JUNE 30, 2021

CITY OF SANTA BARBARA

2020 ENHANCED URBAN WATER MANAGEMENT PLAN

WSC

City of Santa Barbara

2020 Enhanced Urban Water Management Plan
FINAL

June 2021

Prepared by Water Systems Consulting, Inc. (WSC), and
the City of Santa Barbara Water Resources Division,
pursuant to California Water Code, Section 10631

Errata Sheet for Minor Corrections to City of Santa Barbara 2020 Enhanced Urban Water Management Plan (EUWMP)

This errata sheet logs minor content errors that were identified after final adoption of the City of Santa Barbara 2020 EUWMP. DWR has determined that these corrections are minor and do not require the UWMP to be amended.

☑ These data errors have been corrected in the Department of Water Resources (DWR) UWMP database at https://wuedata.water.ca.gov/secure/

☑ This errata sheet has been filed with the UWMP in all locations where it is made publicly available, including the California State Library. Errata may be submitted to State Library via email to cslgps@library.ca.gov

Name and agency of the person filing errata sheet: Dakota Corey, Water Supply Analyst, City of Santa Barbara

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#	Description of Correction	Location	Rationale	Date Error Corrected
1	"California Water Code Shortage Level" column added to Water Shortage Contingency Plan (WSCP) Table 4, Demand Reduction Actions	Pages 12-14 of EUWMP Appendix K, WSCP (See screenshot of edited Table 4 below)	The California Water Code (CWC) requires that the Demand Reduction Action Table (UWMP Table 8-2) has a row for each of the state's 6 standard water shortage levels. As described in WSCP Section 1.3.6 "Standard Water Level Crosswalk," the City only has 4 shortage levels, and no action will be taken at the state's levels 3 and 4. The added column helps readers differentiate between the state's 6 shortage levels and the City's 4.	August 23, 2022
2	Two rows added to WSCP Table 4, Demand Reduction Actions	Page 13 of EUWMP Appendix K, WSCP (See screenshot of edited Table 4 below)	The CWC requires that the Demand Reduction Action Table (UWMP Table 8-2) has a row for each of the state's 6 standard water shortage levels. As described in WSCP Section 1.3.6 "Standard Water Level Crosswalk," the City only has 4 shortage levels, and no action will be taken at the state's levels 3 and 4. The added rows allow the City to meet CWC requirements for this table.	August 23, 2022
3	"California Water Code Shortage Level" column added to WSCP Table 5, Supply Augmentation and Other Actions	Page 15 of EUWMP Appendix K, WSCP (See screenshot of edited Table 5 below)	The CWC requires that the Supply Augmentation and Other Actions Table (UWMP Table 8-3) has a row for each of the state's 6 standard water shortage levels. As described in WSCP Section 1.3.6 "Standard Water Level Crosswalk," the City only has 4 shortage levels. The added column helps	August 23, 2022

			readers differentiate between the state's 6 shortage levels and the City's 4.	
4	Ten rows added to WSCP Table 5, Supply Augmentation and Other Actions	Page 15 of EUWMP Appendix K, WSCP (See screenshot of edited Table 5 below)	The CWC requires that the Supply Augmentation and Other Actions Table (UWMP Table 8-3) has a row for each of the state's 6 standard water shortage levels. As described in WSCP Section 1.3.6 "Standard Water Level Crosswalk," the City only has 4 shortage levels. The added rows allow the City to meet CWC requirements for this table.	August 23, 2022

Screenshots of Edited Water Shortage Contingency Plan Tables 4 & 5

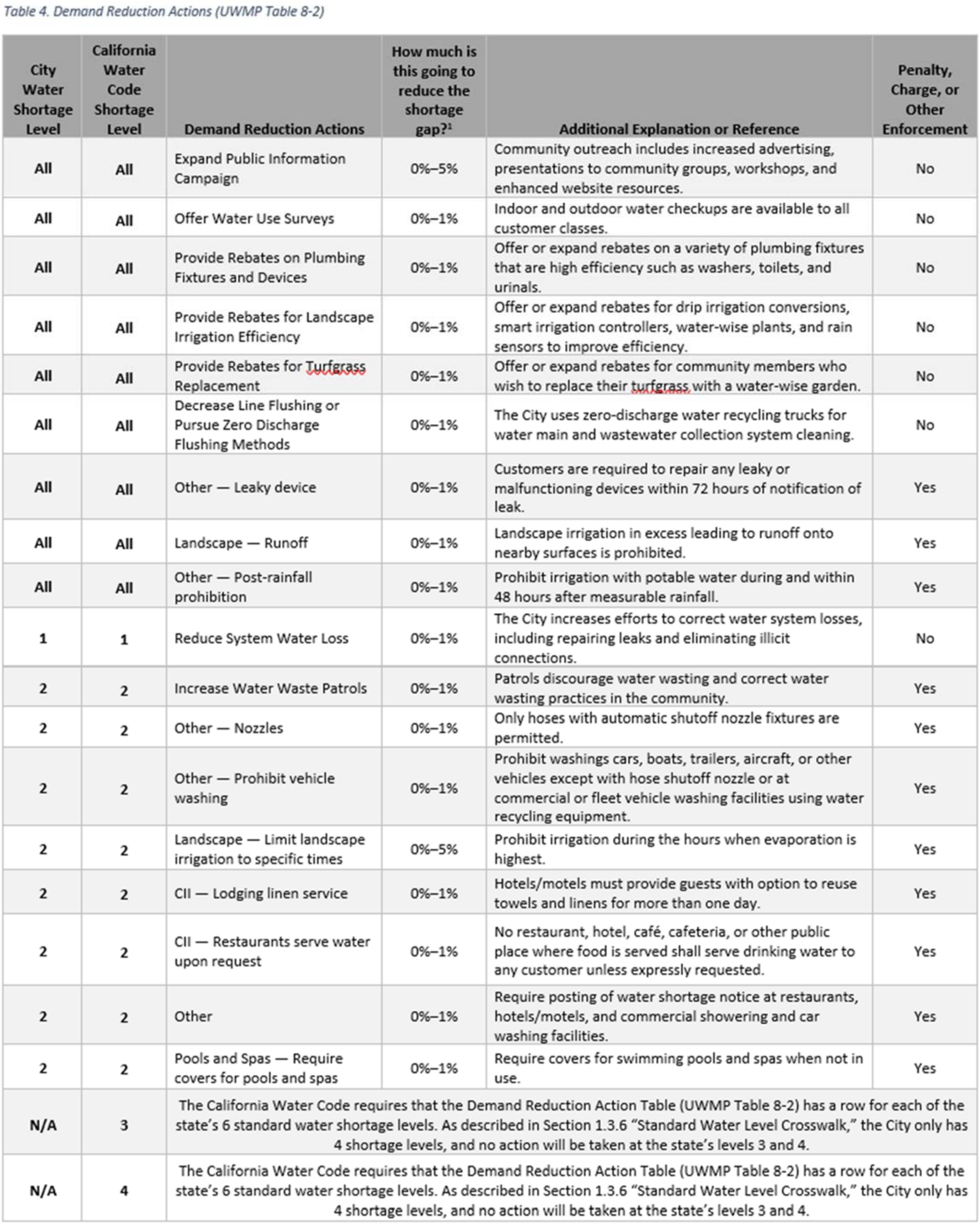

Table 4. Demand Reduction Actions (UWMP Table 8-2)

City Water Shortage Level	California Water Code Shortage Level	Demand Reduction Actions	How much is this going to reduce the shortage gap?[1]	Additional Explanation or Reference	Penalty, Charge, or Other Enforcement
All	All	Expand Public Information Campaign	0%–5%	Community outreach includes increased advertising, presentations to community groups, workshops, and enhanced website resources.	No
All	All	Offer Water Use Surveys	0%–1%	Indoor and outdoor water checkups are available to all customer classes.	No
All	All	Provide Rebates on Plumbing Fixtures and Devices	0%–1%	Offer or expand rebates on a variety of plumbing fixtures that are high efficiency such as washers, toilets, and urinals.	No
All	All	Provide Rebates for Landscape Irrigation Efficiency	0%–1%	Offer or expand rebates for drip irrigation conversions, smart irrigation controllers, water-wise plants, and rain sensors to improve efficiency.	No
All	All	Provide Rebates for Turfgrass Replacement	0%–1%	Offer or expand rebates for community members who wish to replace their turfgrass with a water-wise garden.	No
All	All	Decrease Line Flushing or Pursue Zero Discharge Flushing Methods	0%–1%	The City uses zero-discharge water recycling trucks for water main and wastewater collection system cleaning.	No
All	All	Other — Leaky device	0%–1%	Customers are required to repair any leaky or malfunctioning devices within 72 hours of notification of leak.	Yes
All	All	Landscape — Runoff	0%–1%	Landscape irrigation in excess leading to runoff onto nearby surfaces is prohibited.	Yes
All	All	Other — Post-rainfall prohibition	0%–1%	Prohibit irrigation with potable water during and within 48 hours after measurable rainfall.	Yes
1	1	Reduce System Water Loss	0%–1%	The City increases efforts to correct water system losses, including repairing leaks and eliminating illicit connections.	No
2	2	Increase Water Waste Patrols	0%–1%	Patrols discourage water wasting and correct water wasting practices in the community.	Yes
2	2	Other — Nozzles	0%–1%	Only hoses with automatic shutoff nozzle fixtures are permitted.	Yes
2	2	Other — Prohibit vehicle washing	0%–1%	Prohibit washings cars, boats, trailers, aircraft, or other vehicles except with hose shutoff nozzle or at commercial or fleet vehicle washing facilities using water recycling equipment.	Yes
2	2	Landscape — Limit landscape irrigation to specific times	0%–5%	Prohibit irrigation during the hours when evaporation is highest.	Yes
2	2	CII — Lodging linen service	0%–1%	Hotels/motels must provide guests with option to reuse towels and linens for more than one day.	Yes
2	2	CII — Restaurants serve water upon request	0%–1%	No restaurant, hotel, café, cafeteria, or other public place where food is served shall serve drinking water to any customer unless expressly requested.	Yes
2	2	Other	0%–1%	Require posting of water shortage notice at restaurants, hotels/motels, and commercial showering and car washing facilities.	Yes
2	2	Pools and Spas — Require covers for pools and spas	0%–1%	Require covers for swimming pools and spas when not in use.	Yes
N/A	3	The California Water Code requires that the Demand Reduction Action Table (UWMP Table 8-2) has a row for each of the state's 6 standard water shortage levels. As described in Section 1.3.6 "Standard Water Level Crosswalk," the City only has 4 shortage levels, and no action will be taken at the state's levels 3 and 4.			
N/A	4	The California Water Code requires that the Demand Reduction Action Table (UWMP Table 8-2) has a row for each of the state's 6 standard water shortage levels. As described in Section 1.3.6 "Standard Water Level Crosswalk," the City only has 4 shortage levels, and no action will be taken at the state's levels 3 and 4.			

City Water Shortage Level	California Water Code Shortage Level	Demand Reduction Actions	How much is this going to reduce the shortage gap?[1]	Additional Explanation or Reference	Penalty, Charge, or Other Enforcement
3	5	Other — Prohibit use of potable water for washing hard surfaces	0%–1%	Prohibit use of potable water to wash sidewalks, walkways, driveways, parking lots, open ground, or other hard-surfaced areas except where necessary for public health or safety.	Yes
3	5	Landscape — Limit landscape irrigation to specific days	5%–10%	Limit to assigned watering days, which may depend on seasonal changes, such as summer and winter.	Yes
3	5	Water Features — Restrict water use for decorative water features	0%–1%	Prohibit use of potable water to fill or maintain decorative fountains and water features unless located indoors or are home to aquatic life.	Yes
3	5	Other water feature or swimming pool restriction	0%–1%	Restrict draining and refilling of pools by more than one-third of the pool volume.	Yes
3	5	Other	0%–1%	Limit the use of potable water hydrant meters.	Yes
4	6	Landscape — Other landscape restriction or prohibition	5%–10%	Restrict irrigation to high-efficiency methods.	Yes
4	6	Landscape — Other landscape restriction or prohibition	5%–20%	Restrict irrigation to watering by hand only.	Yes
4	6	Landscape — Other landscape restriction or prohibition	5%–20%	Prohibit/restrict irrigation of turfgrass.	Yes
4	6	Other	20%–40%	Prohibit all outdoor water use.	Yes
4	6	Other	20%–70%	Institute water rationing.	Yes
4	6	Moratorium or Net Zero New Demand	0%–1%	The City may temporarily limit or ban new water service connections within the service area.	No

1. Reduction in the shortage gap is estimated and can vary significantly.

Table 5. Supply Augmentation and Other Actions (UWMP Table 8-3)

City Water Shortage Level	California Water Code Shortage Level	Supply Augmentation Action and Other Actions by Water Supplier	How much is this going to reduce the shortage gap?	Additional Explanation or Reference
1	1	Groundwater	Varying	Groundwater is pumped from drought storage volume. The amount is dependent on diminished quantity from City's supply portfolio and the City's groundwater pumping capacity.
2	2			
N/A	3			
N/A	4			
3	5			
4	6			
1	1	Water Purchases	Varying	The amount of water purchased is dependent on diminished quantity from City's supply portfolio.
2	2			
N/A	3			
N/A	4			
3	5			
4	6			

Adopted by the Santa Barbara City Council on
JUNE 29, 2021, as Agenda Item No. 14

City Council:

Cathy Murillo, Mayor
Oscar Gutierrez, Mayor Pro Tempore
Eric Friedman, Councilmember, Liaison to Water Commission
Alejandra Gutierrez, Councilmember
Meagan Harmon, Councilmember
Mike Jordan, Councilmember
Kristen Sneddon, Councilmember, Liaison to Water Commission

Board of Water Commissioners:

Arturo Keller, Chair
David Davis, Vice-Chair
Lindsay Coony, Commissioner
Jeffrey Young, Commissioner
[Vacant], Commissioner

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List of Abbreviations and Acronyms

AB	Assembly Bill
AF	Acre-feet
AFY	Acre-feet per year
AMI	Advanced Metering Infrastructure
BMPs	Best management practices
CAL Green	California Green Building Standards Code
CCRB	Cachuma Conservation Release Board
CCWA	Central Coast Water Authority
City	City of Santa Barbara
CII	Commercial, industrial, and institutional
CIMIS	California Irrigation Management Information System
COMB	Cachuma Operation and Maintenance Board
DCR	Delivery Capability Report (by DWR)
DRA	Drought Risk Assessment
DWR	Department of Water Resources
EIR	Environmental impact report
ETo	Evapotranspiration
FY	Fiscal year
GPCD	Gallons per capita per day
GSA	Groundwater Sustainability Agency
GSP	Groundwater Sustainability Plan
kW-hr/AF	Kilowatt-hours per acre-foot
LCMWC	La Cumbre Mutual Water Company
LTWSP	Long-Term Water Supply Plan
MGD	Million gallons per day
NMFS	National Marine Fisheries Service
NO-DES	Neutral Output Discharge Elimination System
Pass Through Agreement	1989 Upper Santa Ynez River Operations Agreement
RWEP	Regional Water Efficiency Program
SB	Senate Bill
SBCAG	Santa Barbara County Association of Governments
SB X7-7	Water Conservation Act of 2009
SGMA	Sustainable Groundwater Management Act
SWP	State Water Project
SWRCB	State Water Resources Control Board
USBR	US Bureau of Reclamation
USGS	US Geological Survey
UWMP	Urban Water Management Plan
WRC	Water Resources Center
WSC	Water Systems Consulting, Inc.
WSCP	Water Shortage Contingency Plan
WTP	Water Treatment Plant
WVSB	Water Vision Santa Barbara
WY	Water year

Executive Summary and Lay Description

About Your Water and Urban Water Management Plan

Background

Water Vision
SANTA BARBARA

The City of Santa Barbara (City) is responsible for delivering safe, reliable water service to over 27,400 customers within its service area. In support of that responsibility, the City recently completed a 12-month supply-planning effort, referred to as **Water Vision Santa Barbara (WVSB)**. WVSB updated the City's 2011 Long-Term Water Supply Plan (LTWSP), which reassesses the adequacy, reliability, resiliency, and sustainability of the City's water supplies and evaluates available supply and anticipated demand. WVSB included an extensive, transparent process for stakeholder and public engagement. The effort was documented in the 2021 LTWSP. It culminated in policy recommendations for the City's various water supplies (which were adopted by the City Council in February 2021) and an Adaptive Management Plan to guide the City's water supply management decisions in the future.

In the past, the City's LTWSP was a stand-alone document. The 2021 LTWSP and the City's 2020 Urban Water Management Plan (UWMP) are now combined into the **Enhanced UWMP.**

The Enhanced UWMP is the City's consolidated water supply planning reference document for the next 30 years. The Enhanced UWMP also meets the State of California's reporting requirements and incorporates updated water resources evaluations.

Approach

The City's water resources are vulnerable to significant supply shifts due to hydrologic, environmental, and political conditions. WVSB considered a wide range of challenges to future reliability, along with actions necessary to mitigate the impacts of those challenges. WVSB provides a context within which the City can adapt to changing conditions based on informed decisions regarding preferred strategies. WVSB addresses future uncertainties and guides cost-effective investments that optimize reliable water supplies and support water affordability.

WVSB is part of an ongoing adaptive water resources management strategy that includes planning, implementing, monitoring, and evaluating. The plan considers the potential benefits and consequences of different actions under a range of future conditions, and it identifies prompts that require certain actions as conditions change. Ultimately, the plan addresses several questions about the City's long-term supply conditions. For example:

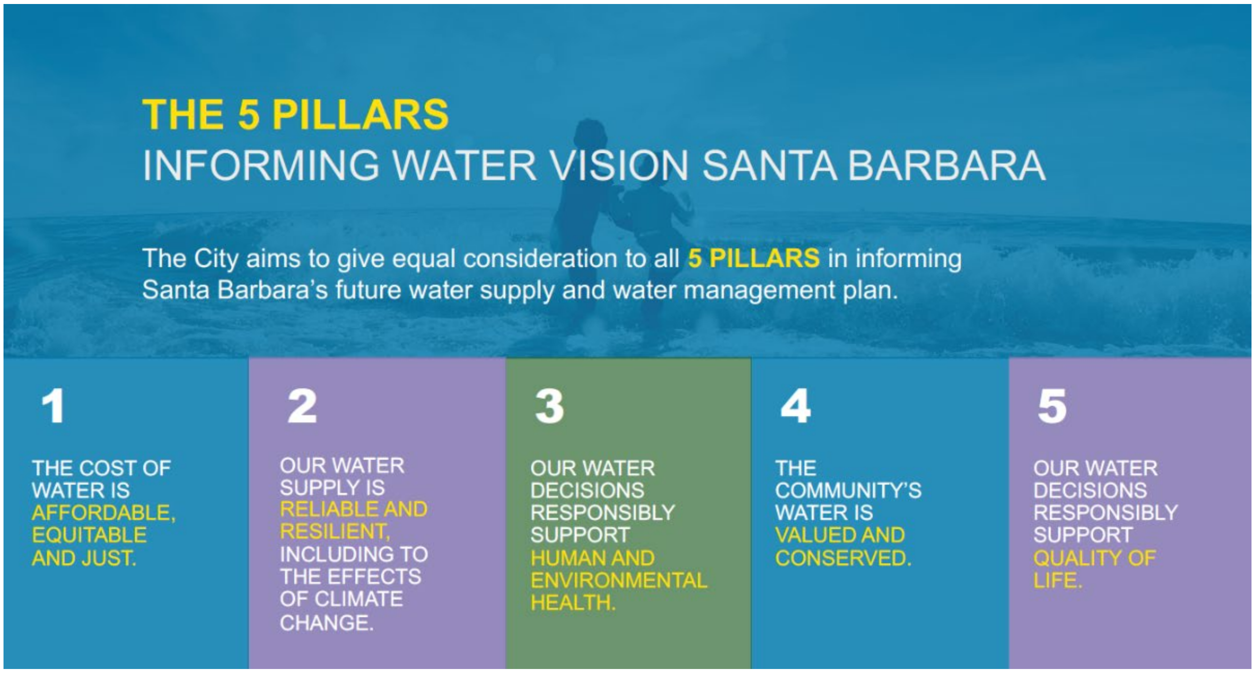
- What steps should the City take now to prepare for the next extended drought?
- What factors affect these recommendations?
- What is the role of desalination in the City's water portfolio?

Stakeholder Engagement

The City routinely engages stakeholders in water supply planning efforts. For the Enhanced UWMP, the City took a more deliberate and inclusive approach that aligned with the City's One Water strategy regarding water management. One Water is an integrated planning and implementation approach to managing finite water resources for long-term resilience and reliability, and meet both community and ecosystem needs. To that end, the City engaged a more diverse representation of the uses and users of water within the community, as well as those who would be most affected by the City's water decisions.

The WVSB stakeholder group was an appointed group of 27 community leaders representing the diverse issues, challenges, needs, and uses of users of water within the City. They were engaged through one-on-one interviews, interactive workshops, topic-specific lunch-and-learns, and public meetings. Participation and engagement in the workshop activities was consistently high, and several members expressed interest in future water supply planning, water conservation efforts, and/or a more permanent public commission to support decision making. The stakeholder group activities resulted in several guiding documents, including the 5 Pillars Informing WVSB (Figure ES-1). Additionally, the activities helped forge new relationships with key constituencies that have been underrepresented in earlier planning efforts, including persons of color, disadvantaged communities, and groups focusing on the human right to water.

Figure ES-1: The 5 Pillars Informing Water Vision Santa Barbara



THE 5 PILLARS
INFORMING WATER VISION SANTA BARBARA

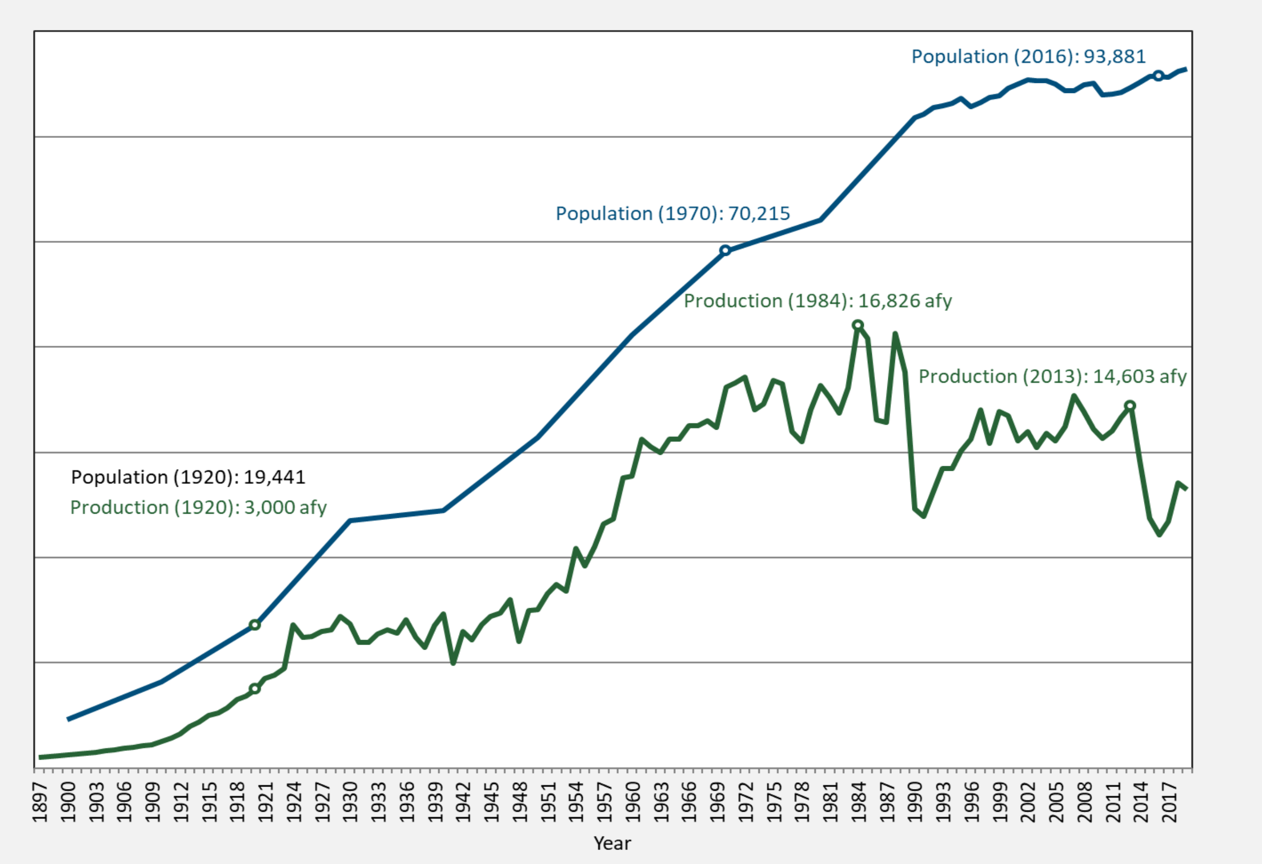
The City aims to give equal consideration to all **5 PILLARS** in informing Santa Barbara's future water supply and water management plan.

