- Research Efforts:
  - Study launched to quantify the water savings from Landscape Rebate Program.

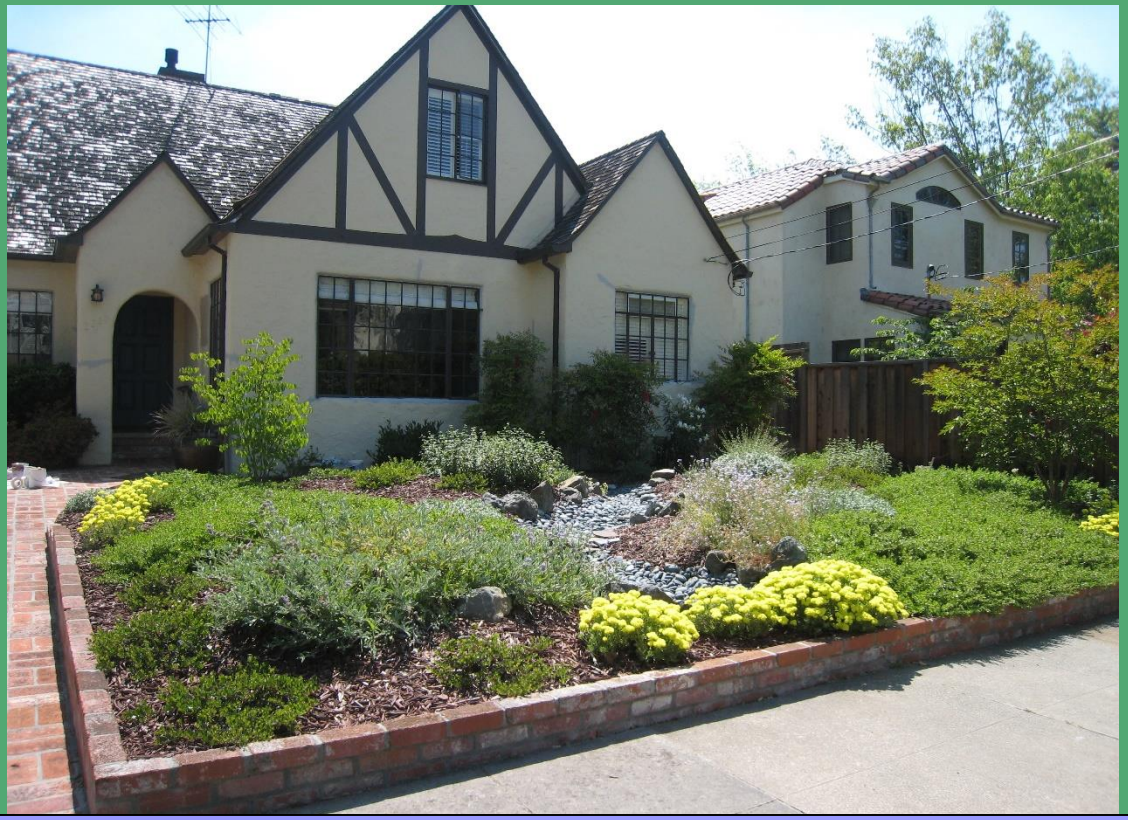
Landscape Community's Response to 2016 Summit

Since attending the Landscape Summit in 2016, what have you done to address the water challenges that were identified?	Response Ratio
Attended trainings on water-efficient landscape/irrigation practices	57.1%
Organized a training or workshop to promote water-efficient landscape/irrigation practices	35.7%
Created educational materials (handouts, newsletters, etc.) for clients to promote water efficiency	42.8%
Offered new services to clients aimed at water efficiency	50.0%
Promoted water efficient inventory (i.e. drought-tolerant plants, efficient irrigation equipment, Weather-Based Irrigation Controllers, etc.)	92.8%
Other	14.2%

CASE STUDIES

Stephanie Morris

Landscape Architect



Lawn Conversion to California Natives

Stephanie Morris, Landscape Architect

Before: August 2009

Project Location: Palo Alto

December 2009 – sheet mulch and planting

March 2010 –3 months after planting

May 2011: 17 months after planting

May 2011: 17 months after planting

July 2015: 5.5 years old

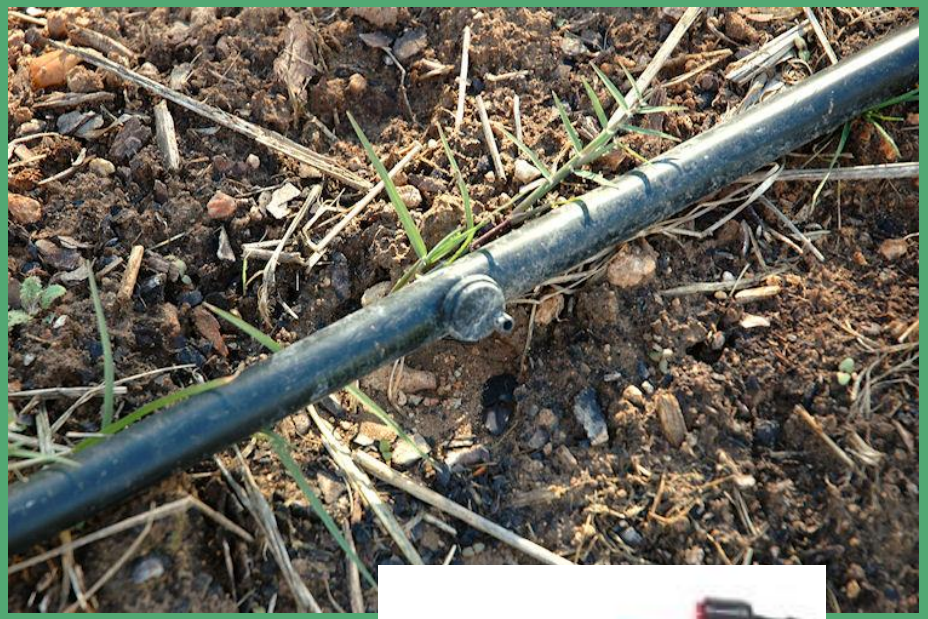
July 2015: 5.5 years old

Storm Water Catchment

Water from downspouts flows into dry creek feature

California Native Plants

Drip Irrigation



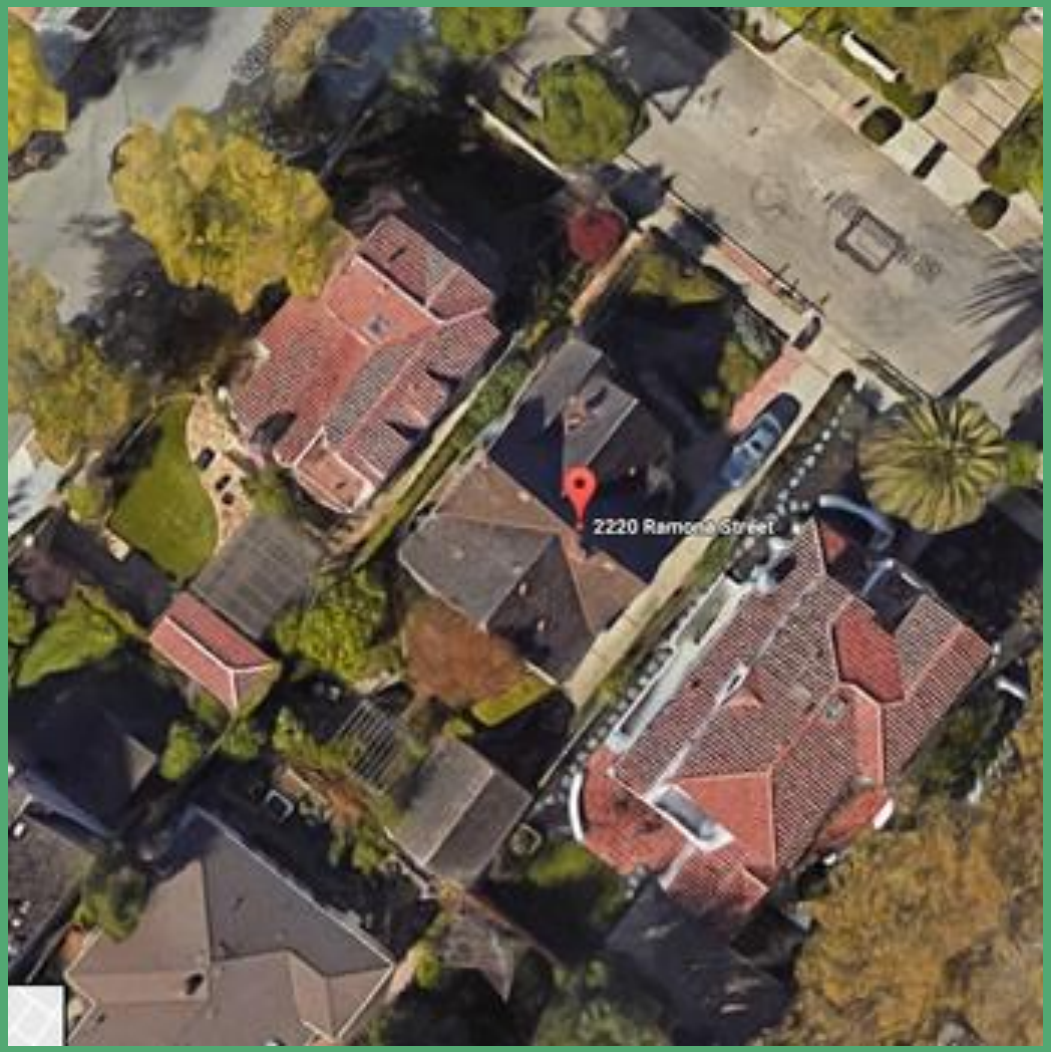
Poly Pipe Drip Irrigation

NOTE: This project was installed 7 years ago.
In current irrigation design projects, I now use inline drip systems which water the entire plant's mature root zone

