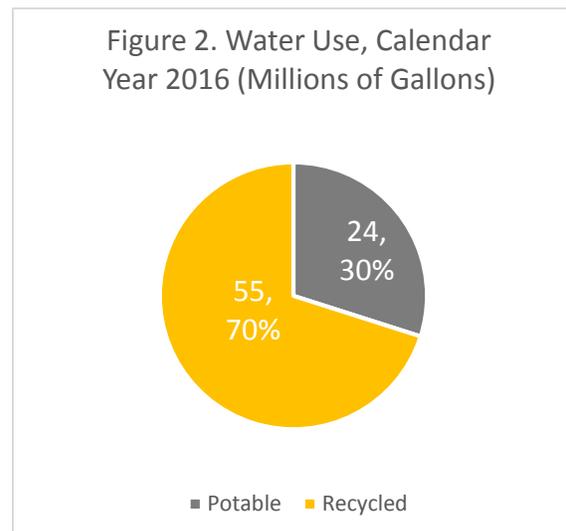
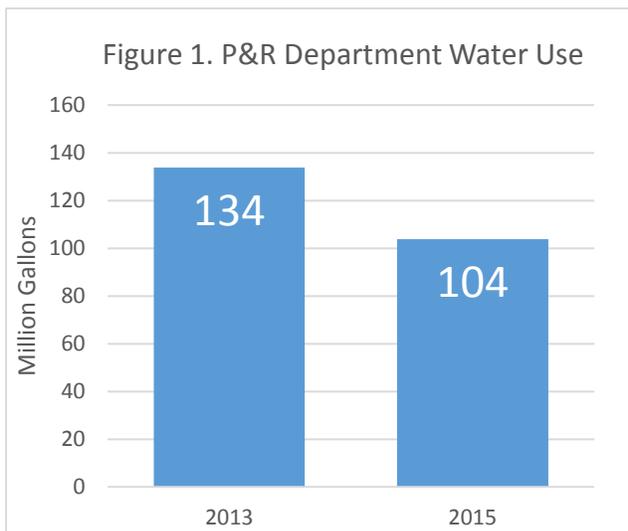


# Parks and Recreation Department Strategic Drought Response Plan Update

In June 2014, in response to severe drought conditions, the Parks and Recreation Department (Department) developed the Strategic Drought Response Plan detailing Department actions to prioritize water use to public facilities and sensitive/historic resources while considering short- and long-term impacts. With implementation of the plan, the Department ended 2015 using 104M gallons (recycled and potable) and conserving 33M gallons (23%) compared to base year 2013. Reductions are measured against the designated baseline year of 2013 per the Governor's Stage 3 mandate. Figure 1 illustrates Department water use in calendar year 2013 and 2015.

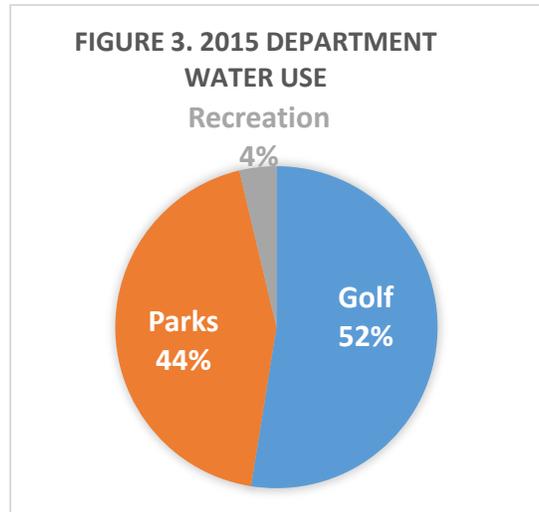
At the time of plan development, the City's recycled water plant was undergoing repairs, therefore all water used by the Department was potable. Plans to conserve include areas typically irrigated with recycled water. With the recycled plant back up, the Department utilizes 30% potable water and 70% recycled (Figure 2).



Below includes a look at implementation of the drought strategy and, where necessary, rationale for diversions from the plan. Exemptions exist for the Department in some instances and are identified in the area specified.