1. THE COST OF WATER IS AFFORDABLE, EQUITABLE AND JUST.
2. OUR WATER SUPPLY IS RELIABLE AND RESILIENT, INCLUDING TO THE EFFECTS OF CLIMATE CHANGE.
3. OUR WATER DECISIONS RESPONSIBLY SUPPORT HUMAN AND ENVIRONMENTAL HEALTH.
4. THE COMMUNITY'S WATER IS VALUED AND CONSERVED.
5. OUR WATER DECISIONS RESPONSIBLY SUPPORT QUALITY OF LIFE.

Water Demand

Customer water conservation is an important part of the City's water supply. Thanks to the commitment from residents and businesses, the City has much to be proud of when it comes to conservation. In fact, even with modest population growth from the 1980s to 2012 (pre-drought), the City's water use dropped by more than 20%. The water use in 2020, with a population of 93,000, is equal to the water use of the City in the 1950s, when the population was half of what it is today, as shown in Figure ES-2.

Figure ES-2: City Population and Water Production, 1897–2020

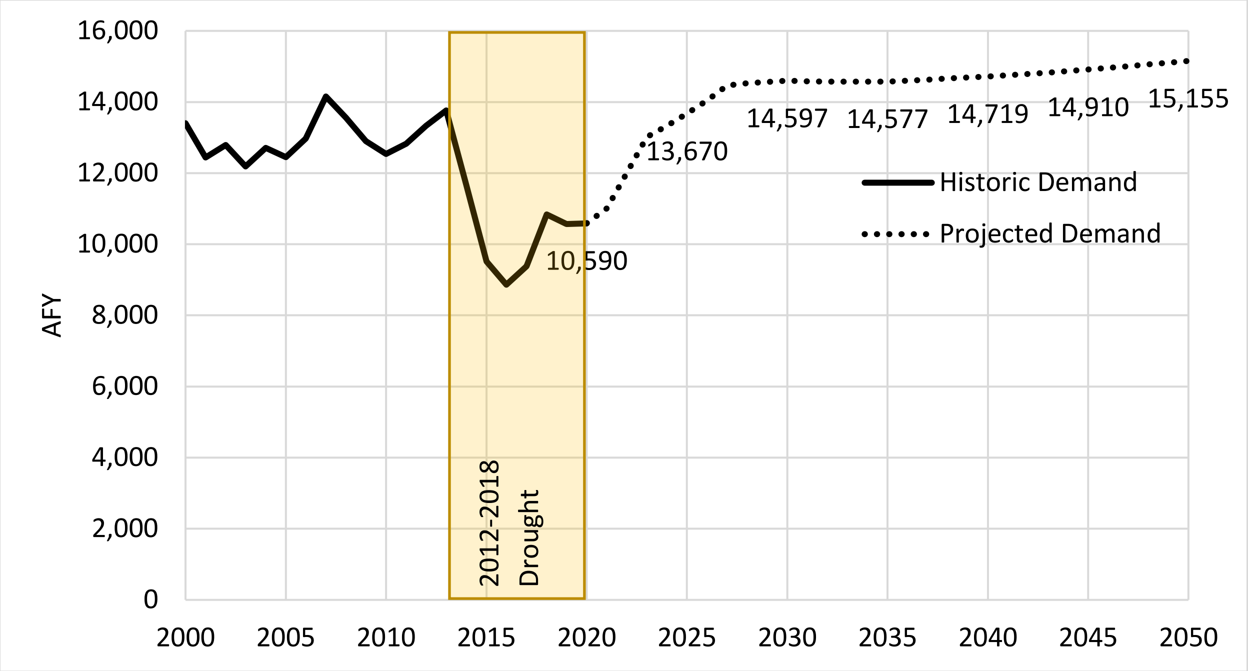


Demand projections were developed as part of the City's 2020 Water Conservation Strategic Plan (Appendix H). The projections included several assumptions about future water use in the City. The most significant assumptions impacting future demand include the following:

1. Population growth is projected to be roughly 0.5% per year, primarily as multifamily housing.
2. Post-drought demand will rebound to 90% of 2008–2013 average demand by 2027.
3. The projections estimate water savings from the plumbing code and recommended conservation program, which includes the City's existing Water Conservation Program and additional measures.
4. The City's Water Supply Agreement with Montecito Water District for the sale of 1,430 acre-feet per year (AFY) of water, starting in January 2023, will play a role.

As shown in Figure ES-3, the City projects demand will increase to pre-drought levels by 2027, with 20,000 additional residents by 2050 and 1,430 AFY of water delivered to Montecito Water District beginning in 2023.

Figure ES-3: Recent City Demand and Projected Demand, 2000–2050



Note: Analysis includes Montecito Water District Water Supply Agreement deliveries of 1,430 AFY starting January 2023. The 2021 LTWSP considered a range of potential future demand conditions by adjusting assumptions to key baseline demand projection variables, such as population growth and job growth. This "demand envelope" is discussed in Section 4.3.

Water Resources

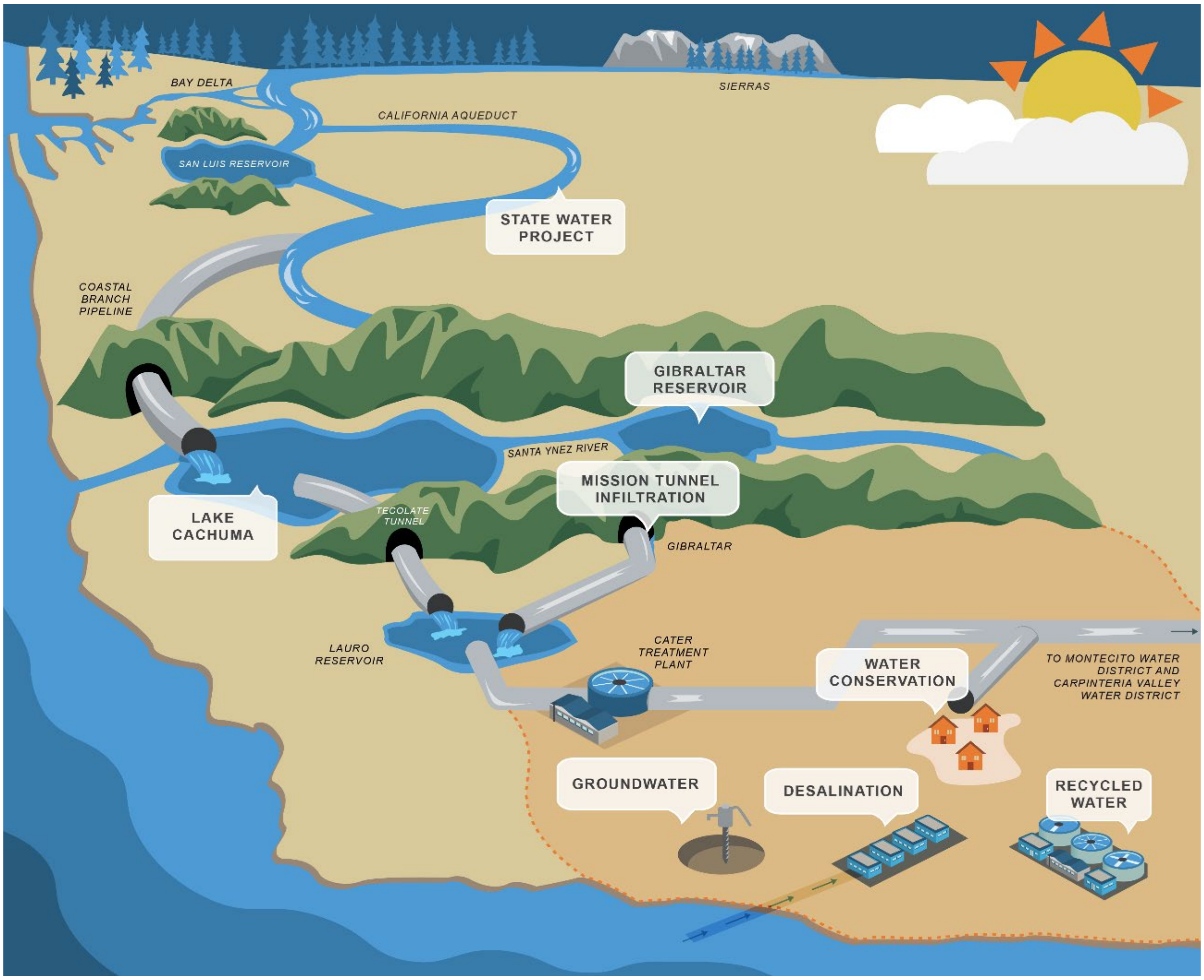
The City's water supply comprises the following sources, illustrated in Figure ES-4:

- **Lake Cachuma:** The US Bureau of Reclamation constructed Lake Cachuma and Bradbury Dam in the early 1950s. The City's share of the annual yield is 8,277 AFY. Water is delivered for treatment at Cater Water Treatment Plant (WTP) via the Tecolote Tunnel and South Coast Conduit. The City can store allocated Cachuma water in Lake Cachuma for the following year. This allows the City to use other available supplies and build up reserves of Cachuma supplies.
- **Gibraltar Reservoir:** The City has pre-1914 water rights to divert water from the Santa Ynez River. Construction of Gibraltar Dam was completed in 1920. The reservoir had an initial storage capacity of 15,793 AF. As of 2020, siltation has reduced the reservoir capacity to 4,559 AF. Water from the reservoir is conveyed through Mission Tunnel for treatment at Cater WTP.
- **Devil's Canyon Diversion:** The City has pre-1914 water rights to divert water from Devil's Canyon Creek and maintains a small diversion works on Devil's Canyon Creek below Gibraltar Dam, which diverts water from Devil's Canyon Creek into Mission Tunnel.
- **Mission Tunnel Infiltration:** Mission Tunnel is 3.7 miles long and conveys water from Gibraltar Reservoir through the Santa Ynez Mountains to the City. Infiltration through cracks and fissures into the tunnel from watersheds on both sides of the mountains contributes to the City's water supply. Infiltration to Mission Tunnel is dependent on rainfall.
- **State Water Project (SWP):** The City's SWP Table A amount is 3,300 AFY. The water is conveyed to Lake Cachuma from SWP facilities in the Central Valley via the Central Coast Branch of the

California Aqueduct. Once in Lake Cachuma, the water is conveyed along with Cachuma Project water, via the Tecolote Tunnel, to Cater WTP for treatment and distribution.

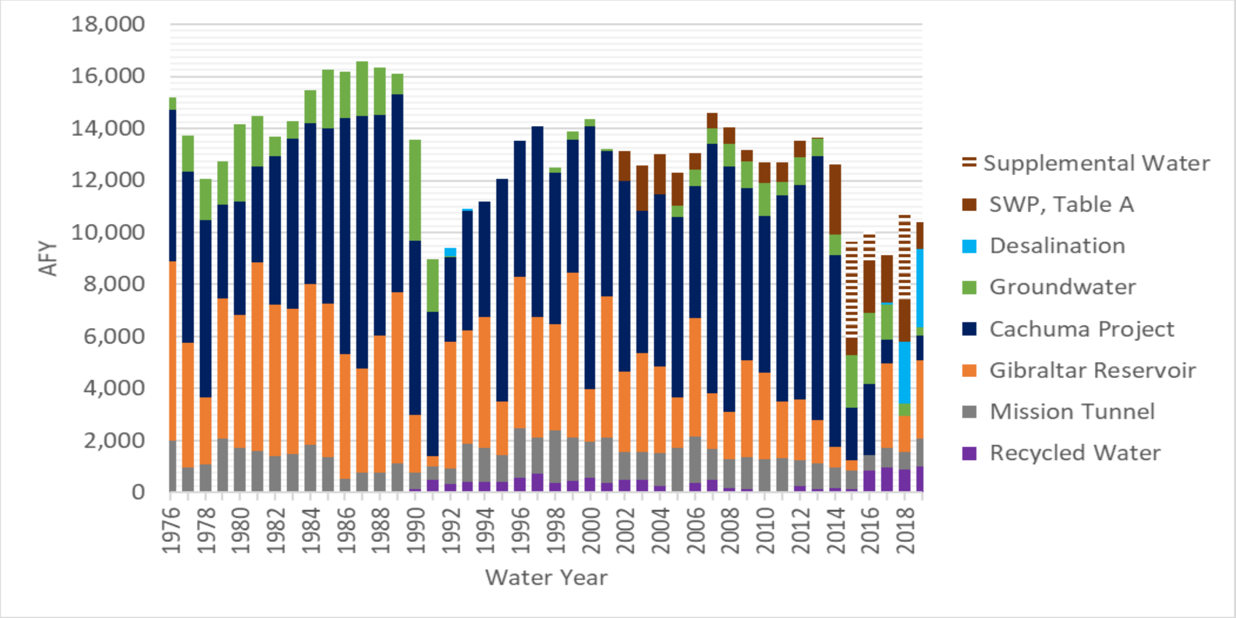
- **Supplemental Water:** The SWP pipeline provides the City with the ability to convey supplemental water purchases to augment drought-year supplies. During the recent drought, the City purchased water through from other SWP water contractors.
- **Desalination:** The Charles E. Meyer Desalination Plant was reactivated in 2017 in response to the recent drought. The plant can provide 3.0 million gallons per day (MGD) of supply, equivalent to 3,125 AFY at 93% of production capacity.
- **Groundwater:** The City pumps groundwater from Foothill Basin, Storage Unit 1, and Storage Unit 3. Foothill Basin and Storage Unit 1 are used to supply the potable water system. Storage Unit 3 has challenging water quality; therefore, it is used only to supplement the recycled water system, if needed.
- **Recycled Water:** Recycled water is produced at the El Estero Water Resource Center for distribution to the recycled water system for irrigation of large landscapes and toilet flushing at a handful of public locations. The City upgraded the recycled water treatment system in 2015.

Figure ES-4: City's Water Resources



As shown in Figure ES-5, Cachuma and Gibraltar represent the primary supplies for the City in normal and wet years, but their availability can substantially decline during drought periods, as seen from 1990 to 1993 and 2012 to 2018. Also shown is the addition of new sources: recycled water in 1990, desalination in 1992 (temporarily) and 2017, and SWP water beginning in 2002. The City's supply availability can substantially change during a drought. In addition to reactivating the desalination plant, the City has historically increased use of groundwater and supplemental water purchases during droughts.

Figure ES-5: Historical Supplies Used (Water Years 1976–2020)



Water Vision Santa Barbara Existing Water Portfolio

The analyses detailed in the 2021 LTWSP serve as the foundation for the City's 2020 Enhanced UWMP. First, the City's existing water supply portfolio was analyzed using supply projections adjusted for long-term risks, such as climate variability and regulatory actions. Based on the analysis, the following findings were made:

- Existing demand can be met with existing supplies and risk-adjusted supplies under historic hydrologic variability, including a 10-year design drought.
- At the upper bound of demand projections (in 2050, with high growth and high unit customer demand), new supplies are needed to avoid water shortages of more than 15% during a 10-year design drought.
- The City's biggest water supply challenge is providing sufficient supplies to meet demand during an extended drought. Extraordinary conservation, above and beyond the City's adopted conservation program, may be needed during an extended drought, when supply availability is reduced below current levels and demand increases.
- Desalination, groundwater, SWP water, and supplemental water are essential to meeting demand during a drought, especially without extraordinary conservation measures.
- The City should always be preparing for a future drought by capitalizing on available water supplies during normal and wet periods, when available supplies exceed demand.

- The largest uncertainties are:
    - Potential demand rebound from the most recent drought and its impact on demand projections
    - Supply projections associated with incremental changes in supply availability (e.g., climate change or sedimentation) and immediate changes in supply availability (e.g., regulatory decisions, failure of a treatment plant, or major conveyance conduit)

Based on the existing portfolio analysis and input from the WVSB stakeholder group, nine potential future portfolios were developed and compared using a triple-bottom-line analysis that considered economic, social, and environmental impacts and benefits. The triple-bottom-line approach combined multiple measures of performance into one analysis. This enabled the City to present the varying importance of different performance measures to stakeholder groups for consideration. This approach allowed the City and stakeholders to objectively evaluate trade-offs between various water supply options and portfolios.

Water Vision Santa Barbara Policy Recommendations

The City Council approved four distinct policy recommendations that arose from the 2021 LTWSP analysis:

1. Implement recommended actions for existing water supplies.
2. Execute the Adaptive Management Plan.
3. Continue ocean desalination as part of Santa Barbara's water supply portfolio to support drought preparedness, response, and recovery.
4. Updating the long-term water supply analysis in the 2020 Enhanced UWMP if baseline conditions or key assumptions substantially change and affect the City's ability to make informed water resources decisions

Each policy recommendation is described in detail below.

Policy 1. Implement Recommended Actions for Existing Water Supplies

This policy proposes the following recommendations to protect and better manage the City's existing water supplies:

- **Water Demand and Conservation:** Implement the recommendation conservation program from the City's 2020 Water Conservation Strategic Plan (Appendix H), which includes the City's current water conservation measures, plus rebates for ultra-high-efficiency toilets and urinals, leak detection devices, pressure reduction valves, and dipper wells; full implementation of the City's Advanced Metering Infrastructure program; a free sprinkler nozzle program; and a pre-rinse spray nozzle giveaway program.
- **Cachuma Project:** Preserve the ability to store carryover water and non-project water in Lake Cachuma, which is the City's largest storage option.
- **Gibraltar Reservoir:** Obtain a Warren Act contract from the US Bureau of Reclamation to store Gibraltar water in Lake Cachuma as outlined in the Upper Santa Ynez River Operations Agreement.
- **Groundwater:** Update the City's sustainable groundwater basin yield and drought storage estimates. Consider making a Groundwater Sustainability Plan.

- **SWP:** Identify methods to increase the certainty of SWP or supplemental water availability during extended drought conditions, including groundwater banking and long-term purchase agreements (participate in the Central Coast Water Authority study currently underway).
- **Non-potable Recycled Water:** Update the recycled water market assessment and the cost-benefit analysis for further recycled water system expansion.
- **Potable Reuse:** Once the State issues raw water augmentation regulations, revisit the feasibility of potable reuse in the next planned Enhanced UWMP update.

Policy 2. Execute the Adaptive Management Plan

The analysis identified several variables that impact supply and demand: increased existing customer demand post-drought, incremental changes in supply availability, and immediate changes in supply availability. These variables will influence future water resources decisions for the City. The City has limited control over most of these variables, such as increased demand as the area emerges from an extended drought and new regulatory constraints placed on existing supplies. However, the Adaptive Management Plan provides a framework for the City to anticipate actions and respond to changes to future water resource conditions through a series of phases driven by changes in supply or demand.

Executing the Adaptive Management Plan provides the City's Water Resources Manager with the flexibility to manage the City's water resources in real time based on current water supply conditions. This adaptive management approach includes a continued emphasis on conserving water and making conservation a way of life, as outlined in the Water Conservation Strategic Plan. The Enhanced UWMP recognizes that while a new water supply is currently not needed, the City's demand and supply sources must be closely tracked to forecast when a new supply source will be required. An adaptive management approach is crucial to preserving and optimizing the City's water supplies in an uncertain future.

Policy 3. Continue Ocean Desalination as Part of Santa Barbara's Water Supply Portfolio to Support Drought Preparedness, Response, and Recovery

The City's most recent policy regarding the use of desalination was established in the 2011 LTWSP, which identified desalination as a drought supply. In 2015, in response to unprecedented and prolonged drought, the City Council voted to reactivate the Charles E. Meyer Desalination Plant to provide critical water supplies and enable the City to meet demand when other supplies were unavailable. The 2021 LTWSP analysis indicates that this policy allows the City to better prepare for, respond to, and recover from droughts.

Under this policy, the desalination plant will operate at its current capacity, 3,125 AFY, to protect and optimize the City's other water supplies and to enhance the City's ability to prepare for and respond to future drought conditions. The Adaptive Management Plan allows the Water Resources Manager to put the desalination plant in standby mode when water supply conditions warrant it. The 2021 LTWSP suggests water reserve thresholds to assist the Water Resources Manager in making this decision.

Policy 4. Updating the Long-Term Water Supply Analysis in the 2020 Enhanced UWMP if Baseline Conditions or Key Assumptions Substantially Change

Projections and assumptions used in the 2020 Enhanced UWMP were prepared with the best information available at the time. The Adaptive Management Plan accounts for potential changes to baseline conditions and key assumptions used in the long-term water supply analysis. In addition to regular 5-year updates to this plan as required by State law, the long-term supply analysis should be updated if there are substantial changes to projected baseline conditions or key assumptions that materially affect the City's ability to make informed water resources decisions.

Enhanced UWMP Findings

This UWMP has been prepared pursuant to the requirements of the California Water Code, Section 10631 and is meant to present a concise summary of the City's water supply (updated to reflect changes since 2015) and to conform to new State reporting requirements.

Water Supply Reliability

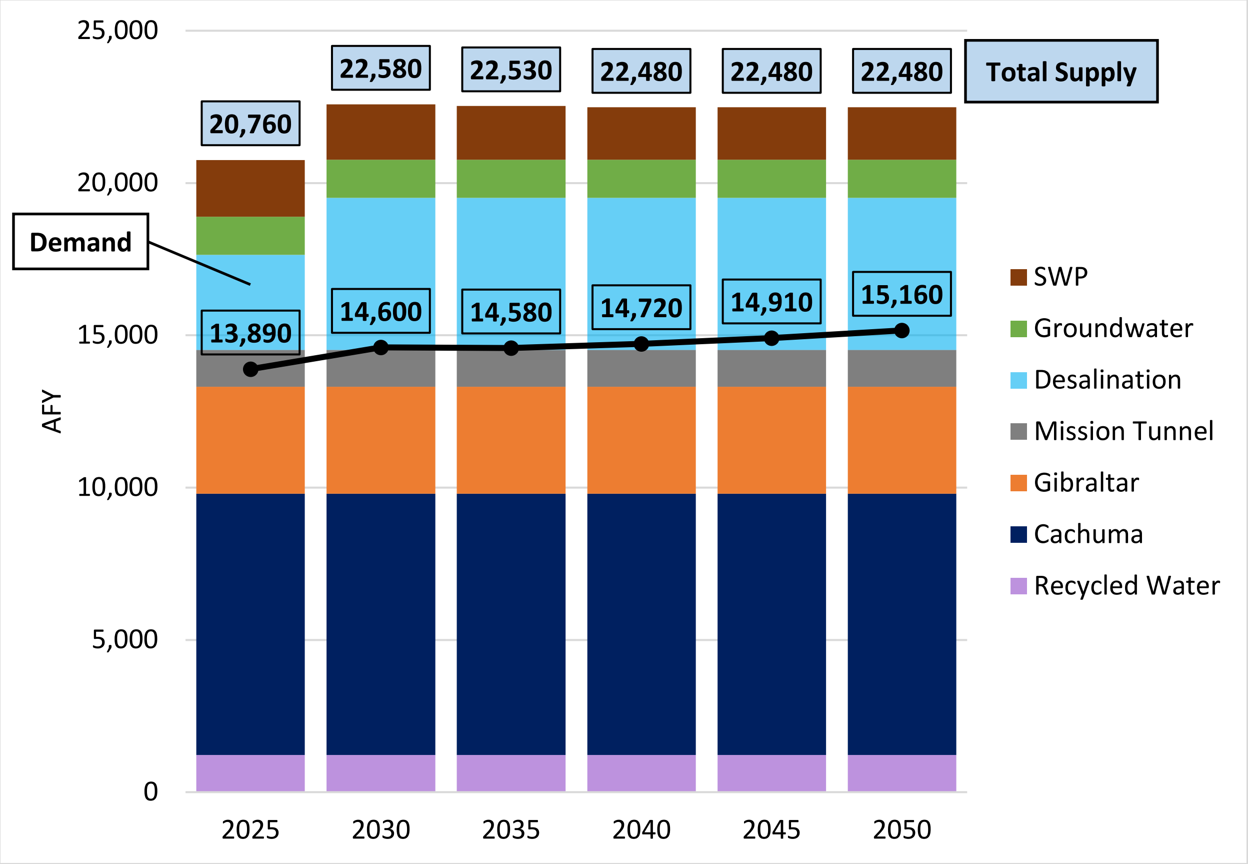
Water supply reliability reflects the City's ability to meet the water needs of its customers with water supplies under plausible hydrological and regulatory variability, climate conditions, and other factors that affect the City's water supply and demand. The diversity of the City's water supply portfolio and the ability to store multiple years of demand in Lake Cachuma are important factors in assessing the reliability of the water supply under a variety of hydrologic conditions.