Sheet Mulch

- Reduces weeds!
- Maintains soil temperature from extremes
- Holds water in the soil
- Decomposes +/- a year
- Improves soil biology

Google Maps View



Front lawn:
432 SF

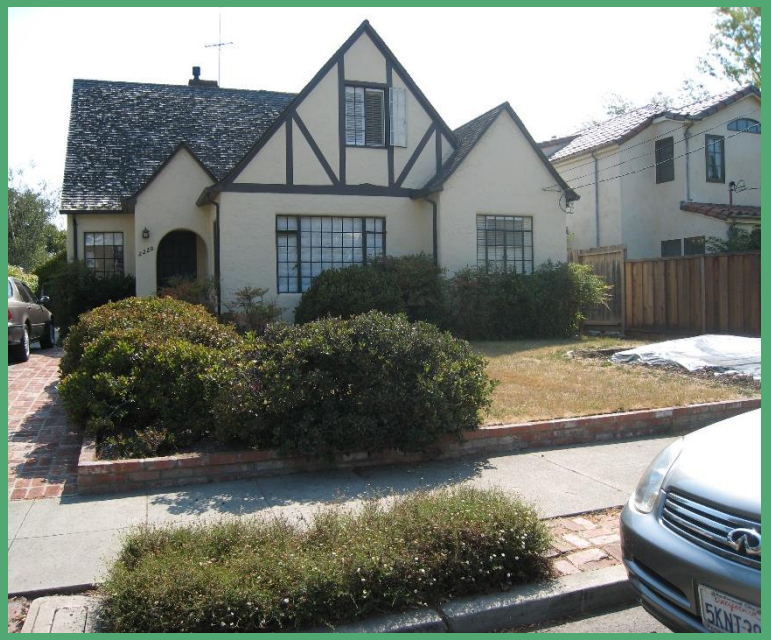
Front shrubs:
448 SF

Rear and side (no design changes):
751 SF

TOTAL
1631 SF

Front lawn: 26.5% of the landscape area

Lawn plus all front shrubs: 54% of landscape area



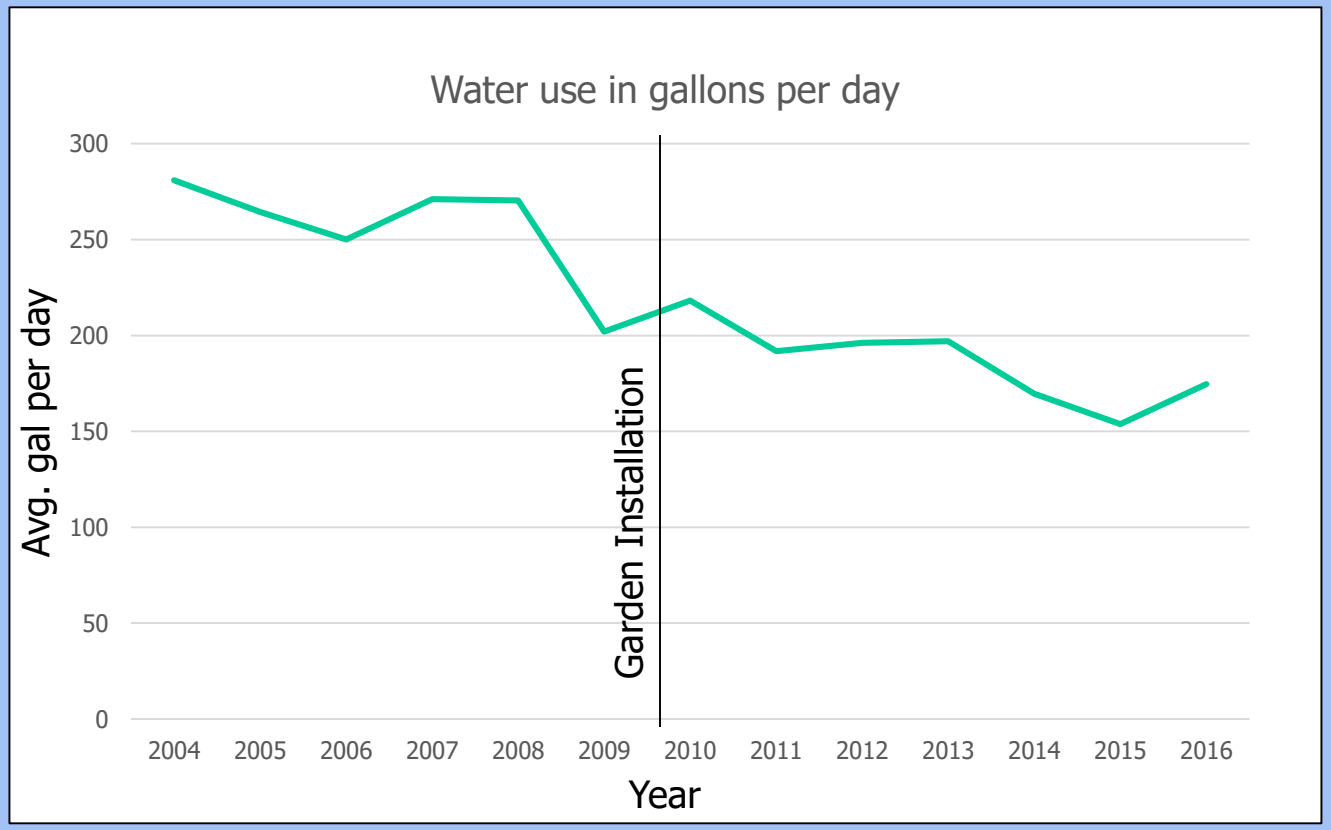
Gallons Used Spreadsheet

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	average
2000	209.4	119.7	187.0	314.2	306.7	374.0	359.0	246.8	314.2	261.8	127.2	157.1	248.1
2001	172.0	74.8	254.3	284.2	344.1	374.0	359.0	359.0	306.7	269.3	231.9	172.0	266.8
2002	97.2	142.1	209.4	246.8	418.9	426.4	381.5	336.6	314.2	306.7	239.4	164.6	273.7
2003	164.6	127.2	202.0	231.9	254.3	411.4	359.0	374.0	307.9	314.2	179.5	216.9	261.9
2004	193.0	154.8	306.3	317.3	309.5	349.1	385.3	374.0	277.0	232.1	280.5	192.3	280.9
2005	198.0	154.8	220.0	293.9	265.4	327.3	398.9	374.0	374.0	265.4	103.2	197.9	264.4
2006	103.2	154.8	136.0	299.2	283.7	327.3	423.9	361.1	320.6	181.3	206.3	204.0	250.1
2007	124.7	138.5	249.3	233.8	598.4	149.6	408.0	398.9	240.4	303.9	249.3	158.7	271.1
2008	120.6	96.5	249.3	206.3	397.4	548.5	336.3	351.9	332.4	289.5	136.0	181.3	270.5
2009	181.3	133.6	106.9	129.0	308.0	257.9	199.5	249.3	217.2	221.6	232.1	187.0	202.0
2010	144.8	120.7	80.1	193.0	232.1	313.7	397.4	265.2	217.2	232.1	241.3	180.6	218.2
2011	176.0	124.7	106.9	74.8	193.0	224.4	286.0	335.3	283.7	154.8	187.0	154.8	191.8
2012	154.0	129.0	154.8	136.0	213.7	174.5	249.3	300.0	272.0	232.1	180.6	158.7	196.2
2013	174.5	103.2	163.6	213.7	206.3	174.5	226.7	274.3	233.8	206.3	199.5	187.0	197.0
2014	174.5	136.0	106.9	77.4	199.5	257.1	257.9	224.4	210.4	149.6	129.0	113.3	169.7
2015	129.0	90.7	103.2	199.5	160.3	204.0	180.6	181.3	174.5	133.6	181.3	106.9	153.7
2016	106.9	99.7	110.8	176.0	154.8	199.5	283.7	241.3	265.4	226.7	129.0	103.2	174.7

