



Submitted by staff

Proposed Simplified Conservation And Rationing Plan *Item 5*



Stage 1	Stage 2	Stage 3	Stage 4
Prohibition on Water Waste	Voluntary Conservation	Conservation Rates	Rationing
<ul style="list-style-type: none">• Always in effect• Contains definition of water waste, enforcement process, and water waste fees	<ul style="list-style-type: none">• Increased water waste enforcement	<ul style="list-style-type: none">• 25% level 1 surcharge• 40% level 2 surcharge	<ul style="list-style-type: none">• Residential rations first• Non-essential & outdoor water use restrictions• Moratorium

Submitted by Blake Joplin
Item 2.A

Irrigation Demand Calculations

Del Mesa Carmel - Carmel, CA

Landscape Zone:	43560
Species factor (Ks)	0.75
Density (Kd)	1
Microclimate (Kmc)	1
Landscape coefficient (KL)	0.75
Irrigation Efficiency	0.7
Useable Precipitation**	0.50

**Find a local reference for this value (walls will be different)

	Monthly ETO	Precipitation	Net Precipitation	ETL	Irrigation Efficiency	Irrigation Demand	Irrigation Deman
January	1.54	3.5	1.7	-0.14	0.7	0.00	0
February	1.9	3.0	1.5	0.29	0.7	0.41	11,056
March	3.1	2.7	1.3	1.33	0.7	1.90	51,642
April	4.12	1.4	0.7	2.55	0.7	3.65	99,065
May	4.73	0.3	0.2	3.43	0.7	4.90	132,959
June	4.99	0.1	0.1	3.70	0.7	5.29	143,578
July	4.47	0.0	0.0	3.34	0.7	4.77	129,613
August	4.07	0.1	0.0	3.03	0.7	4.32	117,394
September	3.53	0.2	0.1	2.58	0.7	3.69	100,228
October	2.83	0.7	0.4	1.86	0.7	2.66	72,153
November	1.83	2.2	1.1	0.55	0.7	0.78	21,239
December	1.47	3.3	1.7	-0.14	0.7	0.00	0

TWA (in) 32
TWA (ft) 2.70
Irrigated Area (sf): 43560
Total Irrigation Demand (gal) 117495.3
878,865

Summary of Water Savings Potential	1 Acre Annual Demand	With Irrigation Improvements
Turf Grass (w/ Spray Irrigation)	878,865	
Turf replacemetnt and Irrigation Improvements, Year 1 Plant Establishment = 40%	527,319	410,137
Turf replacemetnt, Year 2 Plant Establishment = 55% Savings	395,489	307,603
Year 3, Established Plantings = 60% Savings	351,546	273,425
Total Water Savings	527,319	605,440 gallons
	60%	69% percent

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Program Goals

The Governor's Executive Order B-29-15 directs the California Department of Water Resources (Department) to "lead a statewide initiative, in partnership with local agencies, to collectively replace 50 million square feet of lawns and ornamental turf with drought tolerant landscapes. The Department shall provide funding to allow for lawn replacement programs in underserved communities, which will complement local programs already underway across the State."

In response to the Executive Order, the Department will establish a program with two primary goals:

- *Water savings:* Both short term, as homeowners cut back or stop lawn irrigation this summer, and long term, as turf is replaced with low water use landscapes.
- *Environmental benefits:* Low water use landscapes provide multiple environmental benefits including reduced run off, improved water quality, beneficial habitat, reduction in energy requirements, and greenhouse gas emissions associated with landscape maintenance and water production and treatment.

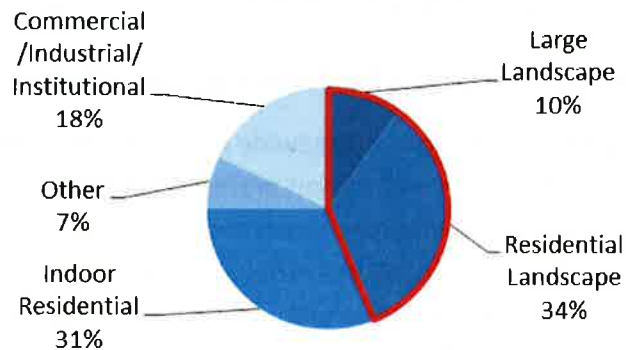
Background

Because outdoor irrigation represents the largest component of urban water use, as shown in the portion of the pie chart outlined in red, it is a primary focus of statewide water use reduction efforts. Reducing unnecessary water use is a key component of supporting California long-term sustainability and managing our water resources.

Potential water savings attributable to turf replacement vary depending on climate differences, variability in landscape and irrigation

replacement options, and human behavior. The report "Turf Removal & Replacement - Lessons Learned" (CUWCC 2015) indicates that across California turf-replacement reduces water use from 18% to 83%, resulting in an average water savings of approximately 13 to 70 gallons per square foot per year. The Department anticipates that implementation of these programs will result in both water savings and environmental benefits. Parameters to quantify both will be tracked as each program is implemented.

Statewide Urban Water-Use: Twelve-Year Average, 1998-2010



Water Plan Update, 2013.

Program Design

The Department has budgeted \$25 million in Prop 1 funds to help finance the Turf Replacement Initiative in the Governor's Executive Order. The program will include three components:

- *Rebates and Direct Install.* The Department will support turf removal and lawn conversion efforts implemented through customer rebates or direct installs with a focus on specified underserved, severely impacted, and drought stricken communities in the San Joaquin Valley, and disadvantaged communities in other areas.
- *Commercial, Industrial and Institutional (CII) turf conversion in partnership with the California Conservation Corps.* This program component will target government and commercial buildings in the San Joaquin Valley.
- *Statewide Campaign to Promote Low Water Use Landscapes.* The Department will lead a statewide campaign, in partnership with regional and local water agencies, to promote the conversion of lawns and other turf to low water use landscapes.

Lawn Conversion Rebates and Direct-Install Program

With a focus on underserved communities that have been hit hard by drought, The Department proposes to implement the Turf Replacement Initiative through a targeted and monitored rebate program, and in some locations, a direct-install program. Both options would have minimum planting and retrofit requirements. Approximately \$25 million will support the conversion of over 10 million square feet of turf at roughly 10,000 homes and a number of businesses, achieving 20 percent of the statewide goal of 50 million square feet.

The Department continues to partner with the California Urban Water Conservation Council (CUWCC) and other non-profit organizations to provide technical assistance and workshops to homeowners and landscapers on lawn-conversion efficient irrigation management.

Statewide Campaign to Promote Low-Water-Use Landscapes

The Department will lead a statewide campaign, in partnership with *Save Our Water*, other State, regional, and local agencies, as well as non-profit and other entities to promote low water use landscapes and the conversion of turf landscapes across the State. The campaign will raise awareness and provide information to residential, commercial, industrial and institutional customers on the multiple benefits of low water use landscapes. Specific activities will include; outreach, community engagement, and technical and financial support for public participation in landscape conversion events. It will also track the total square feet of turf removal across the State and encourage local agencies to join the effort. The campaign will seek pledges by local agencies and municipalities to meet the statewide goal.

Timeline

The Department expects to have the Turf Replacement Initiative implemented this summer.

For more information, or to be informed of updates, please see www.water.ca.gov.



The Metropolitan Water District of Southern California

NEWS RELEASE

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REVISED

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May 29, 2015

METROPOLITAN BOARD APPROVES NATION'S LARGEST CONSERVATION PROGRAM TO MEET UNPRECEDENTED CONSUMER DEMAND IN DROUGHT'S FOURTH YEAR **MWD board boosts district conservation budget to record \$450 million**

Facing an unprecedented drought, the board of directors of the Metropolitan Water District of Southern California today approved the nation's largest turf removal and water conservation program that over the next decade is expected to generate enough water savings to nearly fill the region's largest reservoir—Diamond Valley Lake.

The significant expansion of the turf removal component is expected to remove about 175 million square feet of lawn, more than triple Gov. Jerry Brown's goal for the entire state. The total conservation program is projected to save more than 70 million gallons of water a day for Southern California, or enough water for 160,000 households.

Metropolitan's board at a special meeting added \$350 million to the district's conservation budget to a new total of \$450 million over two years. Together with local rebate programs of more than \$50 million, the total regional investment will be more than half a billion dollars and using existing revenues will be done without impacting water rates.

Along with the conservation budget increase, Metropolitan's board also modified the agency's turf removal program to ensure rebates continue to be available to homeowners, businesses and public agencies throughout the Southland during the drought. Program changes establish rebate tiers based on the amount of turf being removed, with the intent of reaching as many residents and businesses as possible.

"Our goal is to equitably provide rebate funds to as many people as possible and lock-in permanent changes in water use by transforming to drought-tolerant landscapes that better fit our Mediterranean climate," said Metropolitan board Chairman Randy Record. "Today's action finds the sweet spot between capitalizing on historic interest in turf removal and having a sustainable conservation rebate program."

more

Metropolitan General Manager Jeffrey Kightlinger said today's program changes will allow more households throughout the region to access funding, reaching up to more than 400,000 consumers.

"Already more than one-third of residential applicants are from disadvantaged communities," Kightlinger said. "In addition, funding will be specifically set aside for water efficient devices to ensure customers who live in multifamily housing and represent about half of Southern Californians also will have access to rebates."

With the extraordinary level of public awareness and participation, Metropolitan has paid out more than \$88 million of the \$100 million in its previous conservation budget. However, public interest in water-saving rebates, primarily turf removal incentives, continues to set records. Earlier this month, Metropolitan reached a new weekly record of \$49 million for conservation rebate reservations.

Today, Metropolitan's turf removal program currently has requests for more than 100 million square feet, the equivalent of about 60,000 front yards. Since Gov. Brown's April 1 executive order to reduce statewide residential water use by 25 percent, monthly applications have increased 20-fold to up to 10,000 applications.

"Removing turf secures long-term water saving benefits as more people turn to California Friendly® landscapes. This will help the region greatly in future droughts as more and more Californians replace turf that serves no function," Kightlinger said.

"Although Gov. Brown has called on Californians to remove 50 million square-feet of turf in this drought, our region alone will easily more than triple his goal," he added.

Under changes to the turf program, residential customers can receive \$2 per square foot for up to 3,000 square feet of turf removed or as much as \$6,000. About 90 percent of residential rebate requests are for less than 3,000 square feet. Many local agencies provide additional incentives that can increase the funds available to homeowners.

Public agencies are eligible for an incentive of \$2 per square foot for the first 3,000 square feet and \$1 per square foot of turf removed above that, up to a total annual limit of \$50,000 per property. Commercial and other non-residential applicants are eligible for a turf removal incentive of \$1 per square foot up to a total annual limit of \$25,000 per property. About 85 percent of commercial applications are for 25,000 square-feet or less.

Kightlinger said the district will direct funds from higher-than-expected water sales during the four-year drought toward the conservation program while maintaining all its targets for maintaining financial reserves and underwriting some capital needs on a pay-as-you-go basis.

“As a result, no long-term rate impact is expected from investing this temporary increase in revenues into long-term water savings. This is a historic one-time investment in conservation as opposed to a new long-term spending initiative that would have rate impacts,” he said.

To keep pace with the unparalleled public demand, Kightlinger said additional actions may be necessary, including more modifications to the turf removal program.

“We generally attempt to use rebate programs to influence consumer decisions when an outside financial incentive seems necessary. The explosion in consumer interest in the turf removal suggests that the future market may need less of a rebate incentive than before, which is very good news for our region's future water picture,” Kightlinger said.

For drought updates and water-saving information, visit bewaterwise.com.

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The Metropolitan Water District of Southern California is a cooperative of 26 cities and water agencies serving nearly 19 million people in six counties. The district imports water from the Colorado River and Northern California to supplement local supplies, and helps its members to develop increased water conservation, recycling, storage and other resource-management programs.

Santa Clara Valley Water District

Programs > Water Conservation > Landscaping > Landscape Conversion Rebate Program

Landscape Conversion Rebate Program

Program Update

On April 22, 2014, the Landscape Conversion Rebate increased to \$2.00 per square foot of converted high water using landscape (i.e. irrigated turf or functional swimming pool) to low water using landscape. For more information, please call the Water Conservation Hotline at (408) 630-2554. These increases are temporary, through **December 31, 2015**, and certain restrictions apply. Applications postmarked between January 1, 2015 and December 31, 2015 will be held to a \$50,000 per site cap.

Important Program Note: Sites that have been denied participation in the Landscape Rebate Program for not meeting the initial program eligibility requirements will not be allowed to re-apply for the rebate within three (3) years of the initial pre-inspection or denial date, whichever is the latter.

PLEASE NOTE: Due to the overwhelming response to participate in the Landscape Rebate Program, we are currently experiencing a backlog in scheduling pre-inspection appointments. While we are taking steps to address this, **customers are encouraged to stop watering their lawn areas as they wait for their scheduled appointment.** Dead or stressed lawns will qualify for the rebate as long as the lawn is still in place at the time of the pre-inspection. Lawns that have been removed will not qualify. The District is recommending that after the pre-inspection and application approval is complete, customers complete their projects in the fall when cooler temperature will better support plant establishment and will require less supplemental irrigation.

Santa Clara County single family homes, multi-family and business properties with qualifying irrigated landscape (i.e. irrigated turf or functional swimming pool) can receive rebates for replacing high water using landscape, such as irrigated turf grass, with a minimum of 50 percent plant coverage consisting of low water using plants from the Water District's Approved Plant List. The table below describes the rebate amounts available.

Rebate Amounts starting April 22, 2014:

Property Type	Rebate Amount (as of 4/22/2014) **
Single Family, Multi-Family and Business/Institutional properties	\$2.00 per sq ft
For information about current increased rebate amounts in cost sharing areas, please call the Water Conservation Hotline at (408) 630-2554. Funds are first come, first served, while funding is available.*	

Rebate amounts listed reflect a temporary increase due to current drought conditions and are only valid for projects that submit an application postmarked by December 31, 2015. Projects must be completed within 90 days of Notice to Proceed date.

* Rebate amounts subject to change. For current cost-sharing area information, please call the Water Conservation Hotline at (408) 630-2554.

** Landscape Conversion Rebates over \$50,000 will need to be approved on a case by case basis and proof of water savings may be required for applications postmarked by December 31, 2014. Applications postmarked between January 1, 2015 and December 31, 2015 will be held to a \$50,000 per site cap.

Program Eligibility

Rebates are available for residents, businesses, or institutions located within Santa Clara County.