In normal conditions, the City's primary water supply is surface water from Lake Cachuma (including carryover storage from unused previous Cachuma allocations), Gibraltar Reservoir, and desalination. These supplies are augmented with limited groundwater production (which is typically preserved by the City for droughts and emergencies), SWP deliveries, and recycled water. As shown in Figure ES-6, the City has sufficient supplies in normal years and would use available supplies to prepare for dry periods. For example, unused Cachuma Project water could be stored for use in future years as carryover water. Also, a safety margin of 10% is maintained, consistent with City water supply policies, in case of unanticipated added demand, such as in the case of annexations and supply shortages.

A single dry year (such as 2016) has little effect on availability of Cachuma supplies since the multiyear reservoir typically has storage available from previous years. However, available supply from Gibraltar Reservoir could potentially be significantly reduced, because Gibraltar is a much smaller reservoir than Cachuma. In this situation, demand could be met by supplemental SWP water, increased groundwater pumping, or additional use of Cachuma supplies. In the single dry year evaluation conducted for the Enhanced UWMP, the impacts of a single dry year were found to be minimized by the City's diverse water supply and carryover storage at Lake Cachuma.

The driest five-year historical sequence in the Cachuma watershed was 2012 to 2016. Due to limited supplies — and assuming that there is no Cachuma carryover water available — demand is assumed to be reduced by 20% of normal in Year 5 through extraordinary conservation measures, which are above and beyond those in the City's normal conservation program. During the recent extended drought, City customers achieved 40% conservation by 2016, which is Year 5 in the multiple year drought, so the City is confident extraordinary conservation can be achieved during an extended drought, if necessary.

Figure ES-6: Projected Potable Water Supplies vs. Demand, Normal Year

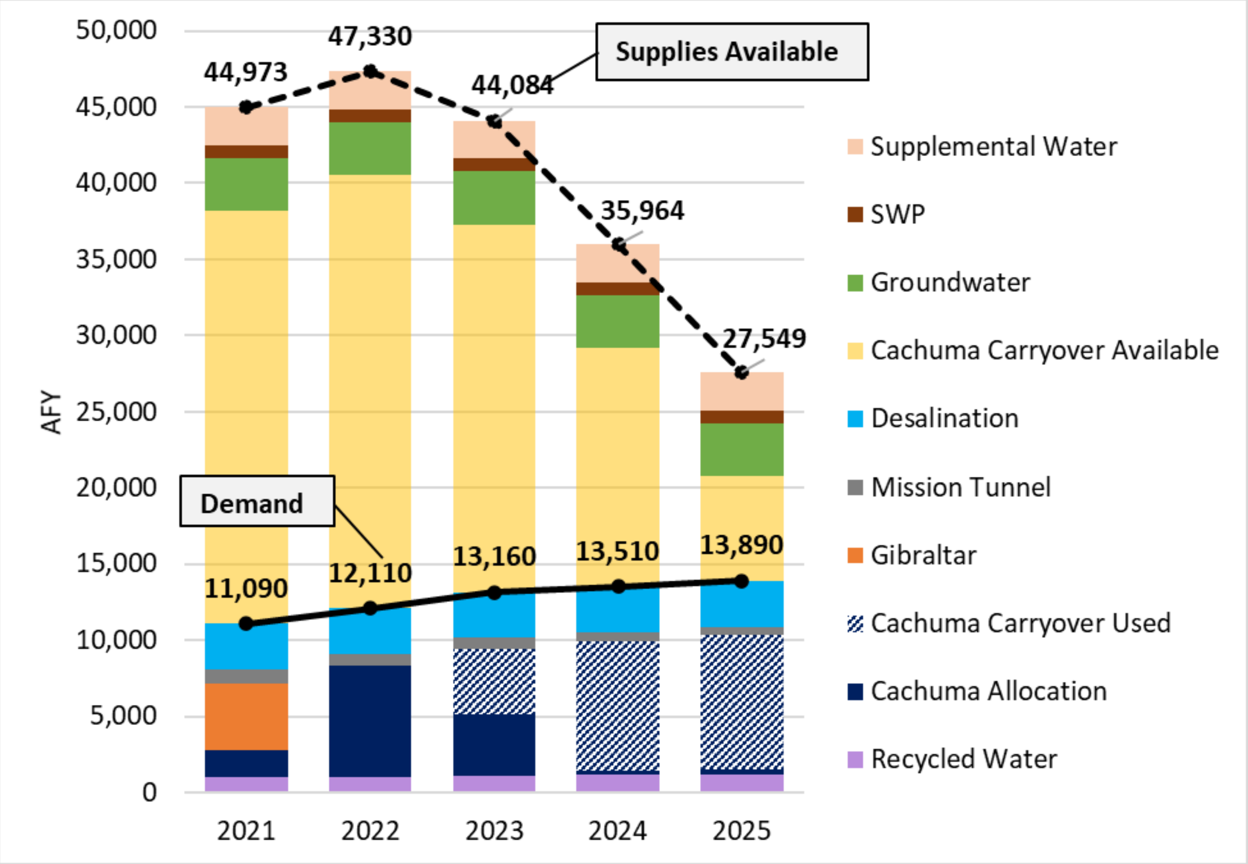


Note: This analysis does not include Cachuma carryover supplies stored from previous years. Desalination expansion is assumed by 2030, based on demand projection. All assumptions are presented in Section 7.2.

2021–2025 Drought Risk Assessment

Based on projected demand and available supplies, Figure ES-7 presents the projected supplies used to meet demand and the remaining available supply each year. As shown, Cachuma carryover water is used starting in 2023 as Cachuma allocations decrease, and the City still has supplies available at the end of the five-year drought. Note that these projections contrast with the need to implement extraordinary conservation measures during the previous drought due to the addition of desalination, which adds a drought-proof supply and allows the City to accumulate carryover storage in Cachuma for use in future years. The City did not have Cachuma carryover storage at the beginning of the last drought because Lake Cachuma spilled in 2011, which resulted in all carryover storage being lost. Desalination was not brought online until 2017.

Figure ES-7: 2021–2025 Drought Risk Assessment, Supply and Demand Projections



Note: Supply projections assume drought conditions extend through 2025.

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1 Introduction

The State of California's Urban Water Management Planning Act (UWMP Act) was enacted in 1983. The law required that an urban water supplier — defined as an agency providing water for municipal purposes to more than 3,000 customers or serving more than 3,000 acre-feet per year (AFY) — adopt an Urban Water Management Plan (UWMP) every five years demonstrating water supply reliability in normal single dry years and multiple dry water years. The UWMP Act has undergone significant expansion and revision since then.

A UWMP provides a water supplier's staff, the public, and elected officials with an understanding of past, current, and future water conditions and management. The UWMP integrates local and regional land use planning, regional water supply, infrastructure, and demand management projects, as well as statewide issues of concern, such as climate change and regulatory revisions. In short, the UWMP gathers, characterizes, and synthesizes water-related information from numerous sources into a plan with local, regional, and statewide practical utility.

The Enhanced UWMP meets these State-defined requirements and serves as the City of Santa Barbara's (City) primary long-term water supply management tool. The goal of the Enhanced UWMP is to evaluate the adequacy and reliability of the City's water supply and provide a long-term view of how the City's water supplies will be managed.

A UWMP checklist, to ensure compliance of this plan with the UWMP Act's requirements, is provided in Appendix A. In addition, as required by the California Water Code, standardized tables for the reporting and submittal of UWMP data have been prepared and are included in Appendix B. A selection of these tables is also provided in the body of this plan to present supporting data.

1.1 UWMPs in Relation to Other Efforts

For over 25 years, the City's primary water supply management tool has been its Long-Term Water Supply Plan (LTWSP). The LTWSP, which was last updated in 2011, served as the primary decision-making tool for City water managers and has guided City water resources planning for the past three decades. In 2012, the City began experiencing a drought unprecedented in both duration and severity. It exceeded the historical drought of record used as the design basis for the 2011 LTWSP (1947–1951). The recent drought extended from 2012 to 2019. As of this writing, local groundwater basins have yet to completely recover.

The Enhanced UWMP was prepared following a 12-month planning and analytical process branded Water Vision Santa Barbara (WVSB), which is documented in the 2021 LTWSP (Appendix C). WVSB updated the 2011 LTWSP by reassessing the adequacy, reliability, resiliency, and sustainability of the City's water resources portfolio, including evaluation of both available supply and anticipated demand. The effort considered cost; reliability; economic, environmental, and social measures; risks; and uncertainties. WVSB included an open and transparent process for stakeholder and public engagement. The project culminated in policy recommendations for the City's various water supplies and an Adaptive Management Plan, which will help guide the City's water supply management decisions in the future.

The combination of the 2021 LTWSP and the 2020 UWMP is an **Enhanced UWMP** and is the City's consolidated water supply planning reference document for the next 30 years.

1.2 Demonstration of Consistency with the Delta Plan for Participants in Covered Actions

Under the Sacramento-San Joaquin Delta (Delta) Reform Act of 2009, before State and local public agencies propose a covered action in the Delta, they must prepare a written certification of consistency, with detailed findings regarding whether the covered action is consistent with applicable Delta Plan policies and submit that certification to the Delta Stewardship Council. Anyone may appeal a certification of consistency, and if the Delta Stewardship Council grants the appeal, the covered action may not be implemented until the agency proposing the covered action submits a revised certification of consistency and no appeal is filed. However, the Delta Stewardship Council may deny the subsequent appeal.

An urban water supplier that anticipates participating in or receiving water from a proposed covered action, such as a multiyear water transfer, conveyance facility, or new diversion that involves transferring water through, exporting water from, or using water in the Delta, should provide information in its 2015 and 2020 UWMPs that can then be used in the covered action process to demonstrate consistency with Delta Plan Policy WR P1 — Reduce Reliance on the Delta through Improved Regional Water Self-Reliance.

Senate Bill (SB) X7-1, which was signed in 2009, reformed Delta policy and governance, including requiring development, adoption, and implementation of a “Delta Plan” and establishing a statewide policy to reduce reliance on the Delta in meeting California’s future water supply needs through a statewide strategy of investing in improved regional supplies, conservation, and water use efficiency.

The California Department of Water Resources (DWR) does not review this analysis as part of the UWMP approval process; therefore, this information has been prepared as a stand-alone document and is attached as Appendix D. The analysis and documentation provided in Appendix D include the elements described in Delta Plan Policy WR P1 Section (c)(1) that need to be included in a water supplier’s UWMP to support a certification of consistency for a future covered action.

2 Plan Preparation

This UWMP has been prepared pursuant to the requirements of the California Water Code, Section 10631. Because the City is an urban water retailer serving more than 3,000 service connections, it is required to prepare an UWMP every five years. This plan was prepared by Water Systems Consulting, Inc., in partnership with staff of the City's Water Resources Division and in consultation with the City's Board of Water Commission and staff of the Community Development Department. The UWMP updates the previous 2015 UWMP, adopted by the City Council in June 2016, and incorporates the analysis and recommendations from WVSB. The plan is meant to present a concise summary of the City's water supply, updated to reflect changes since 2015, and to conform to new State reporting requirements.

The California Water Code specifies several requirements for preparing a UWMP, including public notification and engagement. The following are the primary public engagement requirements:

- Make the UWMP available for public inspection.
- Conduct a public hearing to gather community input.
- Issue a UWMP public hearing notification to the public at least 14 days prior to the public hearing.
- Submit the UWMP to the California State Library and all cities and counties within which the City provides water no later than 30 days after adoption by the City Council.

The Draft 2020 Enhanced UWMP was discussed with the Board of Water Commissioners on May 20, 2021. The Commission supported the plan content and recommendations and provided comments. A public hearing, with public notice pursuant to California Government Code, Section 6066, was held before the City Council on May 25, 2021. No comments were received prior to or at the public hearing. The adoption hearing was held before the City Council as Agenda Item No. 14 on June 29, 2021, at which time, the Council voted unanimously to adopt the plan and authorize the Public Works Director to submit it to DWR. Documentation of public noticing and City Council action is included in Appendix E.

The City has encouraged community awareness of water issues and participation in water planning. Public meeting notices were published in the local press. Copies of the draft plan were made available on the project website, www.SantaBarbaraCA.gov/WaterVision. The City notified the public within its service area of the opportunity to provide input regarding the plan. A copy of the public outreach materials, including newspaper notices and invitation letters, are attached in Appendix E.

As described below, the City's stakeholder engagement efforts far surpass the minimum California Water Code requirements and have allowed stakeholder input to inform the development of the Enhanced UWMP in a transparent fashion.

2.1 Water Vision Santa Barbara Communications and Engagement

Comprehensive communications and engagement with the general public, WVSB stakeholder group, City Water Commission, and City Council were instrumental in the planning process. The process is summarized in the WVSB Communications and Engagement Summary (Appendix F), and the efforts, materials, and summaries are available at www.SantaBarbaraCA.gov/WaterVision. The following engagement and outreach goals were identified by the City and drove the project team's approach:

- Conduct a transparent, inclusive, and equitable engagement process with diverse representation, considering the variety of issues, challenges, needs, uses, and users of water within the City.

- Engender public trust and inform decision makers to achieve an equitable, cost-effective, reliable, and environmentally responsible plan that aligns with the community's values and provides water supply through the 2050 planning horizon.
- Build public awareness of the value of diverse supply sources and the unique challenges and opportunities for water supply in Santa Barbara.
- Build public trust in the City staff as passionate, capable, and prepared to effectively manage water on behalf of the community.
- Communicate early and often, and actively identify and eliminate barriers to stakeholder representation and participation.
- Align the storylines of WVSB and the One Water Strategic Plan effort.

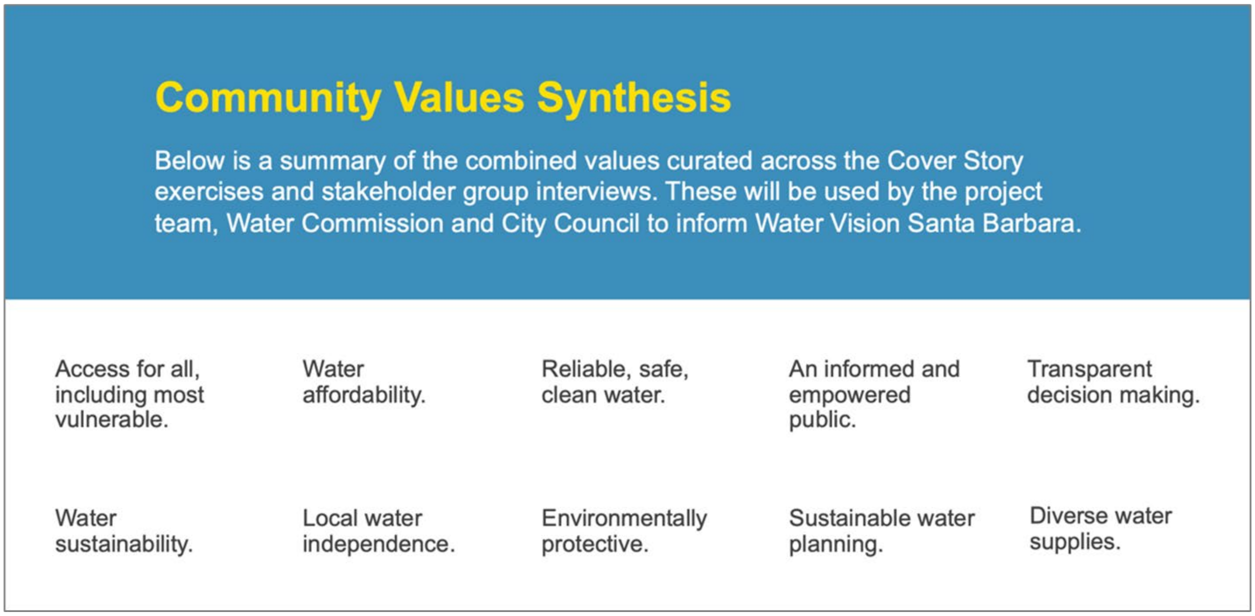
To achieve these goals, the City grouped all project stakeholders into four segments. The approach and level of engagement with each segment depended on its role in the process, as outlined in **Table 1**.

Table 1: Engagement Strategy by Stakeholder Segment

Segment	Segment Description	Engagement Role	Approach
WVSB Stakeholder Group	Appointed group of 27 community leaders representing the diverse issues, challenges, needs, uses, and users of water within the City	• Learn/Build Awareness • Share Perception/Opinion • Advocate	• One-on-One Interviews • Five Interactive Workshops • Public Meetings
General Public	City water customers not otherwise serving on the stakeholder group	• Learn/Build Awareness • Share Perception/Opinion • Advocate	• Water Vision Month with virtual educational activities and community board • Public Meetings • Project website
City Water Commission	Appointed Water Commissioners, serving as advisors to the City Council on water policy decisions in a manner that reflects the community's values and needs, and the project goals	• Learn/Build Awareness • Share Perception/Opinion • Advise/Recommend	• One-on-One Interviews • Five Designated Public Meetings
City Council	Elected Santa Barbara City Council members and mayor, responsible for making water policy decisions that reflect the community's values and needs, and the project goals	• Learn/Build Awareness • Share Perception/Opinion • Decide	• Four Designated Public Meetings

Stakeholder group activities resulted in four guiding documents that informed Water Vision: A Synthesis of Community Values (Figure 1), the 5 Pillars Informing WVSB (Figure 2), Calls to Action for City Council, and Public Comments Summary. The 5 Pillars informed several aspects of the plan, including the future water supply portfolio themes and the evaluation criteria for the future portfolios. Additionally, the activities helped forge new relationships with key constituencies that have been underrepresented in earlier planning efforts, including persons of color, disadvantaged communities, and groups focusing on the human right to water.

Figure 1: Community Values Synthesis

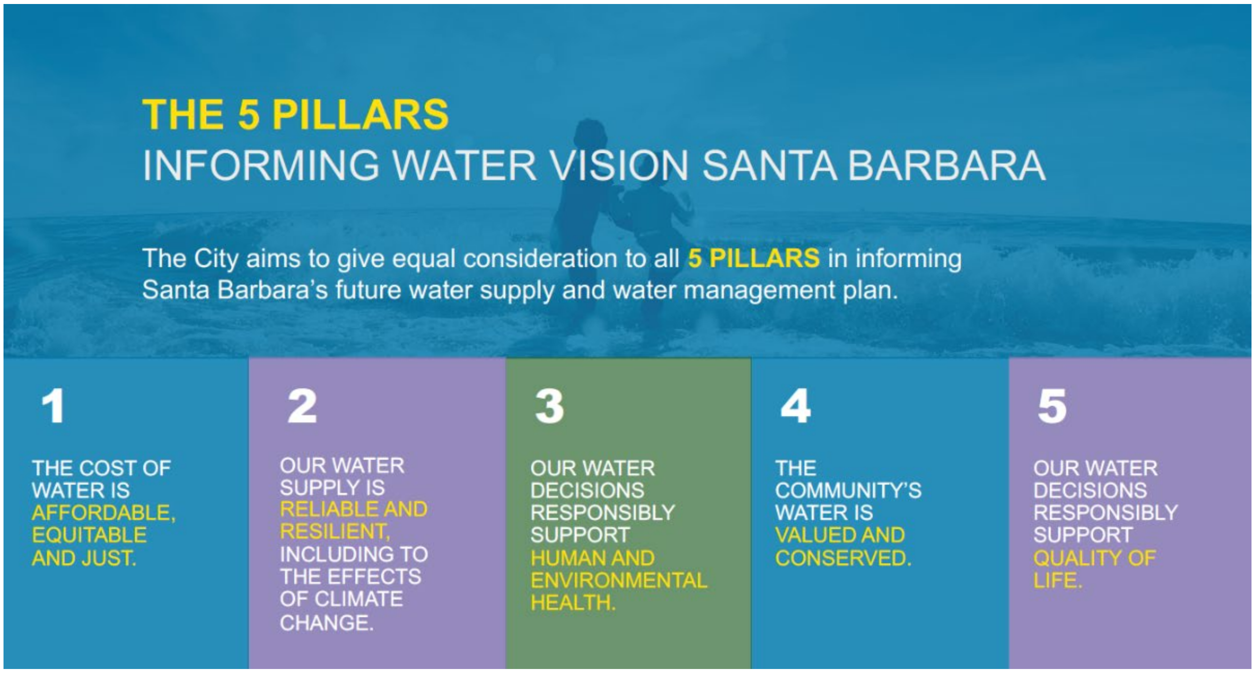


Community Values Synthesis

Below is a summary of the combined values curated across the Cover Story exercises and stakeholder group interviews. These will be used by the project team, Water Commission and City Council to inform Water Vision Santa Barbara.

- Access for all, including most vulnerable.
- Water affordability.
- Reliable, safe, clean water.
- An informed and empowered public.
- Transparent decision making.
- Water sustainability.
- Local water independence.
- Environmentally protective.
- Sustainable water planning.
- Diverse water supplies.

Figure 2: The Five Pillars Informing Water Vision Santa Barbara



THE 5 PILLARS
INFORMING WATER VISION SANTA BARBARA

The City aims to give equal consideration to all **5 PILLARS** in informing Santa Barbara's future water supply and water management plan.

1. THE COST OF WATER IS AFFORDABLE, EQUITABLE AND JUST.
2. OUR WATER SUPPLY IS RELIABLE AND RESILIENT, INCLUDING TO THE EFFECTS OF CLIMATE CHANGE.
3. OUR WATER DECISIONS RESPONSIBLY SUPPORT HUMAN AND ENVIRONMENTAL HEALTH.
4. THE COMMUNITY'S WATER IS VALUED AND CONSERVED.
5. OUR WATER DECISIONS RESPONSIBLY SUPPORT QUALITY OF LIFE.

Refer to the WVSB Communications and Engagement Summary (Appendix F) for additional information on the stakeholder effort.

2.2 Regional Coordination

Lake Cachuma is the City's primary source of water supply. City staff coordinate regularly with the Cachuma Operation and Maintenance Board (COMB), a Joint Powers Authority that operates portions of the Cachuma Project and coordinates with the US Bureau of Reclamation (USBR) on contract issues and deliveries of project water. The COMB Board meets monthly. An Operating Committee consisting of the Cachuma Member Unit managers and the COMB General Manager, as well as other committees focusing on a variety of topics (including fisheries and public outreach), is scheduled on an as-needed basis.

Additionally, the City coordinates regularly with the Central Coast Water Authority (CCWA) about forecasted water deliveries from the SWP. CCWA is also a Joint Powers Authority. It is composed of eight member agencies and manages and operates Santa Barbara County's local facilities for distribution and treatment of State water. The City was also an active participant in the development and adoption of the countywide Integrated Regional Water Management Plan, update in 2019.

Agencies directly or indirectly involved in matters related to the City's water supplies include:

- COMB and its member agencies, including Carpinteria Valley Water District, Goleta Water District, City of Santa Barbara, Montecito Water District, and Santa Ynez River Water Conservation District, Improvement District No. 1
- Cachuma Conservation Release Board and its member agencies, including Goleta Water District, City of Santa Barbara, and Montecito Water District
- CCWA and its member agencies, including City of Santa Maria; City of Guadalupe; City of Buellton; Goleta Water District; City of Santa Barbara; Montecito Water District; Carpinteria Valley Water District; and Santa Ynez River Water Conservation District, Improvement District No. 1; and the following nonmember project participants: La Cumbre Mutual Water Company (LCMWC), Vandenberg Air Force Base, Raytheon Company, and Morehart Land Company
- Santa Barbara County Water Agency

During the preparation of the City's plan, water supply data from CCWA and DWR were reviewed. The City receives wholesale water from the CCWA. The City provided water use projections to CCWA in accordance with California Water Code, Section 10631. In addition, the following agencies were advised of the opportunity to review the City's draft plan:

- CCWA
- COMB
- Santa Barbara County Water Agency
- Goleta Water District
- Montecito Water District
- Carpinteria Valley Water District
- Santa Ynez River Water Conservation District, Improvement District No. 1

2.3 Fiscal Year Data

Except where noted, data in this plan are based on the fiscal year (FY), running from July to June. The fiscal year for July 2019 to June 2020 is labeled as FY2020.