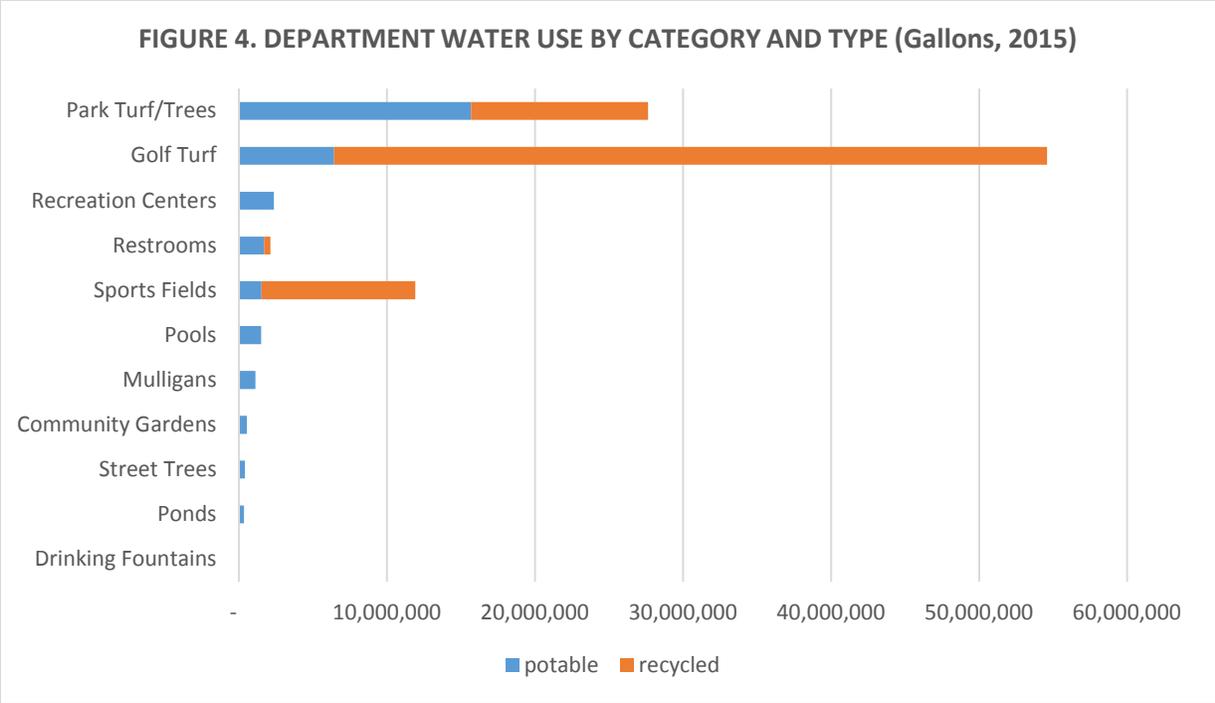
## Department Water Use

Of the 104M gallons used by the Department in 2015, 94M gallons (91%) was used by the Parks and Golf Divisions to water park turf, trees, sports fields and golf turf (Figure 3 & 4 and Table 1). The majority of potable water (66%) was used to water park turf and trees, including Alameda Park East and West, Alice Keck Park Memorial Gardens, Chase Palm Park, and Mission Rose Gardens. The majority of recycled water (68%) was used at the golf course.



**Table 1. 2015 Water Use for Parks Turf & Trees, Sports Fields and Golf Turf**

	Potable	Recycled	Total	Percent Potable	Percent Recycled
Park Turf/Trees	15,687,080	11,965,008	27,643,088	57%	43%
Sports Fields	1,519,188	10,387,476	11,906,664	13%	87%
Golf Turf	6,426,816	48,159,980	54,586,796	12%	88%
<b>Total</b>	<b>23,633,084</b>	<b>70,512,464</b>	<b>94,146,548</b>	<b>25%</b>	<b>75%</b>



**Parks Division- Sports fields, water features and public landscaped areas**

The Parks Division conserved 34% water use by October 2015. With the recycled water plant back online in late 2015, the Division increased use of recycled water. The Division ended 2015 using 43M gallons and conserving 17.5M gallons (28%) compared to base year 2013, with the actions listed below.