- Participants must own the property to be eligible.
- Applicants must attain pre-approval by participating in a qualifying pre-inspection and submit a Request for Application Form to the Santa Clara Valley Water District.
- Areas to be converted must include approved high water using landscape at the time of pre-inspection.
- **In response to the drought, lawns that are dead, brown, yellow or green all qualify as long as the lawn is still physically onsite. Sites do not need to maintain a green, living lawn in order to qualify for the rebate program as long as the dead or stressed lawn is still onsite at the time of the pre-inspection and has not been removed.**

- **Projects that have been started or projects that have already been completed prior to the Notice to Proceed are not eligible.**
- New construction does not qualify as the Landscape Rebate Program is aimed at encouraging retrofitting of existing facilities.
- Rebate material must be purchased after receiving a written Notice to Proceed from the water district.
- Projects must be completed within 90 days of date on written Notice to Proceed. Extensions can be provided on a case by case basis, if requested.

Landscape Conversion Rebate Program Requirements:

- A minimum of 75 square feet of qualifying high water using landscape (i.e. irrigated turf or functional swimming pool) must be converted in order to participate in the landscape conversion rebate. If removing an existing swimming pool, all local building codes or permitting requirements must be met. Contact your local planning or building department for specifics.
- The converted area must include a sufficient number of qualifying water efficient plants to ensure at least 50% of the area is covered with living plants when the plants are fully grown. To determine coverage value, consult the SCVWD Qualifying Plant List. Tree species will not be included in the 50% plant coverage requirement. Plants outside the converted area are not considered in the calculation even if they are adjacent to or overhanging into the converted area.
- Permeable hardscape such as permeable pavers, decomposed granite, rocks, and boulders are permitted within the converted areas as long as all other terms and conditions of the program are met. Impermeable surfaces, such as concrete and thick plastic (>3 mil), that do not allow water to penetrate into the ground are not permitted within the converted area.
- All planting areas must have a minimum of two (2) inches of qualifying mulch, including: chipped or shredded bark, rock, gravel, or weed free straw. If a weed barrier is used below the mulch, it must be permeable to air and water. Although compost, leaves, and grass clippings are important for providing valuable soil structure, nutrients, and water retention, these materials do not qualify as mulch for this program as they decompose quickly and do not adequately reduce soil evaporation.
- A limited number of groundcover plants listed on the Water District's Qualifying Plant list may qualify as living mulch provided the individual plants are installed at sufficient density to assure 100% plant cover. The mulch requirement around these plants may be waived on a case-by-case basis.
- Irrigation systems, if used within the converted area, must be low volume drip, micro-spray, or bubbler. The system must be in good working order, free of leaks and malfunctions. Once installed, the irrigation system must not create run-off, overspray, or misting.
- Exceptions for overhead irrigation systems in a converted area will be reviewed on a case-by-base basis. The system shall have no run-off, low head drainage, overspray or other water waste to be accepted. All spray bodies and nozzles must be on the SCVWD Qualifying List and sprinklers must be set in a minimum of two feet from any impervious hardscape (i.e. concrete sidewalks, driveways and roads).
- There can be no net increase in the size of the irrigated area. The irrigation system must be designed so that any remaining lawn and shrubs are watered separately from the converted landscape area, meaning overhead irrigation is served through a separate valve that can be controlled independently on a separate irrigation zone and schedule.
- The sprinkler system for the remaining lawn must be modified to provide adequate coverage and may not spray onto the converted landscape area. **Pop-up sprinklers must be removed from the converted landscape area.**
- Non-qualifying materials include, but are not limited to the following: artificial turf (click here for Artificial Turf Fact Sheet), seed, sod, vegetable gardens, vineyards, high water use plants, lawn ornaments, impervious surfaces, cement, decking, curbing, hot tubs, pools, building extensions, retaining walls, sheds, trellises, play ground materials, and fences.

[\(/\)](#)[\(/\)](#)

Lawn conversion & irrigation upgrade rebates

[Home \(/\)](#) / [Water and drought \(/water-and-drought/\)](#) / [Conservation and rebates \(/water-and-drought/conservation-and-rebates/\)](#)
/ [Residential \(/water-and-drought/conservation-and-rebates/residential/\)](#)
/ [Rebates \(/water-and-drought/conservation-and-rebates/residential/rebates/\)](#) / [Lawn conversion & irrigation upgrade rebates](#)

Effective January 1, 2015

Reduce your water bill and earn rebates for one or more landscape and irrigation equipment upgrades.

Up to \$2,500

Single- and Multi-Family (4 units or less) Residential

Up to \$20,000

Commercial and Multi-Family (5 units or more)

Choose from a menu of cost-effective upgrades you can use to create low water use landscaping, improve irrigation efficiency, and lower your water bill:

- Convert high water use lawns to sustainable landscaping.
- Convert sprinklers to drip irrigation.
- Replace conventional sprinkler nozzles with high-efficiency rotating nozzles.
- Replace conventional irrigation timers with smart controllers.
- Install pressure regulators to improve system performance.
- Install submeters to improve leak detection and irrigation management.

The program is available to qualifying single-family homes, multi-family properties, and commercial and institutional landscape irrigators. Please note that rebates are not retroactive.

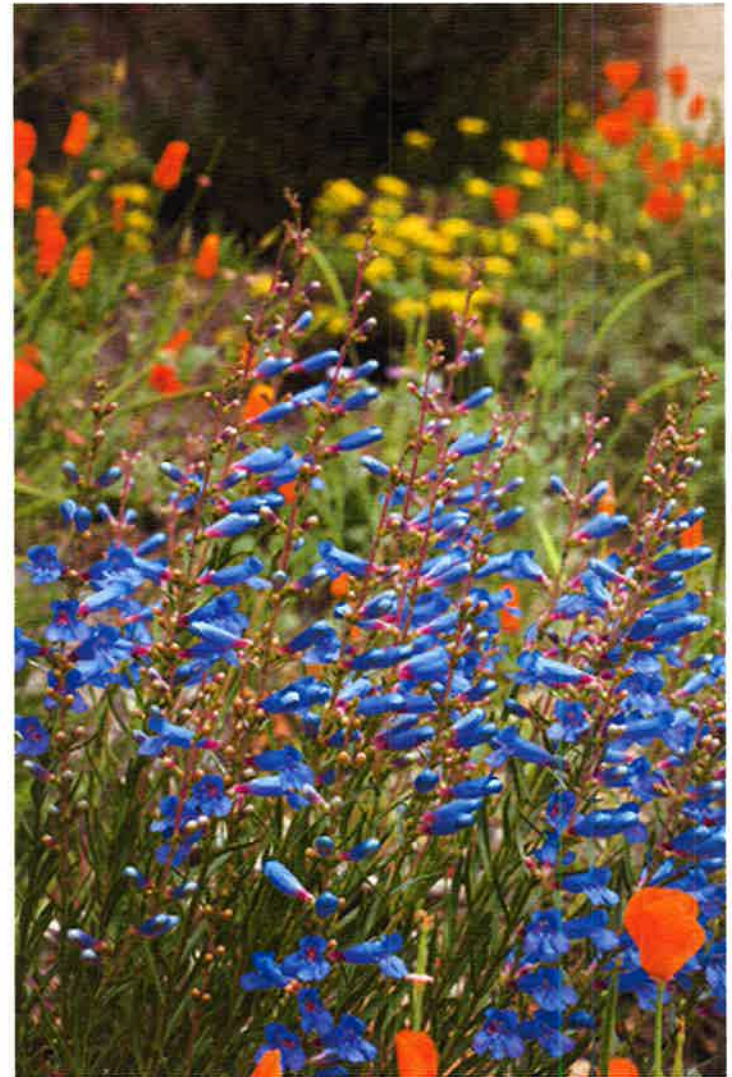
Landscape photo gallery (/water-and-drought/conservation-and-rebates/watersmart-gardener/lawn-goodbye-landscape-gallery/)

Get inspiration and ideas for your lawn conversion.

EBMUD Landscape & Plant Book (/water-and-drought/conservation-and-rebates/watersmart-gardener/plants-and-landscapes-summer-dry-climates/)

Plants and Landscapes for Summer-Dry Climates is an indispensable guide to choosing plants that love the East Bay climate and are low water users.

General guidelines



[Home \(/\)](#)

[Customers \(/customers/\)](/customers/)

[Water and drought \(/water-and-drought/\)](/water-and-drought/)

[Wastewater \(/wastewater/\)](/wastewater/)

[Recreation \(/recreation/\)](/recreation/)

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Santa Clara Valley Water District

Programs > Water Conservation > Landscaping > Landscape Conversion Rebate Program

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Santa Clara County single family homes, multi-family and business properties with qualifying irrigated landscape (i.e. irrigated turf or functional swimming pool) can receive rebates for replacing high water using landscape, such as irrigated turf grass, with a minimum of 50 percent plant coverage consisting of low water using plants from the Water District's Approved Plant List. The table below describes the rebate amounts available.

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Program Eligibility

Rebates are available for residents, businesses, or institutions located within Santa Clara County.

- Participants must own the property to be eligible.
- Applicants must attain pre-approval by participating in a qualifying pre-inspection and submit a Request for Application Form to the Santa Clara Valley Water District.
- Areas to be converted must include approved high water using landscape at the time of pre-inspection.
- **In response to the drought, lawns that are dead, brown, yellow or green all qualify as long as the lawn is still physically onsite. Sites do not need to maintain a green, living lawn in order to qualify for the rebate program as long as the dead or stressed lawn is still onsite at the time of the pre-inspection and has not been removed.**

- **Projects that have been started or projects that have already been completed prior to the Notice to Proceed are not eligible.**
- New construction does not qualify as the Landscape Rebate Program is aimed at encouraging retrofitting of existing facilities.
- Rebate material must be purchased after receiving a written Notice to Proceed from the water district.
- Projects must be completed within 90 days of date on written Notice to Proceed. Extensions can be provided on a case by case basis, if requested.

Landscape Conversion Rebate Program Requirements:

- A minimum of 75 square feet of qualifying high water using landscape (i.e. irrigated turf or functional swimming pool) must be converted in order to participate in the landscape conversion rebate. If removing an existing swimming pool, all local building codes or permitting requirements must be met. Contact your local planning or building department for specifics.
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- There can be no net increase in the size of the irrigated area. The irrigation system must be designed so that any remaining lawn and shrubs are watered separately from the converted landscape area, meaning overhead irrigation is served through a separate valve that can be controlled independently on a separate irrigation zone and schedule.
- The sprinkler system for the remaining lawn must be modified to provide adequate coverage and may not spray onto the converted landscape area. **Pop-up sprinklers must be removed from the converted landscape area.**
- Non-qualifying materials include, but are not limited to the following: artificial turf (click here for Artificial Turf Fact Sheet), seed, sod, vegetable gardens, vineyards, high water use plants, lawn ornaments, impervious surfaces, cement, decking, curbing, hot tubs, pools, building extensions, retaining walls, sheds, trellises, play ground materials, and fences.

[\(/\)](#)[\(/\)](#)

Lawn conversion & irrigation upgrade rebates

[Home \(/\)](#) / [Water and drought \(/water-and-drought/\)](#) / [Conservation and rebates \(/water-and-drought/conservation-and-rebates/\)](#)
/ [Residential \(/water-and-drought/conservation-and-rebates/residential/\)](#)
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Effective January 1, 2015

Reduce your water bill and earn rebates for one or more landscape and irrigation equipment upgrades.

Up to \$2,500

Single- and Multi-Family (4 units or less) Residential

Up to \$20,000

Commercial and Multi-Family (5 units or more)

Choose from a menu of cost-effective upgrades you can use to create low water use landscaping, improve irrigation efficiency, and lower your water bill:

- Convert high water use lawns to sustainable landscaping.
- Convert sprinklers to drip irrigation.
- Replace conventional sprinkler nozzles with high-efficiency rotating nozzles.
- Replace conventional irrigation timers with smart controllers.
- Install pressure regulators to improve system performance.
- Install submeters to improve leak detection and irrigation management.

The program is available to qualifying single-family homes, multi-family properties, and commercial and institutional landscape irrigators. Please note that rebates are not retroactive.

Landscape photo gallery (/water-and-drought/conservation-and-rebates/watersmart-gardener/lawn-goodbye-landscape-gallery/)

Get inspiration and ideas for your lawn conversion.

EBMUD Landscape & Plant Book (/water-and-drought/conservation-and-rebates/watersmart-gardener/plants-and-landscapes-summer-dry-climates/)

Plants and Landscapes for Summer-Dry Climates is an indispensable guide to choosing plants that love the East Bay climate and are low water users.

General guidelines



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- A telephone interview and/or pre-inspection with an EBMUD representative and subsequent written approval is required before starting a project.
- The project must be completed within six months of application approval.
- A post-project inspection is required.
- Rebate applications must include an original receipt for the purchase of qualifying equipment and be postmarked or received by EBMUD within 90 days of purchase.
- Rebated equipment must be installed and inspected within 180 days from equipment purchase date.
- Water guzzling and invasive plants don't qualify for a rebate. Get information on low water-use plants **here** (/water-and-drought/conservation-and-rebates/watersmart-gardener/plants-and-landscapes-summer-dry-climates/).
- Artificial turf does not currently qualify. EBMUD is conducting a pilot program. Check back for updates.

Other terms and conditions apply to this offer. Please see details and an application form below.

Application & More Information

Document

Brochure and application (fillable PDF) (http://www.ebmud.com/index.php/download_file/force/1137/1204/?landscape-brochure-we

List of Qualifying High-Efficiency Nozzles (http://www.ebmud.com/index.php/download_file/force/1138/1204/?landscape-prog-quali

List of Non-Qualifying Plants (http://www.ebmud.com/index.php/download_file/force/1136/1204/?list-of-non-qualifying-plants_1.p

Contact Us

email: waterconservation@ebmud.com (<mailto:waterconservation@ebmud.com>)

phone: 1-866-403-2683

WaterSmart Center (/water-and-drought/conservation-and-rebates/)

Your resource for conservation services and incentives for home and business, publications, workshops and events, and more.