All calculations related to the determination of baselines and urban water use targets pursuant to SB X7-7 are also based on fiscal years.

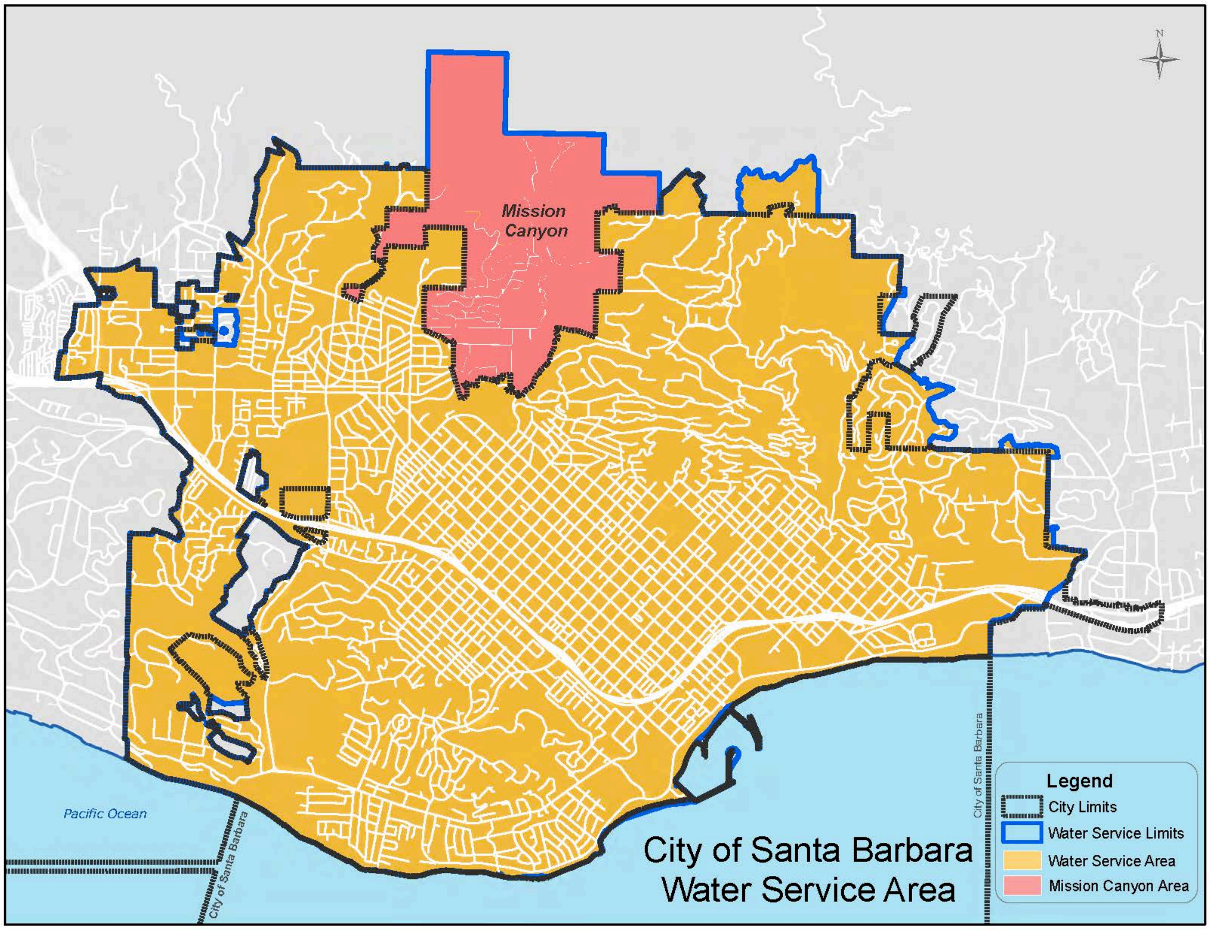
3 System Description

The City of Santa Barbara provides retail water service to a population of approximately 95,650, through approximately 27,405 service connections. Elevation within the service area ranges from sea level to 1,400 feet.

3.1 General Description

The City of Santa Barbara operates a water supply system that serves most of the properties within the City limits (except for the City' airport, which is served by the Goleta Water District; the Lincolnwood neighborhood in the northwest portion of the City, which is served by a private well; and the Coast Village Road and Westmont Road areas, served by Montecito Water District). The City also serves selected areas located outside the City limits, most notably the unincorporated areas known as Mission Canyon and Barker Pass. Figure 3 shows the boundaries of the City of Santa Barbara's water service area.

Figure 3: City of Santa Barbara Water Service Boundary

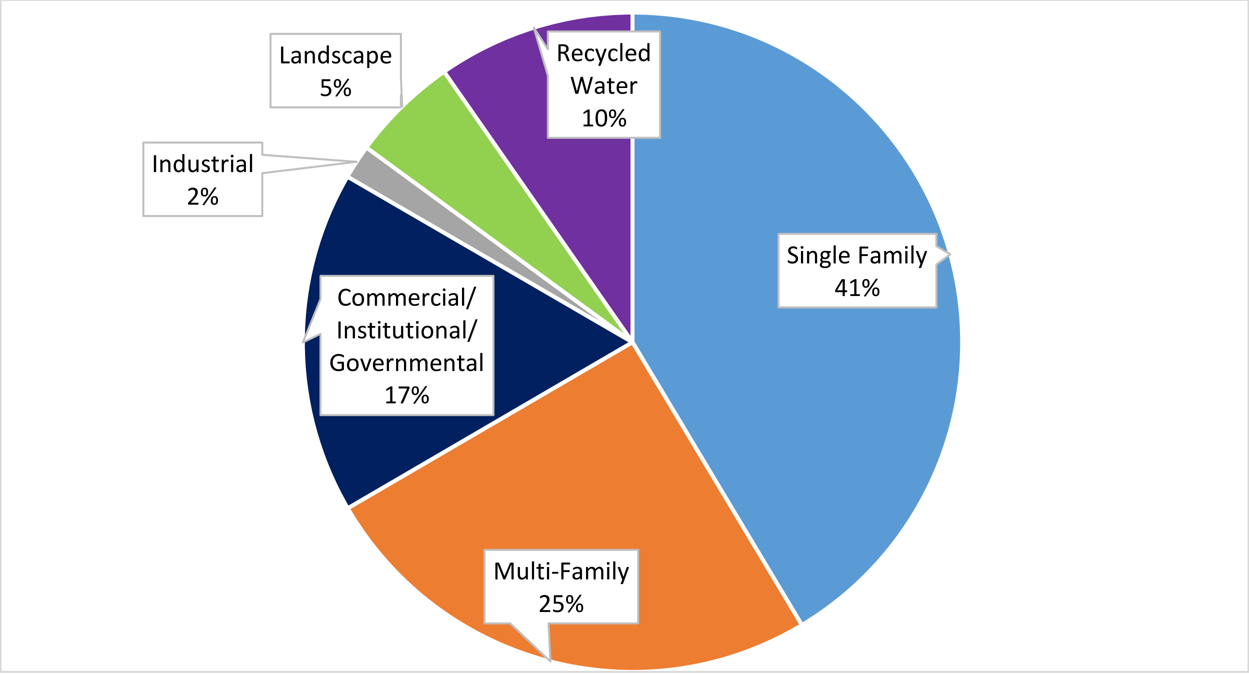


The City's potable water system consists of 312 miles of distribution main, 15 balancing reservoirs, 15 pumping stations, and 9 production wells. The recycled water system is significantly smaller, serving approximately 1,000 AFY of demand with 13.5 miles of distribution main, 2 balancing reservoirs, and 4 pumping stations. The City also operates a wastewater collection system consisting of 256 miles of sewer pipe and 7 lift stations. The City's wastewater treatment plant, El Estero Water Resource Center (WRC) has a design capacity of 11 million gallons per day (MGD) and an average flow of 6.0 MGD. El Estero WRC includes 2.5 MGD of tertiary filtration and disinfection capacity to produce recycled water for use at the plant and for the recycled water distribution system.

The water and wastewater systems are operated and maintained by the Water Resources Division of the City's Public Works Department. The water system is supported by 70 employees and the wastewater and recycled water system are supported by 51 employees.

Figure 4 presents 2020 water sales by sector, to give an overview of the demographic makeup of the City's water service area. Residential use is predominant. The City is largely built out, though it is assumed that infill and redevelopment will continue at roughly the same rate as in the recent past, resulting in a small amount of new demand in the residential and commercial sectors. In 2011, the City Council adopted the Plan Santa Barbara General Plan. It also certified an addendum to the Final Environmental Impact Report for Plan Santa Barbara, which sets the range of projected demand growth from new development. The report has been amended eight times since then to address substantial changes to Plan Santa Barbara. The City's Public Works and Community Development departments coordinated and are in agreement on planned development and the probable implementation of approved development. Such informed data gathering on important issues is a means of checking the short-term "reality" of official projections. The relative distribution of demand by sector is expected to remain status quo.

Figure 4: FY2020 Metered Potable and Recycled Water Sales by Sector



3.2 Service Area Climate

The City is located on the central coast of California, between the Santa Ynez Mountains and the Pacific Ocean. It has a temperate Mediterranean style climate, with cool, wet winters and mild, dry summers. Temperatures only rarely fall below freezing in winter. During the late summer and early fall, hot, dry Santa Ana winds can create high water demand. An average rainfall of approximately 14.7 inches per year falls mostly during the winter period between December and March.

Table 2 shows the average temperatures, precipitation, and evapotranspiration (ETo) for the City, measured at Santa Barbara California Irrigation Management Information System (CIMIS) Station No. 107. The City bills its budget-based irrigation customers based on ETo data from this CIMIS station.

Table 2: Climate Data for the City of Santa Barbara

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Avg
ETo (inches)	1.8	2.3	3.6	4.5	5.0	4.7	5.4	5.1	4.0	3.2	2.1	1.6	43.5
Rainfall (inches)	2.3	2.9	2.2	1.4	0.7	0.3	0.2	0.2	0.2	0.7	1.1	2.5	14.7
Average Temp. (°F)	54.3	54.1	56.7	58.5	60.6	62.2	64.8	65.2	64.7	62.3	57.9	53.5	59.6

Source: CIMIS Station No. 107, monthly data from 2000 to 2020 (California Department of Water Resources. 2021)

3.2.1 Climate Change

The City has long supported practical measures to improve energy efficiency and implement renewable energy technologies, including use of solar photovoltaic and cogeneration facilities. The City's 2012 Climate Action Plan addresses:[1]

- Climate science findings
- Policy context and regional efforts
- Benefits of climate protection measures
- Carbon emissions targets, inventories, forecasts, and reduction strategies
- Adaptation strategies
- Plan implementation

In 2018, the City prepared an Implementation Status Report for the 2012 Climate Action Plan and the Climate Change Report.[2] It recommended the City prepare an update to the 2012 Climate Action Plan and prepare a comprehensive Climate Adaptation Plan that would help determine how the City will transition to 100% renewable energy use by 2030. In 2019, City Council adopted a Strategic Energy Plan.[3] That plan lays out a road map to meet the City's 100% renewable electricity goal by 2030 and highlights the renewable energy projects, innovative programs, and strategic policies needed to facilitate transition to renewable energy. Also, in 2021, the City completed the City of Santa Barbara Sea-Level Rise Adaptation Plan,[4] which outlines a phased approach to planning for sea-level rise based on monitoring changing shoreline conditions and taking actions to reduce vulnerabilities when defined thresholds are reached. The plan includes detailed recommendations for necessary actions in the next 10 years and a structure for future decision making.

Climate change impacts on the City's long-term water demand are discussed in Section 4.3.3, and impacts on the City's supplies are discussed in Section 7.1.

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[1] Available at www.santabarbaraca.gov/services/planning/erd/resource/cap.asp.

[2] Available at www.santabarbaraca.gov/services/planning/mpe/gpi.asp.

[3] Available at sustainability.santabarbaraca.gov/strategic-energy-plan/.

[4] Available at www.santabarbaraca.gov/services/planning/mpe/slrap/default.asp.

3.3 Service Area Population and Demographics

According to the California Department of Finance, the City had a population of approximately 93,511 in 2020 (State of California. Department of Finance. 2020). However, as described in Section 3.1, the City's water service area also includes the adjacent census designated place, "Mission Canyon." The most recent census data available for Mission Canyon are from 2010. To estimate the 2020 population, the 2010 population of Mission Canyon as a census-designated place (2,381 residents) was increased at 0.55% per year — the same rate defined in the *Mission Canyon Community Plan — Final Environmental Impact Report (EIR)* (April 2014). The City population estimate for 2020 from California Department of Finance population data was added to the Mission Canyon estimate for 2020 (2,516 residents) to estimate the total population for the City's water service area for 2020 as 96,027.

The City of Santa Barbara has a mix of housing types, including single-family and multifamily residences. The City is largely built out, though infill and redevelopment will continue, resulting in a small population increase. Population projections were prepared using growth rates from the Santa Barbara County Association of Governments (SBCAG) *Regional Growth Forecast 2050* (SBCAG, January 2019) for the City and the *Mission Canyon Community Plan — Final EIR* (April 2014) for Mission Canyon. **Table 3** shows the current and projected population for the City's water service area.

Table 3: Current and Projected Water Service Area Population (UWMP Table 3-1)

	2020	**2025**	**2030**	**2035**	**2040**	**2045**	**2050**
City Limits	93,511	97,187	99,373	101,332	103,292	105,251	107,261
Mission Canyon	2,516	2,588	2,660	2,731	2,802	2,873	2,944
Total Service Area	**96,027**	**99,775**	**102,033**	**104,063**	**106,094**	**108,124**	**110,205**

Note: Mission Canyon values based on 2010 census data for Mission Canyon census-designated place data.
Sources: City limits 2020 value from California Department of Finance, E-1 Population Estimates for Cities, Counties, and the State for January 2020. Projections based on growth rate from SBCAG's *2019 Regional Growth Forecast 2050*. Mission Canyon data from 2010 (U.S. Census Bureau 2011) with growth rate; see *Mission Canyon Community Plan — Final EIR* (Santa Barbara County Planning and Development Department April 2014.).

Santa Barbara is a popular vacation destination, and tourism is an important part of the local economy. In addition, many people commute from around the County and nearby Ventura County to work in the City of Santa Barbara. It should be acknowledged that population from tourism and commuters is not factored into the population methodology. However, water use from tourism and jobs is accounted for under nonresidential customer categories in the demand projections in Section 4.3.

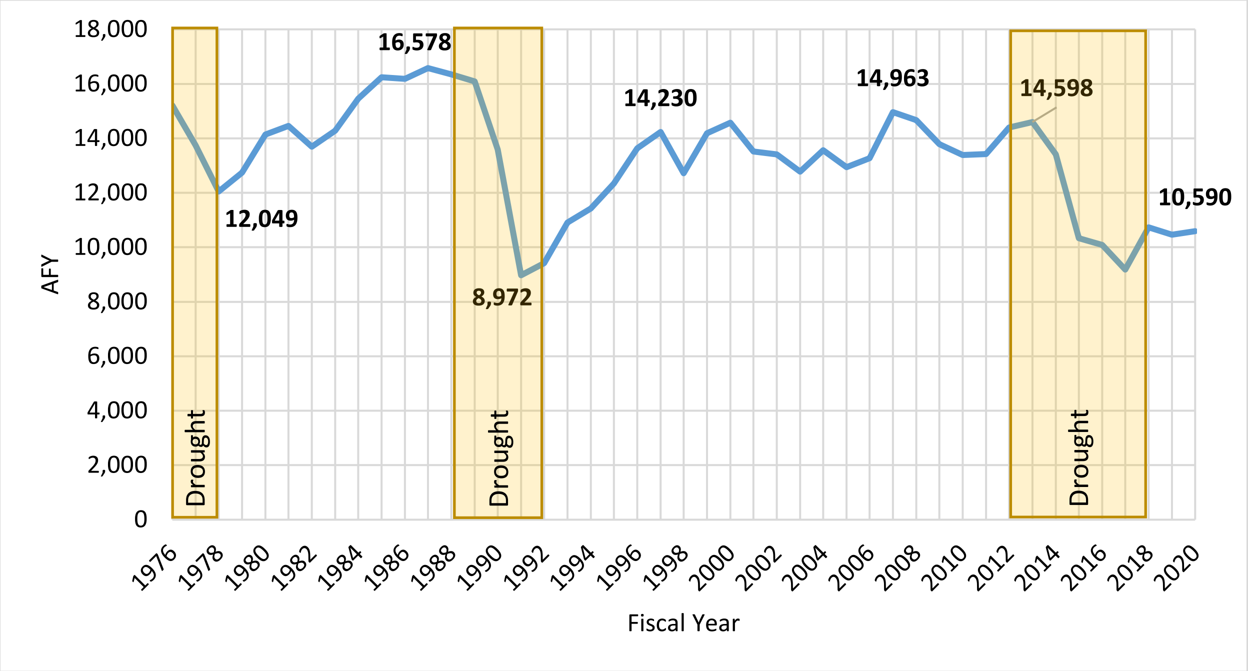
4 System Water Use

This section describes historic and current water usage and the methodology used to project future demand within the City's service area. Water usage is divided into sectors such as residential, commercial, industrial, and landscape. For this evaluation, existing land use data and new construction information were compiled from the City's Community Development Department.

4.1 Historical Water Demand

Figure 5 shows the City's water demand history. Produced water is used as the traditional indicator of demand since water is produced to meet the demand. The City tracks total water demand based on production to the potable water and recycled water distribution systems. The combined total is referred to as "system" demand. Figure 5 illustrates the demand response to severe drought in the late 1980s and early 1990s and the partial recovery of demand once drastic conservation measures were no longer needed. Variations from 1998 onward are primarily the result of year-to-year variations in weather. Beginning in 2014, the dramatic drop in demand indicates the response to the most recent drought.

Figure 5: Historic Annual Water Demand (Potable and Recycled Water Systems Production)



4.2 Distribution System Water Losses

The City, like all water agencies, does have some water loss. In simple terms, water loss is the difference between the amount of water produced and the amount of water billed to customers. The City has been conducting annual water audits of the water distribution system since 2010 using the approach described in the AWWA Manual M36 – *Water Audits and Loss Control Programs* (American Water Works Association 2016). The purpose of the audit is to quantify the City's real losses (water physically lost from the system through leaks, breaks, theft, and other means), as well as apparent losses (water lost through meter under registration and data handling errors). In addition to conducting annual water loss audits, beginning in 2016, the City has worked with a third-party validator to complete a level 1 validation of each water audit. This ensures the data used to compile the audits are as accurate as possible and helps to identify areas where data collection and quality could be improved.

Appendix G contains the FY2016 to FY2020 reporting worksheets, and losses are summarized in Table 4. The table shows a relatively large variation in water loss from year to year between 2016 and 2020. In 2017, as a result of the water loss audit effort, the City discovered that one of its large production meters used in water loss calculations was under-registering and needed to be replaced. Three large production meters were replaced in 2018, and the City's water loss became more consistent. By comparing FY 2020 water production to water sales, annual water loss was calculated to be 10.6%. For planning purposes, the City is conservatively using an estimation of 10.3% water loss in its future demand projections based on the average of FY2019 and FY2020 system losses.

Table 4: Annual Water Loss Estimates (UWMP Table 4-4)

	2016	2017	2018	2019	2020
Losses (AF)	177	22	−234	955	1,038
Losses (percentage of potable water production)	1.9%	0.3%	−2.6%	10.0%	10.6%

In response to increased water main breaks in the late 1980s, the City Council created an annual Water Main Improvement Program and established a goal of annually replacing 1%, or approximately 3 miles, of the City's water mains. This goal was an integral part of the Water Capital Improvement Program for over 30 years. In June 2018, the City Council approved increasing the annual replacement goal to 2%, or approximately 6 miles, of the water mains. This more aggressive replacement goal targets the distribution system's cast iron mains, which were installed between 1900 and 1950, make up 44% of the City's distribution system, and have an average life span of 77 years. Doubling the replacement goal will reduce the number of water main breaks, which will reduce the City's real water losses.

To address water lost during annual maintenance activities, the City invested in a Neutral Output Discharge Elimination System (NO-DES) truck to flush water distribution pipelines. Before the NO-DES truck was in use, the City would have to perform this annual distribution system maintenance work by flushing water from fire hydrants to storm drains. With NO-DES technology, the City can now flush distribution lines by connecting two fire hydrants to a filtration truck that flushes, recirculates, and filters the water before returning it back to the distribution system.

The City has invested in multiple capital projects to manage system losses. The City launched a comprehensive Meter Replacement Program in 2014 with goals to target and replace all 1", 3/4", and 5/8" meters (approximately 25,500 meters) with Advanced Metering Infrastructure (AMI)-compatible meters. To date, this work is essentially complete, with only a handful of these smaller meters left to replace. In addition, the remaining 2,000 meters sized 1½" and larger are in the process of being replaced with AMI-compatible meters that more accurately register lower flows. Over 2,500 meters have been bench-tested to determine meter accuracy trends. The improved accuracy of the new meters has helped reduce the City's apparent losses.

In November 2018, the City Council approved an AMI pilot project. The robust customer consumption data AMI provides will help the City better manage apparent and real water losses. AMI will help identify broken or under-registering meters, which will reduce apparent losses. With AMI, the City will also be able to better monitor customer water consumption within specific areas of the system and compare that against water delivered to those areas. These kinds of analyses will help identify leaks in the distribution system and reduce real losses. The AMI cellular pilot project was launched in January 2019 for 200 meters, and the fixed-network pilot project was launched in January 2020 for 200 meters. Following the success of these two AMI pilot programs, the City has begun procurement of a citywide AMI system, which is anticipated to be fully deployed to all City water customers by spring 2023.

4.3 Projected Water Use

The following sections describe the City's projected water demand from customer sales and other water uses, including water loss. A discussion of projected water demand from low-income households also follows.

The City's demand projections were prepared during the development of its Water Conservation Strategic Plan (Conservation Plan) (Maddaus Water Management 2020). The Conservation Plan was created to accomplish the following:

- Incorporate updated historical and projected population and commercial growth rates
- Evaluate current and future conservation measures using a set of applicable criteria
- Quantify the costs and water savings of the conservation measures
- Combine the measures into increasingly aggressive programs that could be evaluated as a group

The Conservation Plan serves as a guide for the City regarding future water use efficiency and conservation investments and activities. The Conservation Plan documents the City meeting and exceeding 20% reduction goals required by SB X7-7 legislation and will start the City on a path for compliance with SB 606 and Assembly Bill (AB) 1668 by documenting water demand management measures. (SB X7-7 and SB 606 / AB 1668 are discussed further in the next section.) The Conservation Plan estimates of future water demand include assumptions that account for multiple variables. The most significant assumptions impacting future demand include the following:

- Population growth projections from the Regional Growth Forecast 2050 Santa Barbara County (Santa Barbara Couny Association of Governments 2019)
- Employment projections from California Employment Development Department for the Santa Maria–Santa Barbara Metropolitan Statistical Area
- Post-drought demand, which will rebound to 90% of 2008–2013 average demand by 2027
- Estimated water savings from the plumbing code
- The City's existing Water Conservation Program, with some additional measures
- The City's Water Supply Agreement with Montecito Water District for 1,430 AFY, starting in 2023

Development of the demand projections included consultation with the City's Community Development Department regarding development applications for known projects and build-out as projected in the 2011 General Plan. For example, the State has proposed to update its long-term housing goals, known as Regional Housing Needs Allocation, and through this effort, the California Department of Housing and Community Development will establish new, higher, short-term statewide housing goals for jurisdictions, including the City. The City is currently evaluating the potential impacts of these requirements on land use and population projections.