<b>General Strategy 2014</b>	<b>Actual Comparison of calendar year 2015 with 2013</b>
<p><b>Turf Irrigation – No Change</b>            Cabrillo Ball Field &amp; Ortega Park            Chromatic Gate            Chase Palm Park Soccer Field            Pershing Park and Plaza del Mar            Dwight Murphy Ball Field            MacKenzie Park            Chase Palm Park            Moreton Bay Fig Tree            Expansion Interior Turf (meadow area)</p>	<p>Water use was reduced from 27M gallons in 2013 to 19M gallons in 2015, conserving 7.5M gallons (28%) overall. Though these areas were called for no change, the Division implemented reductions because these sites were being watered with potable water due to the recycled water plant being down.</p>

<b>Turf Irrigation – Reduced 20% - 30%</b>		
<u>Parks</u>		<p>Water use was reduced from 25.8M gallons in 2013 to 17.4M gallons in 2015, conserving 8.4M gallons (33%) overall at these locations. The size of the park, amenities, sensitive resources and historic water use directly relate to water savings/conservation efforts.</p> <p>Water savings ranged from a low of 2% at Rancheria Community Garden and Plaza Vera Cruz to upwards of 69% at Bohnett Park.</p>
A.C. Postel Memorial Rose Garden	Los Robles Park	
East Beach Park	Oak Park	
Alameda Park - East and West	Parque de los Niños	
Alice Keck Park Memorial Garden	Pilgrim Terrace Park	
Ambassador Park	Plaza Vera Cruz Park	
Bohnett Park	San Roque Park	
Chase Palm Park	Sheffield Park	
De La Guerra Plaza	Shoreline Park	
Eastside Neighborhood Park	Skofield Park	
Escondido Park	Stevens Park	
La Mesa Park	Willowglen Park	
Leadbetter Beach Park		
<u>Facilities</u>		
Cabrillo Pavilion Arts Center & Bathhouse	Central Library	
Eastside Library	Spencer Adams/ Davis Center	
Franklin Neighborhood Center	Westside Neighborhood Center	

<b>Turf Irrigation - Off</b>		
Andrée Clark Bird Refuge Cemetery Island	City Hall Coast Village Road Islands	<p>Turf irrigation stations were turned off per plan, except at Hilda Ray. Water was used at City Hall, Coast Village Road and Orpet Parks for trees. Water use was reduced from 2.5M gallons in 2013 to 836k gallons in 2015, conserving 1.6M gallons (66%).</p>
Hidden Valley Park	Hilda Ray Park	
Sunflower Park	Orpet Parks (upper and lower)	
Rose Garden		<p>Reduced water by 1.7M gallons from 2014 to 2015. Water use is not known for 2013 since the water meter was offline.</p>
Water Fountains- Turned off Ponds- No Change		<p>Water fountains at A.C. Postel Memorial Garden and Chase Palm Park were drained and turned off. Chase Palm Park fountain is planted with drought tolerant succulents.</p> <p>There has been no change in the water use for the ponds located at Alice Keck</p>

	Park Memorial Garden and Chase Palm Park.
Outreach	Signs are placed at various parks to notify the public of reduced water use and its impact on turf and facilities. Press releases include the "Gold is the New Green" campaign. The Division website is updated with the campaign message and drought response plan.

## Forestry

Tree irrigation through use of the water truck increased 166k gallons (167%), from 249k gallons in 2013 to 415k gallons in 2015.