Install

Average gallons used per day for each month. Includes total water onsite (indoor + outdoor)

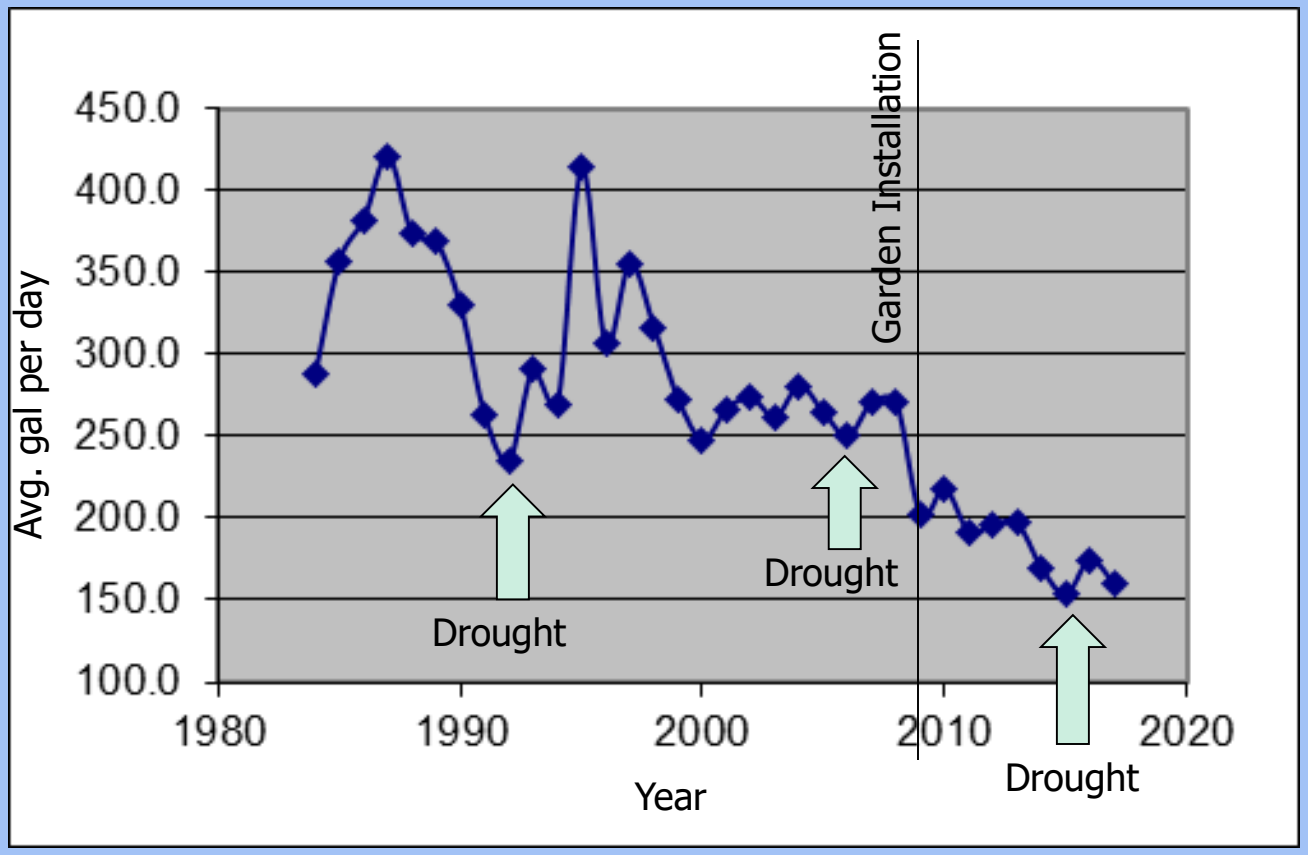
Gallons Used Chart



25% reduction in water use!

Average of 260 gal/day in the 5 years before installation, reduced to 196 gal/day in the 5 years after installation

Gallons Used – Longer Duration



California Droughts: 1986-1992, 2007-2009, 2011-2016

Peak Summer Water Savings

- August 2008 – baseline

352 avg. gal/day x 31 days = used 10,912 gal

- August 2013 – garden 3.5 years old

274 avg. gal/day x 31 = 8494 gal = 22% savings

- August 2014 – 3968 gal saved = 36% savings
- August 2015 – 5301 gal saved = 48.5% savings
- August 2016 – 3441 gal saved = 31.5% savings

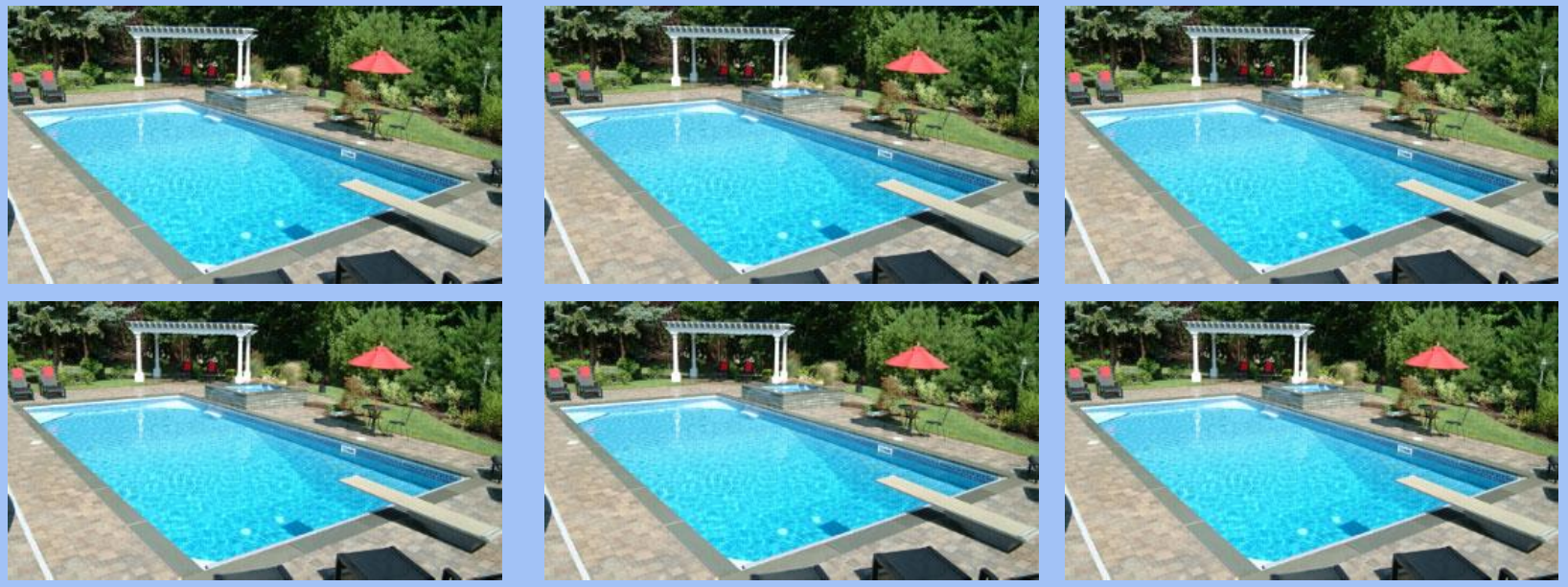
Average Water Saved per Year

- 2008 – baseline – 98,732 gal
- 2011 – 70,007 gal (saved 28,725 gal)
- 2012 – 71,613 gal (saved 27,119 gal)
- 2013 – 71,905 gal (saved 26,827 gal)
- 2014 – 61,940 gal (saved 35,792 gal)
- 2015 – 56,100 gal (saved 42,632 gal)
- 2016 – 63,765 gal (saved 34,967 gal)

Water savings over 6 years = 196,062 gallons

What does that look like?