In November 2020, City Council adopted the 2020 Conservation Plan and its recommended conservation program, which includes an 11% reduction from the projected demand in 2015 without conservation, due to plumbing codes, and an additional 7% reduction due to proposed water use efficiency measures. Table 5 shows the actual and projected demand on the City water system at five-year intervals. These include metered sales by customer class, sales, and system losses.

Table 5: Water Demand and Total Water Use (AFY)

Use Type	2020	2025	2030	2035	2040	2045	2050
Single Family	4,043	4,429	4,584	4,460	4,395	4,351	4,321
Multi-Family	2,459	2,778	2,918	2,885	2,892	2,919	2,961
Commercial/Institutional/ Governmental	1,638	2,142	2,366	2,464	2,605	2,738	2,884
Industrial	164	228	250	259	270	283	298
Landscape	514	604	654	680	715	758	804
Sales to Other Agencies[1]	31	1,430	1,430	1,430	1,430	1,430	1,430
Losses[2]	1,042	1,058	1,174	1,178	1,191	1,210	1,235
Total Potable Water Production	**9,891**	**12,669**	**13,376**	**13,356**	**13,498**	**13,689**	**13,934**
Recycled Water	945	1,221	1,221	1,221	1,221	1,221	1,221
Total Production	**10,836**	**13,890**	**14,597**	**14,577**	**14,719**	**14,910**	**15,155**

1. Sales includes the City's Water Supply Agreement with Montecito Water District starting in January 2023 and 31 AF of limited-term sales to La Cumbre Mutual Water Company in 2020.
2. Losses includes all nonrevenue water.

4.3.1 Water Use Reduction Plan

The City has been a leader in water conservation since the late 1980s. The City's Water Conservation Program has been successful in reducing the use of potable water supplies, achieving compliance with State and federal conservation requirements, and creating a water efficiency ethic in the Santa Barbara community. The City's long-term commitment to water conservation is evident in reductions in water demand achieved over the past 30 years. Total system demand has dropped from approximately 16,600 AFY in the late 1980s to approximately 10,600 AFY in 2020 (including recycled water deliveries).

The Conservation Plan allows the City to implement water conservation measures in line with current conditions and proposed future regulations. The Conservation Plan considers best management practices consistent with best practices in the industry and the Water Conservation Act of 2009 (SB X7-7, which requires urban water agencies to collectively reduce statewide per capita water use by 20% before December 31, 2020). SB 606 and AB 1668 were enacted in 2018, following the most recent drought. These bills were intended to implement "Making Water Conservation as a California Way of Life" legislation to better prepare the State for droughts and climate change through the establishment of statewide mandates for efficient water use. This included a framework for the implementation and oversight of new standards, which must be in place by June 30, 2022. The two bills include the following:

- Establishing an indoor per-person water use goal of 55 gallons per day until 2025, 52.5 gallons from 2025 to 2030, and 50 gallons beginning in 2030

- Creating a standard for residential outdoor and dedicated irrigation meter water use based on climate and landscaped area of the urban water provider (to be determined)
- Setting a water distribution system water loss standard (to be determined)
- Requiring urban water suppliers to set annual water budgets and prepare for drought

To forecast and plan for long-term demand management reductions, the City hired Maddaus Water Management to analyze the existing conservation program and use its proprietary Demand Management Decision Support System to model current and potential water conservation measures. The model quantified the demand reduction effects of these measures, along with the effects of plumbing codes and appliance standards. As a result of the modeling efforts, Program B was selected because of its cost-effectiveness. The model results are included in the demand projections itemized in Table 5.

The analysis and results are documented in the 2020 Water Conservation Strategic Plan, which is included in Appendix H.

4.3.2 Estimating Water Savings from Codes, Ordinances, and Land Use Plans

The City's demand projections include the impact of plumbing code changes arising from the Federal Energy Policy Acts of 1992 and 2005 and State legislation relating to plumbing fixtures. Recent State legislation, such as AB 715, updated California Code of Regulations Title 20 Appliance Efficiency Regulations adopted by the California Energy Commission on September 1, 2015. This State legislation further increased the efficiency requirements for all toilets, showerheads, urinals, and faucets sold in the State. In addition, the State of California addresses plumbing fixture efficiency through building codes such as the California Green Building Standards Code (CAL Green), which first took effect in 2011. CAL Green updates every three years. The most recent version is 2019 CAL Green, which was adopted in January 2020. All of the water savings associated with these pieces of legislation are included in the water conservation and demand modeling shown in Table 5.

4.3.3 Demand Projection Uncertainties

Future demand projections naturally include several uncertainties. To better understand the scope of these uncertainties, a "demand envelope" was created, which captured a range of potential demand scenarios that account for the uncertainties with the largest potential impact to the projections.

4.3.3.1 Population Projections/General Plan Updates

The residential component of the baseline demand projection is based on population projections from the Regional Growth Forecast 2050 Santa Barbara County (Santa Barbara County Association of Governments 2019). The forecast projects 5,760 new housing units between 2017 and 2050 for an average of approximately 175 units per year. Based on the historic trends and available sites within the City, the following new additional unit mix was assumed:

- Eight single-family units/year (based on average City single-family development between 2010 and 2019)
- 109 multifamily units/year (65% of residential units that are not single family)
- 58 accessory dwelling units/year (35% of residential units that are not single family)

The State has proposed to update its long-term housing goals, known as the Regional Housing Needs Allocation. Through this effort, the California Department of Housing and Community Development will establish new, higher, short-term statewide housing goals for jurisdictions, including the City. The City is currently evaluating the potential impacts of these requirements on land use and population projections.

The City will not complete this analysis before demand projections are set for this Plan. Therefore, we have assumed a growth rate 30% higher than the baseline, equivalent to 227 units/year, and the following new additional units:

- Eight single-family units/year
- 142 multifamily units/year
- 77 accessory dwelling units/year

Land uses and growth are not expected to vary substantially since the growth rate is relatively low and there is limited space remaining for substantial growth within the City's service area.

4.3.3.2 Employment Projections

The nonresidential component of the baseline projection is based on employment projections from the California Employment Development Department. Job growth that is slower or faster than the baseline projections would reduce or increase demand projections, respectively. To account for uncertainty in the employment projections, a range of +20% to −20% growth compared with the baseline was evaluated as part of the demand envelope.

4.3.3.3 Drought Rebound

The baseline demand projection assumes that demand will return (or "rebound") to 90% of pre-drought levels (2008–2013 average) by 2027, based on reviews of several demand scenarios with City staff and considering City customers' response to previous droughts. After accounting for population and employment growth, combined with savings from conservation measures implemented since 2013, planned conservation measures (City's conservation program), and passive conservation (plumbing code enforcement), the rebound is equivalent to approximately 83% of levels prior to drought restrictions (2008–2013 average).

Permanent conservation measures, such as turf removal, may result in a lower rebound than experienced after previous droughts. Therefore, the baseline projection could be lower, but empirical data are not available to estimate this potential impact at this time. For the demand envelope, the City considered that demand will return to 80% of levels prior to drought restrictions, rather than 90%.

4.3.3.4 Climate Change

This demand projection within the demand envelope applies changes in temperature and precipitation from Cal Adapt,[5] which is based on analysis in California's Fourth Climate Change Assessment. Estimates were for the grid overlaying the City of Santa Barbara and based on specific years (2020–2050), an average of 10 climate models, and representative concentration pathway 8.5, which assumes "business as usual." Under this scenario, emissions continue to rise strongly through 2050 and plateau around 2100. This results in a projected maximum temperature increase from 70.1 degrees Fahrenheit (historical average) to 72.8 degrees Fahrenheit in 2050 and an increase in precipitation from average historical of 17.3 inches per year to 19.1 inches per year.

4.3.3.5 Uncertainties Analysis

To better understand the demand projection uncertainties, the City defined a demand projection envelope (Figure 6) by adjusting the key variables described above, including population, employment, drought rebound, and climate change. The upper bound of the drought envelope combines higher

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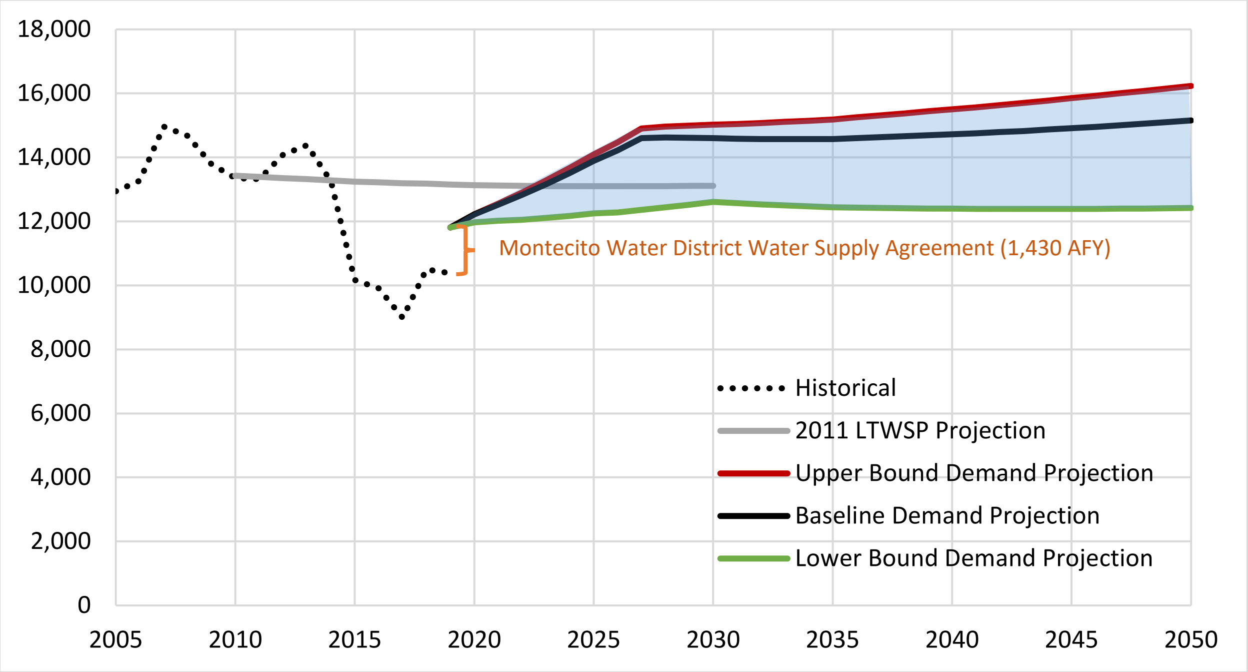
[5] Available at: https://cal-adapt.org/tools/annual-averages/

residential growth with higher job growth, and the lower bound assumes a lower drought rebound combined with slower job growth.

Figure 6. Demand Projection Envelope



Based on the City's demand envelope of potential demand uncertainties, population (residential growth) projections have a minimal impact on demand in 2050, employment (commercial, industrial, and institutional) projections have a moderate impact, and drought rebound assumptions have a large impact. The low impact from population growth assumptions is because most new residents are assumed to be housed in multifamily units or accessory dwelling units, which have a relatively low per capita water use. Employment projections have a moderate impact (roughly 6% change), since they translate to increased commercial and industrial activity, such as at hotels and restaurants, and the associated water use.

The variable with the largest demand projection impact (roughly a 13% decrease) is the water use of existing customers and the extent to which their use increases as the area emerges from recent drought conditions as a result of strong conservation messaging from media, peers, and others subsides. The assumption represents a difference of roughly 1,700 AFY by 2030 and 1,900 AFY by 2050.

The baseline demand projections in Table 5 were used in the 2021 LTWSP and 2020 Conservation Plan. The demand envelope analysis allows the City to track its demand moving forward and understand trends as they unfold within the demand envelope. The Enhanced UWMP demand projections account for existing requirements set by SB X7-7 and set up the City to comply with SB 606 and AB 1668. However, SB 606 and AB 1668 water use efficiency standards and compliance are not fully developed at this time. They will be reviewed in the 2024 UWMP Supplement and 2025 UWMP.

4.3.4 Water Use for Lower Income Households

Table 6 projects water needed to serve lower income households, which is defined as households with an income below 80% of area median income, adjusted for family size. All lower income households in the City are within the multi-family use category. The City's Community Development Department estimated the portion of multifamily unit demand that meets the "low-income" definition, based on historical information from the City's affordable housing inventory and reasonable projections for the future availability and use of housing-related subsidies and incentives. These demands are included in the overall water demand projections in Table 5.

Table 6: Existing and Projected Water Demand for Lower Income Households (AFY)

2020	2025	2030	2035	2040	2045	2050
550	653	712	729	753	782	817

4.3.5 Characteristic Five-Year Water Use

In Chapter 7, the City's supplies for the next five years are compared to its demand for the next five years as part of a five-year Drought Risk Assessment. The demand projections, shown in Table 7, are supposed to be reported without drought conditions (also known as unconstrained demand), so they do not account for potential water shortage measures that the City could enact if an extended drought emerges from recent dry water years.

Table 7: Water Demand and Total Water Use (AFY)

2020	2021	2022	2023	2024	2025
9,860	10,920	11,980	13,080	13,470	13,890

Note: The City's Water Supply Agreement for 1,430 AFY with Montecito Water District starts in January 2022, so only 715 AFY is included in FY2022, and the full 1,430 AFY is included starting in FY2023.

5 Baselines and Targets

For 2020 UWMPs, retail suppliers must demonstrate whether they have achieved the 2020 water use target as defined in the 2015 UWMP in compliance with SB X7-7, also known as the Water Conservation Act of 2009. SB X7-7 set a goal of a 20% per capita reduction in urban water use statewide by 2020. As described below, the City reduced its daily per capita water use well below its 2020 target of 117 gallons per capita per day (GPCD), with an actual unit demand in 2020 of 92 GPCD. Appendix I has the City's SB X7-7 verification forms from the City's 2015 UWMP, which show the basis for the 117 GPCD target, and Appendix J has the City's SB X7-7 Compliance Forms, which show the basis for the 92 GPCD estimate.

5.1 Service Area Population

The population was estimated using the methods described in Section 3.3 and consistent with *Methodologies for Calculating Baseline and Compliance Urban Per Capita Water Use* (DWR, February 2016). City limits represent roughly 97% of the City's total water service area, as shown in Figure 3, and the City is considered a Category 1 Supplier per the methodologies document. The majority of the water service area located outside the City's boundaries is located in Mission Canyon, a neighborhood in the unincorporated area of Santa Barbara County. Therefore, California Department of Finance population data for the City of Santa Barbara were combined with US Census population data for the Mission Canyon census-designated place to determine the population for the City's water service area. Population projections were estimated using Santa Barbara County Association of Governments *Regional Growth Forecast 2050* (Santa Barbara County Association of Governments 2019) and the *Mission Canyon Community Plan — Final EIR* (Santa Barbara County Planning and Development Department April 2014.).

5.2 Gross Water Use

Base gross water use is defined as the total volume of water, treated or untreated, entering the City's distribution system, excluding recycled water, net of the volume of water placed into long-term storage and net water conveyed to another urban water supplier. Therefore, gross water use was calculated as total water received, including local surface water and groundwater, imported State water for City use via CCWA and State water received for conveyance to LCMWC. Deducted from this are agricultural deliveries, net exports to Goleta Water District, SWP water conveyed to LCMWC and exported to long-term storage (groundwater injection and recharge). Consistent with State methodologies, calculation of gross water use includes potable water used for blending (as discussed below) and excludes the recycled water component of deliveries to recycled water customers.

5.3 Baseline Daily Per Capita Water Use

SB X7-7 allows urban water retailers to evaluate their base daily per capita water use using a 10- or 15-year period. A 15-year base period within the range January 1, 1990, to December 31, 2010, is allowed if recycled water made up 10% or more of the 2008 retail water delivery. If recycled water did not make up 10% or more of the 2008 retail water delivery, then a retailer must use a 10-year base period within the range of January 1, 1995, to December 31, 2010. Recycled water accounted for only 5.9% of the City's 2008 deliveries to customers, so Base Daily Per Capita Water Use for the City has been based on a 10-year period. The period from 2000 through 2009 with an average daily per-person water use of 130 GPCD was used to represent the Base Daily Per Capita Water Use.

In addition, urban retailers must report daily per capita water use for a five-year period within the range January 1, 2003, to December 31, 2010. This five-year base period is compared to the target base daily per capita water use to determine the minimum water use reduction requirement. The five-year period from 2006 through 2010, with an average GPCD of 135, was used.

5.4 2020 Target

In addition to calculating base gross water use, SB X7-7 requires that the City identify its demand reduction targets for 2015 and 2020 by using one of four target methodologies. The City selected Target Methodology 3 as the most feasible option to meet the Urban Water Use Target. Methodology 3 is 95% of the applicable state hydrologic region target as stated in the State's 20x2020 Water Conservation Plan (California Department of Water Resources, 2010). As shown in the City's SB X7-7 Verification Forms in Appendix I, the City's 2020 target is 117 GPCD.

5.5 2020 Target Compliance

SB X7-7 requires water suppliers to calculate their actual 2020 gross water use to determine whether they have met their 2020 target. As shown in the City's SB X7-7 Compliance Forms in Appendix J, the City's daily per capita water use was 92 GPCD in 2020.

City water customers' extraordinary conservation efforts have clearly contributed to the City's ability to meet its 2020 target. The City will continue to enact cost-effective water conservation programs to ensure it meets its 2020 water use target during normal periods, as well as during shortage conditions.

6 System Supplies

The City has worked over several decades to develop a diverse water supply portfolio, which includes the following sources:

- Cachuma Project
- Gibraltar Reservoir
- Devil's Canyon Creek
- Mission Tunnel
- State Water Project
- Groundwater
- Desalination
- Recycled Water
- Stormwater

A summary of each water source is provided in this section.

6.1 Cachuma Project

The USBR constructed Lake Cachuma and Bradbury Dam as part of the Cachuma Project in the early 1950s. Interim seismic retrofits were completed in 1996, and permanent repairs were deemed substantially complete in 2001. The federally owned and operated dam is located on the Santa Ynez River 25 miles northwest of Santa Barbara. The drainage area for the reservoir is 417 square miles (including the Gibraltar drainage area).

Lake Cachuma originally had a storage capacity of 205,000 AF at an elevation of 750.0 feet (NGVD 29 datum) in 1952. In a recent 2013 bathymetric survey (Wallace Group 2014), the current storage capacity at an elevation of 750.0 feet is 184,121 AF, indicating about 21,000 AF of storage loss due to sedimentation. Gate extensions (flashboards) on the Bradbury Dam spillway gates were installed in April 2004, which raised the maximum elevation to 753.0 feet and increased the storage to 193,305 AF. However, the additional storage is dedicated for water used for fish habitat and does not increase storage for water supply purposes.

The Cachuma Project is currently operated at a total annual supply yield of 25,714 AFY in non-drought periods for the advantage of the five water agencies benefiting from project water. These agencies — referred to collectively as the Cachuma Member Units — are the City of Santa Barbara, Carpinteria Valley Water District, Goleta Water District, Montecito Water District, and Santa Ynez River Water Conservation District, Improvement District No. 1. The City's current share of the annual yield is 32.19%, or 8,277 AFY, in normal years. Water is conveyed from Lake Cachuma through the Santa Ynez Mountains to the South

Coast via the 6.4-mile Tecolote Tunnel, through the 24.3-mile South Coast Conduit, and to three regulating reservoirs, completed in 1956.

6.1.1 Cachuma Project Master Contract

The USBR operates the Cachuma Project pursuant to a water rights permit issued by the State Water Resources Control Board (SWRCB). Project water, or that portion of the water stored in Lake Cachuma that has been allocated to Cachuma Member Units for water supply purposes, is administered via the Cachuma Master Contract between the USBR and the Santa Barbara County Water Agency. In this capacity, the Santa Barbara County Water Agency acts on behalf of the Cachuma Member Units.

The Cachuma Master Contract was last renewed in 1996 for a 25-year term. Renewal discussions started again in 2017, and USBR recently extended the contract through September 30, 2023. USBR indicated its desire to complete negotiations on a long-term contract by 2023; however, USBR has yet to schedule the start of negotiations.

6.1.2 Cachuma Project Carryover Water Storage

During recent Cachuma Master Contract extension negotiations, USBR expressed a strong desire to limit or cap the amount of carryover water Cachuma Member Units can bank in Lake Cachuma. Carryover water is annually allocated Cachuma water that has not been used by a Cachuma Member Unit in the year it was allocated. Historically, Cachuma Member Units have been allowed to bank carryover water in Lake Cachuma until the carryover water is used or until the Bradbury Dam spills, which then erases all banked carryover water. Such a substantial change would cause the Cachuma Member Units to reconsider how they manage their water supplies and would impact their ability to prepare for a drought.

It is imperative that the City preserve its ability to store carryover water in Lake Cachuma. The City should also pursue the ability to store non-project water in the lake. The lake is the City's largest storage option, and Cachuma carryover water is essential to the City's long-term water supply planning. The City's water supplies have been developed around the planned use and storage of Cachuma carryover water. Cachuma carryover water provides an incentive for community conservation, operation of desalination and recycled water systems, and the development of new supplies, such as potable reuse.

Cachuma carryover water serves as a secure drought buffer, allowing the City to best manage its other water supplies while also strategizing for times of drought. Restrictions on the volume of stored carryover water would have devastating impacts on the City's ability to meet the community's water demand. It would make Cachuma water a "use it or lose it" supply and de-incentivize water conservation and the production of both desalinated and recycled water for the City. Additionally, local, reliable supplies would need to be developed to offset the lost drought buffer provided by carryover water.

The other existing large storage options for the City are SWP water in San Luis Reservoir and groundwater storage in the City's groundwater basins, but both have smaller storage and production capacities. The ability to store non-project supplies, such as Gibraltar Reservoir pass-through water[6] (see Section 6.2),

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[6] As described further in Section 6.2, the City entered into the Upper Santa Ynez River Operations Agreement (the "Pass-Through Agreement") in 1989 with other Santa Ynez River water agencies. The City agreed to defer its planned enlargement of Gibraltar Reservoir in exchange for provisions that would allow the City to "pass through" a portion of its Gibraltar water to Lake Cachuma for storage and delivery through Cachuma Project facilities. The City is working with USBR to negotiate a "Warren Act" contract to account for the City's pass-through water.

SWP water, or other surface water conveyed to the lake, would provide the City with additional operational flexibility and cost-effective reliable supplies during drought conditions.

6.1.3 Cachuma Project State Water Rights Order

The first water right permit for the Cachuma Project was issued in 1958. On September 17, 2019, the SWRCB adopted an order for a new water rights permit for the Cachuma Project. The current permit is the culmination of nearly 20 years of legal proceedings to protect water rights holders and address long-term declines in native Southern California steelhead populations in the Lower Santa Ynez River (downstream of Bradbury Dam). The new order will result in higher downstream flows during wet years, which will reduce available storage in the Cachuma Reservoir going into normal and dry years, and reduce the supplies available to Cachuma Member Units, including the City.

6.1.4 Cachuma Project Biological Opinion

In 2000, a Biological Opinion was issued by the National Marine Fisheries Service (NMFS) for the USBR's operation and maintenance of Bradbury Dam (the Cachuma Project). NMFS is the agency that oversees protection of Southern California steelhead. The Biological Opinion addresses the effects of the proposed Cachuma Project operations on steelhead and its designated critical habitat in accordance with Section 7 of the Endangered Species Act of 1973. The USBR, with support from the Cachuma Conservation Release Board (CCRB), developed a Biological Assessment that included proposed revisions to the project operations to improve habitat conditions for steelhead trout while still maintaining water supplies. In 2014, the NMFS formally initiated a reconsultation of the Biological Opinion, for which the Biological Assessment served as a basis document. NMFS failed to complete the Biological Opinion within the allotted time and has had to start over. CCRB, of which the City is a member along with Montecito and Goleta Water Districts, is currently focused on assisting the USBR with preparing a new Biological Assessment for Lake Cachuma that is aligned with the Cachuma Project State Water Rights Order. The desired outcome is a non-jeopardy opinion for steelhead by NMFS. Similar to the State water rights decision, a revised Biological Opinion is important because it will affect Cachuma Project operations and the amount of water available for water supply purposes.

6.2 Gibraltar Reservoir

The City has pre-1914 water rights to divert water from the Santa Ynez River. Gibraltar Dam, which is City owned and operated, is located on the Santa Ynez River, about eight miles north of Santa Barbara and upstream of where Lake Cachuma was subsequently constructed. Construction of Gibraltar Dam was completed in 1920. The dam formed Gibraltar Reservoir, which had an initial storage capacity of 15,793 AF.