Submitted by Blake
Joplin

Item 2-A

DEL MESA CARMEL LANDSCAPING MASTER PLAN

04.23.2105

- REVIEW OF LANDSCAPE WATER USE AT DMC
 - WATER SAVING & REUSE STRATEGIES
- OVERVIEW OF LANDSCAPE MASTER PLAN
 - MASTER PLAN PLANTING SCHEMES
- PHASE 1 IMPLEMENTATION OVERVIEW
 - ADDITIONAL CLUBHOUSE SKETCHES
 - PHASE 1 PLANTING PLANS



Irrigation Demand Calculations
Del Mesa Carmel - Existing Conditions

Landscape Zone:
Species factor (Ks)
Density (Kd)
Microclimate (Kmc)
Landscape coefficient (Kl)
Irrigation Efficiency
Usable Precipitation

Existing Lawn	
Species factor (Ks)	0.75
Density (Kd)	1
Microclimate (Kmc)	1
Landscape coefficient (Kl)	0.75
Irrigation Efficiency	0.7
Usable Precipitation	0.25

Month	Monthly ETD	Precipitation	Net Precipitation	ETL	Irrigation Efficiency	Irrigation Demand (TWA)	Irrigation Demand (Gallons)
January	1.54	3.5	0.9	0.31	0.7	0.92	90,472
February	1.9	3.0	0.8	0.36	0.7	1.22	182,831
March	3.2	2.7	0.7	1.83	0.7	2.62	348,372
April	3.7	2.4	0.4	2.82	0.7	4.03	527,245
May	4.71	0.5	0.1	3.49	0.7	4.98	654,986
June	4.99	0.1	0.0	3.72	0.7	5.32	706,248
July	4.47	0.0	0.0	3.93	0.7	4.78	637,188
August	4.07	0.1	0.0	3.04	0.7	4.34	578,190
September	3.53	0.2	0.0	2.62	0.7	3.74	498,440
October	2.81	0.7	0.2	1.96	0.7	2.84	378,417
November	1.81	2.2	0.4	0.55	0.7	1.77	238,940
December	1.47	3.5	0.8	0.48	0.7	0.69	92,185

TWA (in) 37
TWA (ft) 3.1
Irrigated Area (sf) 213986
Total Irrigation Demand (gal) 4,889,018 gal

Total Irrigation Demand (gal) 4,889,018 gal

Del Mesa Carmel - Turf replacement

Landscape Zone:
Species factor (Ks)
Density (Kd)
Microclimate (Kmc)
Landscape coefficient (Kl)
Irrigation Efficiency
Usable Precipitation

T grass turf + 4 zones turf replacement	
Species factor (Ks)	0.47
Density (Kd)	1
Microclimate (Kmc)	1
Landscape coefficient (Kl)	0.47
Irrigation Efficiency	0.7
Usable Precipitation	0.25

Month	Monthly ETD	Precipitation	Net Precipitation	ETL	Irrigation Efficiency	Irrigation Demand (TWA)	Irrigation Demand (Gallons)
January	1.54	3.5	0.9	0.32	0.7	0.45	42,348
February	1.9	3.0	0.8	0.34	0.7	0.72	102,202
March	3.2	2.7	0.7	1.33	0.7	1.64	218,313
April	3.7	2.4	0.4	1.77	0.7	2.53	348,985
May	4.71	0.5	0.1	2.19	0.7	3.12	418,434
June	4.99	0.1	0.0	2.35	0.7	3.33	444,465
July	4.47	0.0	0.0	2.39	0.7	3.49	469,621
August	4.07	0.1	0.0	1.76	0.7	2.52	363,990
September	3.53	0.2	0.0	1.64	0.7	2.34	314,354
October	2.81	0.7	0.2	1.24	0.7	1.79	237,795
November	1.81	2.2	0.4	0.60	0.7	0.86	114,642
December	1.47	3.5	0.8	0.59	0.7	0.83	117,299

TWA (in) 23
TWA (ft) 1.9
Irrigated Area (sf) 213986
Total Irrigation Demand (gal) 3,063,784 gal

Total Irrigation Demand (gal) 3,063,784 gal

Del Mesa Carmel - Turf replacement + Irrigation Upgrades

Landscape Zone:
Species factor (Ks)
Density (Kd)
Microclimate (Kmc)
Landscape coefficient (Kl)
Irrigation Efficiency
Usable Precipitation

T grass turf + 4 zones turf replacement	
Species factor (Ks)	0.47
Density (Kd)	1
Microclimate (Kmc)	1
Landscape coefficient (Kl)	0.40
Irrigation Efficiency	0.9
Usable Precipitation	0.25

Month	Monthly ETD	Precipitation	Net Precipitation	ETL	Irrigation Efficiency	Irrigation Demand (TWA)	Irrigation Demand (Gallons)
January	1.54	3.5	0.9	0.32	0.9	0.95	47,020
February	1.9	3.0	0.8	0.34	0.9	0.60	79,414
March	3.2	2.7	0.7	1.33	0.9	1.27	186,796
April	3.7	2.4	0.4	1.77	0.9	1.96	280,942
May	4.71	0.5	0.1	2.19	0.9	2.45	322,528
June	4.99	0.1	0.0	2.35	0.9	2.59	345,692
July	4.47	0.0	0.0	2.39	0.9	2.63	319,862
August	4.07	0.1	0.0	1.76	0.9	2.32	282,102
September	3.53	0.2	0.0	1.64	0.9	1.82	242,343
October	2.81	0.7	0.2	1.24	0.9	1.29	174,552
November	1.81	2.2	0.4	0.60	0.9	0.67	89,166
December	1.47	3.5	0.8	0.30	0.9	0.84	114,323

TWA (in) 18
TWA (ft) 1.5
Irrigated Area (sf) 213986
Total Irrigation Demand (gal) 2,382,943 gal

Total Irrigation Demand (gal) 2,382,943 gal



GRAYWATER - LAUNDRY TO LANDSCAPE:

Water from laundry machines, either in residences or at the laundry buildings, is pumped directly into mulch filled basins around trees and shrubs in the adjacent landscape.

GRAYWATER - BRANCHED DRAIN SYSTEM:

Water from laundry, bathroom sinks, showers and bathtubs is isolated from toilet and kitchen sink plumbing and flows by gravity to mulch filled basins around trees and shrubs nearby.

GRAYWATER - CENTRALIZED PRESSURIZED SYSTEM:

An example of a more advanced and extensive water re-use system where water from laundry, bathroom sinks, showers and bathtubs is isolated from toilet and kitchen sink plumbing and flows through gravity to a central storage tank and is then filtered and re-pressurized to irrigate the landscape using drip irrigation.

RAIN BARRELS:

This is a small scale method for collecting rainfall from rooftops. This is an example of the most simple and least expensive approach. Just like graywater systems, there are suitable systems for many scales. From a 50 gallon rain barrel to multiple 10,000 gallon storage tanks to a large pond. The trick to really reducing your irrigation water use is to use these systems is to water plants in between storm events.

GRAYWATER - LAUNDRY TO LANDSCAPE PILOT PROJECT

ROUGH INSTALLED COST PER UNIT: \$1,000-\$2,000

AVERAGE WATER SAVINGS PER MACHINE PER YEAR: 1,500 GAL

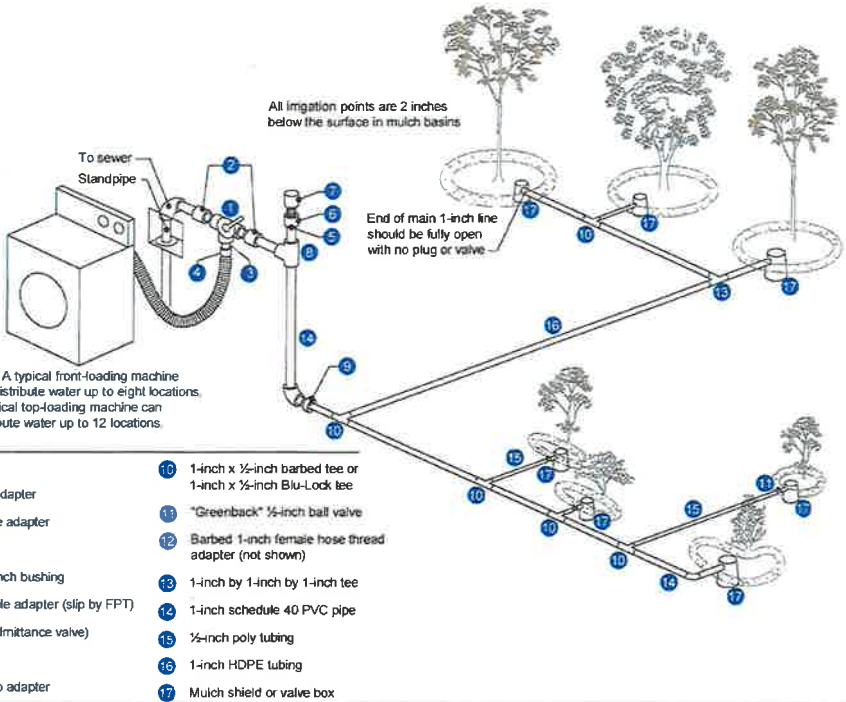
RETURN ON INVESTMENT: 15-20 years

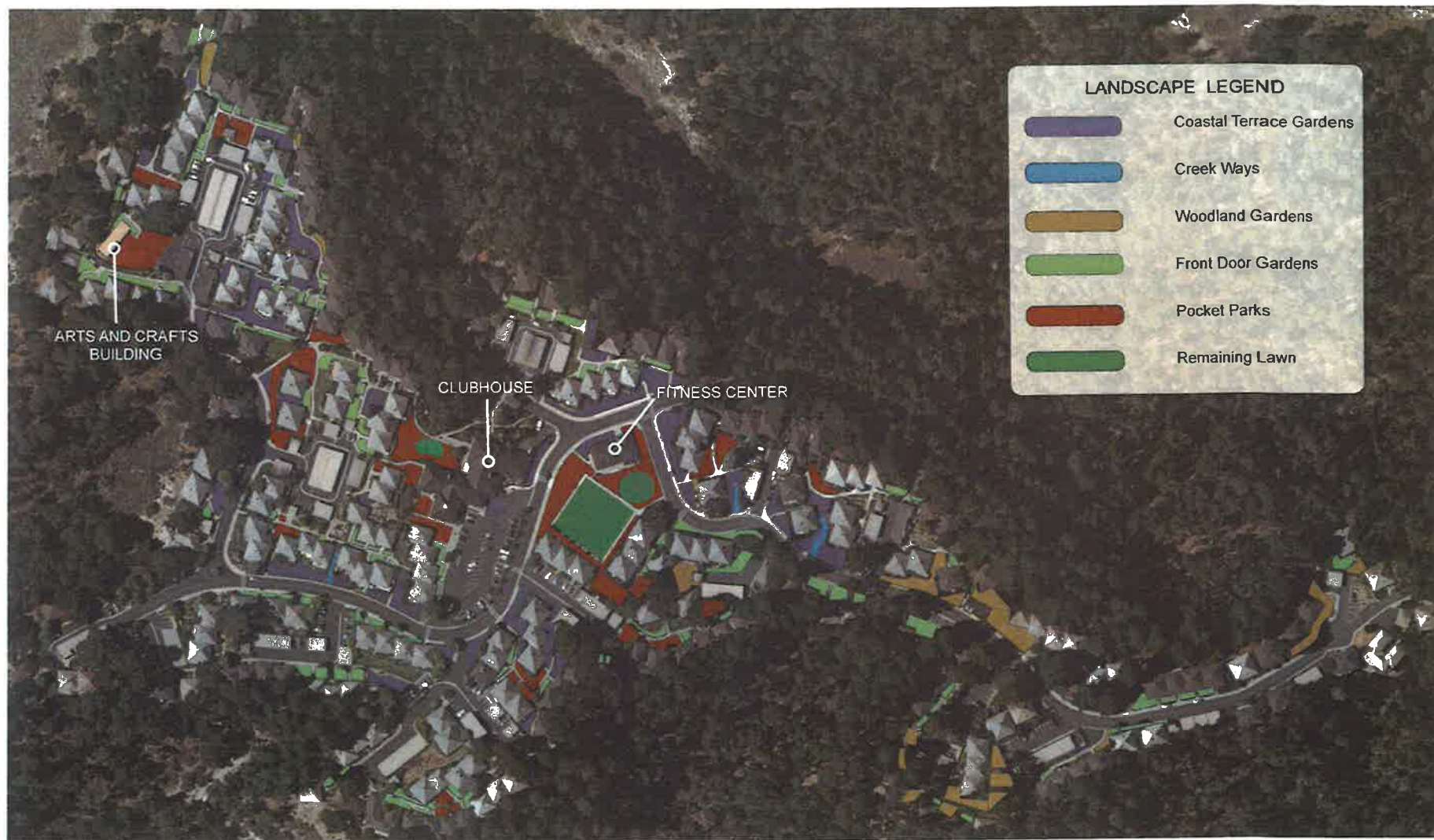
ADVANTAGES OF THIS SYSTEM:

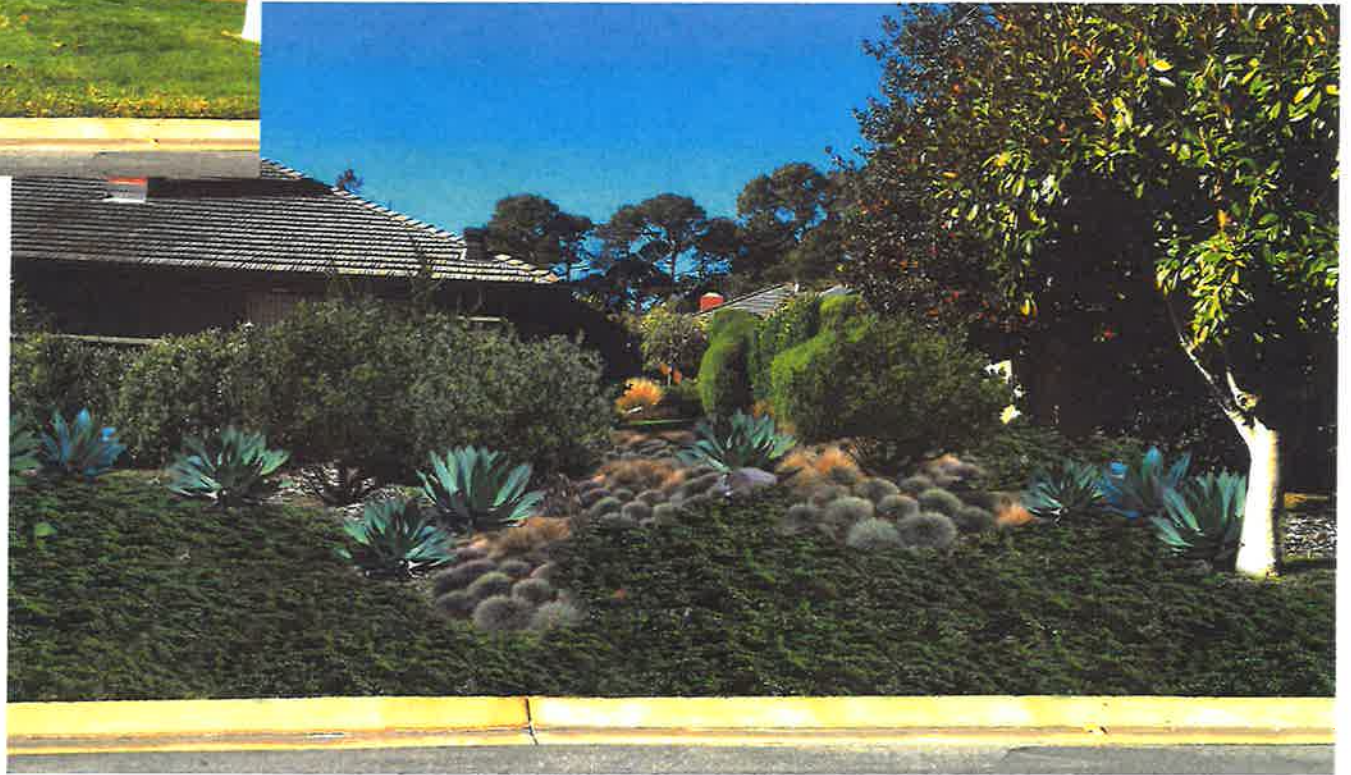
- No building permit required
- Relatively simple and inexpensive installation
- Uses the pump from the washing machine/no additional energy demand

DRAWBACKS OF THIS SYSTEM:

- Can be limited by existing conditions
- Not the most efficient re-use of water compared to a central system.





