



## CITY COUNCIL STAFF REPORT

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**TO:** Honorable Mayor and City Council                      **DATE:** January 6, 2020

**FROM:** Matthew Bronson, City Manager

**PREPARED BY:** Gregory A. Ray, Public Works Director/City Engineer  
Autumn Wycoff, Assistant Engineer

**SUBJECT:** Water Supply Status and Proposed Water Conservation Changes

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### **RECOMMENDATION**

Receive information on the status of the City's water supply and provide input and direction to staff regarding proposed changes to the City's water conservation program.

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### **BACKGROUND**

Over this coming year, water infrastructure will be a significant area of focus for the City in improving and upgrading existing infrastructure along with meeting the City's water supply needs. This report provides an update on the status of the City's water supply following several years of drought conditions despite the past two years of average rainfall along with actions the City is considering to address possible supply deficiencies in the future. This report also identifies proposed changes to the City's water conservation program and in particular potential penalties that could be enacted as part of this program. Staff is seeking Council input and direction in finalizing these changes which would be the basis for a Water Shortage Contingency Plan included in the City's updated 2020 Urban Water Management Plan currently under development for submission to the State this summer.

### **Normal Year and Single Dry Year Water Supply Reliability**

As a starting point, it is important to highlight that the City relies on two sources of allotted water supply: groundwater (1,407 acre feet per year or afy) and Lopez Lake surface water (800 afy) for a total of 2,207 afy. A normal water supply year is a year or an averaged range of years in a historical sequence that most closely represents average rainfall and associated reservoir recharge and groundwater recharge levels and patterns. For Grover Beach, this is defined as the year closest to the mean rainfall from 1984 through 2015. The normal year water demands through 2035 are estimated based on a per capita water use target of 117 gallons per capita per day (gpcd) based on compliance with Senate Bill x 7-7 (SBX7-7), also known as the Water Conservation Bill of 2009 (SB7), and a projected buildout population of 14,804 according to the San Luis Obispo Council of Governments' (SLOCOG) 2050 Regional Growth Forecast for San Luis Obispo County Population, Housing, and Employment Projections.

The normal year water supply and demand projections are provided in the table on the following page and show that the City should have sufficient supply during normal conditions. These projections are consistent for a single dry year which represents the single year with the lowest rainfall and associated historical annual yield (2014). However, impacts of extended drought and groundwater over pumping by other agencies are not considered in these projections.

Supply/Demand Condition	Projected Supply/Demand (afy)				
	2015	2020	2025	2030	2035
Supply Totals	2,127	2,207	2,207	2,207	2,207
Demand Totals	1,252	1,579	1,626	1,671	1,708
Supply and Demand Difference	875	628	581	536	499
Difference as Percent of Supply	41%	28%	26%	24%	23%
Difference as Percent of Demand	70%	40%	36%	32%	29%

### **Multiple Dry Year Water Supply Reliability**

In water resource planning, multiple dry year water supply years are defined as three or more consecutive years with the minimum available supply. Water systems are more vulnerable to droughts of long duration because they deplete water storage reserves in local and state reservoirs and in groundwater basins. The supply quantities for this condition are derived from the most significant drought period which for Grover Beach are the actual water supplies available between 2013 and 2015. Municipal groundwater users in the Northern Cities Management Area (NCMA) reduced groundwater pumping between 70 and 80 percent of their allotment during this time. According to the NCMA Annual Report, groundwater conditions during those years remained relatively stable with seasonal fluctuations ranging between sea level and approximately 9.5 feet above sea level which indicates the groundwater basin has approximately achieved a balance between inflows and outflows.