From the beginning, siltation in Gibraltar has been an issue, particularly following wildfires. In 1948, siltation had reduced the

Gibraltar Reservoir

reservoir's volume by about half, and the dam was raised 23 feet to its current height of 1,400 feet above sea level. Prior to the 2007 Zaca Fire, which burned 60% of the 216-square-mile Gibraltar watershed, the reservoir's volume was 6,786 AF. On top of historical siltation, the additional sediment load resulting from the 2007 Zaca Fire reduced the reservoir's storage capacity by 1,535 AF. The 2016 Rey Fire also burned within the Gibraltar watershed, which resulted in an additional loss of 303 AF. The full extent of reservoir capacity loss from the 2017 Thomas Fire is still unknown, as sediment will continue to make its way through the watershed and into the reservoir for several years. Annual bathymetric surveys performed on the reservoir since 2017 demonstrate that Gibraltar has suffered an overall reduction of 2,267 AF in storage capacity over the past three years, leaving the reservoir with a current storage capacity of 4,559 AF (MNS Engineers, Inc. 2020).

In 1989, the City entered into the Upper Santa Ynez River Operations Agreement (Pass-Through Agreement) with other Santa Ynez River water agencies. The City agreed to defer its planned enlargement of the Gibraltar Reservoir in exchange for provisions that would allow the City to "pass through" a portion of its Gibraltar water to Lake Cachuma for storage and delivery through Cachuma Project facilities. Due to the impact of the Zaca Fire on the Gibraltar Reservoir, the City elected to commence this phase of operations and is working with the USBR to negotiate a "Warren Act" contract as the preferred approach of accounting for the City's pass-through water.

To execute a Warren Act contract, the USBR must prepare an environmental assessment under the National Environmental Policy Act. The USBR released a draft environmental assessment that has gone through public review. The final environmental assessment has yet to be released by the USBR. Staff worked with the USBR in 2018 to review and negotiate draft Warren Act contract language. Staff continues to wait for a response from the USBR regarding outstanding environmental assessment issues. The pass-through operations will allow the City to maximize its Gibraltar water rights, while the reservoir continues to lose capacity from sediment settling in the reservoir.

Water from Gibraltar Reservoir is conveyed to the Cater WTP for treatment via Mission Tunnel, which is described in Section 6.4. Water quality is affected by turbidity during high-flow periods in the Santa Ynez River, which temporarily interrupts diversions. In addition, as described for Cachuma Project supplies above, the Zaca Fire (2007), Rey Fire (2016), and Thomas Fire (2017) temporarily caused increased total organic carbon loading in Gibraltar water following the wildfire events.

6.3 Devil's Canyon Creek

The City has pre-1914 water rights to divert water from Devil's Canyon Creek and maintains a small diversion works on Devil's Canyon Creek below Gibraltar Dam, which diverts water from Devil's Canyon Creek into Mission Tunnel. From 1976 to 2020, annual yield ranged from 0 AFY to 557 AFY and averaged 120 AFY. Water, when available, is diverted to help improve the quality of Gibraltar's water, as it flows into Mission Tunnel. Diverted water is counted as a part of allowable diversions under the Pass-Through Agreement.

6.4 Mission Tunnel

Mission Tunnel conveys water from Gibraltar Reservoir through the Santa Ynez Mountains to the City. The tunnel construction was originally completed in 1910, and rehabilitation work was completed in 1994. The tunnel is 3.7 miles long from the North Portal (located approximately 1,700 feet downstream of Gibraltar Dam) to the South Portal (located along Mission Creek, approximately 3 miles north of downtown Santa Barbara). Infiltration into the tunnel from watersheds on both sides of the mountains

contributes to the City's water supply. Water supplies from infiltration to Mission Tunnel have varied from a low of 500 AFY in 1951 to a high of 2,375 AFY, with an average annual yield of 1,125 AFY based on analysis in the EIR for the Cachuma Project water rights hearings (Impact Sciences, Inc., 2012).

Tunnel infiltration augments water conveyed from Gibraltar Reservoir and flows to the Cater WTP via the penstock hydroelectric facility and Lauro Reservoir. Water quality is relatively hard, as is typical of the region, but otherwise good.

6.5 State Water Project

In 1963, the Santa Barbara County Flood Control and Water Conservation District executed a water supply contract with the DWR for delivery of up to 57,700 AFY from the SWP. In 1979, a bond election for construction of in-County facilities to convey the water failed to be passed by the voters. As a result, the County sought financing through agreements with local water purveyors. The contracts with local water purveyors total 45,486 AFY.

In 1991, the CCWA was formed to construct, manage, and operate Santa Barbara County's local facilities for distribution and treatment of State water. Construction of conveyance facilities was completed in 1997, which include the 102-mile Coastal Branch of the State Aqueduct and the 42-mile Santa Ynez Extension, which ends at Lake Cachuma. From Lake Cachuma, State Water is conveyed through Tecolote Tunnel to the City's Cater WTP (similar to the Cachuma Project water).

The State Water Contract with DWR was first executed in 1963 and is currently held by Santa Barbara County. In March 2021, the Santa Barbara County Flood Control and Water Conservation District approved extension of the contract from 2035 to through 2085.

In 2017, the Santa Barbara City Council authorized amending existing agreements with CCWA to effectuate the assignment of the State Water Contract from the County to CCWA. All eight CCWA member agencies have also provided such authorization. CCWA has also received written confirmation of DWR's willingness to accept assignment of the contract to CCWA. To date, the County Flood Control and Water Conservation District has chosen not to consider contract reassignment to CCWA.

The SWP contract defines the maximum amount each project contractor is entitled to request each year, which is referred to as the "Table A" amount. The City's SWP Table A amount is 3,300 AFY, including a 10% drought buffer. The City has a share of the pipeline capacity equal to approximately that amount.

6.5.1 SWP Projections

DWR prepares a biennial report to assist SWP contractors and local planners in assessing the availability of supplies from the SWP. In August 2020, DWR issued its most recent update, the 2019 DWR State Water Project Delivery Capability Report (DCR). In this update, DWR provides SWP supply estimates for SWP contractors to use in their planning efforts, including their 2020 UWMPs. The 2019 DCR includes DWR's estimates of SWP water supply availability under both existing (2020) and future (2040) conditions.

DWR's estimates of SWP deliveries are based on a computer model that simulates monthly operations of the SWP and Central Valley Project systems. Key inputs to the model include the facilities included in the system, hydrologic inflows to the system, regulatory and operational constraints on system operations, and contractor demand for SWP water. In conducting its model studies, DWR must make assumptions regarding each of these key inputs.

For the 2019 DCR existing conditions model scenario, DWR applied the existing facilities; hydrologic inflows to the model based on 82 years of historical inflows (1922–2003); current regulatory and operational constraints, including 2018 Coordinated Operation Amendment, 2019 biological opinions, and 2020 Incidental Take Permit; and contractor demand at maximum Table A Amounts. The long-term average allocation reported in the 2019 DCR for the existing conditions study provides an appropriate estimate of the SWP water supply availability under current conditions.

To evaluate SWP supply availability under future conditions, the 2019 DCR included a model study representing hydrologic and sea-level rise conditions in 2040. The future condition study used all of the same model assumptions as the existing conditions study but reflected changes expected to occur from climate change — specifically, projected temperature and precipitation changes centered around 2035 (2020–2049) and a 45-centimeter sea-level rise. For the long-term planning purposes of this UWMP, the long-term average allocations reported for the future conditions study from 2019 DCR is the most appropriate estimate of future SWP water supply availability.

As Table 8 shows, the City assumes a straight-line reduction in long-term average allocation from 59% in 2020 to 57% in 2040, based on the 2019 DCR existing and future conditions, respectively. The straight-line reduction is extrapolated to 56% in 2050. The City has confirmed with CCWA its intent to use these estimates for future planning, except as such projections may be modified for sensitivity analysis of future water supply reliability.

Table 8: Average Table A Deliveries

Drought Condition	**2020**	**2025**	**2030**	**2035**	**2040**	**2045**	**2050**
Table A Allocation (%)	58.88%	58.35%	57.83%	57.30%	56.78%	56.26%	55.74%
Table A Yield (AF)	1,943	1,926	1,908	1,891	1,874	1,857	1,839

Note: Based on DWR's 2019 SWP DCR for Santa Barbara County, assuming a straight-line reduction in allocation from 2020 to 2040.

DWR's 2019 DCR indicates that the modeled single dry year SWP water supply allocation is 7% under existing conditions. However, historically, the lowest SWP allocation was 5% in 2014 and 2021. DWR's 2019 DCR indicates that the lowest consecutive five-year period occurred from 1988 to 1992 with an average allocation of 20% under the existing conditions. During the recent drought, Table A allocation from 2012 to 2016 averaged 37%. The available SWP supplies helped the City during the same period, when some local supplies (Cachuma and Gibraltar) were not available.

The City's SWP projections for a single dry year and multiple dry years is presented in Table 9.

Table 9: Table A Deliveries in Selected Drought Conditions

Drought Condition	Table A Allocation (%)	Table A Allocation (AF)
Single Dry Year		
2014	5.0%	165
Multiple Dry Years (1988–1992)		
Year 1 (1988)	12.3%	407
Year 2 (1989)	32.2%	1,063
Year 3 (1990)	13.3%	439
Year 4 (1991)	25.6%	844
Year 5 (1992)	18.0%	593

6.5.2 Storage and Supplemental Water Purchases

The SWP pipeline provides the City with the ability to convey supplemental water to augment drought-year supplies. During the recent drought, the City purchased supplemental water through the CCWA. A summary of recent water purchase amounts is provided in Table 10. Some of the water purchase agreements have required an exchange, which means the City must return the water, or a portion of the water, within a certain period of time. The City's current "water debt" is 2,000 AF to Antelope Valley-East Kern Water Agency. The agreement requires the water to be returned within a 10-year period. The City will be evaluating options to return the water in the future, which include delivering future Table A allocations (and increased use of other available resources in the interim) or purchasing additional water as available on the open market during wet periods when the price of water is expected to be lower and delivering the purchased water directly to agencies to whom the City owes water debt.

Table 10: Recent Supplemental Water Purchases

Seller Agency	FY14	FY15	FY16	FY17	FY18	Total	Debt[1]
Antelope Valley-East Kern Water Agency	-	4,219[2]	4,000[2]	-	-	**8,219**	2,000
Mojave Water Agency - 2014	535[3]	-	-	-	-	**535**	-
Mojave Water Agency - 2018	-	-	-	-	1,500	**1,500**	-
SWC Dry Year Program	-	85	-	-	-	**85**	-
Biggs-West Gridley WD	-	1,600	-	-	-	**1,600**	-
Vandenberg Air Force Base	-	1,148	-	-	-	**1,148**	-
City of Santa Maria	-	-	-	2,000	-	**2,000**	-
Total	**535**	**7,052**	**4,000**	**2,000**	**1,500**	**15,087**	**2,000**

1. Some water debt has been repaid.
2. 1:1 exchange in FY15 and 2:1 exchange in FY16.
3. 1:1 exchange for 267.5 AF and 1:2.25 exchange for 267.5 AF.

SWP water and supplemental water are essential during a drought, but the City's only existing option for storing SWP water is San Luis Reservoir, which is not preferable for long-term storage since the water is lost when the reservoir spills. Additionally, the use of San Luis Reservoir for carryover storage will be severely limited if the Delta Conveyance Project is implemented because of new operating regimes.

SWP water is prohibited from being stored in Lake Cachuma for more than 30 days under normal circumstances. (The USBR granted temporary suspension of this rule during the recent drought in response to unprecedented meager water allocations and low lake levels.) Long-term reliability of SWP water continues to decline, especially in drought years. CCWA is currently conducting a study that will better define the City's options for optimizing SWP utility and reliability. In 2021, the City plans to continue to work with CCWA to identify the City's preferred method for increasing the certainty of SWP water and supplemental water during extended drought conditions, such as groundwater banking.

6.6 Cater Water Treatment Plant

The City treats water from Lake Cachuma, Gibraltar Reservoir, Devil's Canyon Creek, Mission Tunnel, and the SWP at the City's regional Cater WTP, which has a capacity of 37 million gallons per day (MGD). Cater WTP provides treated water to City customers and treated Lake Cachuma and SWP water allocated to Montecito Water District and Carpinteria Valley Water District.

The water treated at Cater WTP first passes through Lauro Reservoir, which is operated by the City. Water from Lake Cachuma via the Tecolote Tunnel, including SWP water, and water from Gibraltar Reservoir, Devil's Canyon Creek, and Mission Tunnel mixes in Lauro Reservoir prior to treatment. Water from Gibraltar Reservoir, Devil's Canyon Creek, and Mission Tunnel passes through the Gibraltar Hydroelectric Facility prior to entering Lauro Reservoir. In normal precipitation years when Gibraltar Reservoir is full, power generated at the hydroelectric facility can offset 100% of Cater WTP's electricity needs.

6.6.1 Water Quality

Lake Cachuma and Gibraltar Reservoir historically have had good water quality for drinking water purposes. However, the Zaca Fire (2007), White Fire (2013), Rey Fire (2016), Whittier Fire (2017), and Thomas Fire (2017) have collectively burned significant portions of the Gibraltar and Cachuma watersheds. These fires caused short-term impacts to water quality with increased total organic carbon levels in Lake Cachuma and even more so in Gibraltar Reservoir. The long-term impacts of the fires can potentially have a permanent impact on surface water quality and accelerate ongoing sedimentation in the reservoirs, reducing storage capacity.

Following the Zaca Fire and stricter regulations on disinfectant by-products in the distribution system, the City installed an ozone pre-treatment system at Cater WTP in addition to its chlorine-based disinfection to address the temporary increase in total organic carbon in Gibraltar Reservoir's surface water.

COMB recently developed a Lake Cachuma Water Quality and Sediment Management Study in conjunction with agencies that manage, operate, and use the lake and its watershed for drinking water purposes, including the City. The study evaluated management actions, such as sampling, data collection and management, in-lake treatment and monitoring, erosion control, and watershed management for drinking water reservoirs. Some of the lessons learned from the study, such as enhanced data collection and management strategies and real-time nutrient monitoring, could be applied at Gibraltar Reservoir.

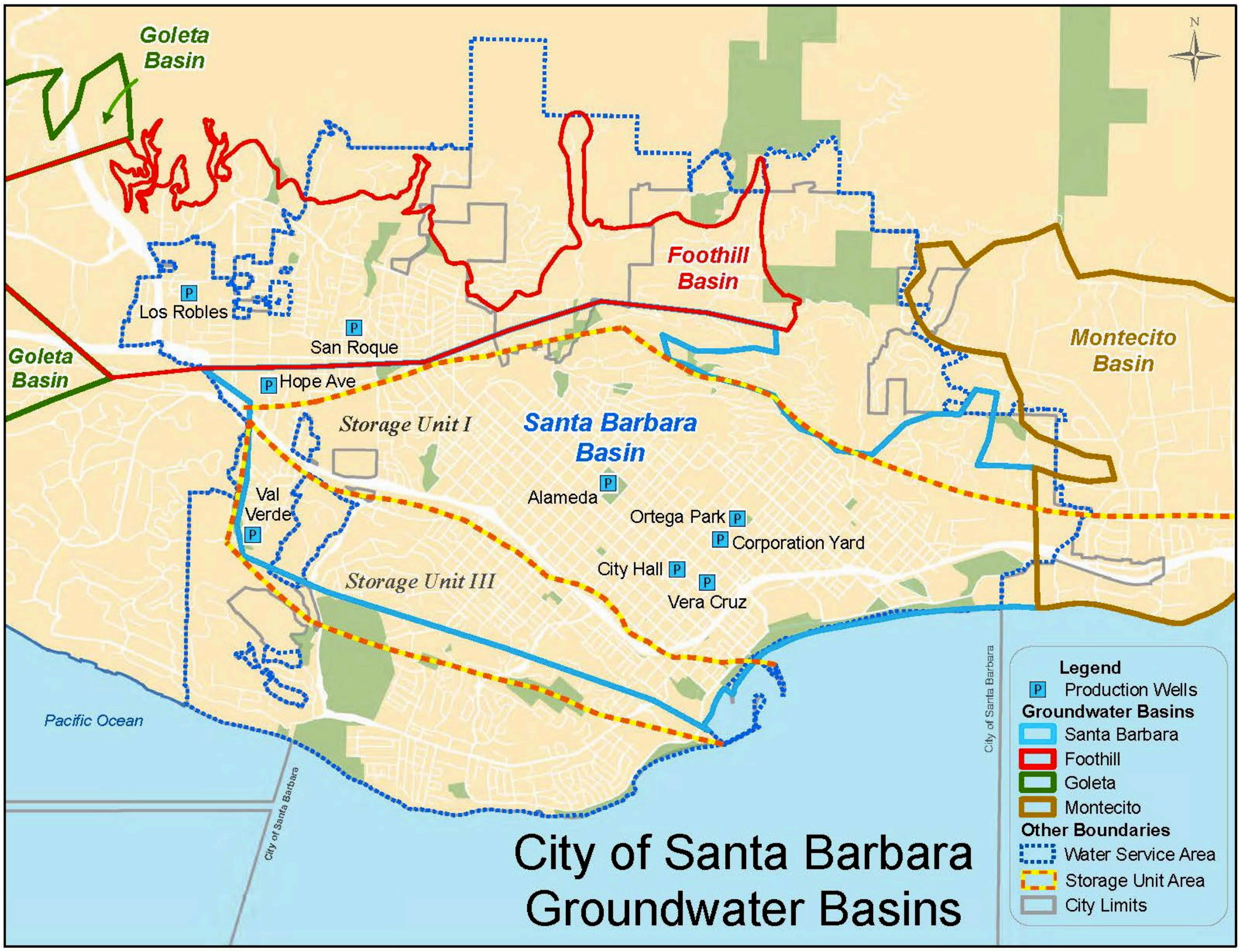
6.7 Groundwater

The City obtains pumped groundwater from three hydrogeologic basins: Foothill Basin, Storage Unit I, and Storage Unit III (**Figure 7**).

Generally, under a conjunctive management program, the City increases pumping of groundwater during periods of drought or emergency to replace diminished surface water supplies. During normal to wet years when surface water is available, pumping from the groundwater basins is decreased, and the basins are allowed to recharge. Natural recharge can be augmented by injecting treated surface water. A primary goal is to use the sustainable yield of the groundwater basins while maximizing available storage for use during extended drought conditions.

This section provides a description of each basin, along with the City's groundwater management strategies.

Figure 7: Groundwater Basins and Well Locations



6.7.1 Basin Descriptions

6.7.1.1 Foothill Basin

The Foothill Basin, referred to as Basin No. 3-53 in DWR Bulletin 118, is an approximately 4.5-square-mile groundwater basin bounded by tertiary sedimentary rocks of the Santa Ynez Mountains to the north and northeast; the Goleta fault to the northwest; the Modoc, More Ranch, and Mesa faults to the southwest; and the Mission Ridge fault to the southeast. The lower boundary of the basin was formed by tertiary sedimentary rock. The principal aquifer of the basin is the Santa Barbara Formation. This formation is primarily composed of marine sand, silt, and clay and has a maximum thickness of approximately 400 feet. The entirety of the formation is overlain by alluvium, except where it crops out south of the Goleta fault (Freckleton 1989).

Water quality in the Foothill Basin is relatively good, and only wellhead disinfection is required. The primary pumpers of the basin include the City, which operates three municipal production wells in the basin, and LCMWC, which pumps up to 300 AFY. There are some private pumpers in the basin as well — their pumping is estimated to be about 150 AFY (Freckleton 1989).

The United States Geological Survey (USGS) developed a three-dimensional finite-difference model for the Foothill Basin in 1989 (Freckleton 1989). The calibrated model estimated recharge was determined to be 905 AFY (438 AFY from stream recharge and 367 AFY from aerial recharge). The production from other pumpers in the basin was approximately 450 AFY, leaving about 450 AFY for the City. It is important to note that the 1989 USGS study does not define “perennial yield” and that the use of this term was interpreted as the model estimated recharge to the Foothill Basin in the 2015 UWMP. The 1989 study noted significant limitations to the finite difference model, including imprecise conceptualization of the natural system, lack of precise data on pumping, recharge water levels, and aquifer hydraulic characteristics.

The USGS has since improved understanding of the Santa Barbara and Foothill Basins and developed a calibrated three-dimensional density-dependent groundwater flow-and-solute transport model that was documented in *USGS Scientific Investigations Report 2018–5059: Santa Barbara and Foothill groundwater basins Geohydrology and optimal water resources management — Developed using density dependent solute transport and optimization models* (Nishikawa 2018). In the 2018 report, the USGS defined sustainable yield as the volume of groundwater that can be pumped from storage without causing water-level drawdowns at selected wells. However, the USGS does not identify a sustainable yield for the Foothill Basin. As a result, the City is working with the USGS to develop an updated value and, as discussed in Section 6.6.4, plans to update the estimates.

As part of the 2018 USGS study, the USGS developed a multi-objective simulation-optimization model to derive optimal management strategies and estimate the maximum pumping rates. Groundwater modeling analyses performed in the USGS study estimated that the drought yield available to the City from Foothill Basin groundwater storage is 8,100 AF over a 10-year period (Nishikawa 2018).

6.7.1.2 Storage Unit I

Storage Unit I and Storage Unit III (discussed subsequently) are recognized collectively by DWR as the Santa Barbara Basin (and are labeled Basin No. 3-17 in DWR’s Bulletin 118). Storage Unit I underlies downtown Santa Barbara and covers approximately seven square miles. It is bounded to the northwest by the Mission Ridge fault; to the northeast by the Santa Ynez foothills at the Sycamore and Lagoon faults; to the southeast by the Mesa fault; to the east by the Montecito Groundwater Basin; and to the southeast by the Pacific Ocean (Martin 1984).

The unconsolidated deposits range in thickness from less than 200 feet to more than 1,000 feet and have been divided into five zones, including the shallow zone, the upper producing zone, the middle zone, the lower producing zone, and the deep zone. The upper producing and lower producing zones are the main water-producing zones of the basin, with the lower producing zone being the major source of groundwater for wells located within the basin (Martin 1984).

Groundwater at most of the City’s production wells in Storage Unit I requires treatment at the Ortega Groundwater Treatment Plant prior to use as potable water. The Ortega Groundwater Treatment Plant treats naturally occurring constituents, primarily sulfides, iron, and manganese. The City is the only known major pumper in this basin, operating five municipal wells. The Ortega Park Well was the sixth operational well, but it has been abandoned because of poor production. At some point in the future, the City may choose to drill a replacement well in the vicinity of the abandoned Ortega Park Well. The average annual sustainable yield for Storage Unit I is estimated to be 1,850 AFY (Muir 1968).

As with the Foothill Basin, the City increases pumping from Storage Unit I during periods of drought or emergency to replace diminished surface water supplies. During normal to wet years when surface water is available, pumping from the groundwater basins is decreased, and the basins are allowed to recharge. Natural recharge can be augmented by injecting treated surface water at the San Roque, Alameda, and High School Wells in Storage Unit I. A primary goal is to attempt to use the sustainable yield of the groundwater basins while maximizing available storage for backup during drought.

Seawater intrusion into Storage Unit I is a key concern because the groundwater basin is in contact with seawater from the Pacific Ocean that can flow into the basin during periods of heavy pumping. Under normal periods of little or no pumping, the groundwater flow is toward the ocean, which stops intrusion and pushes the seawater interface seaward.

The City works with the USGS regularly to monitor the groundwater quality of Storage Unit I as indicated by measured chloride concentrations. Four of six groundwater monitoring wells located between the ocean and the municipal supply wells have shown chloride levels greater than 1,000 milligrams/liter. This is indicative that seawater contamination is linked to heavy pumping in the basin, although no significant degradation of municipal production wells has occurred.

Along with the Foothill Basin, the USGS developed a multi-objective simulation-optimization model to estimate pumping levels during a critical drought period that represent a compromise between maximizing production and minimizing seawater intrusion in Storage Unit I. The model estimated a drought yield available to the City from Storage Unit I groundwater storage of roughly 16,100 AF over a 10-year period, depending on level of seawater intrusion that is allowed into the basin (Nishikawa 2018).