<b>General Strategy 2014</b>	<b>Actual Comparison of calendar year 2015 to 2013</b>
<p>Tree Watering:</p> <ul style="list-style-type: none"> <li>• Prioritize 660 trees for watering: Rare, Historic, Drought Intolerant Sp., young.</li> <li>• Install gator bags</li> <li>• Install irricades</li> </ul>	<p>Watered 600 of the prioritized trees at various frequencies</p> <ul style="list-style-type: none"> <li>• All young monthly (524)</li> <li>• Stone Pines monthly then weekly (62)</li> <li>• Select trees in parks monthly or as needed (209)</li> </ul> <p>An additional 2,500+/- trees received water as a one or two-time occurrence. City Forestry staff monitored Historic/Specimen trees including: Fernald Eucalyptus, Tree of Light, Cota St. Sycamore and Constance St. Indian Laurel Fig. These trees are located on private property with no public space to water. In addition, these trees do not appear to be declining.</p> <p>Water use from the water truck increased 166k gallons (167%), from 249k gallons in 2013 to 415k gallons in 2015. Water use from Jan. through Sept. 2016 is currently at 312k gallons, on par with last calendar year.</p> <p>Of the 31M gallons of potable water used by the Department, the water truck accounts for 1%.</p> <p>To increase efficiency and watering effectiveness, 250 slow release water bags (gator bags) and 56 irricades were placed on young trees and historic Stone Pines, respectively. Targeted outreach was conducted simultaneous to installation (see Outreach section below).</p>
<p>Tree Maintenance and Planting:</p> <ul style="list-style-type: none"> <li>• Removals to deter spread of known pest/disease</li> <li>• Pest Treatment</li> <li>• Reduced pruning if needed</li> <li>• Mulch</li> <li>• Post-pone new plantings</li> </ul>	<p>Diseased Stone Pines required removal while several others were treated with a pesticide to kill and deter spread of the pine bark beetle.</p> <p>Tree pruning is limited on trees showing signs of stress and new trees have not been planted by the Department since 2014.</p> <p>Young and mature trees with available space are mulched periodically to reduce soil evaporation.</p>
<p>Outreach</p>	<p>Public outreach materials developed early in the Department's response to the drought, solicited community support for street tree watering and provided information on tree care during the drought and tips for efficient watering and city contacts. Material includes: city-wide postcard and press release in 2014 and tags placed on gator bags and irricades. The Department specifically reached out with door hangers to homes</p>

	<p>adjacent to the historic Italian Stone Pines. A local church now volunteers to fill 3 irrigades. The Department also contacted private land owners with historic and specimen trees to provide information on tree's historic designation and appropriate irrigation and tree care. The City's Forestry webpage is updated to provide tree watering resources during drought, contact information and how to help.</p>
<p>Equipment</p>	<p>The Department has 1 water truck and 2 trailers. One trailer was purchased in 2015 to support additional watering. The water truck is used 40 hours per week. The water trailers are used when staff available. Currently (2016/2017) the water truck is running 40 hours per week and trailers run roughly 20 hours per week each.</p> <p>Meters are placed on all vehicles and monitored.</p>
<p>Recycled Water/Blend</p>	<p>The Department evaluated use of recycled water for trees. To date it is not used due to concern over high salt content in total dissolved solids (TDS) and the effect on the tree health. Santa Barbara's tertiary recycled water currently measures TDS at 1,293 parts per million (ppm). Healthy mature trees are found to do best with water less than 600 ppm TDS. Drought stressed trees can tolerate even less (~300 ppm). Without adequate leaching from storms and rain events, salinity builds up in the soil requiring plants to expend more energy to take in water (energy that would otherwise be used for growing, flowering, fruiting or defense against disease and insects). The end result is negative: stunted growth, wilting, and other damage. In addition, constituents in TDS – for example, boron, sodium and chloride ions– can be toxic to sensitive plants, causing severe damage, such as leaf burn, leaf drop, and plant death.</p>

## Golf

The Golf Division conserved 26% water by October 2015. With the recycled plant back online late 2015, the Division increased use of recycled water. Water use was reduced from 70M gallons in 2013 to 56M gallons in 2015, conserving 14.2M gallons (20%) with the actions below.

<b>General Strategy 2014</b>	<b>Actual Comparison of calendar year 2015 to 2013</b>
<p>Turf Irrigation: Overall reductions in frequency and length of irrigation cycles. Priorities include greens, putting greens, and perimeter trees.</p> <ul style="list-style-type: none"> <li>• Target 10% conservation in out of play areas</li> <li>• Target 2% conservation for Par 3 tee box to green</li> <li>• Target 12% conservation at first 100 yards of par 4 and 5 holes</li> <li>• Target 10% conservation on roughs</li> </ul> <p>Exemptions granted include watering greens beyond allowed hours.</p>	<p>This strategy was a specific conservation measure for recycled water. Conservation reached 26% (13M gallons) by Oct. 2016. Once the recycled water was back on, conservation ended at 20%.</p> <p>Turf irrigation outside of greens is currently watered with recycled water.</p>
<p>Mulch trees</p>	<p>Many but not all trees are mulched periodically.</p>
<p>Hoses fit with automatic shut off nozzles</p>	<p>All hoses are fit with automatic shut off valves.</p>
<p>Outreach: Signs to communicate drought conditions, tent cards on tables at Mulligan's for water on request, Posters in ProShop and restrooms detailing steps taken to reduce water use.</p>	<p>Outreach implemented per plan.</p>
<p>Mulligan's will use "water on request" tent cards on tables and reduce power washers for sanitation only.</p>	<p>Mulligan's staff use "water on request" tent cards on tables and power washers on patio per plan.</p>
<p>Vehicle and Equipment Cleaning: Turf maintenance equipment will be cleaned with air pressure and washed periodically. Washings will happen with recycled water on grass and around trees.</p> <p>Golf carts will be washed with wet wash cloths with full cart washes limited to once a month. Discarded water will be on turf or trees.</p>	<p>Vehicle equipment washing was implemented per plan. This action combined with Mulligan's conservation efforts resulted in a 39% water savings.</p>