The primary water quality factor affecting supply reliability for the City is the threat of seawater intrusion into fresh groundwater aquifers which poses a significant risk to groundwater supply. Under natural and historical conditions, a net outflow of freshwater from the groundwater basin towards the ocean has kept the seawater/freshwater interface from moving onshore. However, a NCMA monitoring event in 2009 detected water quality constituents consistent with seawater intrusion with seasonal fluctuations in coastal groundwater elevations ranging between below sea level and 7.5 feet above sea level. Based on this event, the City's groundwater hydrogeology consultant has advised the City that if water levels remain near 7.5 feet above sea level for an extended period of time, seawater intrusion will continue to pose a threat to the City's groundwater supply and thus groundwater pumping would need to greatly reduced. For this reason, the City's supplies are projected to be consistently below projected demands during multiple-dry year conditions as shown in the table below:

Supply/Demand Condition	Projected Supply/Demand (afy)				
	2015	2020	2025	2030	2035
<b>Year 1</b>					
Supply Totals	2,184	1,301	1,301	1,301	1,301
Demand Totals	1,252	1,579	1,626	1,671	1,708
Supply and Demand Difference	932	-277	-324	-370	-406
<b>Year 2</b>					
Supply Totals	2,184	1,134	1,134	1,134	1,134
Demand Totals	1,252	1,579	1,626	1,671	1,708
Supply and Demand Difference	932	-445	-492	-538	-574
<b>Year 3</b>					
Supply Totals	2,184	1,023	1,023	1,023	1,023
Demand Totals	1,252	1,579	1,626	1,671	1,708
Supply and Demand Difference	932	-555	-602	-648	-684

### **Factors Affecting Supply Reliability**

The primary factors affecting the City's supply reliability are legal challenges to the City's groundwater allotment, environmental concerns, water quality issues, and drought conditions due to climate change. The City is entitled to 1,407 afy of groundwater from the adjudicated Santa Maria Groundwater Basin as dictated by the NCMA Management Agreement and Judgment. Both City and other NCMA staff believe the basin is being over pumped in the Nipomo Mesa area as evidenced by the formation of a significant groundwater depression under the Mesa. The Judgment suggests that the allocated groundwater rights may be decreased in the future if drought and/or overdraft conditions persist. Therefore, if groundwater supplies are limited or reduced in this area, the City's entitlement may be reduced.

Environmental concerns potentially affecting water supply reliability include concerns over ecosystem protection particularly for fish and wildlife. To date, the City's groundwater supply has not been impacted by environmental factors, but deliveries from Lopez Lake have the potential to be affected by the presence of steelhead trout and the California red-legged frog that reside in the Arroyo Grande Creek watershed downstream of Lopez Dam. The Endangered Species Act permits non-federal entities to obtain incidental take authorization for protected species by developing a Habitat Conservation Plan (HCP) which the County will develop that will include approval of an updated downstream release program for Lopez Lake.

As mentioned previously, the primary water quality issue affecting the City is the threat of seawater intrusion into fresh groundwater aquifers. The NCMA Technical Group continues to monitor groundwater conditions on a quarterly basis to provide ample warning of falling groundwater conditions and changes in water quality. Lastly, the City's groundwater supplies will likely be negatively affected in future drought conditions with below-average rainfall and recharge given climate change. The City has been able to historically rely on nearly full allocations from Lopez Lake in order to reduce demand for groundwater during extended drought periods. These allocations coupled with water conservation measures have resulted in the City using half its groundwater allotment during the most recent droughts, though these full allocations from Lopez Lake may not be ensured in future drought conditions.