Swimming pool 40’ x 20’ x 5’ =30,000 gallons

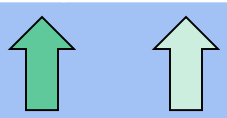


196,062 gallons = 6 swimming pools full of water

Water Cost Comparison

Water Cost
Adjusting for Water Price Increases

year	annual water $	annual water $ at 2008 rate	annual water $ at 2015 rate	annual saving at 2015 rate
2008	628	631	1102	470
2013	692	460	802	342
2014	636	396	691	295
2015	616	359	619	



Average $ rate per gallon of water

year	average $ rate/ gal
2008	0.0064
2013	0.0096
2014	0.0105
2015	0.0112

If water usage had remained consistent at the price before installation,
The 2015 Water bill would have been $1090 instead of $616

Garden Installation Expenses

- Installed by high end landscape contractor
- Lawn area planting/irrigation/mulch: $4300
- Shrubs area planting/irrigation/mulch: $4300
- Dry creek: $1500
- About $11.50 per SF. (Rebate: $1.50 per SF)
- Self install would be about $4 per SF

(roughly $3520 for lawn + shrub conversion)

Non-Monetary Returns on Investment

- No mowing, reduction in fossil fuel use
- Reduction in green waste
- Increase habitat value – bees, birds, pollinators
- Water retention to increase groundwater
- Improved soil biology
- Improved curb appeal and interest
- Feel good factor

Summary

- Landscape area converted: 880 SF
- Money spent on softscape $8600 (or a budget of $3520 for self install)
- Water Saved 196,062 over 6 years.
- Cost of water increased, so water bill stayed similar (would have been $400 more/year)
- Owners are considering water savings and other benefits as well as $ savings

CASE STUDIES

Brian Boyer

Golf Course Superintendent

Cinnabar Hills Golf Club

CINNABAR HILLS GOLF CLUB

LESSONS LEARNED FROM A HISTORIC DROUGHT

Brian Boyer, Golf Course Superintendent

CINNABAR HILLS GOLF CLUB BACKGROUND INFORMATION

- Opened in 1998
- 27 hole golf course and practice facility
- Full restaurant and bar
- Property is 380 acres
  - 120 acres of irrigated turfgrass
  - 10.2 acres of mitigated wetlands
- Surface water from the water district
- 2 pumping stations capable of 2000gpm
- 2,932 irrigation heads, 491 isolation valves

Cinnabar Hills Golf Club

THE DROUGHT IS OFFICIAL

- Like 99% of Santa Clara County, we began saving 20% March 1st 2014.
- Had to decide three items:
  - Where we'd conserve
  - How we'd conserve
  - How are we going to message our efforts

Cinnabar Hills Golf Club

MESSAGING

- Equally as important as efforts on golf course to save water.
- "Commitment to Community"

  "We thank you for your continued support and ask that you do your part to conserve water while visiting us here at Cinnabar Hills and when at your home or place of business. Visit the Santa Clara Valley Water District's website at www.valleywater.org/drought. As a result of all engaged in a commitment to community, we'll together make a positive difference."
- Facebook, blogs, emails, twitter, table tents and signage .
- Links & QR codes to SCVWD drought page.

Cinnabar Hills Golf Club

THE WHERE

				20% Scenario		30% Scenario		40% Scenario	
Area	Acres	% Area	Acre ft water/per year	Percent Reduction	Water Saved	Percent Reduction	Water Saved	Percent Reduction	Water Saved
Greens	5.0	4.2	4.2	0.0	0.0	0.0	0.0	0.0	0.0
Green Complexes	18.0	15.0	15.0	0.0	0.0	0.0	0.0	0.0	0.0
Tees	15.0	12.5	12.5	5.0	0.6	5.0	0.6	10.0	1.3
Fairways	35.0	29.2	29.2	12.0	3.5	35.0	10.2	35.0	10.2
Clubhouse	2.0	1.7	1.7	0.0	0.0	0.0	0.0	0.0	0.0
DR tee	1.0	0.8	0.8	0.0	0.0	0.0	0.0	0.0	0.0
Rough	39.0	32.5	32.5	36.0	11.7	46.0	15.0	75.0	24.4
DR range	5.0	4.2	4.2	100.0	4.2	100.0	4.2	100.0	4.2
total	120.0		100 ac ft/ year						

Cinnabar Hills Golf Club

HOW WE CONSERVED

- **Turfgrass conversion**
- Changed start times from 9pm to 12am
- ET based irrigation and deep, infrequent
- Slow release nitrogen fertilizers
- Aeration
- Calcium applications

Cinnabar Hills
Golf Club

CINNABAR HILLS GOLF CLUB TURFGRASS CONVERSION

- SCVWD approved 74,000 sq ft in October 2014
- Native grasses were selected and given approval by the district.
  - *Bromus carinatus* (California brome)
  - *Hordeum brachyantherum* (meadow barley)
  - *Nassella pulchra* (purple needlegrass)

Cinnabar Hills Golf Club


Legend
Cinnabar Hills Golf Club
Google earth
N
1000 ft

TURFGRASS CONVERSION

- Central Coast Wilds in Santa Cruz did the plant grow for 3 months
- 6,000 plants of each species grown
- “Plugged” them on 3’ x 3’ spacing starting mid-December

Cinnabar Hills Golf Club

CINNABAR HILLS GOLF CLUB TURFGRASS CONVERSION

- Cost to grow seeds was $3,100, $2,100 for wood chips, and $600 for rental.
- Over 300 labor hours required.
- Was so successful that we did another 90,000 square feet on our own.
- Will annually require broadleaf herbicide applications and fall cut downs.
- No financial ROI for Cinnabar Hills, but we are irrigating 4 less acres, saving 16 ac/ft per year.

Cinnabar Hills
Golf Club

TURF REMOVAL

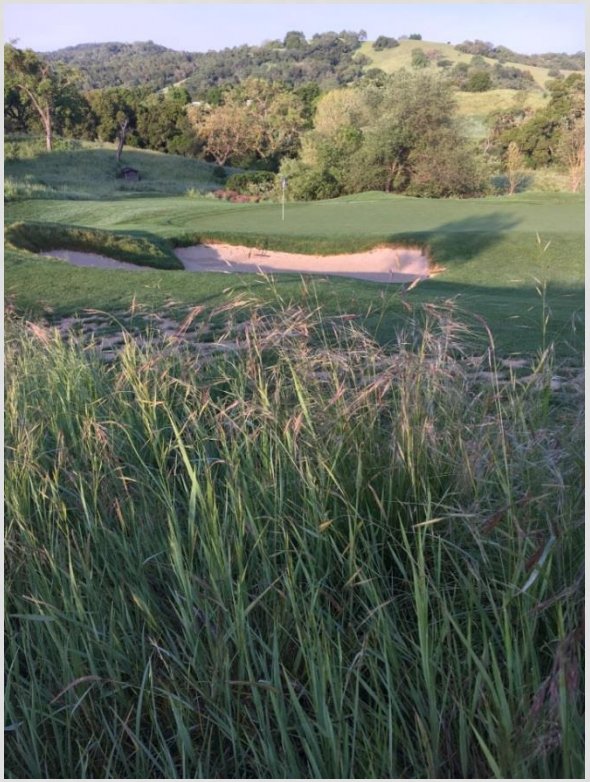
Sod removed with Bobcat 4 in 1 bucket

Cinnabar Hills
Golf Club

BEFORE AND AFTER

9 Lake before

9 Lake after



Cinnabar Hills Golf Club

BEFORE AND AFTER

7 lake – originally wood chipped, but later seeded with *Elymus glaucus* (blue wild rye), *Vulpia microstachys* (three week fescue), *Trifolium obtusiflorum* (native clover), & *Bromus carinatus* (California brome).

Cinnabar Hills Golf Club

CINNABAR HILLS GOLF CLUB
WATER CONSERVATION STRATEGIES

- Turfgrass conversion
- **Changed start times from 9pm to 12am**
- ET based irrigation and deep, infrequent
- Slow release nitrogen fertilizers
- Aeration
- Calcium applications

Cinnabar Hills
Golf Club

THE WHERE

				20% Scenario		30% Scenario		40% Scenario	
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Green Complexes	18.0	15.0	15.0	0.0	0.0	0.0	0.0	0.0	0.0
Tees	15.0	12.5	12.5	5.0	0.6	5.0	0.6	10.0	1.3
Fairways	35.0	29.2	29.2	12.0	3.5	35.0	10.2	35.0	10.2
Clubhouse	2.0	1.7	1.7	0.0	0.0	0.0	0.0	0.0	0.0
DR tee	1.0	0.8	0.8	0.0	0.0	0.0	0.0	0.0	0.0
Rough	39.0	32.5	32.5	36.0	11.7	46.0	15.0	75.0	24.4
DR range	5.0	4.2	4.2	100.0	4.2	100.0	4.2	100.0	4.2
total	120.0		100 ac ft/ year						

Cinnabar Hills Golf Club

CINNABAR HILLS GOLF CLUB
WATER CONSERVATION STRATEGIES

- Turfgrass conversion
- Changed start times from 9pm to 12am
- **ET based irrigation and deep, infrequent**
- Slow release nitrogen fertilizers
- Aeration
- Calcium applications