6.7.1.3 Storage Unit III

As noted above, Storage Unit I and Storage Unit III are recognized collectively by DWR as the Santa Barbara Basin (No. 3-17 in DWR's Bulletin 118). Storage Unit III lies to the southwest of Storage Unit I and covers an area of about 2.5 square miles. Its geology is quite similar to Storage Unit I although it is much smaller. The basin is bounded to the north by the Mesa fault, to the west by an unnamed fault, to the south by the Lavigia fault, and to the east by an offshore fault. Like Storage Unit I, Storage Unit III consists of five zones. The major source of water to wells in this unit is the lower producing zone, which ranges from 100 to 140 feet thick (Freckleton, Martin and Nishikawa 1998).

Groundwater quality in the basin is quite poor. The City operates one municipal well in the basin, the Valle Verde well, that is not treated to potable standards and is instead used to supplement the City's recycled water distribution system on an as-needed basis.

The average annual yield is approximately 200 AFY (Freckleton, Martin and Nishikawa 1998). Assuming approximately 100 AFY of pumping by other private wells, the yield available to the City is 100 AFY.

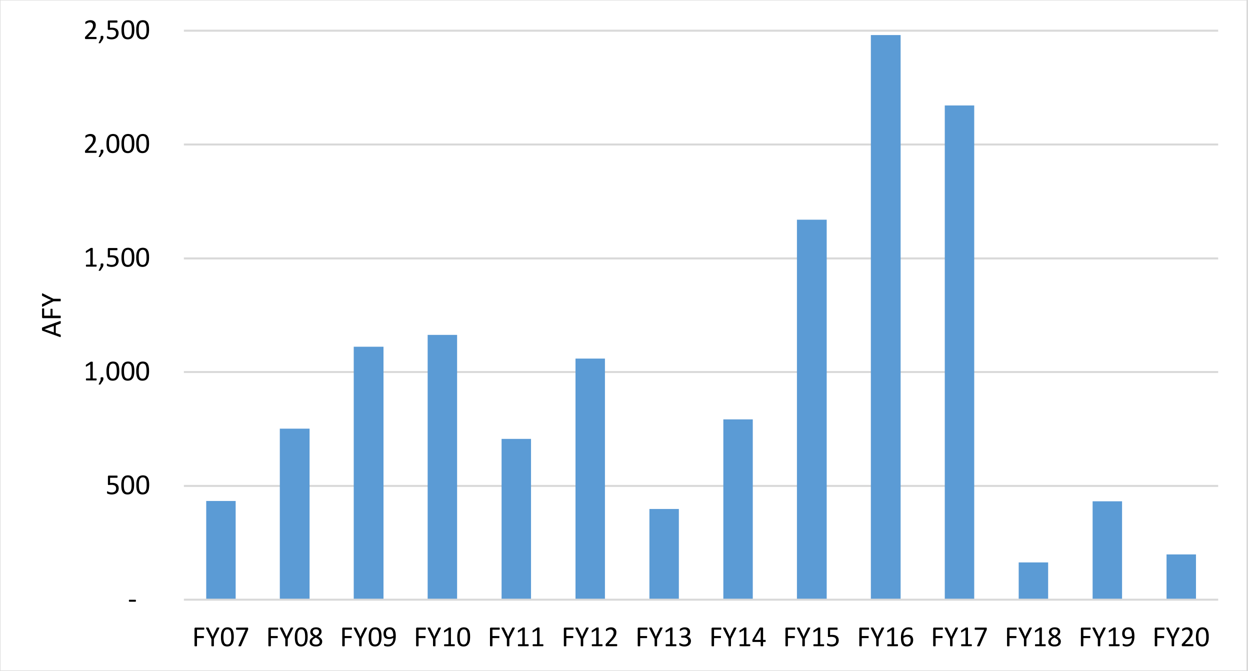
6.7.2 Historical Pumping

Recent pumping by the City, shown in Table 11, is based on volumetric meter data. As shown in Figure 8, the City substantially increased groundwater pumping during the recent drought and has substantially reduced groundwater pumping starting in FY18 to allow the basins time to recover.

Table 11: Groundwater Pumped by Fiscal Year (UWMP Table 6-1)

Basin	FY16	FY17	FY18	FY19	FY20
Foothill Basin	1,901	1,544	164	432	199
Storage Unit I	580	628	-	-	-
Storage Unit III	61	14	-	26	-
Total	**2,542**	**2,186**	**164**	**458**	**199**

Figure 8. Recent Groundwater Pumping



Based on the City's water level and water quality monitoring, groundwater modeling estimates of available yield, and historical pumping records, the groundwater basins are in long-term balance. Also, as discussed in the next section, the City is considering preparing an annual report that describes the current conditions in the basin through a series of maps, charts, and tables.

6.7.3 Groundwater Management

The City, in partnership with the USGS, has been the lead water agency studying the basin through data collection and groundwater modeling for decades. The City has implemented several groundwater management actions. In addition to water conservation and use of alternative supplies (described in other sections), the City has implemented the following groundwater management actions:

- Groundwater level and water quality monitoring

- Metering and measuring of groundwater pumping
- Groundwater well permitting
- Groundwater modeling to estimate sustainable yield
- Recharge and Conjunctive Use Programs

The City's groundwater basins were rated "very low" priority based on the prioritization analysis by DWR following passage of the Sustainable Groundwater Management Act (SGMA) in 2014. The SGMA requires governments and water agencies within "high" and "medium" priority basins to form Groundwater Sustainability Agencies (GSAs) and develop and implement a Groundwater Sustainability Plan (GSP) to bring groundwater basins into balance within 20 years of implementing their sustainability plans. The City is not required to form a GSA or prepare a GSP because of the very low priority assigned to local groundwater basins, but, as discussed in Section 6.7.4.2, the City is considering preparing a GSP or an equivalent GSP to facilitate groundwater management.

6.7.3.1 Groundwater Level and Water Quality Monitoring

In partnership with the USGS, the City has been collecting groundwater monitoring data for several decades. Water level and water quality data are collected at over 60 monitoring wells that are owned and maintained by the City. All data collected, along with maps of monitoring well locations, are available on USGS's website[7]. In addition, the City monitors and reports groundwater levels under the California Statewide Elevation Monitoring program.

6.7.3.2 Metering and Measuring of Groundwater Pumping

Pumping from all of the City's groundwater production wells is metered and measured, and the City obtains pumping information from LCMWC, the other major pumper in the Foothill Basin. In addition, the City's Municipal Code Chapter 14.32.040 prohibits the construction of new wells in the City's service area unless the parcel cannot be feasibly served by the City's distribution system, and Chapters 14.32.050 and 14.32.055 require that any new private wells that are constructed have metering capabilities and that measured pumping is reported.

6.7.3.3 Groundwater Well Permitting

The City administers permitting of all new groundwater wells within the City boundaries, and groundwater wells are subject to requirements in the City's Municipal Code Chapter 14.32. Groundwater well permits for wells within the Foothill Basin but outside of City boundaries are administered by the County of Santa Barbara. The City is working to update a comprehensive database of groundwater wells within the basins.

6.7.3.4 Groundwater Modeling

The City has a longstanding partnership with the USGS to study and evaluate its groundwater basins. The USGS recently updated and calibrated a three-dimensional density-dependent groundwater flow-and-solute transport model for the City's groundwater basins (Nishikawa 2018). As part of the 2018 study, the USGS developed a multi-objective simulation-optimization model to derive optimal management strategies and estimate the maximum pumping rates. The City would like to complete additional model scenarios to optimize its use of the groundwater basins, including defining drought storage volumes and sustainable yield.

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[7] https://maps.waterdata.usgs.gov/mapper/index.html

6.7.3.5 Recharge and Conjunctive Use Programs

The City uses groundwater basins conjunctively with surface water supplies. Increased pumping occurs during droughts and emergencies when surface water is diminished, and decreased pumping occurs in normal to wet years to allow groundwater storage to be replenished. To augment natural recharge, the City has three wells with injection capability for artificial replenishment using treated surface water. The City's average planned pumping is 950 AFY, compared to an average perennial yield of 1,250 AFY available to the City.

6.7.4 Optimized Groundwater Management Recommendations

The 2021 LTWSP included recommendations for optimized management of the City's groundwater basins, as described below.

6.7.4.1 Updated Sustainable Yield Estimates

The City plans to work with the USGS to develop an estimate of sustainable yield and drought storage to help the City sustainably produce groundwater from the Foothill and Storage Unit I Basins. A sustainable yield estimate would allow the City to operate the basin suitably during a representative hydrologic cycle, which includes extended droughts and wet periods.

6.7.4.2 Annual Groundwater Report

The City plans to prepare a short annual report that describes the current conditions in the basin through a series of maps, charts, and tables. After completing its first annual groundwater report, the City will consider whether to prepare a GSP in compliance with the SGMA or an equivalent GSP that meets the City's needs but is outside of SGMA compliance and reporting.

6.8 Wastewater and Recycled Water

This section presents both recycled water supplies and uses, combining aspects of both Chapter 4 (System Water Uses) and Chapter 6 (System Supplies). Refer to DWR's UWMP Standardized Tables, Tables 6-2 through 6-6 in Appendix B. A map of the existing recycled water system is presented in Figure 9.

6.8.1 Recycled Water Coordination

The following agencies are responsible for collecting, treating, or discharging municipal wastewater within the City of Santa Barbara's water service area:

- City of Santa Barbara: The City is responsible for collection, treatment, and discharge of municipal wastewater for the vast majority of wastewater created within City limits and portions of the County. The City owns and operates the El Estero WRC and produces recycled water to supply the City's existing recycled water distribution system.
- Mission Canyon Sewer District: This district is responsible for collection of wastewater in a portion of the Mission Canyon area of the County that is located outside City limits but within the City's water service area. Wastewater collected by the Mission Canyon Sewer District is conveyed through the City's wastewater collection system to the City's El Estero WRC for treatment.
- Goleta Sanitary District: This district is responsible for collection, treatment, and discharge of wastewater for a limited number of parcels on the western edge of the City. Goleta Sanitary District owns and operates its own wastewater treatment plant, which also produces recycled water.

Figure 9: Recycled Water System

6.8.2 Wastewater Collection, Treatment, and Disposal

The City operates a wastewater collection system consisting of 256 miles of sewer pipe and seven lift stations. The City also owns and operates a treatment plant, El Estero WRC, which has a design capacity of 11 MGD and a long-term average flow of 6.0 MGD. The treatment process at the City's El Estero WRC includes secondary treatment for all wastewater collected and tertiary treatment for the City's recycled water system. Secondary effluent that does not go through the tertiary treatment process is discharged into the Pacific Ocean.

6.8.3 Recycled Water System Description

The City initiated planning for a recycled water project in the early 1980s. Phase I was completed at El Estero WRC in 1989. It included a tertiary treatment plant with carbon filtration and disinfection, a 600,000-gallon distribution reservoir and pumping station, and 5.1 miles of distribution main. Phase II was completed in 1992, which added an additional pumping station, a 1.5- million-gallon reservoir at the Santa Barbara Golf Club, and 8.3 miles of distribution main. In 2015, the City completed upgrades to its tertiary treatment plant to include an ultrafiltration treatment process.

Under normal conditions, the existing recycled water customer demand is approximately 700 AFY plus approximately 300 AFY of process water for use at El Estero WRC. The system provides recycled water to 97 accounts that serve parks, schools, golf courses, and other large landscapes. A limited number of public restrooms have been retrofitted to use recycled water for toilet flushing. Recycled water is provided at 80% of the potable water irrigation rate as an incentive for using recycled water and to compensate for additional irrigation requirements associated with salt leaching. Monitoring of salt levels in the soil was conducted twice per year from 1993 through 2003. There was no indication of long-term buildup of soil salt.

Recycled Water Treatment Facility

6.8.4 Actions to Encourage and Optimize Future Recycled Water Use

The City has taken action to expand and optimize recycled water through non-potable water use. Additionally, the City completed the *Potable Reuse Feasibility Study* in 2017 (Carollo 2017).

6.8.4.1 Non-Potable Reuse

The City completed the *2009 Water Supply Planning Study* (Carollo Engineers 2009), which included a recycled water market assessment and analysis of potential pipeline extensions of the City's recycled water distribution system. Based on the 2009 study, optimization of recycled water use for non-potable demand has been mostly accomplished with the completion of Phase II. Distribution pipelines have been constructed for all cost-effective areas, and most of the potential user sites are now connected.

The 2009 study identified 320 AFY of potential new demand through the conversion of additional potable water use at existing recycled user sites, the addition of new recycled water users along the existing distribution system, and some limited expansion of the distribution system. New development in proximity to the recycled water main is required to use recycled water for landscape irrigation. Since 2009, the City has added seven new customers having demands of roughly 100 AFY. The City plans to commence an updated recycled water market assessment in 2021 to identify remaining cost-effective system expansions. The new study will consider updated demand information, system expansion costs, and potential conversion of a portion of the recycled water system to support potable reuse in the future (as discussed in the section below).

6.8.4.2 Potable Reuse

Potable reuse refers to advanced treatment (purification) of recycled water for drinking water purposes. The City completed the *Potable Reuse Feasibility Study* (Carollo 2017) that evaluated three types of potable reuse:

- Groundwater augmentation: This entails injecting advanced treated water into local groundwater basins. For the City, injection into the Foothill Basin and Storage Unit I was evaluated.
- Raw water augmentation: This entails delivering advanced treated water into the raw surface water supply upstream of a drinking water treatment facility. For the City, delivery to Lauro Reservoir for blending with surface water from Lake Cachuma and Gibraltar Reservoir prior to treatment at Cater WTP was evaluated.
- Treated drinking water augmentation: This entails producing finished drinking water from an advanced water treatment facility that is permitted as a drinking water treatment facility and directly supplying it to a potable water distribution system. For the City, treating advanced treated water at a new WTP located at the existing desalination facility and delivering to the distribution system was evaluated.

Raw water augmentation was selected for incorporation into the 2021 LTWSP water portfolios analysis because it is the City's best potable reuse opportunity. In comparison, the City has limited groundwater augmentation opportunities, and developing treatment and monitoring assumptions for treated drinking water augmentation was too speculative without a more developed regulatory framework. Regulations are currently not in place for raw water augmentation or treated drinking water augmentation, but the smaller range of assumptions for raw water augmentation within the proposed regulatory framework allows for more confident planning. '

The 2021 LTWSP recommended that, once raw water augmentation regulations are issued by the State and once the City has a need for a new supply, the City should revisit the project definition assumptions from the *Potable Reuse Feasibility Study* and cost estimates developed for the LTWSP. Because of uncertainty with future regulations, both documents relied on many assumptions that should be revisited once regulations are in place. The City can then update its future supply comparison with desalination, recycled water, and conservation measures.

Also, as noted in the non-potable reuse section, most of the existing recycled water system would be used to deliver potable reuse water to Lauro Reservoir for treatment and distribution, so developing potable reuse as a new supply would render much of the current non-potable recycled water system obsolete.

6.9 Desalinated Water

The City constructed the Charles E. Meyer desalination facility, a reverse osmosis seawater desalination facility, as an emergency water supply during the drought of 1987–1992. After the drought ended and surface water was available to meet demand, the facility was put in long-term storage mode to reduce maintenance costs. The City has maintained permits to provide for a desalination supply of up to 10,000 AFY. The facility was reactivated during the recent drought and started producing potable water in May 2017, with a capacity to produce 3,125 AFY.

The reactivated facility uses 30% less energy than the original design, greatly reducing its electricity demand and carbon footprint. In addition, the plant uses existing ocean intake pipes, which are equipped with wedge-wire screens and recognized by the SWRCB as a best available technology for screened open ocean intakes. The screens are made of durable copper/nickel alloy and have one-millimeter openings to minimize marine life entrainment and impingement.


Charles E. Meyer Desalination Facility

The City initiated desalination operations as a drought and emergency supply, although it is permitted under various operating scenarios. In February 2021, the City Council adopted a policy recommendation from the 2021 LTWSP to operate ocean desalination as part of Santa Barbara's water supply portfolio to support drought preparedness, response, and recovery. Under this policy, the desalination plant will operate at its current capacity (3,125 AFY) to protect and optimize the City's other water supplies and to enhance the City's ability to prepare for and respond to future drought conditions. The 2021 LTWSP Adaptive Management Plan does allow the Water Resources Manager to put the desalination plant in standby mode when water supply conditions warrant it. The LTWSP also provides some suggested water reserve thresholds to assist the Water Resources Manager in making such a decision.

In addition, the 2021 LTWSP identified expansion of the desalination plant to 5,000 AFY as the City's best-performing next new supply based on the future water supply portfolio evaluation that used a triple-bottom-line analytical approach for considering economic, social, and environmental impacts and benefits. The expansion would only be needed if certain increased demand or decreased supply thresholds occur in the future, as outlined in the 2021 LTWSP Adaptive Management Plan. The 2021 LTWSP also recommended that the City should revisit the project definition assumptions from the *Potable Reuse Feasibility Study* and cost estimates developed for the LTWSP once raw water augmentation regulations are issued by the State and once the City has a need for a new supply.

6.10 Urban Stormwater Management

The City is active in stormwater management through programs run by the Creeks Division of the City's Parks and Recreation Department. The Creeks Division administers the City's Stormwater Management Program pursuant to the federal Clean Water Act's National Pollutant Discharge Elimination System Phase II regulations, which govern stormwater discharges. The program identifies, promotes, and/or enforces, as applicable, BMPs for minimizing urban runoff to the ocean and local creeks. These include:

- Required design elements for promoting storm drain infiltration in lieu of runoff to the stormwater system on any significant new development projects
- A series of BMPs for use during all construction activities for capturing runoff and sediment
- Various educational efforts to encourage voluntary actions to minimize stormwater runoff

In the City, the beneficial effects of stormwater management relate mostly to improved quality of stormwater runoff and some augmentation of groundwater in the shallow groundwater zones, which in turn may augment creek flows, thereby supporting habitat. Groundwater that is part of the City's urban water supply comes from deeper water-producing zones, which in most areas are separated from the shallow zone by a low permeability layer. Because of the hydrogeology of the City's groundwater basins, there are very few areas where stormwater augmentation has the potential for reaching the deeper producing zones. Some exceptions occur in areas adjacent to creeks that are geologically connected to the lower zones that support the City's water supply, though these areas are limited.

To the extent that captured rainwater is diverted for landscape irrigation use, such as through use of rain barrels and rain gardens on private property, it can offset the use of the City water supplies and help preserve potable resources. However, the amount of rainwater captured and used on private property is difficult to quantify and is not a water supply managed by the City. Because of its potential to reduce demand and preserve the City's potable water supply, the City's Water Resources Division promotes such measures when deemed feasible by its customers.

6.10.1 Graywater

Graywater is wastewater that originates from household fixtures such as showers, bathtubs, clothes-washing machines, and bathroom sinks; it excludes wastewater from toilets, dishwashers, and kitchen sinks. Graywater is generated onsite and reused for other purposes such as landscape irrigation or disposal fields. It is important not to mistake graywater for recycled water, which is subject to monitored treatment and purification to make it suitable for a range of beneficial uses.

The California Plumbing Code has requirements for graywater, which are enforced by the City's Building and Safety Division of the Community Development Department. The current regulations allow for the following types of graywater systems:

- <u>Laundry to Landscape system</u>: uses only a single domestic clothes-washing machine in a one- or two-family dwelling
- <u>Simple system</u>: discharges 250 gallons or less per day and serves a one- or two-family dwelling
- <u>Complex system</u>: discharges over 250 gallons per day

Simple systems, such as 'Laundry to Landscape', do not require a building permit approved through the City's Building and Safety Division; however, complex systems do require building permits.

To the extent that graywater is diverted and reused for landscape irrigation, it can offset the use of the City water supplies and help preserve potable resources. However, the amount of graywater captured and used on private property is difficult to quantify and is not a water supply managed by the City. Because of its potential to reduce demand and preserve the City's potable water supply, the City's Water Resources Division promotes such measures as determined feasible by its customers.

6.10.2 Rainwater and Graywater Activities within Water Conservation Program

The City's Water Conservation Program supports and incentivizes onsite water capture and reuse through various rainwater and graywater programs available to water customers and landscape professionals:

- Offers rebates on Laundry to Landscape graywater materials through the Smart Landscape Rebate Program (discontinued in 2020)
- Offers rebates on mulch for rain gardens
- Sponsors free hands-on workshops for homeowners and professionals to install graywater systems, passive rainwater catchment, and rain cisterns
- Sponsors bilingual Graywater 101 and Rainwater 101 classes for community members to get an overview of design options, materials needed, and helpful resources
- Sponsors Water Wise Walking Tours in partnership with Sweetwater Collaborative to tour homes and gardens with onsite water reuse systems to learn how they were installed and maintained
- Develops the Water Wise Home Demonstration Garden in partnership with the Santa Barbara Botanic Garden to showcase graywater, passive rainwater collection, and active rainwater collection
- Sponsors the Watershed Wise Landscape Professional Certification Training, a US Environmental Protection Agency WaterSense certified program to certify landscape professionals in site evaluation, rain garden installation, efficient irrigation, and maintenance

Due to COVID-19 restrictions in 2020, tours were placed on hold and workshops were conducted virtually. More information on all programs can be found at www.SantaBarbaraCA.gov/Graywater.

6.11 Future Water Projects

Other future projects, in accordance with the City's LTWSP, are listed in DWR's UWMP Standardized Tables, Table 6-7 (Appendix B) and summarized below:

- Water Conservation Program: The City will implement the recommended conservation program from the City's Water Conservation Strategic Plan (Maddaus Water Management 2020), which estimates 1,740 AF of passive conservation (e.g., plumbing code implementation) savings by 2050 and 880 AF of active conservation savings by 2050. Additionally, demand trends will be monitored for indications that customers are returning to pre-drought water use levels.
- Cachuma Project Carryover Storage: The 2021 LTWSP recommended that the City preserve the ability to store carryover water in Lake Cachuma and pursue the ability to store non-project water in the lake. The lake is the City's largest storage option, and Lake Cachuma carryover water is essential to the City's long-term water supply planning. The City's water supplies have been developed around the planned use and storage of Lake Cachuma carryover water, which provides an incentive for community conservation and production of desalination and recycled water. Lake Cachuma carryover water plays a critical role in providing a secure drought buffer around which the City can plan its water supplies. Restrictions on the volume of carryover water would have devastating impacts on the City's ability to meet the community's water demand in addition to making water in Lake Cachuma a "use it or lose it" supply.
- Gibraltar Reservoir Pass-Through Operations: The 2021 LTWSP recommended that the City obtain a Warren Act contract from the USBR to store Gibraltar Reservoir water in Lake Cachuma to offset diminished Gibraltar Reservoir supplies resulting from continued sedimentation in the reservoir. Such a Warren Act contract is stipulated in the Upper Santa Ynez River Operations Agreement (Pass-Through Agreement). The benefits are primarily for non-drought periods when Gibraltar Reservoir is spilling. However, pass-through water would enable the City to better manage the use of its other supplies and prepare for a drought. The City should also consider preparing a feasibility study to evaluate the viability of slant wells or horizontal directional drilled wells into the historic gravel bed below Gibraltar Reservoir to secure more stable diversions from Gibraltar.
- Optimized Groundwater Management: The 2021 LTWSP recommended that the City should work with the USGS to update the City's sustainable yield estimate and drought storage estimate from the Foothill Basin and Storage Unit 1. Additionally, the City should prepare an annual report on the current basin conditions to inform annual water supply planning efforts. The City should also consider creating a GSP in accordance with the SGMA or an equivalent GSP that meets the City's needs but is outside of SGMA compliance and reporting requirements.
- Increased SWP Delivery Reliability: The 2021 LTWSP did not make specific recommendations for long-term storage of SWP water or supplemental water purchases because CCWA is currently conducting a broader regional study that will better define the City's options. The City should work with CCWA to identify a preferred method for increasing certainty of SWP water or supplemental water availability during extended drought conditions — whether via groundwater banking or long-term water purchase agreements. This effort could also identify the potential to sell SWP water supplies on an annual basis when unneeded for City use in that year or for future drought-year supplies.
- Non-Potable Recycled Water Expansion: The 2021 LTWSP recommended that the City update the recycled water market assessment documented in the 2009 Water Supply Planning Study (Carollo Engineers 2009), and prepare updated cost estimates to expand the recycled water system. Up to 220 AFY of non-potable water demand potentially could be delivered cost-effectively, offsetting potable water demand depending on the water market and cost updates. The water market assessment will also consider the future implementation of potable reuse. Developing potable reuse as a new supply could render recycled water obsolete since much of the existing recycled

water distribution system would be used to deliver potable reuse water to Lauro Reservoir for treatment and distribution.