## Recreation Division

The Recreation Division conserved 22% of water use by October 2015. With the recycled water plant back online, the Division increased use of recycled water. Water use was reduced from 4.8M gallons in 2013 to 3.6M gallons in 2015, conserving 1.2M gallons (25%) through the actions below.

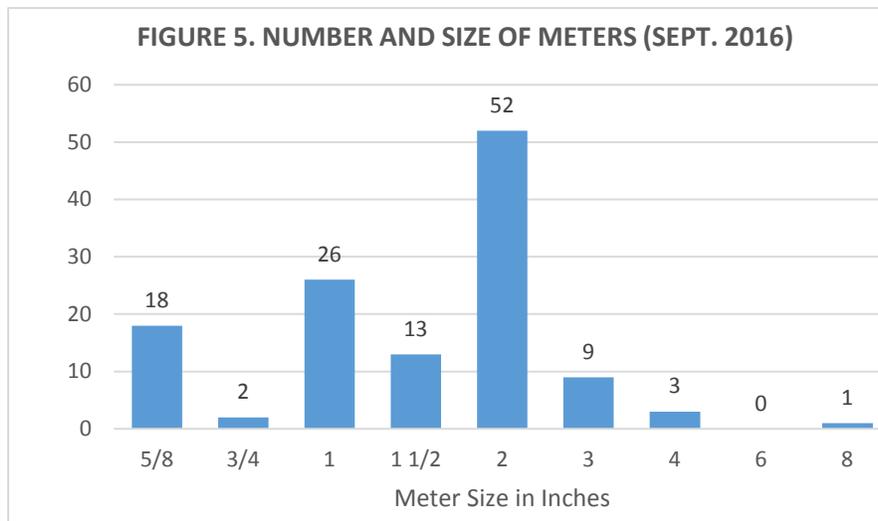
<b>General Strategy 2014</b>	<b>Actual Comparison of calendar year 2015 with 2013</b>
Pool Covers: Pool Covers for Los Baños, Ortega Park and Oak Park Pools.	Pool cover was purchased for Ortega Park Pool. There is no cover for the Oak Park pool due to seasonal use and draining operations. Los Baños Pool had a cover prior to drought.
Investigate installation of automated backwash flow meter at Los Baños	An automated backwash flow meter was purchased and installed in 2015. However, due to equipment calibrations, more water is saved through manual backwashing. Staff reduced the backwash frequency from weekly to every 3 weeks to reduce water use.
Pool Maintenance: Blowers to take place of hose deck washing, repair Ortega Pool leak and West Beach Wading Pool.	Reduced water use by purchasing 3 battery powered blowers for daily deck maintenance. Repairs to Ortega Pool completed in May 2016. West Beach wading pool is drained and closed.
Showers: Investigating an upgrade to low flow showerheads at Los Baños and Cabrillo Bathhouse, upgrade valves at Cabrillo Bathhouse and reduce number of available showers at both facilities.  East Beach and Muni Tennis showers turned off, while East Beach foot wash will be left on  Showers at Carrillo Gym are left on	Low flow showerheads were installed at Los Baños in 2014 with no reduction in number of showers available. Staff reduced available showerheads at Cabrillo Bathhouse from 17 to 9. Outdoor showers are turned off at East Beach, while the foot wash remains on. Muni Tennis showers are turned off but remain on at Carrillo Gym.
Tennis Courts: purchase a battery powered blower for daily court maintenance	One battery powered blower was purchased for daily court maintenance with spot cleaning as needed.
Community Outreach to patrons to be aware of reductions and conserve water	Signs are posted at all facilities requesting patrons to conserve water when using faucets and showers (for example, showers not to exceed 5 minutes). In addition, signs note where reduced services will take place. Rental facilities provide outreach to caterers and renters on eliminating wasteful water use. Power washing is discontinued on exterior surfaces except for sanitation. Community gardens provide bilingual information, noting allowable times to water. All hoses are fitted with self-closing nozzles.
Recreation Vans: Washing reduced	Vehicle washing has been greatly reduced to conserve water.