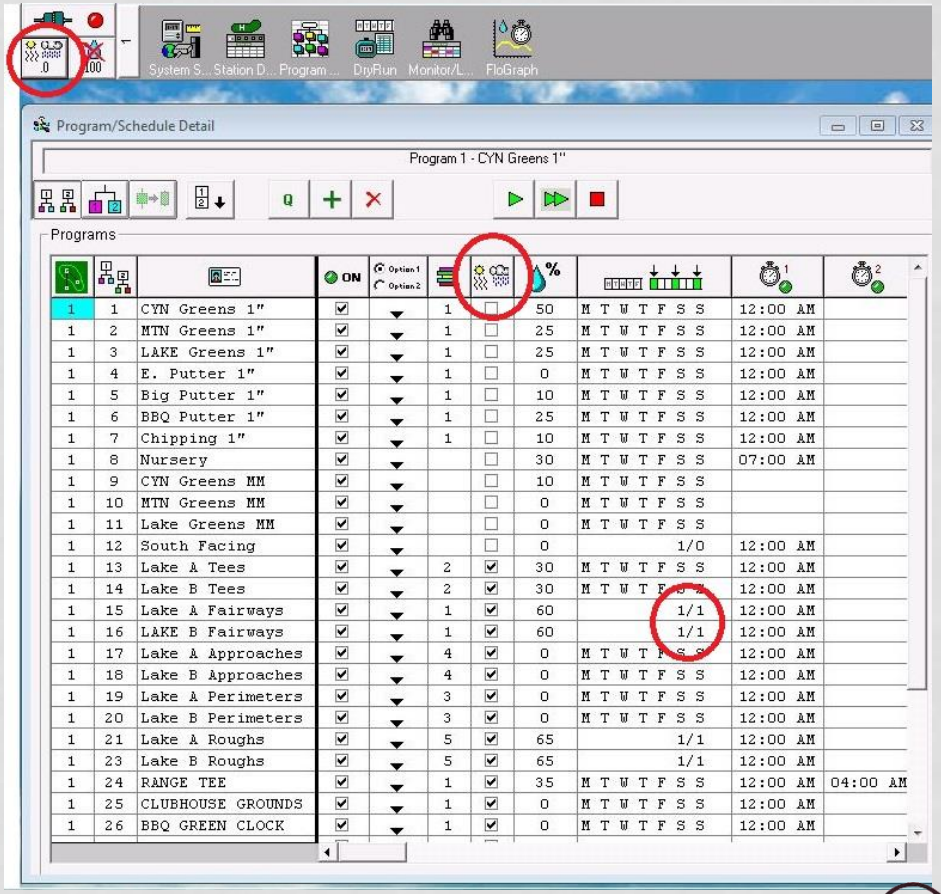
Cinnabar Hills
Golf Club

ET IRRIGATION, DEEP INFREQUENT

- Previously watered 70-80% ET every night on fairways and rough. Now 60% every other night.
- ET data available at www.cimis.water.ca.gov
- Once ET loss determined, use your sprinkler precipitation rate to determine run time.

ET= .25”
Sprinkler precip rate = .41”/hr
Run time = ET/precip rate*60min
Or .25”/.41” *60 = 36m @ 100%ET

Turf requirement of 60% ET = 22m



			ON				%			
1	1	CYN Greens 1"	☑		1	☐	50	M T W T F S S	12:00 AM	
1	2	MTN Greens 1"	☑		1	☐	25	M T W T F S S	12:00 AM	
1	3	LAKE Greens 1"	☑		1	☐	25	M T W T F S S	12:00 AM	
1	4	E. Putter 1"	☑		1	☐	0	M T W T F S S	12:00 AM	
1	5	Big Putter 1"	☑		1	☐	10	M T W T F S S	12:00 AM	
1	6	BBQ Putter 1"	☑		1	☐	25	M T W T F S S	12:00 AM	
1	7	Chipping 1"	☑		1	☐	10	M T W T F S S	12:00 AM	
1	8	Nursery	☑			☐	30	M T W T F S S	07:00 AM	
1	9	CYN Greens MM	☑			☐	10	M T W T F S S		
1	10	MTN Greens MM	☑			☐	0	M T W T F S S		
1	11	Lake Greens MM	☑			☐	0	M T W T F S S		
1	12	South Facing	☑			☐	0	1/0	12:00 AM	
1	13	Lake A Tees	☑		2	☑	30	M T W T F S S	12:00 AM	
1	14	Lake B Tees	☑		2	☑	30	M T W T F S S	12:00 AM	
1	15	Lake A Fairways	☑		1	☑	60	1/1	12:00 AM	
1	16	LAKE B Fairways	☑		1	☑	60	1/1	12:00 AM	
1	17	Lake A Approaches	☑		4	☑	0	M T W T F S S	12:00 AM	
1	18	Lake B Approaches	☑		4	☑	0	M T W T F S S	12:00 AM	
1	19	Lake A Perimeters	☑		3	☑	0	M T W T F S S	12:00 AM	
1	20	Lake B Perimeters	☑		3	☑	0	M T W T F S S	12:00 AM	
1	21	Lake A Roughs	☑		5	☑	65	1/1	12:00 AM	
1	23	Lake B Roughs	☑		5	☑	65	1/1	12:00 AM	
1	24	RANGE TEE	☑		1	☑	35	M T W T F S S	12:00 AM	04:00 AM
1	25	CLUBHOUSE GROUNDS	☑		1	☑	0	M T W T F S S	12:00 AM	
1	26	BBQ GREEN CLOCK	☑		1	☑	0	M T W T F S S	12:00 AM	

Cinnabar Hills Golf Club

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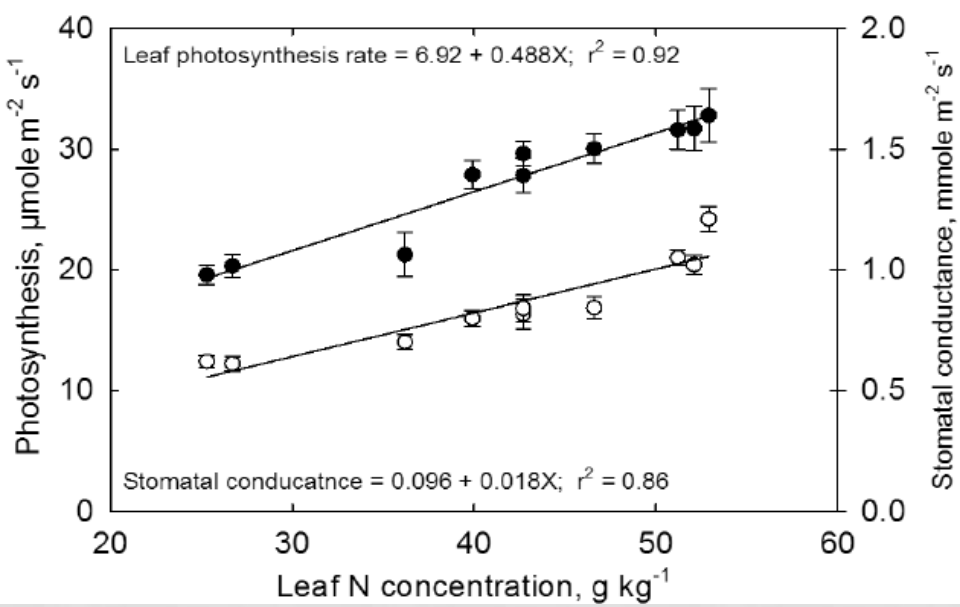
Cinnabar Hills
Golf Club

WHY SLOW RELEASE NITROGEN

- Excessive nitrogen leads to increased rate of photosynthesis.
- Increased rate of photosynthesis leads to increased rate of transpiration.
- Increased transpiration leads to increased water loss from the plant.
- Organic fertilizers are slow releasing nitrogen fertilizers.
- If you want green without excessive growth, look for fertilizer with low nitrogen content and >3% iron content.



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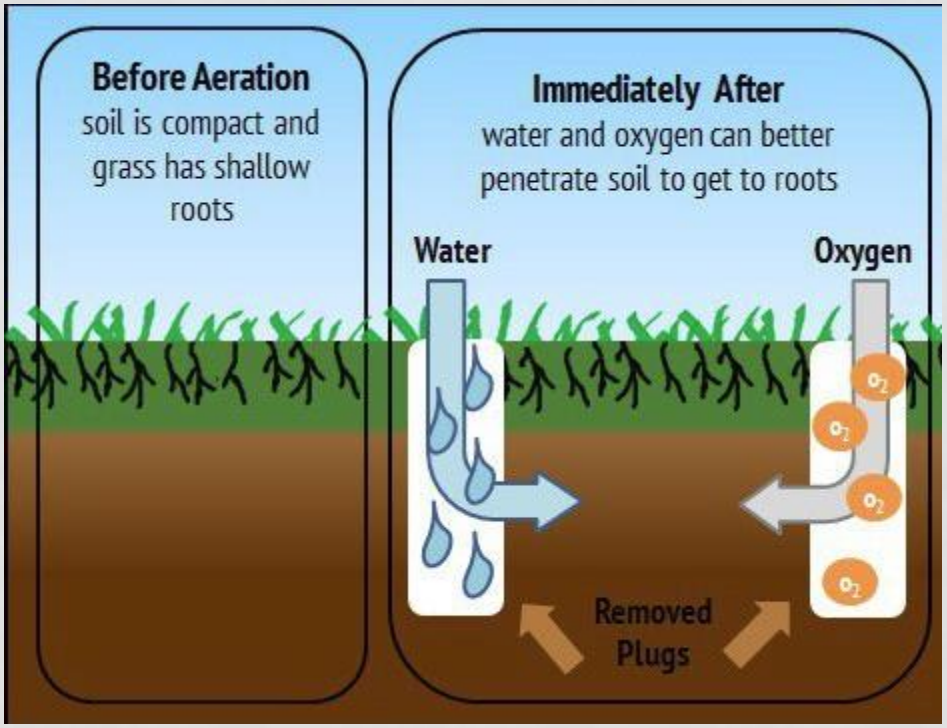
- Calcium applications

Cinnabar Hills
Golf Club

Aeration

- Relieves compaction;
- Can increase oxygen in the rootzone for beneficial bacteria;
- Increases water penetration;
- In a home lawn or commercial property, a core is not necessary.