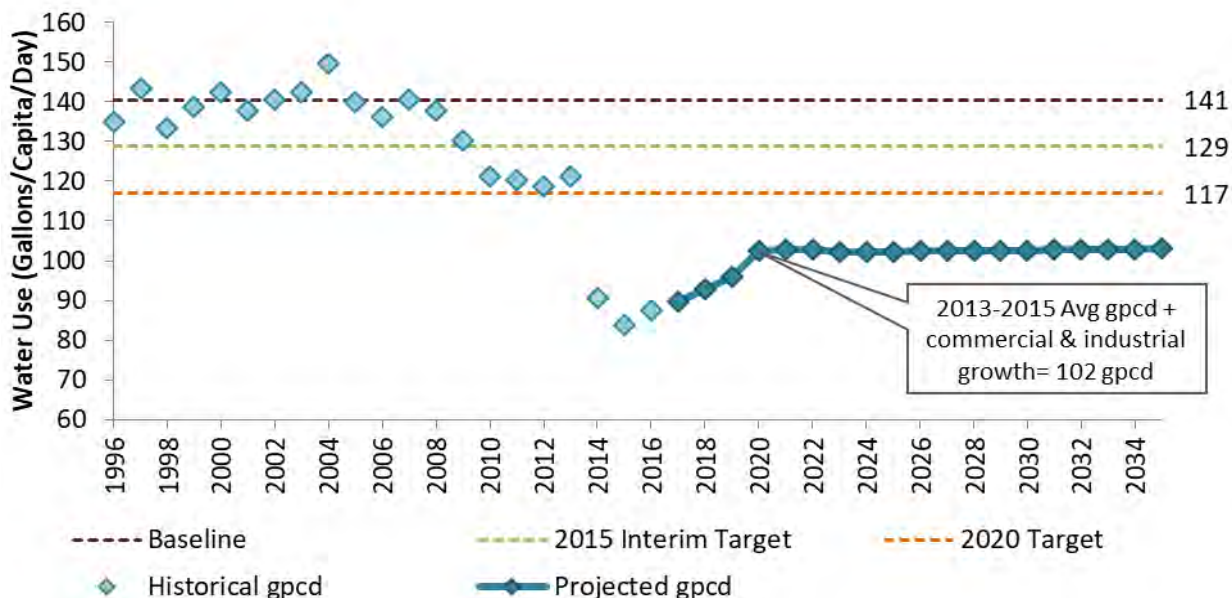
### **Alternative Water Supplies**

The City has considered various supplemental water supplies to improve supply reliability including conservation, raising the Lopez Lake dam spillway, supplemental state water, desalinated water, and recycled wastewater. Below is additional information on these options:

Conservation. Between 2011 and 2014, the Council declared Stage 1 and Stage 2 water shortage conditions and implemented conservation measures including public outreach and education and voluntary prohibitions on water use. In 2014, the Council declared a Stage 3 water shortage condition which included a mandatory 10% conservation requirement and mandatory water use prohibitions. The rainfall conditions triggering a Stage 4 declaration were met in 2015, but the City did not declare a Stage 4 water shortage or enact the mandatory 25% conservation requirement and associated water use prohibitions because the City had already achieved and maintained a 30% demand reduction by 2013.

The graph on the following page shows historic and projected per capita water demand in Grover Beach. Although the City did achieve reductions in commercial and industrial uses, the majority of conservation was achieved with reductions in residential landscape watering and fixture retrofits. As shown in the graph, staff estimates a leveling-off in residential per capita demand and a slight increase in commercial and industrial demand due to future development. The data shown in the table were derived using a future per capita demand of 99 gpcd applied to population projections, then additional expected commercial and industrial water use was

added to project demands from 2020 through 2035 resulting in approximately 102-103 gpcd through buildout.



Based on staff observations and reports from residents, the low value of approximately 85 gpcd achieved in 2015 would not be sustainable over the long term without significant impacts to City parks and landscape areas and private landscaping. Staff believes a reasonable estimate of sustainable conservation water use ranges between 95 and 102 gpcd. Assuming the City could achieve the low end of that range, the table below shows the anticipated supply deficit in the third year of a prolonged drought:

Supply/Demand Condition	Projected Supply/Demand (afy)				
	2015	2020	2025	2030	2035
<b>Year 3</b>					
Supply Totals	2,184	1,023	1,023	1,023	1,023
Demand Totals	1,252	1,528	1,575	1,615	1,645
Supply and Demand Difference	932	-505	-552	-592	-622