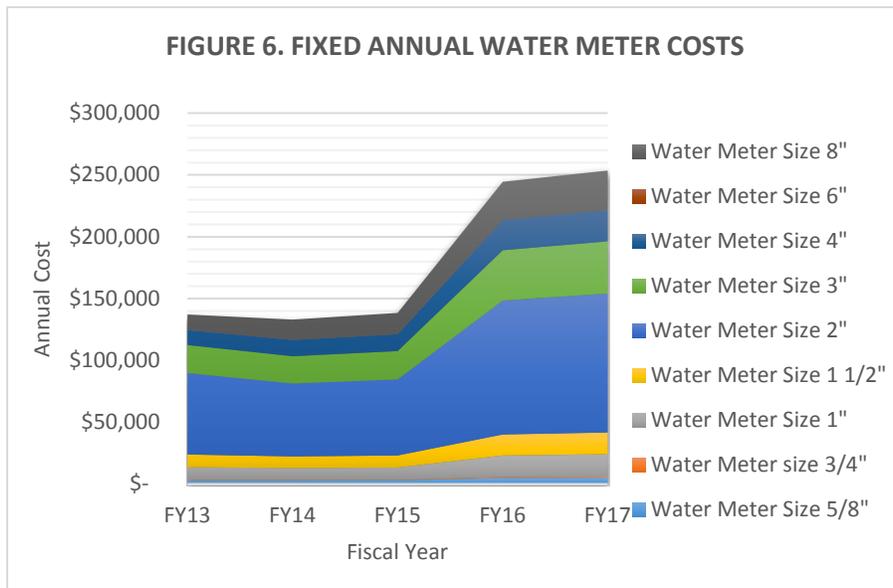
## Fiscal Impacts Due to Water Rate Increases

While the Department reduced water use due to the water shortage, the cost to apply water has increased, potentially preventing the Department from reverting to 2013 water use regardless of water availability. The below information presents rate increases and potential fiscal impacts.

### Meters

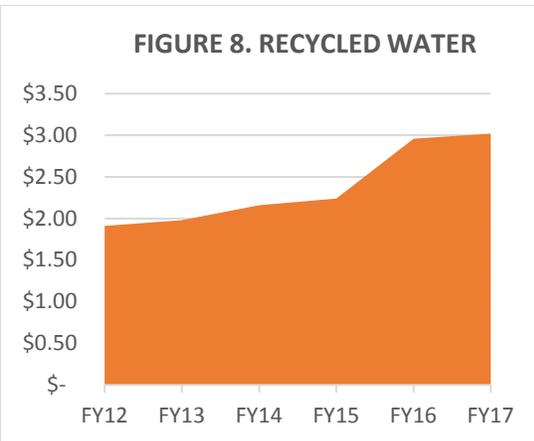
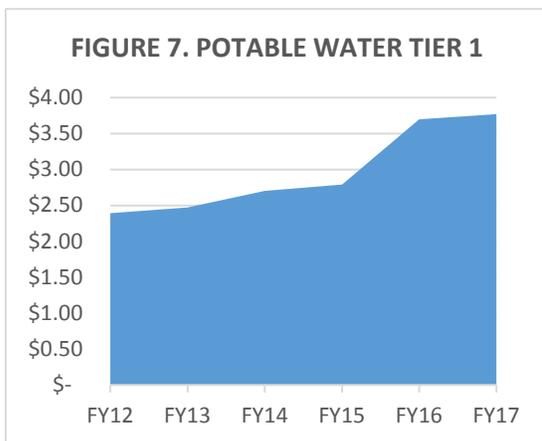
The Department pays for 124 meters of varied sizes (Figure 5). Meter costs have increased 85% on average since Fiscal Year (FY) 2013. For example, a 2" meter is \$179.89/month, an increase of \$74.31/month (70%) from FY 2013, while an 8" meter is \$2,666.07/month, an increase of \$1,054.81/month (153%). Applying increased rates to the number of Department meters reflects a fixed cost increase of \$116,000, from \$137,000 in FY 2013 to \$253,000 in FY 2017 (Figure 6).