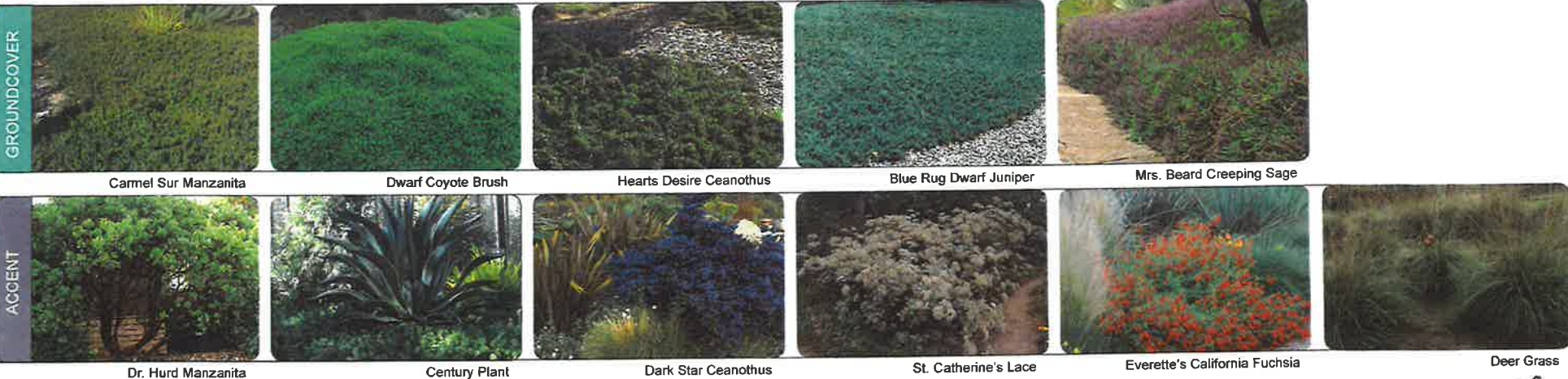


Coastal Terrace Gardens Palette

Plant Form	Common Name	Water Use	Size/Spread	Spacing
GROUND COVERS				
Arctostaphylos edmundsii 'Carmel Sur'	Carmel Sur Manzanita	VL	4"x3'	3'
Baccharis pilularis pilularis 'Pigeon Point'	Dwarf Coyote Brush	VL	4"x8'	5'
Ceanothus gloriosus 'Hearts desire'	Hearts desire ceanothus	VL	2'x6'	4'
Juniperus horizontalis 'Wiltoni' (Blue Rug)	Blue Rug Dwarf Juniper	VL	1'x6'	3-4'
Salvia sonomensis 'Mrs. Beard'	Mrs. Beard Creeping Sage	VL	8"x5'	4'
ACCENT SPECIES (partail list)				
Achillea millefolia	Yarrow	L	1'x1'	1'
Arctostaphylos manzanita 'Dr. Hurd'	Dr. Hurd Manzanita	L	4'x5'	6'
Artemesia pycnocephala 'Davids Choice'	Sandhill Sagebrush	L	2'x2'	2'
Carpenteria californica	Bush Anenome	M	5'x10'	8'
Ceanothus 'Dark Star'	Dark Star California Lilac	L	6'x8'	6'
Dudleya spp.	Dudleya	L	4"x4"	8"
Echium candicans	Pride of Madeira	L	6'x8'	6'
Epilobium canum val. Latifolium 'Everett's Choice'	California Fuchsia	VL	6"x4'	3'
Epilobium septentrioale 'Mattole River'	Mattole River Ca Fuchsia	L	1'x2'	2'
Eriogonum arborescens	Santa Cruz Buckwheat	VL	3'x5'	4'
Eriogonum giganteum	Saint Catherine's Lace	VL	3'x5'	4'
Hesperoyucca whipplei	Our Lord's Candle	VL	3'x3'	4'
Iris 'PCH'	Iris hybrid 'PCH'	L	1'x3'	2'
Lupinus albilfrons	Silver Lupine	L	2'x5'	3'
Muhlenbergia rigens	Deer Grass	L	2'x2'	2'
Penstemon spp	Penstemon	L	2'x2'	2'
Ribes malvaceum	Pink Chaparral current	L	3'x4'	4'
Salvia apiana	White Sage	VL	3'x4'	4'
Yucca	(all)	VL	3'x3'	3'



Coastal Terrace Garden Sketch



Creekways Palette

Plant Form	Common Name	Water Use	Size/Spread	Spacing
GROUND COVERS				
Carex pansa	Field Sedge	L-M	18"x2'	2'
Epilobium canum var. latifolium 'Everett's Choice'	Everett's California Fuchsia	L	>1'x4'	3'-4'
Satureja douglasii	Yerba Buena	L	4"-3'	3'
Thymus serpyllum	Creeping Thyme	L	6"x2'	2'
ACCENT SPECIES				
Agave americana	Century plant	L	7'x5'	6'
Agave attenuata	Fox Tail Agave	VL	2'x3'	3'
Carex divulsa	Berkeley Sedge	L-M	1'x2'	18"
Chondropetalum tectorum	Cape Rush	VL	3'x4'	4'
Dudleya pulverulenta	Chalk dudlea	VL	1'x2'	3'
Heliototrichon sempervirens	Blue oas grass	L	2'x2'	2'
Juncus patens	California gray rush	L	2.5'x1'	2'
Lemus condensatus 'Canyon Prince'	Canyon Prince wild rye	L	2'x3'	3'
Muhlenbergia rigens	deer grass	L	2'x2'	2'
Pennisetum 'Fairy Tails'	Evergreen fountain grass	M	3'x2'	3'
Sedum spahulifolium	Stoncrop	VL	6"x18"	1'



Creekway sketch



Sedge

Everette's California Fuchsia

Creeping Thyme

Yerba Buena



Wire Grass

Deer Grass

Cape Rush

Dr. Hurd Manzanita

Canyon Prince Wild Rye

Fox Tail Agave



Santa Clara Valley Water District

Programs > Water Conservation > Landscaping > Landscape Conversion Rebate Program

Landscape Conversion Rebate Program

Program Update

On April 22, 2014, the Landscape Conversion Rebate increased to \$2.00 per square foot of converted high water using landscape (i.e. irrigated turf or functional swimming pool) to low water using landscape. For more information, please call the Water Conservation Hotline at (408) 630-2554. These increases are temporary, through **December 31, 2015**, and certain restrictions apply. Applications postmarked between January 1, 2015 and December 31, 2015 will be held to a \$50,000 per site cap.

Important Program Note: Sites that have been denied participation in the Landscape Rebate Program for not meeting the initial program eligibility requirements will not be allowed to re-apply for the rebate within three (3) years of the initial pre-inspection or denial date, whichever is the latter.

PLEASE NOTE: Due to the overwhelming response to participate in the Landscape Rebate Program, we are currently experiencing a backlog in scheduling pre-inspection appointments. While we are taking steps to address this, **customers are encouraged to stop watering their lawn areas as they wait for their scheduled appointment.** Dead or stressed lawns will qualify for the rebate as long as the lawn is still in place at the time of the pre-inspection. Lawns that have been removed will not qualify. The District is recommending that after the pre-inspection and application approval is complete, customers complete their projects in the fall when cooler temperature will better support plant establishment and will require less supplemental irrigation.

Santa Clara County single family homes, multi-family and business properties with qualifying irrigated landscape (i.e. irrigated turf or functional swimming pool) can receive rebates for replacing high water using landscape, such as irrigated turf grass, with a minimum of 50 percent plant coverage consisting of low water using plants from the Water District's Approved Plant List. The table below describes the rebate amounts available.

Rebate Amounts starting April 22, 2014:

Property Type	Rebate Amount (as of 4/22/2014) **
Single Family, Multi-Family and Business/Institutional properties	\$2.00 per sq ft
For information about current increased rebate amounts in cost sharing areas, please call the Water Conservation Hotline at (408) 630-2554. Funds are first come, first served, while funding is available.*	

Rebate amounts listed reflect a temporary increase due to current drought conditions and are only valid for projects that submit an application postmarked by December 31, 2015. Projects must be completed within 90 days of Notice to Proceed date.

* Rebate amounts subject to change. For current cost-sharing area information, please call the Water Conservation Hotline at (408) 630-2554.

** Landscape Conversion Rebates over \$50,000 will need to be approved on a case by case basis and proof of water savings may be required for applications postmarked by December 31, 2014. Applications postmarked between January 1, 2015 and December 31, 2015 will be held to a \$50,000 per site cap.

Program Eligibility

Rebates are available for residents, businesses, or institutions located within Santa Clara County.

- Participants must own the property to be eligible.
- Applicants must attain pre-approval by participating in a qualifying pre-inspection and submit a Request for Application Form to the Santa Clara Valley Water District.
- Areas to be converted must include approved high water using landscape at the time of pre-inspection.
- **In response to the drought, lawns that are dead, brown, yellow or green all qualify as long as the lawn is still physically onsite. Sites do not need to maintain a green, living lawn in order to qualify for the rebate program as long as the dead or stressed lawn is still onsite at the time of the pre-inspection and has not been removed.**

- **Projects that have been started or projects that have already been completed prior to the Notice to Proceed are not eligible.**
- New construction does not qualify as the Landscape Rebate Program is aimed at encouraging retrofitting of existing facilities.
- Rebate material must be purchased after receiving a written Notice to Proceed from the water district.
- Projects must be completed within 90 days of date on written Notice to Proceed. Extensions can be provided on a case by case basis, if requested.

Landscape Conversion Rebate Program Requirements:

- A minimum of 75 square feet of qualifying high water using landscape (i.e. irrigated turf or functional swimming pool) must be converted in order to participate in the landscape conversion rebate. If removing an existing swimming pool, all local building codes or permitting requirements must be met. Contact your local planning or building department for specifics.
- The converted area must include a sufficient number of qualifying water efficient plants to ensure at least 50% of the area is covered with living plants when the plants are fully grown. To determine coverage value, consult the SCVWD Qualifying Plant List. Tree species will not be included in the 50% plant coverage requirement. Plants outside the converted area are not considered in the calculation even if they are adjacent to or overhanging into the converted area.
- Permeable hardscape such as permeable pavers, decomposed granite, rocks, and boulders are permitted within the converted areas as long as all other terms and conditions of the program are met. Impermeable surfaces, such as concrete and thick plastic (>3 mil), that do not allow water to penetrate into the ground are not permitted within the converted area.
- All planting areas must have a minimum of two (2) inches of qualifying mulch, including: chipped or shredded bark, rock, gravel, or weed free straw. If a weed barrier is used below the mulch, it must be permeable to air and water. Although compost, leaves, and grass clippings are important for providing valuable soil structure, nutrients, and water retention, these materials do not qualify as mulch for this program as they decompose quickly and do not adequately reduce soil evaporation.
- A limited number of groundcover plants listed on the Water District's Qualifying Plant list may qualify as living mulch provided the individual plants are installed at sufficient density to assure 100% plant cover. The mulch requirement around these plants may be waived on a case-by-case basis.
- Irrigation systems, if used within the converted area, must be low volume drip, micro-spray, or bubbler. The system must be in good working order, free of leaks and malfunctions. Once installed, the irrigation system must not create run-off, overspray, or misting.
- Exceptions for overhead irrigation systems in a converted area will be reviewed on a case-by-base basis. The system shall have no run-off, low head drainage, overspray or other water waste to be accepted. All spray bodies and nozzles must be on the SCVWD Qualifying List and sprinklers must be set in a minimum of two feet from any impervious hardscape (i.e. concrete sidewalks, driveways and roads).
- There can be no net increase in the size of the irrigated area. The irrigation system must be designed so that any remaining lawn and shrubs are watered separately from the converted landscape area, meaning overhead irrigation is served through a separate valve that can be controlled independently on a separate irrigation zone and schedule.
- The sprinkler system for the remaining lawn must be modified to provide adequate coverage and may not spray onto the converted landscape area. **Pop-up sprinklers must be removed from the converted landscape area.**
- Non-qualifying materials include, but are not limited to the following: artificial turf (click here for Artificial Turf Fact Sheet), seed, sod, vegetable gardens, vineyards, high water use plants, lawn ornaments, impervious surfaces, cement, decking, curbing, hot tubs, pools, building extensions, retaining walls, sheds, trellises, play ground materials, and fences.

[\(/\)](#)[\(/\)](#)

Lawn conversion & irrigation upgrade rebates

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/ [Residential \(/water-and-drought/conservation-and-rebates/residential/\)](#)
/ [Rebates \(/water-and-drought/conservation-and-rebates/residential/rebates/\)](#) / [Lawn conversion & irrigation upgrade rebates](#)

Effective January 1, 2015

Reduce your water bill and earn rebates for one or more landscape and irrigation equipment upgrades.

Up to \$2,500

Single- and Multi-Family (4 units or less) Residential

Up to \$20,000

Commercial and Multi-Family (5 units or more)

Choose from a menu of cost-effective upgrades you can use to create low water use landscaping, improve irrigation efficiency, and lower your water bill:

- Convert high water use lawns to sustainable landscaping.
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- Install pressure regulators to improve system performance.
- Install submeters to improve leak detection and irrigation management.