Lopez Spillway Raise. In 2008/2009, the contract agencies of the Lopez Lake project (Zone 3 agencies) conducted a study and evaluation to consider raising the spillway elevation of Lopez Reservoir as a means of increasing safe yield in the reservoir and thus increasing water supply entitlements. Based on evaluation of historic drought years, the estimated additional safe yield would range between 259 and 432 afy. Due to significant regulatory and environmental challenges such as development of a Habitat Conservation Plan for Arroyo Grande Creek and obtaining an amended water rights permit for Lopez Lake, the Zone 3 agencies are not currently pursuing this project.

Supplemental State Water. The County completed a hydraulic study to determine if additional capacity exists in the Central Coast Water Authority (CCWA) Coastal Branch Pipeline of the State Water Project (SWP) for supplemental water deliveries to the SWP contractors/subcontractors in Zone 3. The results of this study identified significant excess capacity in portions of the pipeline but discussions with the Central Coast Water Authority (CCWA) to consider utilization of Zone 3's excess SWP entitlement have been stalled for years. Expanding delivery options for the Zone 3's excess entitlement could provide an opportunity for the City to obtain a supplemental supply source but because the City is not currently a SWP contractor, additional obstacles would have to be overcome and thus this is a doubtful option.

Desalinated Water. In January 2006 and 2008, studies of desalination opportunities were prepared by the City of Arroyo Grande to evaluate the feasibility of obtaining an additional 750 afy of potable water. The 2008 report was prepared with the assumption that two neighboring water agencies (City of Grover Beach and Oceano Community Services District) would collaborate to determine if a seawater desalination plant would suit the supplemental water needs of each community but Arroyo Grande ultimately decided not to pursue desalination. In 2015, San Luis Obispo County in coordination with PG&E assessed the feasibility to deliver desalinated water from the Diablo Canyon Power Plant to the current agencies connected to the Lopez Lake Pipeline. Preliminary estimates indicate that between 500 afy to 1,300 afy could be delivered from the project though there would be a significant cost given the infrastructure required. However, due to the pending closure of the Diablo Canyon facility, PG&E has indicated that connection to the Lopez Pipeline is not actively being considered.

Recycled Wastewater. The City of Pismo Beach, South San Luis Obispo County Sanitation District (SSLOCSD), and the cities of Arroyo Grande and Grover Beach are evaluating the construction of a treatment facility and recycled water distribution system known as the Central Coast Blue Project, which could be located at the SSLOCSD wastewater treatment plant or at an offsite location. Such a regional facility could potentially provide up to 3,500 afy of additional water supply for groundwater recharge or agriculture irrigation and help ensure the resiliency and security of the groundwater basin. The participating agencies are currently completing environmental review and preliminary engineering for the project and a draft cost-sharing Memorandum of Agreement will be shared with the Council for review on January 21.

### **Water Shortage Contingency Plan**

Moving beyond water supply, the next area of focus for this report is proposed changes to the City's water conservation program to incorporate into a Water Shortage Contingency Plan (WSCP) enacted when water supplies are insufficient to support demand. As droughts and other events impacting water supply occur more frequently and intensely, the WSCP helps prepare for and respond to water shortages. The State's Urban Water Management Planning Act requires the city to develop a WSCP that contains the following elements:

- Stages of action to be undertaken by the urban water supplier in response to water supply shortages, including up to a 50 percent reduction in water supply, and provide an outline of specific water supply conditions that are applicable to each stage.
- Estimate of the minimum water supply available during each of the next three water years based on the driest three-year historic period.
- Actions to be undertaken by the urban water supplier to prepare for, and implement during, a catastrophic interruption of water supplies including, but not limited to, a regional power outage, an earthquake, or other disaster.
- Mandatory prohibitions against specific water use practices during water shortages, including, but not limited to prohibiting the use of potable water for street cleaning.
- Consumption reduction methods to be used in the most restrictive stages and penalties for excessive use where applicable. Each urban water supplier may use consumption reduction methods in its water shortage analysis that would reduce water use, are appropriate for its area, and have the ability to achieve a water use reduction consistent with up to a 50 percent reduction in water supply.
- Analysis of the impacts of each of the actions and conditions described above, inclusive, on the revenues and expenditures of the urban water supplier, and proposed measures to overcome those impacts, such as the development of reserves and rate adjustments.
- Draft water shortage contingency resolution or ordinance and mechanism for determining actual reductions in water use pursuant to the urban water shortage contingency analysis.

Based on previous Council direction and concerns over the mandatory penalty provisions of the City’s current WSCP, staff is presenting proposed changes to the water conservation program and is seeking Council input and direction before finalizing these changes in the updated WSCP. The proposed changes include six stages of action tied to actual water shortage conditions in 10% increments. Each stage relates a supply reduction range to an associated demand reduction target, which may vary based on the nature of “Triggering Conditions” dependent on the cause, severity, and anticipated duration of the water supply shortage. The table below identifies the Triggering Conditions associated with each of the six stages of action and the range of supply reduction expected when one or more of the conditions are observed:

Stage of Action	Supply Triggering Conditions	% Supply Reduction Range
<b>1</b>	- Lopez Reservoir < 25,000 AF in storage	0%
	- Quarterly sentry well level reading below the deep well index	
	- Below average rainfall for 1 year	
<b>2</b>	- Lopez Reservoir <20,000 AF in storage	0-10%
	- 4 quarterly sentry well level readings below the deep well index	
	- State mandated water use reductions	
	- Below average rainfall for 2 years	
<b>3</b>	- Lopez Reservoir <15,000 AF in storage	10-20%
	- 4 quarterly sentry well level readings below the deep well index	
	- State mandated water use reductions	
	- Below average rainfall for 3 years	
<b>4</b>	- Lopez Reservoir <10,000 AF in storage	20-30%
	- 5 quarterly sentry well level readings below the deep well index	
	- State mandated water use reductions	
	- Rainfall below average for 4 years	
<b>5</b>	- Lopez Reservoir <5,000 AF in storage	30-40%
	- 6 quarterly sentry well level readings below the deep well index	
	- State mandated water use reductions	
	- Rainfall below average for 4 years	
<b>6</b>	- Lopez Reservoir <4,000 AF in storage	40-50%
	- Seawater intrusion into groundwater basin	
	- Catastrophic or emergency supply interruption	
	- Rainfall below average for 5 or more years	

As in the past, staff would continue to monitor water supply and availability and if one or more set of Triggering Conditions have been met, the Public Works Director will notify the Council and recommend the Council declare the appropriate stage of water shortage. Except in the case of an emergency, the California Water Code requires the City to hold a public hearing to allow protests against a declared water shortage. Upon declaration of a water shortage, the Council will be asked to enact certain actions and water use restrictions with staff recommendations as follows:

*Stage 1 Water Shortage Condition.* After holding a noticed public hearing, the Council may by resolution declare a Stage 1 Water Shortage based upon a determination that Triggering Conditions exist for a prospective water shortage condition. Upon adoption of a Stage 1 Water Shortage resolution, all residential customers will be assigned a monthly baseline amount of water based upon the amount of water used during the same billing period of the previous year prior to the adoption of the resolution but there will be no mandatory water use reductions.