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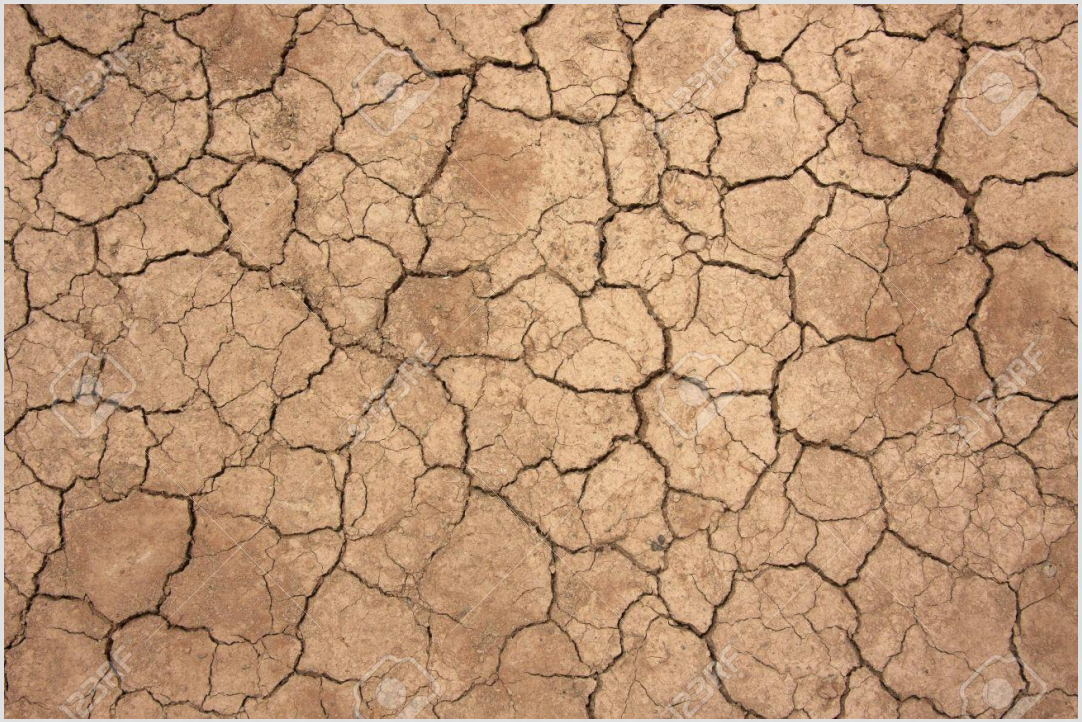
Cinnabar Hills
Golf Club

CALCIUM APPLICATIONS

- Calcium will aide in aggregating or "loosening" the soil, i.e. increasing infiltration rates.
- Can be applied granularly in the form of gypsum or lime.
- Great to do after aeration.
- There are OMRI options
- Cheap to do with application rates of 10#/1000 sq ft
- It's a program, not a one time fix.



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CINNABAR HILLS GOLF CLUB WATER SAVINGS

- Saved 24.3% in 2014
- Saved 31.4% in 2015
- Saved 35.1% in 2016
- Volume saved = 421.29 ac/ft

Cinnabar Hills Golf Club

CINNABAR HILLS GOLF CLUB

Brian Boyer

Golf Course Superintendent

bboyer@cinnabarhills.com

408-323-7820

Cinnabar Hills Golf Club

CASE STUDIES

Alan Hackler

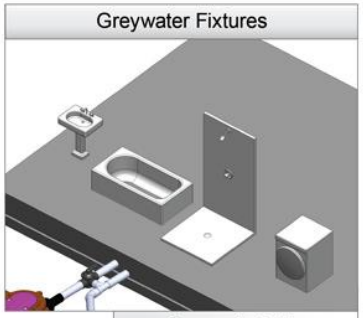
Bay Maples, Wild California Gardens

Advancements in greywater

Flotender™ Instant Distribution Greywater System

Greywater Filtration for Drip Irrigation Systems

In a Flotender™ Instant Distribution Greywater System, the incoming greywater produced is immediately filtered, pressurized and distributed to the landscape. No greywater is stored for future use in this application.



Greywater Fixtures

Shower, bathtub, laundry & sink

Auto-Flush Device
- Includes air-gap for back-flow prevention

Surge Tanks
- Provides surge capacity for in-flowing greywater

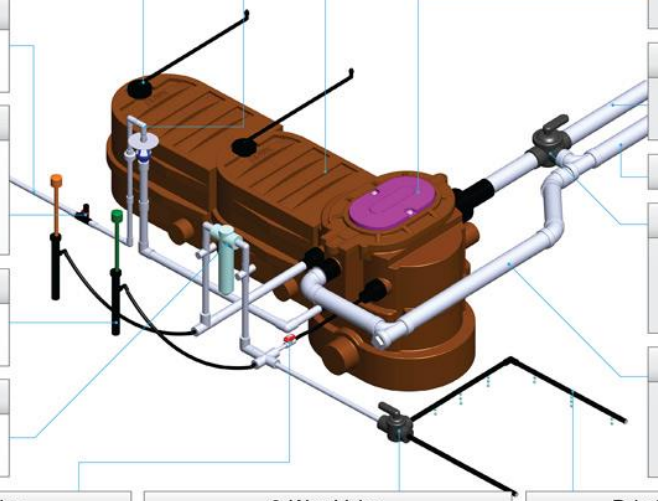
Surge Tank Vents
- Allows unrestricted water flow from one tank to another

In From City Water
- Provides supplemental water to the system

Electric Valve
- Controlled by the irrigation clock
- Provides additional water if needed

Pop-Up Indicators
- Displays the pumping and system status

Secondary Filter
- Provides a second stage of filtration



Greywater Filter
- Filters & pressurizes the greywater

Greywater Stub-Out
- Greywater in from building

To Sewer (optional)

3-Way Valve
- Provides the option of diverting greywater back to the sewer instead of to the irrigation system

Overflow
- Can be routed back to the sewer or to a mulch box placed in well drained soil

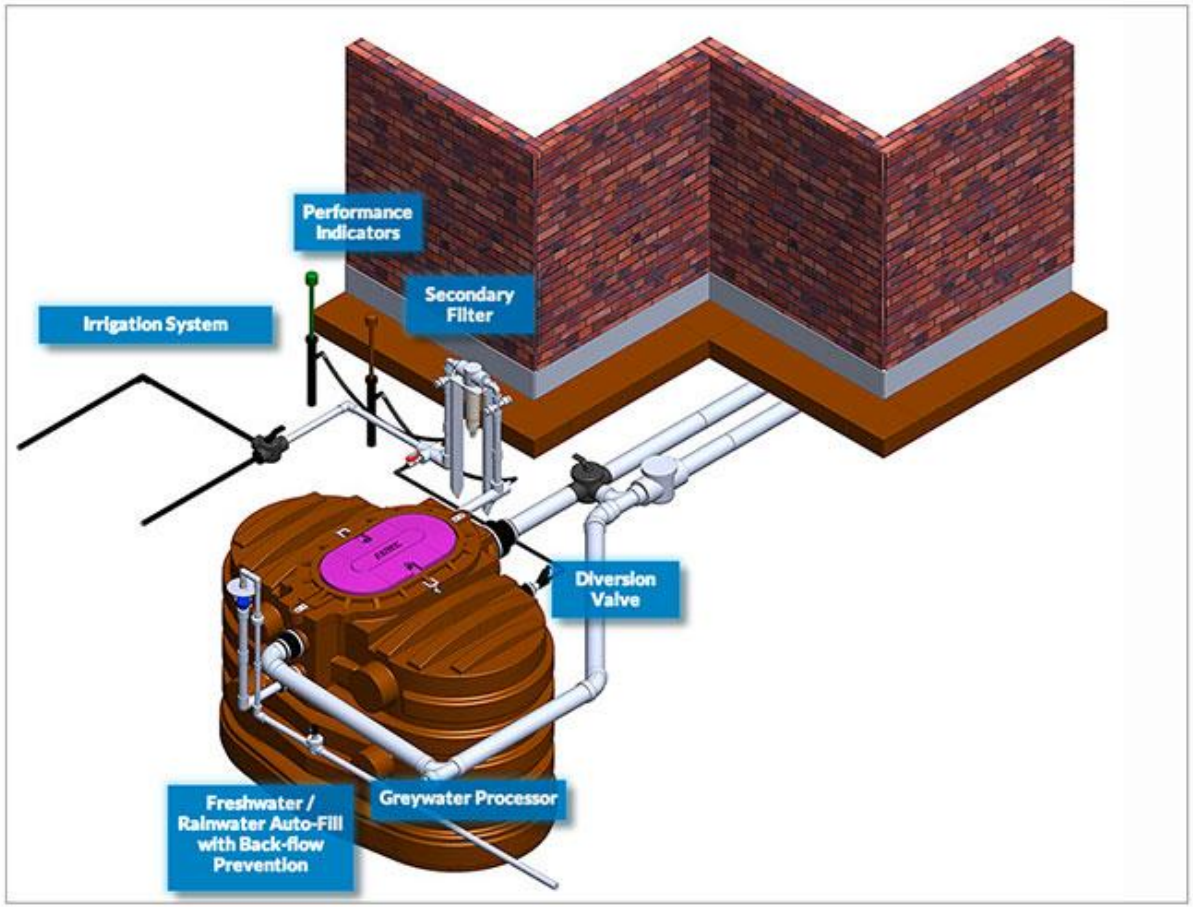
Spray Ring Valve
- Allows for spray ring flow control

3-Way Valve
- Allows for multiple irrigation zones
- Can be electrically or manually operated

Drip Irrigation System
- Filtered and pressurized greywater is sent to above or below ground drip irrigation

Flotender GXL Series System Detail

Click on a blue box below for additional information.