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Landscape photo gallery (/water-and-drought/conservation-and-rebates/watersmart-gardener/lawn-goodbye-landscape-gallery/)

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Plants and Landscapes for Summer-Dry Climates is an indispensable guide to choosing plants that love the East Bay climate and are low water users.

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- A telephone interview and/or pre-inspection with an EBMUD representative and subsequent written approval is required before starting a project.
- The project must be completed within six months of application approval.
- A post-project inspection is required.
- Rebate applications must include an original receipt for the purchase of qualifying equipment and be postmarked or received by EBMUD within 90 days of purchase.
- Rebated equipment must be installed and inspected within 180 days from equipment purchase date.
- Water guzzling and invasive plants don't qualify for a rebate. Get information on low water-use plants **here** (/water-and-drought/conservation-and-rebates/watersmart-gardener/plants-and-landscapes-summer-dry-climates/).
- Artificial turf does not currently qualify. EBMUD is conducting a pilot program. Check back for updates.

Other terms and conditions apply to this offer. Please see details and an application form below.

Application & More Information

Document

Brochure and application (fillable PDF) (http://www.ebmud.com/index.php/download_file/force/1137/1204/?landscape-brochure-we

List of Qualifying High-Efficiency Nozzles (http://www.ebmud.com/index.php/download_file/force/1138/1204/?lanscape-prog-quali

List of Non-Qualifying Plants (http://www.ebmud.com/index.php/download_file/force/1136/1204/?list-of-non-qualifying-plants_l.p

Contact Us

email: waterconservation@ebmud.com (<mailto:waterconservation@ebmud.com>)

phone: 1-866-403-2683

WaterSmart Center (/water-and-drought/conservation-and-rebates/)

Your resource for conservation services and incentives for home and business, publications, workshops and events, and more.

Submitted by Blake
Joptin

Item 2-A

DEL MESA CARMEL LANDSCAPING MASTER PLAN

04.23.2105

- REVIEW OF LANDSCAPE WATER USE AT DMC
 - WATER SAVING & REUSE STRATEGIES
- OVERVIEW OF LANDSCAPE MASTER PLAN
 - MASTER PLAN PLANTING SCHEMES
- PHASE 1 IMPLEMENTATION OVERVIEW
 - ADDITIONAL CLUBHOUSE SKETCHES
 - PHASE 1 PLANTING PLANS



Irrigation Demand Calculations
Del Mesa Carmel - Existing Conditions

Landscape Zone:
Species factor (Ks)
Density (Kd)
Microclimate (Kmc)
Landscape coefficient (Kl)
Irrigation Efficiency
Usable Precipitation

Existing Lawn
0.75
1
1
0.75
0.7
0.25

Month	Monthly ETD	Precipitation	Net Precipitation	ETL	Irrigation Efficiency	Irrigation Demand (TWA)	Irrigation Demand (Gallons)
January	1.54	3.5	0.9	0.31	0.7	0.92	90,472
February	1.9	3.0	0.8	0.36	0.7	1.22	182,831
March	3.2	2.7	0.7	1.83	0.7	2.62	348,372
April	3.7	2.4	0.4	2.82	0.7	4.03	527,242
May	4.71	0.5	0.1	3.49	0.7	4.98	654,586
June	4.99	0.1	0.0	3.72	0.7	5.32	706,248
July	4.47	0.0	0.0	3.93	0.7	4.78	637,188
August	4.07	0.1	0.0	3.04	0.7	4.34	578,190
September	3.53	0.2	0.2	2.62	0.7	3.74	498,440
October	2.81	0.7	0.2	1.96	0.7	2.84	378,417
November	1.81	2.2	0.4	0.55	0.7	1.77	238,940
December	1.47	3.5	0.6	0.48	0.7	0.69	92,185

TWA (in) 37
TWA (ft) 3.1
Irrigated Area (sf) 213986
Total Irrigation Demand (gal) 4,889,018 gal

Total Irrigation Demand (gal) 4,889,018 gal

Del Mesa Carmel - Turf replacement

Landscape Zone:
Species factor (Ks)
Density (Kd)
Microclimate (Kmc)
Landscape coefficient (Kl)
Irrigation Efficiency
Usable Precipitation

3 azalea turf + 4 azalea turf replacement

0.47
1
1
0.47
0.7
0.25

Month	Monthly ETD	Precipitation	Net Precipitation	ETL	Irrigation Efficiency	Irrigation Demand (TWA)	Irrigation Demand (Gallons)
January	1.54	3.5	0.9	0.32	0.7	0.45	42,348
February	1.9	3.0	0.8	0.34	0.7	0.72	102,328
March	3.2	2.7	0.7	1.33	0.7	1.64	218,313
April	3.7	2.4	0.4	1.77	0.7	2.53	348,985
May	4.71	0.5	0.1	2.19	0.7	3.12	418,434
June	4.99	0.1	0.0	2.33	0.7	3.33	444,462
July	4.47	0.0	0.0	2.39	0.7	3.49	478,521
August	4.07	0.1	0.0	1.76	0.7	2.52	363,990
September	3.53	0.2	0.2	1.64	0.7	2.34	318,354
October	2.81	0.7	0.2	1.24	0.7	1.79	237,793
November	1.81	2.2	0.4	0.60	0.7	0.86	114,642
December	1.47	3.5	0.6	0.49	0.7	0.63	87,299

TWA (in) 23
TWA (ft) 1.9
Irrigated Area (sf) 213986
Total Irrigation Demand (gal) 3,063,784 gal

Total Irrigation Demand (gal) 3,063,784 gal

Del Mesa Carmel - Turf replacement + Irrigation Upgrades

Landscape Zone:
Species factor (Ks)
Density (Kd)
Microclimate (Kmc)
Landscape coefficient (Kl)
Irrigation Efficiency
Usable Precipitation

3 azalea turf + 4 azalea turf replacement

0.47
1
1
0.47
0.9
0.25

Month	Monthly ETD	Precipitation	Net Precipitation	ETL	Irrigation Efficiency	Irrigation Demand (TWA)	Irrigation Demand (Gallons)
January	1.54	3.5	0.9	0.32	0.9	0.95	47,020
February	1.9	3.0	0.8	0.34	0.9	0.60	79,414
March	3.2	2.7	0.7	1.33	0.9	1.27	186,796
April	3.7	2.4	0.4	1.77	0.9	1.96	280,542
May	4.71	0.5	0.1	2.19	0.9	2.43	322,528
June	4.99	0.1	0.0	2.33	0.9	2.59	345,693
July	4.47	0.0	0.0	2.39	0.9	2.63	319,863
August	4.07	0.1	0.0	1.76	0.9	2.32	282,310
September	3.53	0.2	0.2	1.64	0.9	2.02	242,343
October	2.81	0.7	0.2	1.24	0.9	1.39	184,550
November	1.81	2.2	0.4	0.60	0.9	0.67	89,166
December	1.47	3.5	0.6	0.30	0.9	0.34	44,933

TWA (in) 18
TWA (ft) 1.5
Irrigated Area (sf) 213986
Total Irrigation Demand (gal) 2,382,943 gal

Total Irrigation Demand (gal) 2,382,943 gal



GRAYWATER - LAUNDRY TO LANDSCAPE:

Water from laundry machines, either in residences or at the laundry buildings, is pumped directly into mulch filled basins around trees and shrubs in the adjacent landscape.

GRAYWATER - BRANCHED DRAIN SYSTEM:

Water from laundry, bathroom sinks, showers and bathtubs is isolated from toilet and kitchen sink plumbing and flows by gravity to mulch filled basins around trees and shrubs nearby.

GRAYWATER - CENTRALIZED PRESSURIZED SYSTEM:

An example of a more advanced and extensive water re-use system where water from laundry, bathroom sinks, showers and bathtubs is isolated from toilet and kitchen sink plumbing and flows through gravity to a central storage tank and is then filtered and re-pressurized to irrigate the landscape using drip irrigation.

RAIN BARRELS:

This is a small scale method for collecting rainfall from rooftops. This is an example of the most simple and least expensive approach. Just like graywater systems, there are suitable systems for many scales. From a 50 gallon rain barrel to multiple 10,000 gallon storage tanks to a large pond. The trick to really reducing your irrigation water use is to use these systems to water plants in between storm events.

GRAYWATER - LAUNDRY TO LANDSCAPE PILOT PROJECT

ROUGH INSTALLED COST PER UNIT: \$1,000-\$2,000

AVERAGE WATER SAVINGS PER MACHINE PER YEAR: 1,500 GAL

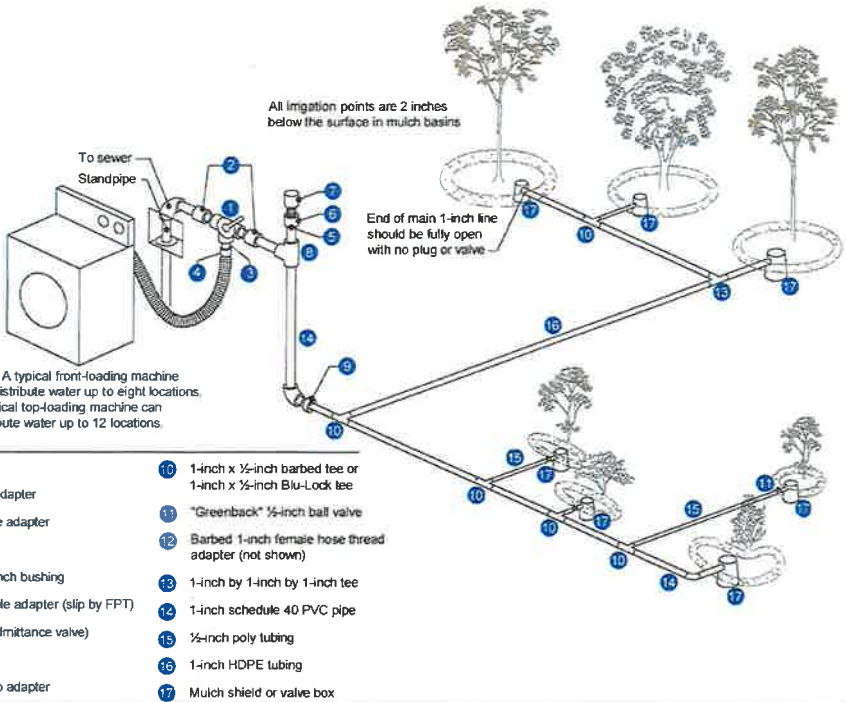
RETURN ON INVESTMENT: 15-20 years

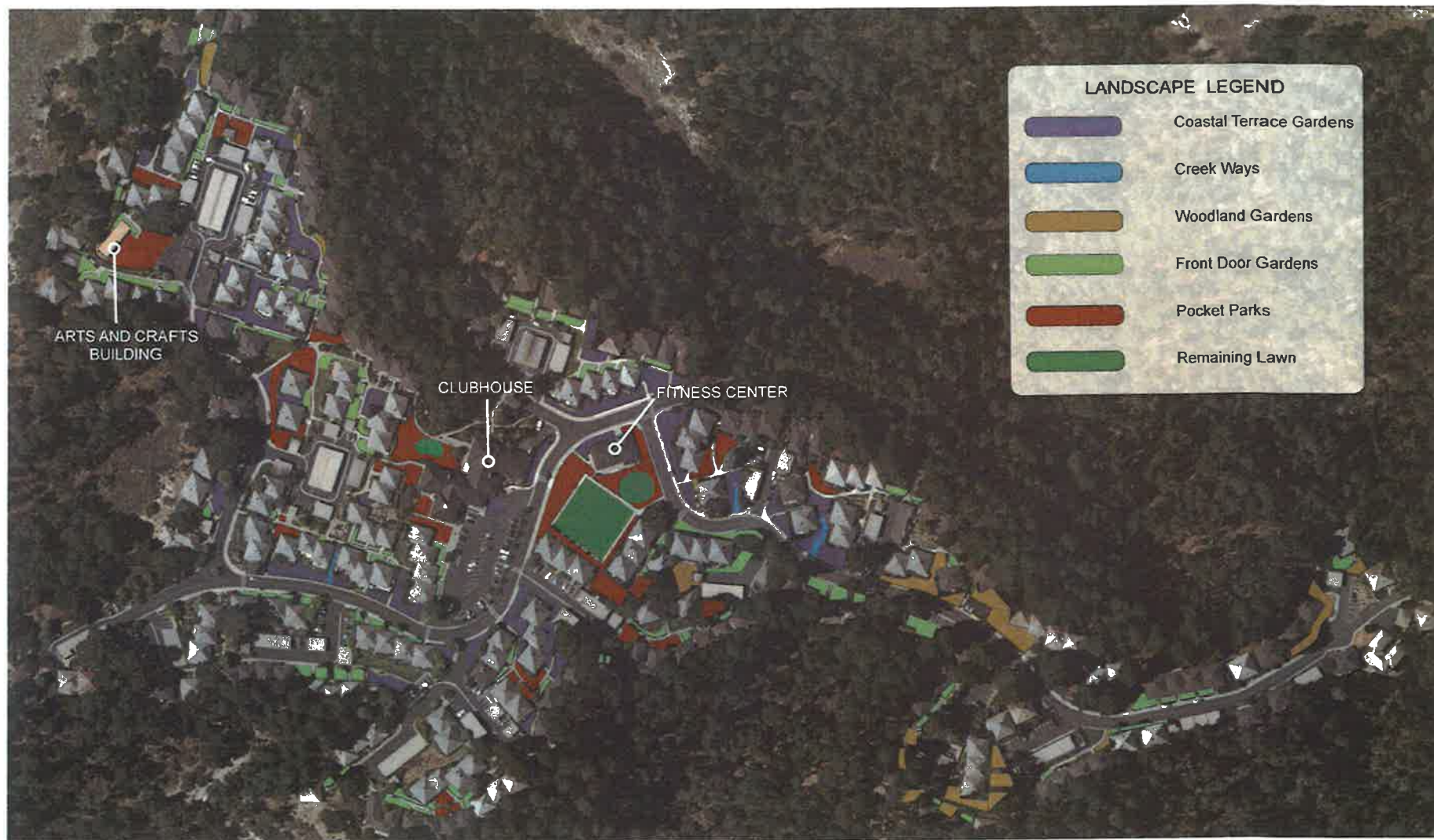
ADVANTAGES OF THIS SYSTEM:

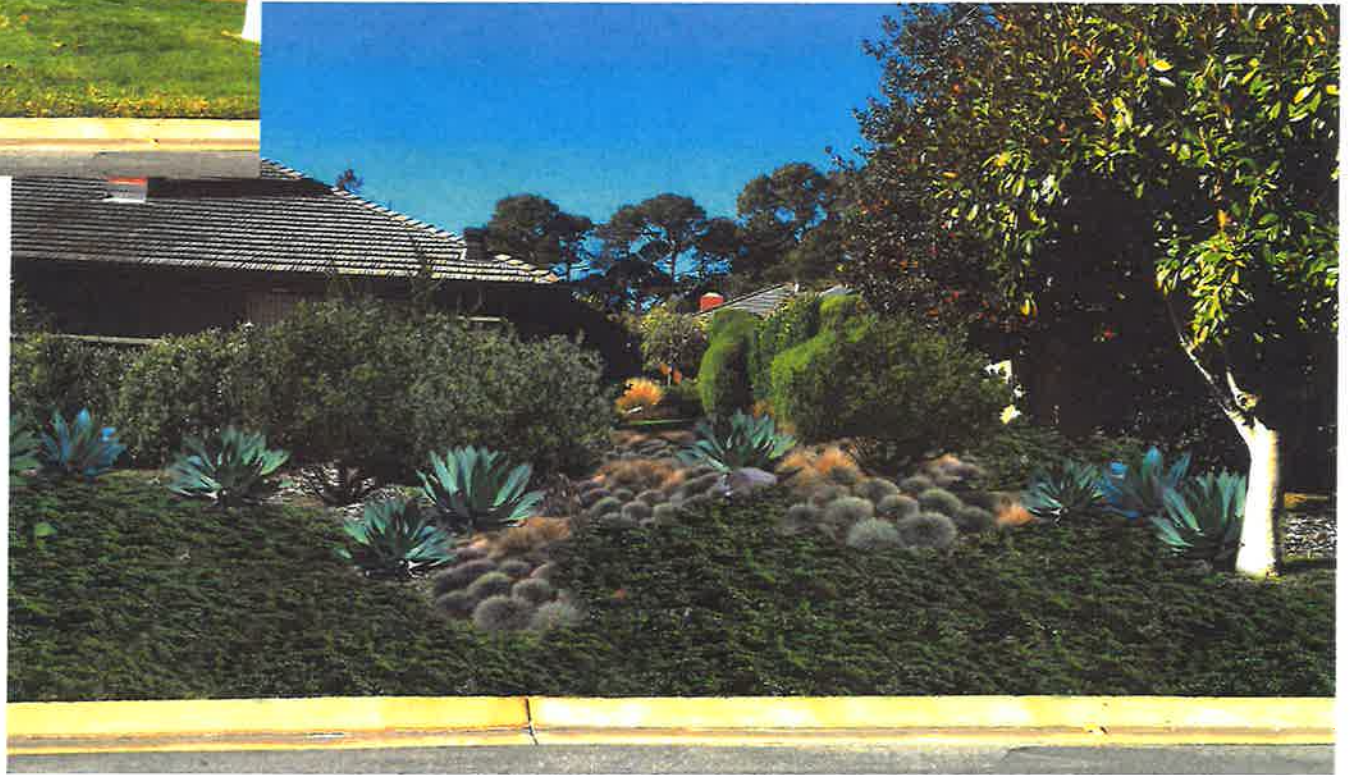
- No building permit required
- Relatively simple and inexpensive installation
- Uses the pump from the washing machine/no additional energy demand

DRAWBACKS OF THIS SYSTEM:

- Can be limited by existing conditions
- Not the most efficient re-use of water compared to a central system.







Coastal Terrace Gardens Palette

Plant Form	Common Name	Water Use	Size/Spread	Spacing
GROUND COVERS				
Arctostaphylos edmundsii 'Carmel Sur'	Carmel Sur Manzanita	VL	4"x3'	3'
Baccharis pilularis pilularis 'Pigeon Point'	Dwarf Coyote Brush	VL	4"x8'	5'
Ceanothus gloriosus 'Hearts desire'	Hearts desire ceanothus	VL	2'x6'	4'
Juniperus horizontalis 'Wiltoni' (Blue Rug)	Blue Rug Dwarf Juniper	VL	1'x6'	3-4'
Salvia sonomensis 'Mrs. Beard'	Mrs. Beard Creeping Sage	VL	8"x5'	4'
ACCENT SPECIES (partail list)				
Achillea millefolia	Yarrow	L	1'x1'	1'
Arctostaphylos manzanita 'Dr. Hurd'	Dr. Hurd Manzanita	L	4'x5'	6'
Artemesia pycnocephala 'Davids Choice'	Sandhill Sagebrush	L	2'x2'	2'
Carpenteria californica	Bush Anenome	M	5'x10'	8'
Ceanothus 'Dark Star'	Dark Star California Lilac	L	6'x8'	6'
Dudleya spp.	Dudleya	L	4"x4"	8"
Echium candicans	Pride of Madeira	L	6'x8'	6'
Epilobium canum val. Latifolium 'Everett's Choice'	California Fuchsia	VL	6"x4'	3'
Epilobium septentrioale 'Mattole River'	Mattole River Ca Fuchsia	L	1'x2'	2'
Eriogonum arborescens	Santa Cruz Buckwheat	VL	3'x5'	4'
Eriogonum giganteum	Saint Catherine's Lace	VL	3'x5'	4'
Hesperoyucca whipplei	Our Lord's Candle	VL	3'x3'	4'
Iris 'PCH'	Iris hybrid 'PCH'	L	1'x3'	2'
Lupinus albilfrons	Silver Lupine	L	2'x5'	3'
Muhlenbergia rigens	Deer Grass	L	2'x2'	2'
Penstemon spp	Penstemon	L	2'x2'	2'
Ribes malvaceum	Pink Chaparral current	L	3'x4'	4'
Salvia apiana	White Sage	VL	3'x4'	4'
Yucca	(all)	VL	3'x3'	3'



Coastal Terrace Garden Sketch

GROUND COVER



Carmel Sur Manzanita



Dwarf Coyote Brush



Hearts Desire Ceanothus



Blue Rug Dwarf Juniper



Mrs. Beard Creeping Sage

ACCENT



Dr. Hurd Manzanita



Century Plant



Dark Star Ceanothus



St. Catherine's Lace



Everette's California Fuchsia



Deer Grass



Creekways Palette				
Plant Form	Common Name	Water Use	Size/Spread	Spacing
GROUND COVERS				
Carex pansa	Field Sedge	L-M	18"x2'	2'
Epilobium canum var. latifolium 'Everett's Choice'	Everett's California Fuchsia	L	>1'x4'	3'-4'
Satureja douglasii	Yerba Buena	L	4"-3'	3'
Thymus serpyllum	Creeping Thyme	L	6"x2'	2'
ACCENT SPECIES				
Agave americana	Century plant	L	7'x5'	6'
Agave attenuata	Fox Tail Agave	VL	2'x3'	3'
Carex divulsa	Berkeley Sedge	L-M	1'x2'	18"
Chondropetalum tectorum	Cape Rush	VL	3'x4'	4'
Dudleya pulverulenta	Chalk dudlea	VL	1'x2'	3'
Heliototrichon sempervirens	Blue oas grass	L	2'x2'	2'
Juncus patens	California gray rush	L	2.5'x1'	2'
Lemus condensatus 'Canyon Prince'	Canyon Prince wild rye	L	2'x3'	3'
Muhlenbergia rigens	deer grass	L	2'x2'	2'
Pennisetum 'Fairy Tails'	Evergreen fountain grass	M	3'x2'	3'
Sedum spahulifolium	Stoncrop	VL	6"x18"	1'



Creekway sketch



Sedge

Everette's California Fuchsia

Creeping Thyme

Yerba Buena



Wire Grass

Deer Grass

Cape Rush

Dr. Hurd Manzanita

Canyon Prince Wild Rye

Fox Tail Agave





Woodland Gardens Palette				
Plant Form	Common Name	Water Use	Size/Spread	Spacing
GROUND COVERS				
Hypericum calycinum	Creeping St. John's wort	L	1.5'x3'	3'
Pachysandra terminalis	Japanese spurge	M	8"x3'	30"
Ribes viburnifolium	Evergreen Currant	L	2'x4'	3'
Salvia spathacea	Hummingbird Sage	L	1'x2'	2'
Satureja douglasii	Yerba Buena	L	4"-3'	3'
ACCENT SPECIES (partail list)				
Acanthus molis	Bear's Breach	L	4'x8'	6'
Carex praegracilis	California Field Sedge	M	6"x1'	1'
Dryopteris arguta	Wood Fern	M	1'x2'	2'
Festuca 'Siskiyou Blue'	Blue Fescue	L	1'x1'	1'
Iris 'Pacific Coast Hybrid'	Pacific Coast Iris	L	1'x2'	1'
Juncus patens 'Elk Blue'	Elk Blue California Gray Rush	M	1.5'x1.5'	18"
Liriope spp.	Lilyturf	M	1'x1'	1'
Narcissus	Daffodil	L	1'x1'	1'
Polystichum munitum	Western Sword Fern	M	3'x3'	2'
Rhododendron macrophyllum	Pacific Rhododendron	M	15'x10'	5'
Rhododendron occidentale	Western Azalea	M	6'x6'	5'
Scabiosa farinosa	Dward Pincushion	L	1.5'x1.5'	1.5'
Stachys byzantina	Lamb's Ears	L	6"x3'	3'
Woodwardia fimbriata	Giant Chain Fern	M	3'x6'	4'



Woodland Garden Sketch



Creeping St. John's Wort



Hummingbird Sage



Yerba Buena



Japanese Spurge



Evergreen currant



Wire Grass



Daffodil



Western Sword Fern



Pacific Rhododendron



Western Azalea



Giant Chain Fern



Front Door Gardens Palette				
Plant Form:	Common Name	Water Use	Size/Spread	Spacing
GROUND COVERS				
Arctostaphylos edmundsii 'Carmel Sur'	Carmel Sur Manzanita	VL	4"x3'	3'
Carex pansa	Field Sedge	L-M	18"x2'	2'
Dymondia margaretae	Silver Carpet	L	6"-2"	3"
Hypericum calycinum	Creeping St. John's wort	L	1.5'x3'	3"
Thymus serpyllum	Creeping Thyme	L	6"x2'	2"
ACCENT SPECIES (partail list)				
Armeria maritima	Sea Thrift	M	4"-1'	1'
Artemisia cal. X Montara	Montara	L	6" x3'	3'
Aster chilensis	Coast Aster	L	2'x2'	2'
Carex divulsa	Berkeley Sedge	L-M	1'x2'	18"
Cotinus coggygia	Smoketree	M	10'x15'	8'
Dudleya spp.	Dudleya	L	4" x4"	8"
Echinacea purpurea	Purple Coneflower	M	2'x2'	2'
Epilobium canum val. Latifolium 'Everett's Choice'	California Fuchsia	VL	6" x4'	3'
Euphorbia spp.	Euphorbia	L	1'x1'	1.5'
Helichrysum petiolare	Licorice Plant	L	1'x4'	2'
Iris spp.	Bearded Iris	L	1'x3'	2'
Leptospermum sp.	New Zealand Tea Tree	VL	6'x10'	6'
Leucadendron	Leucadendron	L	1'x3'	2'
Liriope	Lilyturf	M	1'x1'	1'
Narcissus	Daffodil	L	1'x1'	1'
Penstemon spp	Penstemon	L	2'x2'	2"
Rhododendron occidentale	Western Azalea	M	5'x6'	5'
Salvia sonomensis 'Mrs. Beard'	Mrs. Beard Creeping Sage	VL	8" x5'	4"
Salvia spathacea	Hummingbird Sage	L	1'x2'	2"
Santolina	Santolina	L	1'x2'	2"
Stachys byzantina	Lamb's Ears	L	6" x3'	3"