*Stages 2 through 6 Water Shortage Conditions.* After holding a noticed public hearing declaring a water shortage, the Council may by resolution find and determine that failure to adopt and impose additional restrictions on water use would place the community in a condition that is dangerous to the health, safety and welfare of its citizens due to the anticipated severity of impacts on the City's water supply resulting from observed Triggering Conditions. Based upon such a determination, the Council may declare a Stage 2 through 6 Water Shortage. The resolution may provide that the immediate imposition of additional regulations and restrictions on the use of water are necessary to provide for the protection of the public's health, safety and welfare. If Triggering Conditions exist to support a Stage 4 or higher water shortage, it is recommended that all residential customers be allocated the minimum units of water deemed necessary for an average household size. Based on existing average usage documented in the City, it is recommended that each household be allowed 12 units of water per two month billing period, which is equivalent to 150 gallons per household per day (1 unit of water is equal to 100 cubic feet or 748 gallons). Households with over 5 people will be allowed 20 units of water per two-month billing period (250 gallons per day). Households with over 7 people will be allowed 28 units of water per two-month billing period (350 gallons per day). The allocations recommended above may be adjusted by Council resolution.

During a Water Shortage declared by the Council, the Public Works Director would be authorized to modify the allocation or percentage of water consumption reduction that is required by the customer provided the customer submits evidence demonstrating the existence of unusual circumstances including but not limited to the household having been vacant during a portion of the comparison year billing period or substantial changes in the number of persons residing in the residence. The percentage of reduction in water consumption may also be adjusted if failure to approve the requested exception would have an adverse effect on the health, sanitation, fire protection, or safety of the customer. The Director may also consider alternative restrictions to which the customer is willing to adhere that would achieve the same level of demand reduction as the restriction for which an exception is being sought. In order to qualify for an exception, a customer may be required to first complete a self-water audit. This audit shall be made part of the customer's exception application and water conservation measures indicated by the audit may be incorporated as conditions of approval to an exception.

During a Water Shortage condition, the Public Works Director and Administrative Services Director would serve as an Appeals Board to act on customer appeals of reduction targets or consumption allocations. Any customer who considers an action taken by the Public Works Director to have been erroneously taken or issued may appeal that action in writing. Appeals must be received by the Public Works Director not later than ten business days following the date that the Director took the action which is the subject of the appeal. Within 15 calendar days of the receipt of an appeal, the Appeals Board would hold a hearing to consider the appeal and then issue its decision within 15 calendar days of the date of the hearing. Decisions of the Appeals Board shall be subject to appeal to the City Manager.

In addition, the Council may consider other actions in addition to the restrictions imposed in the Stages 2 through 6 Water Shortages. These actions could include reducing irrigation of City-owned non-sports field turf areas by the appropriate percentage as indicated in the table above, completely eliminating park and City landscape irrigation, restricting water system flushing, and restricting private construction activities requiring substantial amounts of water. The Council may also enact penalties for violations of mandatory prohibitions on water wasting and/or water use reduction requirements which could include monetary penalties and ultimately could include termination of water service until the violation is corrected, and until all appropriate penalties are paid in full to the extent allowable by State law. Staff is recommending the Council consider potential penalties pursuant to the City's Municipal Code Article 1, Chapter 4, Administrative Citations for Violation of Code as identified in the table on the following page by level of Water Shortage Declaration:

Penalty/Charge <sup>1</sup>	Stage When Penalty Takes Effect
<p>Any water customer who fails to comply with mandatory water conservation reduction targets or mandatory water waste prohibitions will be issued a warning notice for the first violation. The City will monitor the customer's water activities on a monthly basis beginning with the first violation. A second violation within this period will result in the issuance of an Administrative Citation and Penalty as identified in the City's adopted Master Fee Schedule which is currently one hundred dollars (\$100.00) for a first violation; two hundred dollars (\$200.00) for a second violation of the same provision within a rolling 12 month period; five hundred dollars (\$500.00) for a third or subsequent violation within a rolling 12 month period.</p>	<p>2-6</p>
<p>In addition to the Administrative Citation and Penalties identified above, continued and willful failure to comply with mandatory water conservation reduction targets or mandatory water waste prohibitions may result in the installation of a flow restriction device or disconnection of the customer's property from the City's water service system at the customer's cost. In addition to any penalties assessed, pursuant to the Municipal Code any water customer who willfully and/or continually fails to comply with mandatory water conservation reduction targets or mandatory water waste prohibitions may be found guilty of an infraction and may be charged with a misdemeanor as identified Article 1, Chapter 2, Penal Provisions, of the City Municipal Code.</p>	<p>4-6</p>
<p>Any water customer who fails to comply with mandatory water conservation reduction targets or mandatory water waste prohibitions and, as a result, has a flow restrictor installed or water service disconnected is responsible for payment of charges for installing and/or removing the flow-restricting device and for disconnecting and/or reconnecting service in accordance with the City's fee schedule then in effect. The charge for installing and/or removing any flow restricting device must be paid before the device is removed. Nonpayment will be subject to the same remedies as nonpayment of basic water rates.</p>	<p>4-6</p>
<p><sup>1</sup>The foregoing penalties may also be modified or amended by the City Council as deemed necessary and appropriate based upon a determination of the severity of the Water Shortage Emergency.</p>	