ACCESS CAP WITH COMPRESSION LATCH
Provides easy access to the filters without removing the bolt down lid

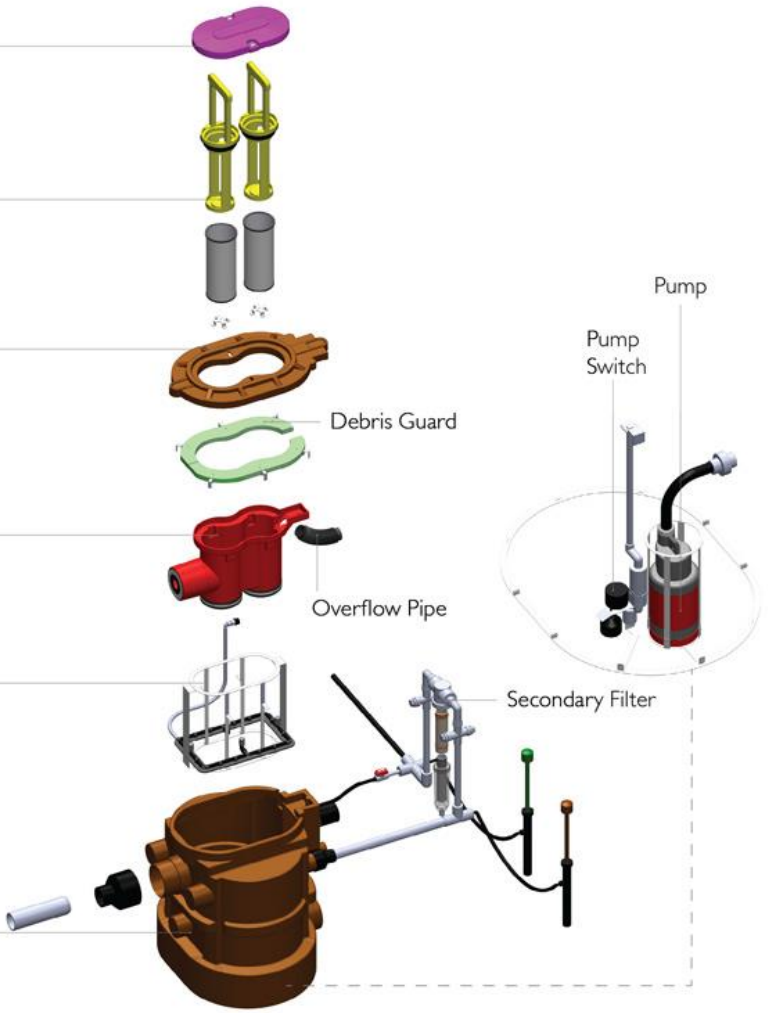
FILTER BASKET
Features a detachable 150 mesh filter element

BOLT DOWN LID
The two piece lid system allows the Filter Baskets to be removed without having to remove the entire lid

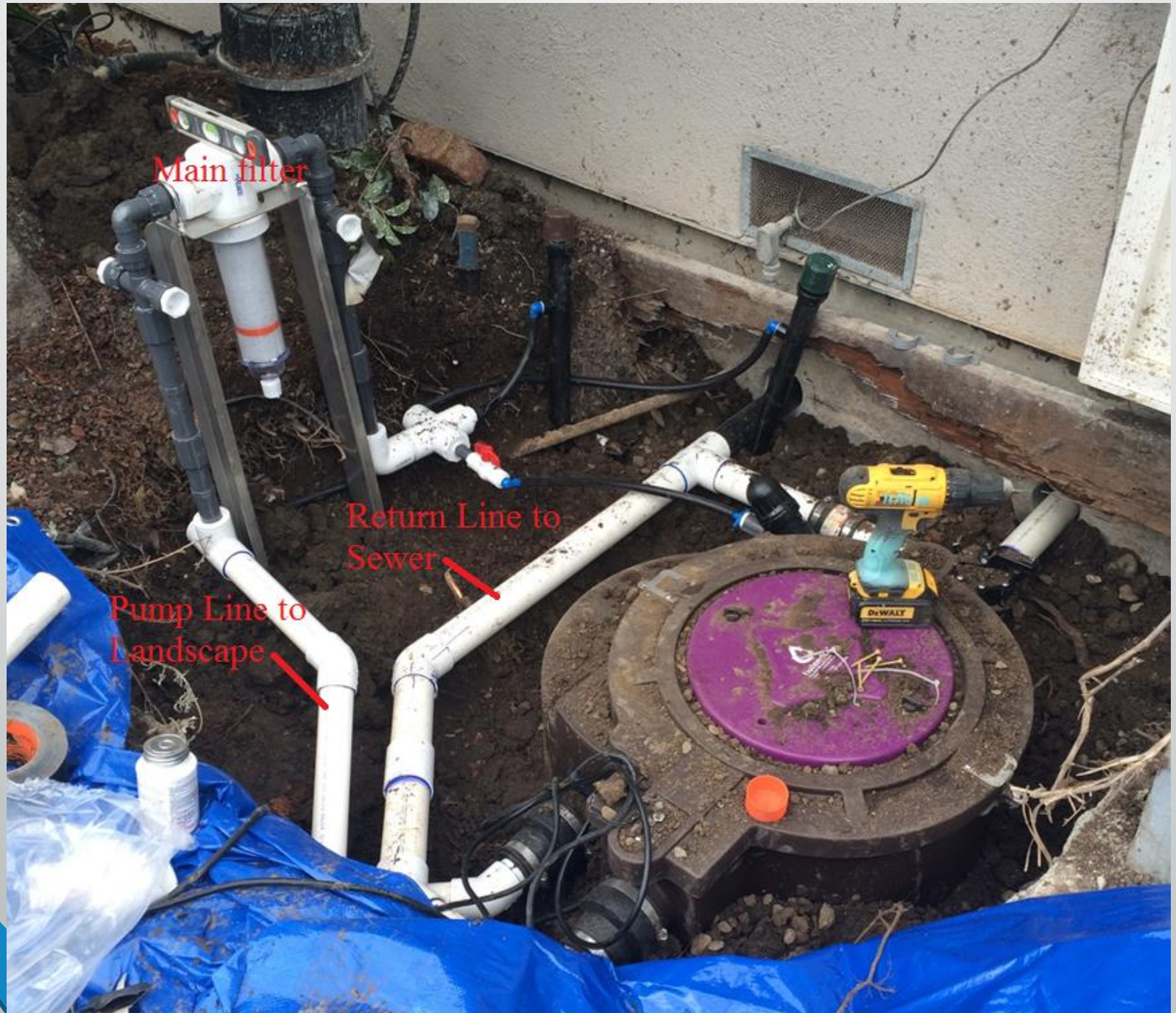
FILTER CARRIAGE
Supports the Filter Basket and is easily removed to allow complete access to the pumping chamber