Front Door Garden Sketch



Sedge



Silver Carpet



Beach Strawberry



Blue Rug Dwarf Juniper



Creeping St. John's Wort



Thyme



Sea Thrift



Smoke Tree



Purple Coneflower



Lantana

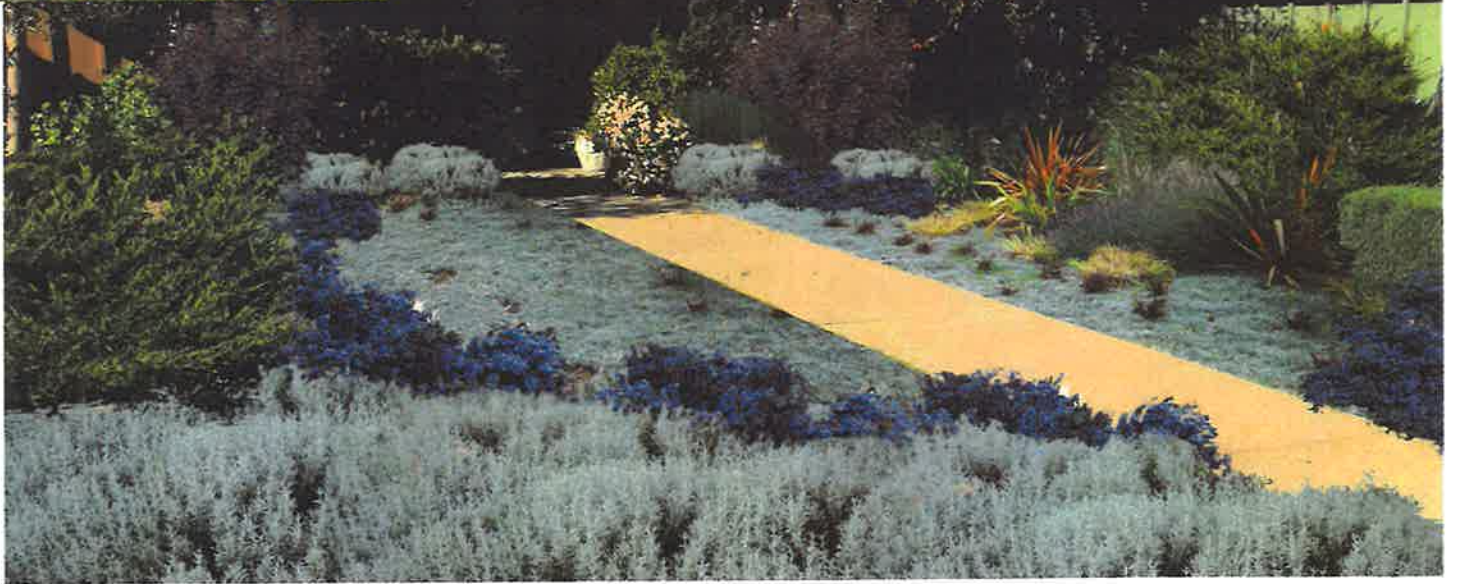


Bearded Iris



Lilyturf







Packet Parks Palette

Plant Form	Common Name	Water Use	Size/Spread	Spacing
GROUND COVERS				
Arctostaphylos edmundsii 'Carmel Sur'	Carmel Sur Manzanita	VL	4'x3'	3'
Baccharis pilularis pilularis 'Pigeon Point'	Dwarf coyote brush	VL	4"x8'	5'
Ceanothus gloriosus	Hearts Desire	L	6"x5'	3'
Myoporum parvifolium	Creeping myoporum	L	6"x8'	3-4'
ACCENT SPECIES (partial list)				
Agave americana	Century Plant	L	2'x3'	4'
Arctostaphylos species 'Dr. Hurd'	Dr. Hurd Manzanita	L	12'x9'	10'
Artemesia pycnocephala 'Davids Choice'	Sandhill sagebrush	L	2'x2'	2'
Aster chilensis	Coast Aster	L	2'x2'	2'
Ceanothus 'Dark Star'	Dark Star California Lilac	L	6'x8'	6'
Cistus spp.	Rock Rose	VL	4'x6'	4'
Centaurea cineraria	Dusty Miller	L	1'x3'	2'
Cotinus coggygria	Smoketree	M	10'x15'	8'
Dudleya spp.	Dudleya	L	4"x4"	8"
Epilobium spp	California fuchsia	VL	6"x4"	3'
Eriogonum arborescens	Santa Cruz Buckwheat	VL	3'x5'	4'
Eriogonum giganteum	Saint Catherine's Lace	VL	3'x5'	4'
Fremontodendron californicum	California Flannel bush	VL	5'x5'	5'
Iris spp.	Bearded iris	L	1'x3'	2'
Lantana spp.	Lantana	VL	1'x8'	3'
Lupinus albifrons	Silver Lupine	L	2'x5'	3'
Muhlenbergia rigens	Deer grass	L	2'x2'	2'
Penstemon spp	Penstemon	L	2'x2'	2'
Salvia apiana	White Sage	VL	3'x4'	4'
Santolina	Santolina	VL	1'x2'	2'



Pocket Park Sketch



Groundcover Sage



Silver Carpet



Carmel Sur Manzanita



Ceanothus hearts desire



Pigeon Point coyote brush



Creeping Myoporum



Bearded Iris



Rockrose



Dusty Miller



Silver Bush Lupine

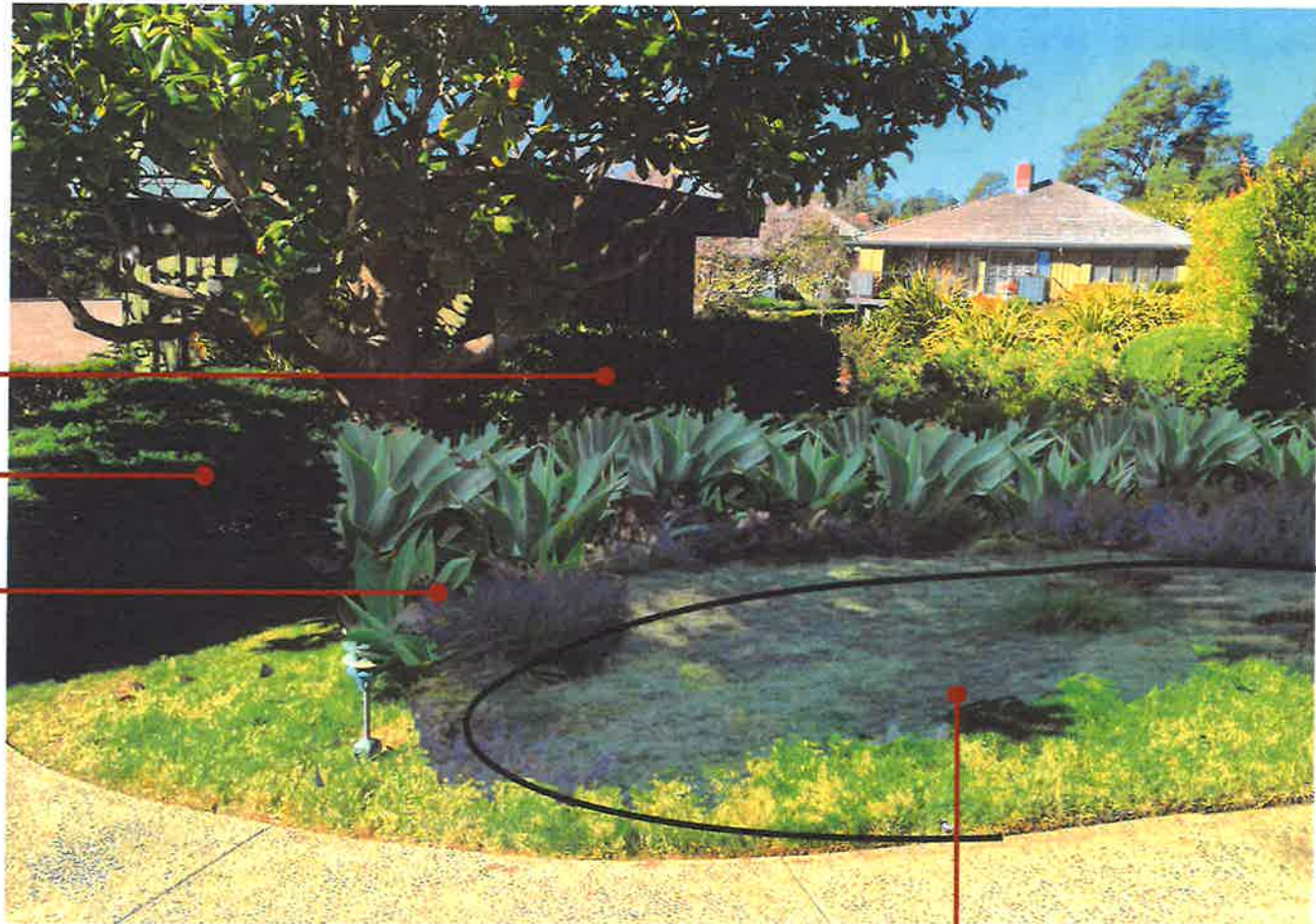


Chalk Dudleya



Century Plant





*Deep pruning of large, mature hedges.
Consider pruning toward more natural forms.*

Allow hedges to grow toward lawn area

*Transition between existing shrubs and
lawn replacement with low shrubs and
accent plants.*

*Preserve yet shrink lawn areas.
OR
Replace the lawn with low growing alternative.*





A dry Creek at Carmel Library



A nice composition of Manzanita groundcover and Ceanothus background.



Incorporate decomposed granite into "pocket park" areas as informal path or a place for a bench.



Grasses complement and contrast with background shrubs.

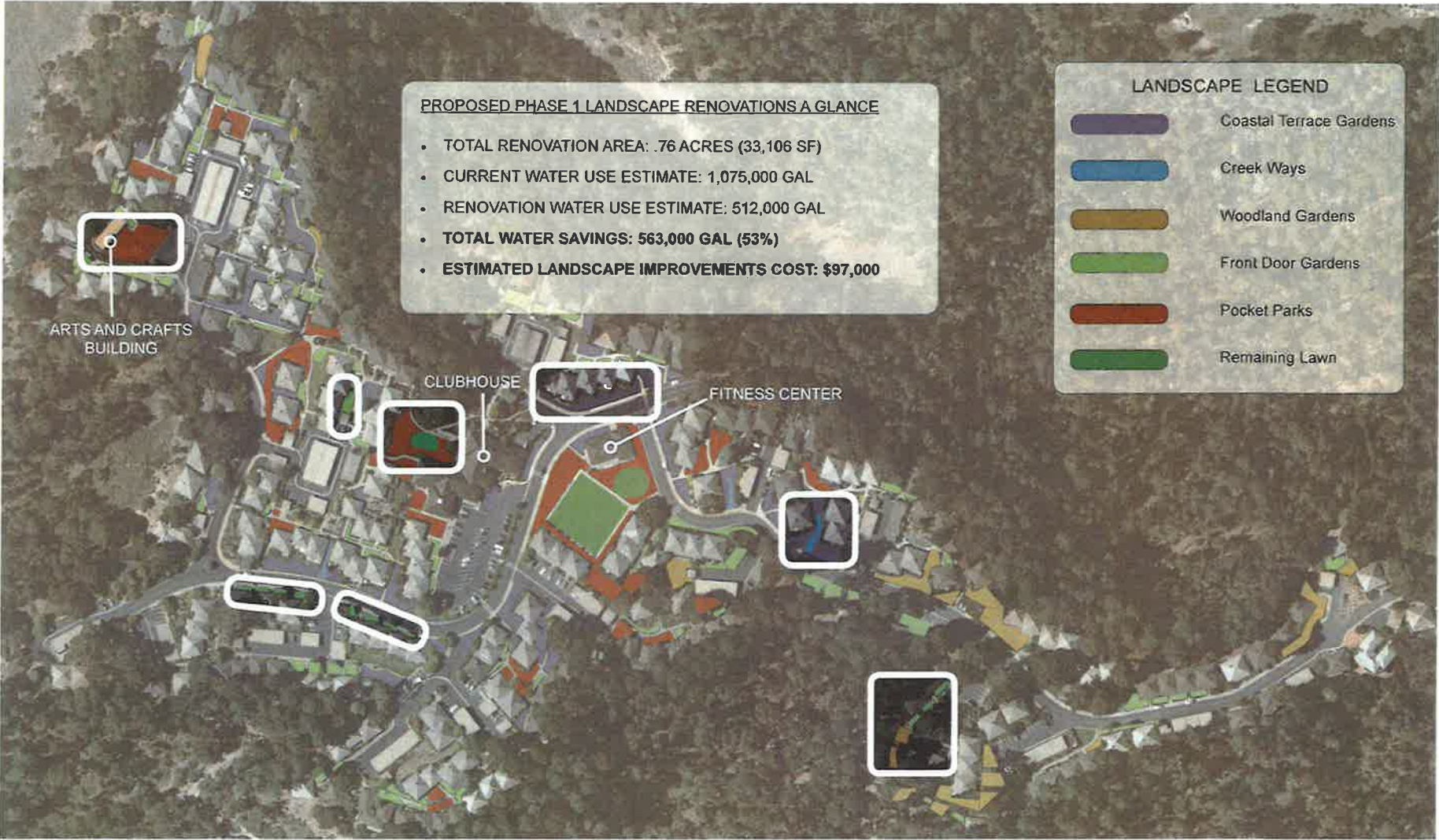


Rows of medium and dark green shrubs contrast nicely with light bark and foliage.



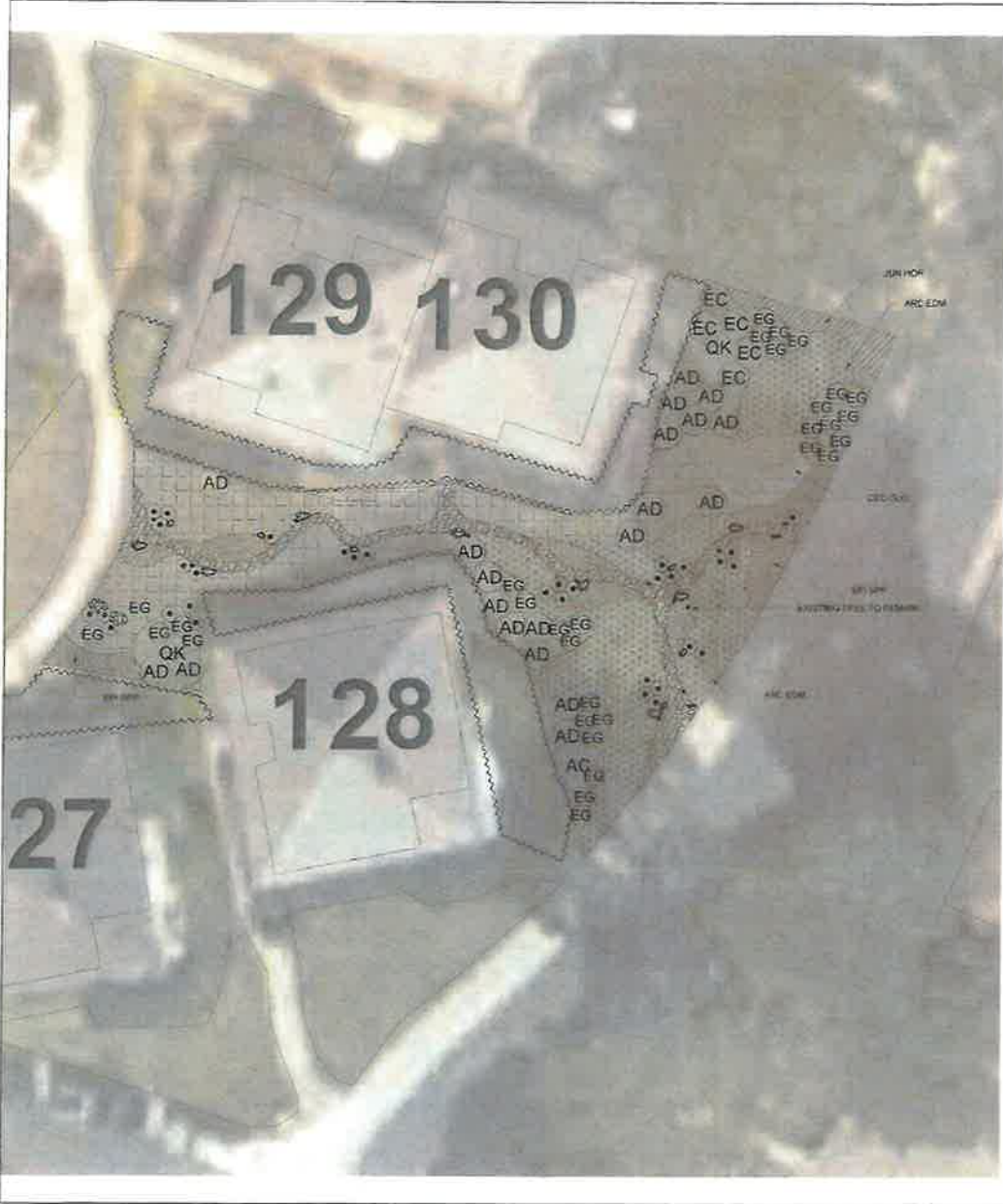
Dymondia will tolerate some foot traffic as a small path.