Lastly, staff would recommend the Council consider permanent water waste prohibitions similar to prohibitions adopted by the Council in 2015 with the declaration of a Stage III water shortage with the exception of restricted watering hours. Staff is recommending the Council consider adopting the following items as permanent water waste prohibitions including during a declared Water Shortage:

- All use of water which results in excessive gutter runoff and use of water for cleaning driveways, patios, parking lots, sidewalks, streets, or other such uses except as necessary to protect public health or safety.



- Outdoor irrigation between the hours of 10 a.m. and 4 p.m. and outdoor water use for washing vehicles unless it is attended with use of hand-held automatic shut-off watering devices.
- Use of potable water for compaction or dust control purposes in construction activities unless no other source of water is available or upon approval by staff.
- Hotel, motel or other commercial lodging establishment shall offer their patrons the option to forego the daily laundering of towels, sheets and linens.
- Emptying and refilling of swimming pools and commercial spas is prohibited except to prevent structural damage and/or to protect public health or safety.
- Restaurants or other commercial food service establishments shall not serve water except upon the request of a patron.

### **Water Conservation Incentive Programs**

As a final item, staff wanted to highlight the current status of the City's water conservation incentive program given the continued importance of replacing inefficient appliances and fixtures to provide permanent reductions in water demand. The City has implemented several water conservation programs that result in permanent water use reductions including the Cash for Grass Rebate Program, the Smart Irrigation Controller and Sensor Rebate Program; the Toilet Fixture, Showerhead, and Sink Aerator Retrofit Rebate Program; and the Washing Machine Rebate Program. The City has allocated \$5,000 this fiscal year to fund conservation rebates and incentives to customers but due to the continued interest in these incentives, the City has already expended all budgeted funds for the year. Staff is recommending the Council consider allocating additional funds to the program from the General Fund along with consideration of other mid-year budget adjustments.

### **FISCAL IMPACT**

There is no fiscal impact to this year's operating budget from this item. The City's water enterprise operating costs are primarily fixed costs rather than based on a function of the amount of water sold. As a result, when significant conservation programs are undertaken, it may be necessary to raise water rates because the revenue generated is based on lower total consumption while the costs required to operate and maintain the water system are basically fixed. In order to counteract the financial impact of conservation during a declared water shortage, the City may need to enact an increase in water rates or use water fund reserves consistent with constitutional and statutory authority to provide sufficient funding for ongoing operations, maintenance and purchase of supplies. If the Council determines it is necessary to adjust existing water rates at some time in the future, staff is recommending that the upcoming utility rate study in 2020 include consideration of a special conservation rate.

### **ALTERNATIVES**

The City Council has the following alternatives to consider:

1. Receive information on the status of the City's water supply and provide input and direction to staff regarding proposed changes to the City's water conservation program.;  
or
2. Provide alternate direction to staff.

### **PUBLIC NOTIFICATION**

The agenda was posted in accordance with the Brown Act