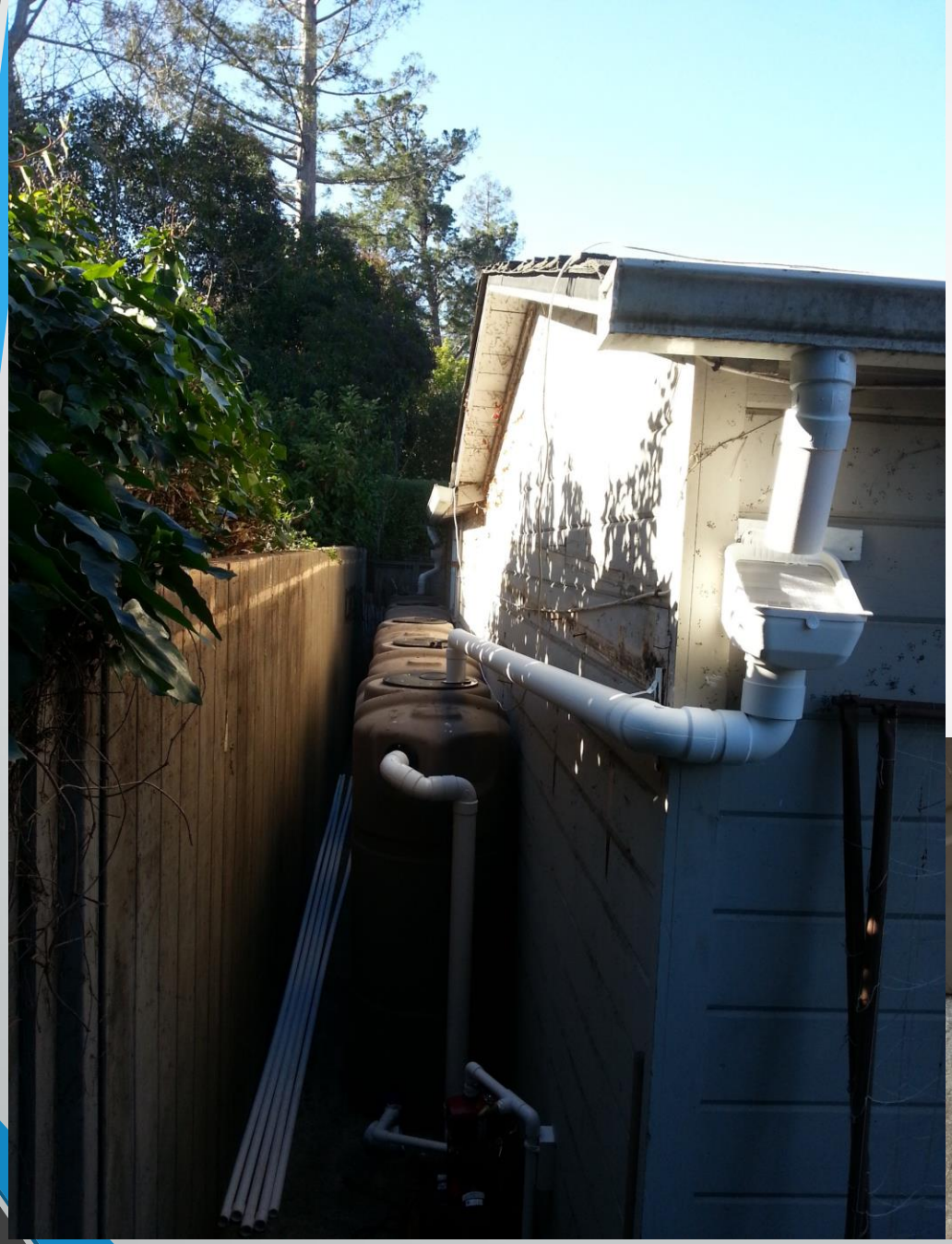
SELF REGULATING BACKWASH SYSTEM
Provides multi-point rotary spray to the greywater filter elements ensuring that water flows freely through the filter element

GREYWATER FILTER TANK
The heavy-duty polyethylene tank provides a sturdy housing for the elements and pumping equipment



Patent Pending


Main filter
Return Line to Sewer
Pump Line to Landscape

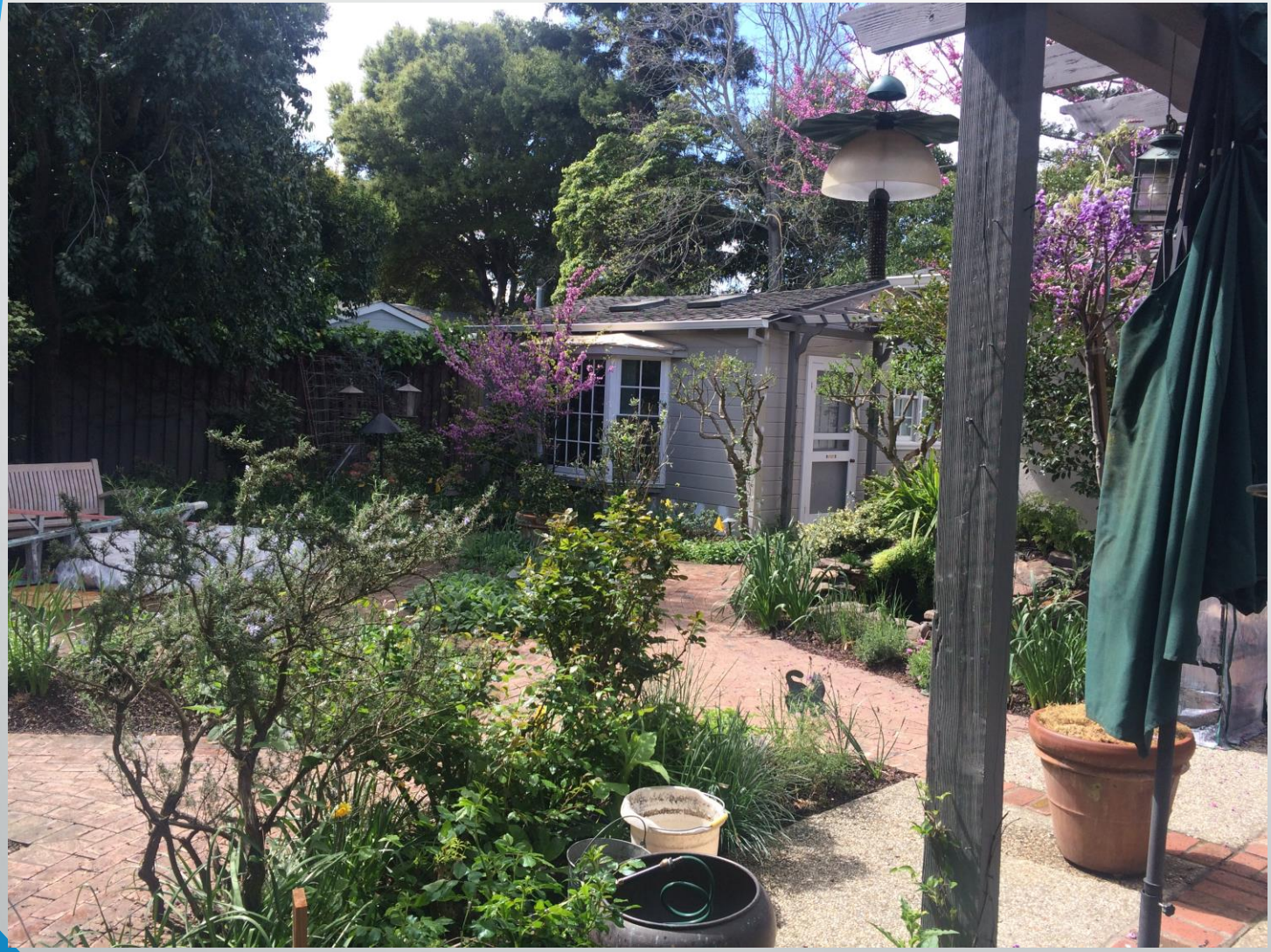


Rain Catchment System
(5) 265 gallon tanks
'Slim-line' style tanks

First flush before tank
½ HP pump
Connects to existing irrigation system

Bushman Slim-Lime
tank specs
265 gallon

Connecting to irrigation:
Aqua-Saver valve
switches irrigation sources
Rain water or municipal



Project Challenges?

- Working around mature established garden with extensive planting
- Modifying existing hardscape
- Scheduling with other parties involved in project: general contractor, architect, city building department, installation team, home owner, etc.

Water savings from greywater?

- 35-50 gallons of greywater sent to garden daily (single person household)
- System has been operational for under 1 year
- Estimated 11,000-18,000 gallons/per year of municipal water is being off-set by system
- Double bonus: 11,000-18,000 gallons/per year, less waste water is being sent to treatment plant each year

Water Savings: Rainwater

Tanks fill & drain 2-3 times a year= 1,325-3,975 gallons of water being off-set from municipal water demand, annually.

Return on Investment?

- What is the ROI on a traditional irrigation system?
  - With current pricing structures & lack of rebates & incentives, traditional ROI are N/A
  - Reduction in household and municipal sewer wear & tear
  - Water security, sustainability, increase in home value, POM…..
- Greywater systems and traditional irrigations systems have the same ROI:
  - Keep your plants alive
  - Keep your plants looking green
  - Ecological benefits

Thanks for listening

Questions and Answers

BREAK

Back at 11:15 am

Small Group Work Session

1. What's one lesson learned from the drought?
2. What can the landscape industry collectively do to ensure that new landscapes are efficient?
3. How can we all work better together in the areas of irrigation design, installation, and maintenance?
4. How can the landscape industry partner with the District to educate your clients about conservation?

LUNCH

Back at 12:45 am

ACTION PLANNING

Let's hear your ideas…

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) Prize Drawing

4) Vendor Fair