LEGEND

Creeksways & Coastal Terrace

Plant Name	Common Name	Water Use	Sun/Shadow	Spacing
<i>Artemisia tridentata</i> "Candel Jar"	Candel Jar Mesquite	W	SPV	1'
<i>Quercus agrifolia</i> "Bear's Den"	Bear's Den Mountain Oak	W	2nd	2'
<i>Juniperus horizontalis</i> "Blue Rug"	Blue Rug Juniper	W	2nd	3'-4'
<i>Podocarpus neriifolia</i>	Blue Sage	W	2nd	3'-4'
<i>Salvia attenuata</i>	Blue Sage	W	2nd	3'
<i>Artemisia tridentata</i> "Woolf"	Dr. Wood Mesquite	W	SPV	10'
<i>Yucca schottlandii</i>	Yucca	W	SPV	10'
<i>Parsonsia linearis</i> "Chess"	California Yucca	W	SPV	10'
<i>Eucalyptus pycnanthum</i>	Santa Barbara's Lace	W	SPV	10'
<i>Ficus religiosa</i>	Fig	W	SPV	10'
<i>Quercus agrifolia</i>	White Oak	W	SPV	10'
<i>Quercus agrifolia</i>	California Black Oak	W	SPV	10'



SCALE & SIGNATURE:

PROJECT TITLE:
**DEL MESA CARMEL
 PHASE 1 PLANTING
 RENOVATIONS**

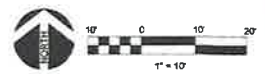
REVISIONS: DATE:

SHEET NUMBER:
L 2.0 (2 OF 7)

SHEET TITLE:
**UNITS 128-130
 PLANTING PLAN**

SCALE: 1"=10' DATE: 2015.09.23
 DRAWN BY: JH CHECKED BY: JJ

PROJECT NO.:
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SEAL & SIGNATURE:

PROJECT TITLE:

DEL MESA CARMEL
PHASE 1 PLANTING
RENOVATIONS

REVISIONS:

DATE:

SHEET NUMBER:

L 6.0 (6 OF 7)

SHEET TITLE:

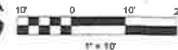
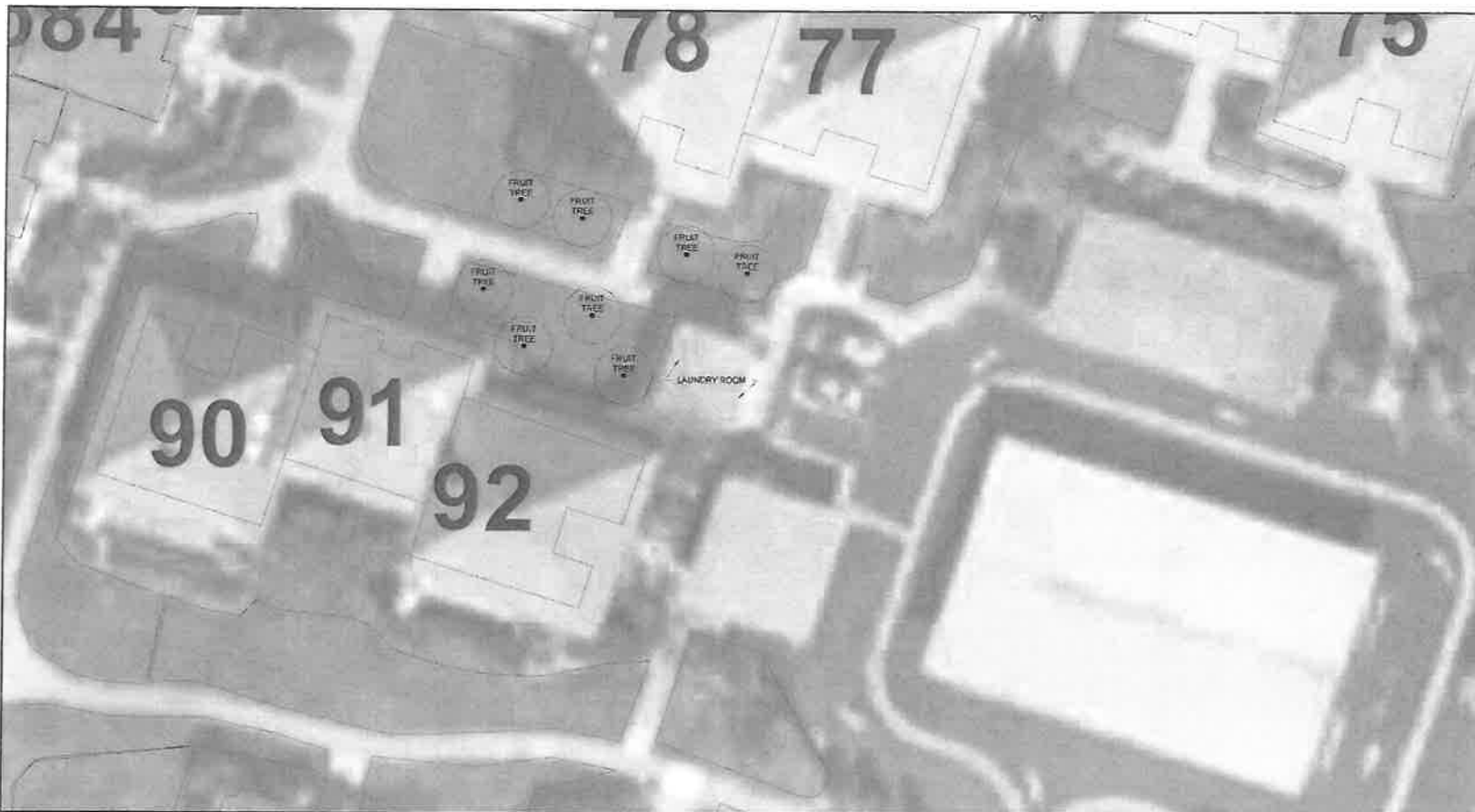
GRAYWATER PILOT
PLANTING PLAN

SCALE: 1" = 10' DATE: 2015.04.23

DRAWN BY: BK CHECKED BY: B

PROJECT NO.:

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Submitted by staff
Item 4

Example of Regulatory Rationing

Proposed Revision to CDO

ATTACHMENT 1										
TABLE 1										
PROJECTED REDUCTIONS IN ILLEGAL DIVERSIONS FROM THE CARMEL RIVER (AF)										
Water Year (Oct - Sep)	Base Amount	Mandatory Cumulative Annual Reduction	Potential Additional Rampdown if Condition 3 a.(2)(i)	Estimated ASR Project Operational Yield	Estimated Sand City Desal Plant	Estimated Small Project Output	Estimated Water Supply Project Output	Total to Base Amount	Total Estimated Amount Diverted from Carmel River	Estimated Amount Diverted w/o Valid Basis of Right
2009-2010	10,978	549	0	145	75	0	0	769	10,209	6,833
2010-2011	10,978	549	0	145	290	0	0	984	9,994	6,618
2011-2012	10,978	670	0	145	280	0	0	1,095	9,883	6,507
2012-2013	10,978	791	0	145	270	0	0	1,206	9,772	6,396
2013-2014	10,978	912	0	145	260	0	0	1,317	9,661	6,285
2014-2015	10,978	1,912	0	145	250	0	0	2,307	8,671	5,295
2015-2016	10,978	1,912	0	145	240	0	0	2,297	8,671	5,295
2016-2017	10,978	1,912	1,000	145	230	0	0	2,287	8,671	5,295
2017-2018	10,978	1,912	1,000	145	230	0	0	2,287	8,671	5,295
2018-2019	10,978	1,912	1,000	145	230	0	0	2,287	8,671	5,295
2019-2020	10,978	1,912	1,000	145	230	0	0	2,287	8,671	5,295
2020-2021	10,978	1,912	1,000	145	230	0	2,688	2,287	4,705	1,329
2021-2022	10,978	n/a	n/a	145	230	0	10,753	2,287	3,376	0

Example: What if a milestone is missed in 2017-18?

Production Available

7,671 AF available from Carmel River
1,820 AF available from Seaside Basin
9,491 AF total available

Adjust for Unaccounted for Water

10,158 AF metered consumption (2014)
11,154 AF production (2014)
91.07% consumption-to-production ratio

Determine Rationing Amount

10,158 AF assumed demand (2014 figure from next page)	3,310,079,280 gallons
<u>8,644 AF consumption allowable (91.07% * 9,491 AF total available)</u>	<u>2,816,656,040 gallons</u>
1,514 AF reduction required through rationing	493,423,240 gallons

Establish Rations

2,216,394,600 gal total residential consumption (assume 2014 data)
493,423,240 gal reduction required
22.3% reduction required

1,683,080,866 AF actual single-family consumption ÷ 33,309 households divided by 365 days = 138.4 gallons per household per day

138.4 GPHD x 22.3% reduction = 30.8 gallons per household reduction; Therefore single-family household ration = 108 gallons per day

Multi-family is assumed to be 2/3rds of single-family = 71 gallons per day

CALIFORNIA AMERICAN WATER
 MONTEREY CO. DISTRICT
CUSTOMERS & CONSUMPTION BY POLITICAL JURISDICTION
 100 Gallons
 Oct 2013 to Sep 2014

CITY CODE	JURISDICTION	RESIDENTIAL CUST	RESIDENTIAL USE	MULTI-RES CUST	MULTI-RES USE	COMMERCIAL CUST	COMMERCIAL USE	INDUSTRIAL CUST	INDUSTRIAL USE	GOLF COURSE CUST	GOLF COURSE USE	PUB AUTHORITY CUST	PUB AUTHORITY USE	OTHER CUST	OTHER USE	NON REV METERE CUST	NON REV METERE USE	CUSTOMER TOTAL	TOTAL (100 GAL)	TOTAL (AF)
CITY																				
1	Monterey	7,963	3,119,302.46	554	2,842,203.96	1,448	3,610,494.63	1	5,906.94	0	0.00	301	1,230,767.93	103	16,318.52	0	15.71	10,371	10,825,010.15	3,322.07
2	Pacific Grove	5,883	2,263,228.68	389	726,857.68	469	727,905.00	1	12,765.03	1	266,922.96	71	180,722.96	35	5,806.02	1	65.76	6,849	4,184,274.09	1,284.11
3	Carmel	2,849	1,297,424.52	147	109,796.35	366	657,000.51	0	0.00	0	0.00	50	33,750.04	21	930.97	0	158.72	3,433	2,099,061.11	644.18
4	Seaside	5,568	2,754,347.58	293	830,411.97	573	888,819.34	0	0.00	0	0.00	69	203,274.40	32	1,308.83	2	608.03	6,537	4,678,770.15	1,435.86
5	Del Rey Oaks	729	316,375.11	4	3,602.95	52	79,083.70	0	0.00	0	0.00	7	856.37	8	15.64	0	0.00	799	399,933.77	122.74
7	Sand City	97	42,794.41	8	14,550.41	222	192,925.53	2	9,269.19	0	0.00	3	1,526.48	15	49.22	0	0.00	348	261,115.24	80.13
CITY TOTAL		23,089	9,793,472.76	1,395	4,527,423.32	3,129	6,156,228.71	4	27,941.16	1	266,922.96	501	1,650,898.18	214	24,429.20	4	848.22	28,337	22,448,164.51	6,889.09
COUNTY																				
6	Mtry Co. CV	1,370	843,533.06	99	168,074.00	117	215,310.86	0	0.00	0	0.00	5	114,491.63	11	1,669.41	4	105.43	1,606	1,343,184.39	412.21
8	In Crmi San. Dist	2,692	1,517,302.04	78	263,939.53	145	304,245.69	0	0.00	0	0.00	16	55,765.43	14	12,373.31	0	0.00	2,946	2,153,626.00	660.92
9	Out Crml San. Dist	1,899	1,213,059.08	97	301,571.64	161	541,241.66	0	0.00	0	0.00	21	161,954.22	20	976.59	1	1,767.34	2,198	2,220,570.53	681.47
A	Mtry Co. Monterey	282	167,533.18	11	14,218.21	4	12,604.35	0	0.00	1	387,029.38	6	61,388.72	1	2.22	0	0.00	304	642,776.06	197.26
B	Mtry Co. PG	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0.00
C	MPCC DMF	2,011	1,132,330.13	10	9,369.70	46	300,202.89	0	0.00	1	561.06	4	3,511.03	4	7.42	1	417.35	2,078	1,446,399.58	443.88
D	Mtry Co. PB	721	1,043,357.69	15	34,786.60	49	331,871.51	0	0.00	1	209.42	2	5,740.23	8	5,594.07	0	0.00	796	1,421,559.52	436.26
G	Rancho Fiesta	23	20,672.99	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	23	20,672.99	6.34
H	Rancho Del Monte	424	313,561.13	14	13,754.32	4	2,949.22	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	442	330,264.67	101.35
J	PB - LCP	20	40,175.78	0	0.00	1	670.23	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	21	40,846.01	12.54
COUNTY TOTAL		9,443	6,291,525.08	324	805,714.00	526	1,709,096.41	0	0.00	3	387,799.86	54	402,851.26	58	20,623.02	5	2,290.12	10,414	9,619,899.75	2,952.24
OTHER																				
F	Well Irigation CV	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	2	121.90	1	504.99	3	626.89	0.19
OTHER TOTAL		0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	2	121.90	1	504.99	3	626.89	0.19
CV-SS-SCD TOTAL		32,532	16,084,997.84	1,720	5,333,137.32	3,655	7,865,325.12	4	27,941.16	4	654,722.82	555	2,053,749.44	274	45,174.12	10	3,643.33	38,754	32,068,691.15	9,841.52
RR-HH-BISHOP																				
E	Ryan Ranch	0	0.00	0	0.00	159	149,510.25	0	0.00	0	0.00	5	3,663.28	17	123.32	0	0.00	181	153,296.85	47.05
I	Hidden Hills	445	393,017.61	0	0.00	7	3,015.07	0	0.00	0	0.00	0	0.00	2	572.20	0	137.62	454	396,742.50	121.76
L	Bishop	332	352,793.21	0	0.00	58	120,604.44	0	0.00	1	0.00	0	0.00	14	31.30	2	8,633.35	406	482,062.30	147.94
RR-HH-Bishop Total		777	745,810.82	0	0.00	224	273,129.76	0	0.00	1	0.00	5	3,663.28	33	726.82	2	8,770.97	1,042	1,032,101.65	316.74
All Jurisdictions																		39,796	33,100,792.80	10,158.26