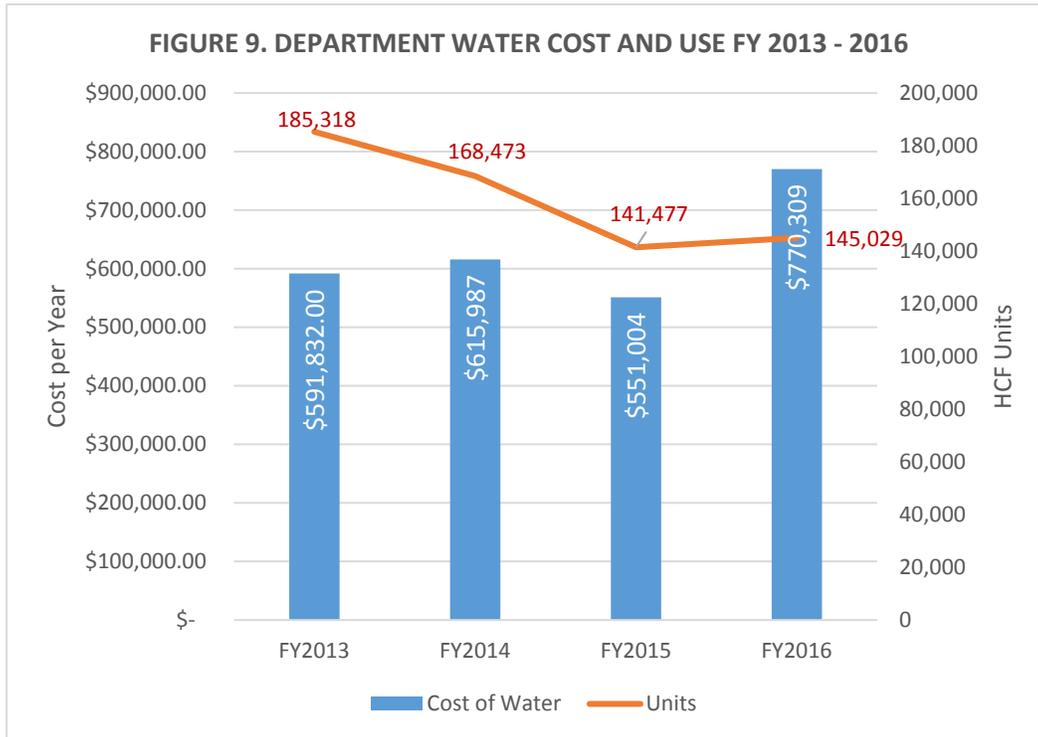
Unit Costs

Unit costs have increased as well (HCF= hundred cubic feet, 1 HCF= 748 gallons) and depend on the customer class and tier level. FY 2017 Tier 1 potable water rates are \$3.77/hcf, up \$1.30/hcf (52%) from FY 2013 (Figure 7), while tier 2 potable water is \$24.27/hcf, up \$19.02/hcf (375%) from FY 2013. Recycled water increased \$1.04/hcf (54%) from \$1.98/hcf in FY 2013 to \$3.02/hcf in FY 2017 (Figure 8).

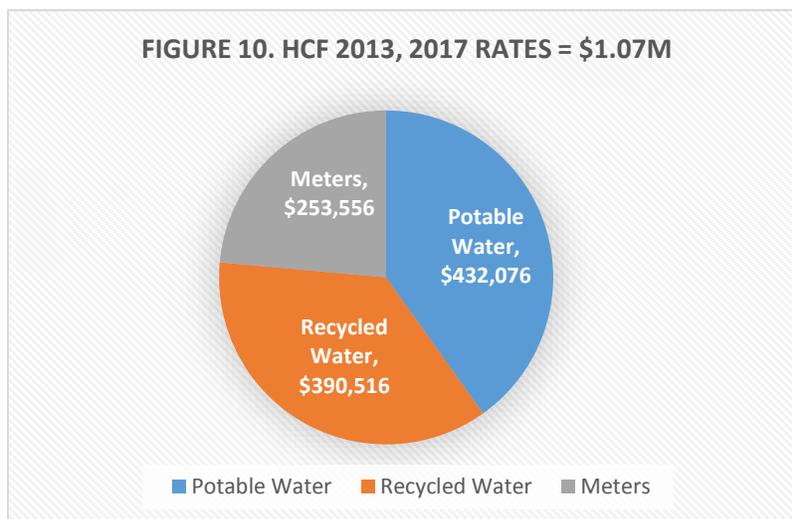


Fiscal Impact for Combined Water and Meter Rates

In FY 2013, the Department paid \$591,832 for 185,318 HCF. In FY 2016, under drought reductions and with the fiscal impact of the desalination plant, the Department paid \$770,309 for 145,029 HCF, a 30% increase in cost while reducing water use by 22%.

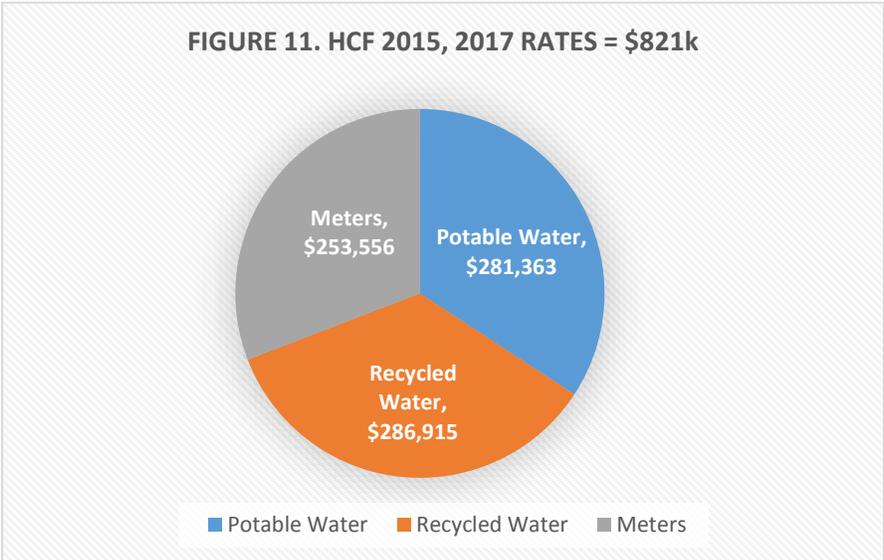


If returning to 2013 water use, then costs would increase 82% from \$591k to \$1.07M in FY 2017. The Department’s Fiscal Year 2017 water budget is \$848,949, equaling a \$227,000 increase.



	2013	2014	2015	2016	2017
Potable Water	\$ 165,778	\$ 184,795	\$ 258,319	\$ 349,860	\$ 432,076
Recycled Water	\$ 256,034	\$ 279,310	\$ 289,654	\$ 382,758	\$ 390,516
Meters	\$ 137,132	\$ 133,204	\$ 138,559	\$ 244,375	\$ 253,556
TOTAL	\$ 558,944	\$ 597,308	\$ 686,533	\$ 976,993	\$ 1,076,148

Should the Department continue to use water at 2015/2016 conservation levels, then the projected cost is \$821k, leaving \$27k remaining from budgeted. Assuming rates do not increase further, then the Department will have some consistency with which to manage water use. However, if rates continue to increase, as is anticipated, the Department will be challenged to meet the demands of its public spaces.



### Conclusion

Given increased rates alone, the Department will not likely be able to return to 2013 watering practices. Decisions must be made as to how to proceed into the future given additional increased rates and potential loss to resources and diminished services at public facilities. Decisions may include landscape conversions, altered use of certain sites, and artificial turf, amongst others. The Department will be evaluating water use priorities during the development of the FY 2018 and FY 2019 Financial Plan.