- Potable Reuse: The 2021 LTWSP recommended that, once raw water augmentation regulations are issued by the State and once the City needs a new supply, the City should revisit the project definition assumptions from the 2017 *Potable Reuse Feasibility Study* (Carollo 2017) and cost estimates documented in the 2021 LTWSP. Because of uncertainty with future regulations, both documents relied on many assumptions that should be revisited once regulations are in place. The City can then update its future supply comparison with desalination, recycled water, and projected conservation rates.
- Desalination Facility: The 2021 LTWSP identified expansion of the desalination plant to 5,000 AFY as the City's next new supply, based on the future water supply portfolio evaluation that used a triple–bottom-line method to consider economic, social, and environmental impacts and benefits. The expansion would only be needed if certain increased demand or decreased supply thresholds occur in the future, as outlined in the 2021 LTWSP Adaptive Management Plan. Also, the 2021 LTWSP recommended that the City should revisit the project definition assumptions from the *Potable Reuse Feasibility Study* and cost estimates developed for the LTWSP once raw water augmentation regulations are issued by the State and once the City has a need for a new supply because of uncertainty with future regulations.

6.12 Energy Use

The estimated energy use for each supply in kilowatt-hours per acre-foot (kW-hr/AF) is summarized in Table 12. The unit energy data are from energy use records from 2017 and 2018, except for desalination, which is from FY20.

Table 12: Unit Energy Requirements (kW-hr/AF)

Supply[1]	Transport, Production	Treatment	Distribution	Total
Lake Cachuma	--	140	310	**450**
Gibraltar Reservoir	--	140	310	**450**
Mission Tunnel	--	140	310	**450**
Groundwater, No Treatment	200	--[2]	310	**510**
Groundwater, with Treatment	1,300	--[2]	310	**1,610**
Desalination	5,310	--[3]	--[3]	**5,310**
State Water Project	2,520	140	310	**2,970**

Notes:

1. Estimates are the average of electrical consumption data from 2017 and 2018, except for desalination, which is from FY20.
2. Treatment component for groundwater is included in the production estimate.
3. Desalination energy for production, treatment, and distribution is combined because they are measured through a single electrical meter.

6.13 Summary of Existing and Planned Sources of Water

The actual water supply produced in FY20 and projected supplies through 2050 are summarized in Table 13, which shows projected water supplies under normal or long-term average conditions. Some supply in normal years is planned to be reserved to build banked storage and carryover in preparation for a critical drought period. A safety margin of 10% is maintained, which is consistent with City water supply policies, in case of unanticipated added demand such as annexations or supply shortages.

Table 13: Actual and Projected Potable Water Supplies (AF)

	Actual Deliveries	**Projected Supplies**					
Supplies	**2020**	**2025**	**2030**	**2035**	**2040**	**2045**	**2050**
Cachuma Project	1,834	8,577	8,577	8,577	8,577	8,577	8,577
Gibraltar Reservoir	3,936	3,510	3,510	3,510	3,510	3,510	3,510
Mission Tunnel	1,128	1,210	1,210	1,210	1,210	1,210	1,210
Desalination	2,763	3,125	5,000	5,000	5,000	5,000	5,000
Groundwater	199	1,250	1,250	1,250	1,250	1,250	1,250
SWP	--	1,865	1,815	1,766	1,716	1,716	1,716
Recycled Water	945	1,221	1,221	1,221	1,221	1,221	1,221
Total Supply	**10,805**	**20,760**	**22,580**	**22,530**	**22,480**	**22,480**	**22,480**
Total Demand		**13,890**	**14,600**	**14,580**	**14,720**	**14,910**	**15,160**
% Supply vs. Demand		**149%**	**155%**	**155%**	**153%**	**151%**	**148%**

Note: Total values rounded to the nearest 10. Cachuma Project values includes annual transfer of 300 AFY from Montecito Water District per the Juncal Agreement.

7 Water Service Reliability and Drought Risk Assessment

This section describes the reliability of the City's water supply. It presents 30-year projections for normal, single dry, and multiple dry years and assesses the drought risk over the next five years. Water supply reliability reflects the City's ability to meet the water needs of its customers with water supplies under varying conditions. The analysis considers plausible hydrological and regulatory variability, climate conditions, and other factors that affect the City's water supply and demand.

7.1 Constraints on Water Sources

The City's water sources and their constraints are described in detail in Section 6. The primary constraint on availability of water supplies has been extreme drought conditions. The 2021 LTWSP analyzed the most impactful risks and uncertainties associated with the City's supply projections, as shown in Table 14. The topics listed in the table were analyzed by comparing supply and demand with "risk-adjusted" supplies to understand reliability under potential future conditions. Also, resilience scenarios, such as temporary loss of one or more supplies from an earthquake, were analyzed. The result of the analysis was a series of recommendations (listed in Section 6.10) and an Adaptive Management Plan for the City to implement when supply or demand conditions change in the future. (Refer to Section 9 of Appendix C.)

Table 14. Supply Risks

Risk	Description
Climate Variability	More extreme droughts, increased irrigation demand, reduced yield, more intense rainfall/flooding, and higher variability from surface water supplies
Lake Cachuma Increased Releases	Potential reduction in Lake Cachuma supplies from an update to the 2000 Biological Opinion, which impacts current Lake Cachuma operations
Gibraltar Reservoir High Sedimentation	Increased rate of sedimentation due to wildfires reduces the Gibraltar Reservoir storage volume and annual yield. Obtaining a Warren Act contract with USBR per the Pass-Through Agreement would shift lost Gibraltar Reservoir storage capacity to Lake Cachuma.
Megadrought[8]	A prolonged drought lasting two decades or longer
Surface Water Quality Degradation	Surface water quality degradation due to wildfires and warmer temperatures impact Lake Cachuma and Gibraltar Reservoir, making them susceptible to algae blooms, which negatively impact water quality.
Ocean Water Quality Degradation	Ocean water quality degradation scenarios from algae blooms, debris flows, oil spills, and sewage spills would temporarily prevent intake of seawater for desalination.
Desalination Regulations	Permanent loss or reduction of desalination supply due to changes in laws or regulatory policy would return the City to supply conditions prior to the desalination plant activation in 2017.
SWP Yield	SWP annual allocations are highly variable, and average yield projections have declined with each successive DCR from DWR. The City does not benefit from average and wet year supplies due to lack of storage beyond limited carryover water in San Luis Reservoir. Delta Conveyance Project construction would further reduce the reliability of SWP water since San Luis Reservoir will spill more frequently and the City loses its carryover water after spill events.

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[8] Per Williams et al. (Williams Apr 17 2020), "Global warming has pushed what would have been a moderate drought in southwestern North America into megadrought territory." Williams et al. used a combination of hydrological modeling and tree-ring reconstructions of summer soil moisture to show that the period from 2000 to 2018 was the driest 19-year span since the late 1500s and the second driest since 800 CE. "This appears to be just the beginning of a more extreme trend toward megadrought as global warming continues."

7.2 Supply and Demand Assessment

This section presents the City's expected water supply reliability for a normal year, single dry year, and five consecutive dry years, including projections for 2025, 2030, 2035, 2040, 2045, and 2050. This supply and demand assessment is based on the 2021 LTWSP (Appendix C) analysis of the adequacy, reliability, resiliency, and sustainability of the City's water resources portfolio. The 2021 LTWSP evaluated nine future water supply portfolios by applying a triple-bottom-line analysis that considered economic, social, and environmental impacts and benefits. The triple-bottom-line approach combines multiple measures of performance into one analysis, allowing the City to consider the varying importance of different performance measures. The approach allowed the City and stakeholders to objectively evaluate trade-offs between various water supply options and portfolios. Each future portfolio was analyzed over a 30-year simulation period (2020–2050) that applied historical hydrology from 1993 to 2019 plus three years of extended drought (2020–2022), demand projections presented in Chapter 4, and risk-adjusted supplies.

The best-performing water supply portfolio included desalination as one of the City's primary supplies and provided an adaptive management approach that maximized water conservation and the City's current supplies before considering expansion of the desalination plant to 5,000 AFY. The next-highest-scoring portfolio included potable reuse in place of desalination expansion. New regulations and/or advancements in treatment technology may increase the favorability of potable reuse. As a result, the 2021 LTWSP recommends revisiting the analysis once potable reuse regulations are issued by the State and once the City projects the need for a new supply.

7.2.1 Normal, Single Dry Year, and Multiple Dry Years Basis

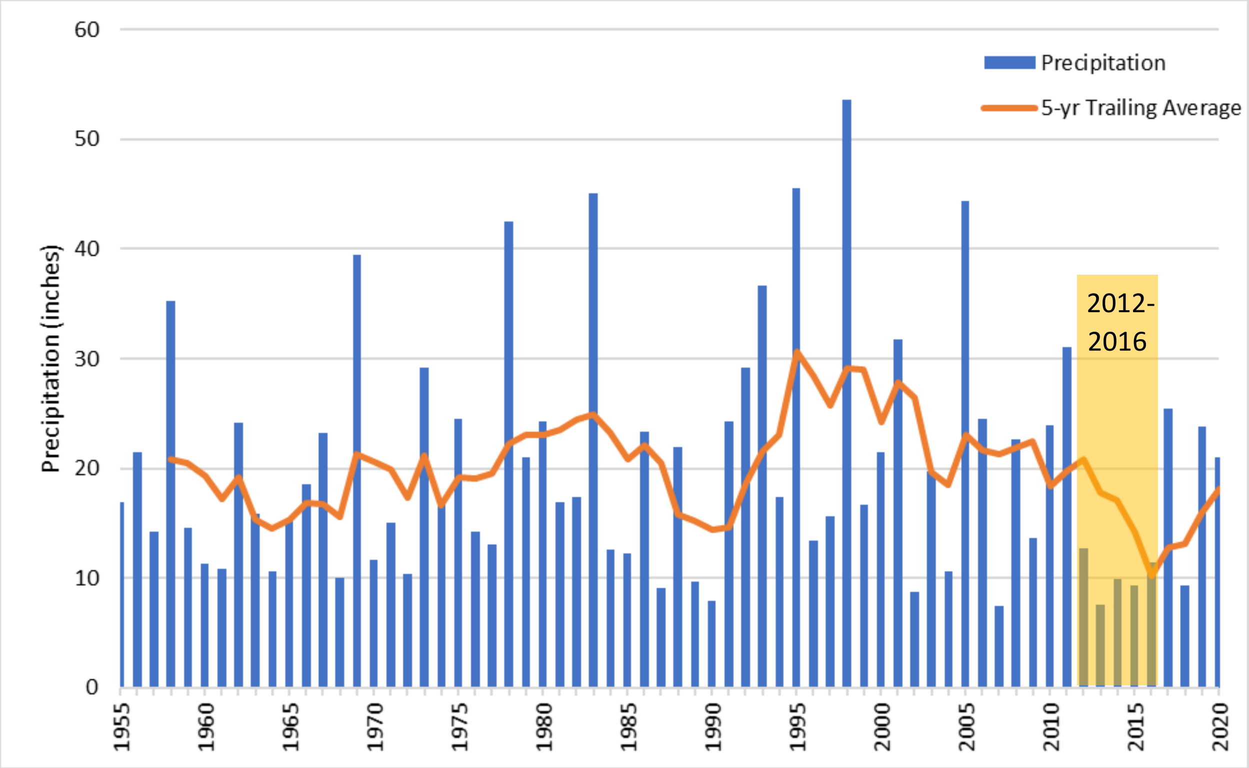
The diversity of the City's water supply portfolio and the ability to store multiple years of demand in Lake Cachuma are important factors in assessing the reliability of the water supply under a variety of hydrologic conditions.

In normal conditions, the City's primary water supply is surface water from Lake Cachuma and Gibraltar Reservoir, including carryover storage from unused Cachuma allocations, and desalination. These supplies are augmented with limited groundwater production (which is typically preserved by the City for droughts and emergencies), SWP deliveries, and recycled water. These additional supplies typically offset any reduced inflows to Lake Cachuma and Gibraltar Reservoir that would occur in a single year of average rainfall conditions.

A single dry year (such as 2013) has little effect on the availability of Cachuma supplies since the multiyear reservoir typically has storage available from previous years. However, because Gibraltar is a much smaller reservoir than Cachuma, available supply from Gibraltar Reservoir could potentially be significantly reduced, depending on how dry the year is. In this situation, the City's annual water supply assessment will determine whether to offset the deficiency with added SWP deliveries, increased groundwater pumping, or additional use of Cachuma supplies.

The critical drought period for the City's water supply occurs when there are multiple consecutive years of below-average rainfall. This is due to the hydrology of the Santa Ynez River, where little or no inflow to Lake Cachuma occurs until at least average rainfall occurs. When the condition of average or less rainfall continues for multiple years in succession, the storage level of Lake Cachuma drops and shortages in deliveries occur. As shown in Figure 10, the 2012–2016 period had the lowest average rainfall over five years at Lake Cachuma since Bradbury Dam was constructed. Therefore, water supply conditions from 2012 to 2016 were used in the multiyear drought analysis.

Figure 10: Historical Annual Precipitation at Bradbury Dam (Lake Cachuma)



7.2.2 Supply Basis

The City recently updated the RiverWare model[9] of the Santa Ynez River system to simulate project supply availability during a model period of 1942–2019. The model simulates potential diversions from Gibraltar and Cachuma by applying historical hydrology with existing facilities and operational strategies. The 2021 LTWSP first analyzed the City's existing water supply portfolio simulated over an 81-year simulation period (1942–2022), applying historical hydrology (1942–2019) plus three additional drought years (2020–2022) to extend the drought of record (2012–2019), thereby creating a 10-year "design drought" (2012–2022).

Also, "risk-adjusted" supply projections were applied to capture potential risks to long-term supply, such as climate variability or regulatory actions. Based on the analysis, the following findings were made:

- Existing demand could be met with existing supplies and risk-adjusted supplies under historic hydrologic variability, including a 10-year design drought.
- At the upper bound of demand projections (in 2050 with high growth and high unit customer demand), new supplies are needed to avoid more than 15% demand reductions through extraordinary conservation above and beyond the City's regular conservation program during an extended drought.
- The City's biggest water supply challenge is providing sufficient supplies to meet demand during an extended drought.

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[9] Refer to the 2021 LTWSP (Appendix C), Attachment D: WVSB Water Supply and Climate Change Analysis for Lake Cachuma and Gibraltar Reservoir TM for additional information on the model.

- Desalination, groundwater, SWP water, and supplemental water are essential to meeting demand during a drought and avoiding water shortages.
- The City should always be preparing for a future drought by optimizing use of available water supplies during normal and wet periods, when available supplies exceed demand.

7.2.3 Supply Availability Assumptions

For the water supply reliability analysis, the following supply availability assumptions were applied for the normal, single dry year, and multiple dry years conditions for each of the City's supplies:

- **Normal Year**: Average supply availability during the entire 1942–2019 simulation
- **Single Dry Year**: The year with the lowest water supply available to the City (2016)
- **Multiple Dry Year**: The five-year historical sequence with the lowest precipitation at Lake Cachuma (2012–2016)

For normal year conditions, the following supply availability assumptions were applied:

- **Cachuma Project:** 100% allocation plus 300 AFY from Montecito Water District per the Juncal Agreement—8,577 AFY
- **Gibraltar Reservoir:** Average yield from RiverWare model simulation (1942–2019)—3,510 AFY
- **Mission Tunnel:** Average of actual historical deliveries—1,210 AFY
- **Desalination:** 3,125 AFY production, expanding to 5,000 AFY once demand of 14,000 AFY is reached
- **Groundwater:** Safe yield—1,250 AFY; refer to Section 6.7 for more information
- **SWP:** 2019 DCR simulation (average yield of 58% in 2020 with straight-line reduction to 52% in 2040)—1,865 AFY to 1,716 AFY (see Section 6.5)
- **Recycled water:** 1,221 AFY; refer to Section 6.8 for more information

Based on these assumptions, the City has sufficient supplies in normal years (Table 15) and would use available supplies to prepare for dry periods. For example, unused Cachuma Project water could be stored for use in future years as carryover water.

Table 15: Supply and Demand Comparison, Normal Year (UWMP Table 7-2)

Supplies	**2025**	**2030**	**2035**	**2040**	**2045**	**2050**
Cachuma Project	8,577	8,577	8,577	8,577	8,577	8,577
Gibraltar Reservoir	3,510	3,510	3,510	3,510	3,510	3,510
Mission Tunnel	1,210	1,210	1,210	1,210	1,210	1,210
Desalination	3,125	5,000	5,000	5,000	5,000	5,000
Groundwater	1,250	1,250	1,250	1,250	1,250	1,250
SWP	1,865	1,815	1,766	1,716	1,716	1,716
Recycled Water	1,221	1,221	1,221	1,221	1,221	1,221
Total Supply	**20,760**	**22,580**	**22,530**	**22,480**	**22,480**	**22,480**
Total Demand	**13,890**	**14,600**	**14,580**	**14,720**	**14,910**	**15,160**
Supply v. Demand Difference	6,870	7,980	7,950	7,760	7,570	7,320
Supply v. Demand %	149%	155%	155%	153%	151%	148%

Note: Refer to supply assumptions in the text above the table. Values are rounded to the nearest 10.

Supply availability for single dry year supplies is based on 2016 supplies, which represented the City's lowest year of supply availability. Assumptions for the single dry year scenario include:

- **Cachuma Project:** No allocation but 300 AFY from Montecito Water District per the Juncal Agreement—300 AFY
- **Cachuma Project Carryover:** Entering a single dry year, the City would have carryover water stored in Lake Cachuma.
- **Gibraltar Reservoir:** No yield
- **Mission Tunnel:** 2016 yield—574 AFY
- **Desalination:** 3,125 AFY production, expanding to 5,000 AFY once demand of 14,000 AFY is reached
- **Groundwater:** Maximum pumping capacity during extended drought periods—3,500 AFY
- **SWP:** 2016 allocation of 60%—1,980 AFY
- **Supplemental Water:** Assumed to be purchased up to a maximum of 3,300 AFY based on the City's capacity in Central Coast SWP conveyance facilities
- **Recycled Water:** 1,221 AFY; refer to Section 6.7 for demand projections

As shown in Table 16, the impacts of a single dry year are minimized from the City's diverse water supply and carryover storage at Lake Cachuma.

Table 16: Supply and Demand Comparison, Single Dry Year (UWMP Table 7-3)

Supplies[1]	**2025**	**2030**	**2035**	**2040**	**2045**	**2050**
Cachuma Project	300	300	300	300	300	300
Cachuma Project Carryover[2]	1,870	705	685	825	1,015	1,265
Gibraltar Reservoir	0	0	0	0	0	0
Mission Tunnel	574	574	574	574	574	574
Desalination	3,125	5,000	5,000	5,000	5,000	5,000
Groundwater	3,500	3,500	3,500	3,500	3,500	3,500
SWP	1,980	1,980	1,980	1,980	1,980	1,980
Supplemental Water	1,320	1,320	1,320	1,320	1,320	1,320
Recycled Water	1,221	1,221	1,221	1,221	1,221	1,221
Total Supply	**13,890**	**14,600**	**14,580**	**14,720**	**14,910**	**15,160**
Total Demand	**13,890**	**14,600**	**14,580**	**14,720**	**14,910**	**15,160**

1. Refer to supply assumptions in the text above the table. Values are rounded to the nearest 10.
2. Cachuma Project carryover supplies were used to meet remaining demands and calculated so that supplies meet demands.

Table 17 presents the multiple dry years supply and demand projections. The supply assumptions are based on supply availability from 2012 to 2016 and include:

- **Cachuma Project:** 2012 to 2016 allocations—100%, 100%, 80%, 50%, 0%, respectively—plus 300 AFY from Montecito Water District per the Juncal Agreement
- **Cachuma Project Carryover:** Assumed to be exhausted during an extended drought
- **Gibraltar Reservoir:** 2012 to 2016 yield ranged from 0 AFY to 2,343 AFY
- **Mission Tunnel:** 2012 to 2016 yield ranged from 574 AFY to 987 AFY

- **Desalination:** 3,125 AFY production, expanding to 5,000 AFY once demand of 14,000 AFY is reached
- **Groundwater:** Maximum pumping capacity (3,500 AFY) during extended drought periods, up to 24,200 AF of total drought storage
- **SWP:** 2014 to 2018 allocations ranged from 5% to 65%, or 165 AFY to 2,145 AFY
- **Supplemental Water:** Assumed to be purchased up to a maximum of 3,300 AFY based on the City's capacity in Central Coast SWP conveyance facilities
- **Recycled Water:** 1,221 AFY; refer to Section 6.7 for demand projections

Due to limited supplies and assuming that no Cachuma carryover water is available, demand is assumed to be reduced by 20% of normal in Year 5 through extraordinary conservation measures, which are above and beyond the City's normal conservation program. During the recent extended drought, City customers achieved 40% conservation in 2016 (Year 5 in the multiple year drought), so the City is confident that extraordinary conservation can be achieved during an extended drought, if necessary.

Table 17: Supply and Demand Comparison, Multiple Dry Years (UWMP Table 7-4) (AFY)

Year	Item[1]	2025	2030	2035	2040	2045	2050
First Year (2012)	Supply Totals	23,050	24,930	24,930	24,930	24,930	24,930
	Demand Totals	13,890	14,600	14,580	14,720	14,910	15,160
	Difference	**9,160**	**10,330**	**10,350**	**10,210**	**10,020**	**9,770**
	Supply vs. Demand %	166%	171%	171%	169%	167%	164%
Second Year (2013)	Supply Totals	22,350	24,220	24,220	24,220	24,220	24,220
	Demand Totals	13,890	14,600	14,580	14,720	14,910	15,160
	Difference	**8,460**	**9,620**	**9,640**	**9,500**	**9,310**	**9,060**
	Supply vs. Demand %	161%	166%	166%	165%	162%	160%
Third Year (2014)	Supply Totals	20,680	22,560	22,560	22,560	22,560	22,560
	Demand Totals	13,890	14,600	14,580	14,720	14,910	15,160
	Difference	**6,790**	**7,960**	**7,980**	**7,840**	**7,650**	**7,400**
	Supply vs. Demand %	149%	155%	155%	153%	151%	149%
Fourth Year (2015)	Supply Totals	16,300	18,170	18,170	18,170	18,170	18,170
	Demand Totals	13,890	14,600	14,580	14,720	14,910	15,160
	Difference	**2,410**	**3,570**	**3,590**	**3,450**	**3,260**	**3,010**
	Supply vs. Demand %	117%	124%	125%	123%	122%	120%
Fifth Year (2016)	Supply Totals	12,020	13,900	13,900	13,900	13,900	13,900
	Demand Totals[2]	11,110	11,680	11,660	11,770	11,930	12,120
	Difference	**910**	**2,220**	**2,240**	**2,130**	**1,970**	**1,780**
	Supply vs. Demand %	108%	119%	119%	118%	117%	115%

1. Refer to supply assumptions in the text above the table. Values are rounded to the nearest 10.
2. Extraordinary conservation measures, which are above and beyond the City's adopted conservation program, are assumed to be implemented to reduce demand by 20% in Year 5.

7.3 2021–2025 Drought Risk Assessment

Water Code Section 10635(b) is a new provision of the Water Code that requires a Drought Risk Assessment (DRA) for the upcoming five years (2021–2025) based on the five driest years on record. Since 1998, the City has prepared an annual Water Supply Management Report[10] that summarizes:

- Status of water supplies at the end of the report's water year (WY)
- Drought outlook
- Water conservation and demand
- Major capital projects that affect the City's ability to provide safe, clean water
- Significant issues that affect the security and reliability of the City's water supplies

The report is presented to the City's Water Commission and City Council, and the WY2020 report was finalized in January 2021. Table 18, which is from the WY2020 report, summarizes the status of the City's water supplies as of the end of WY2020 (September 30, 2020).

Table 18: Status of City Water Supplies, End of WY2020

Supply	Status
Cachuma Project	Total Capacity: 184,121 AF (2013 survey for 750-foot elevation) End of Year Storage: 135,570 AF (74% of total capacity) The City's share of the Cachuma Project's normal annual entitlement is 8,277 AF. The City's WY2020 allocation was 100%. The total remaining carryover for the City as of September 30, 2018, was 20,298 AF.
Gibraltar Reservoir	Total Capacity: 4,559 AF (June 2020 survey) End of Year Storage: 1,666 AF (37% of total capacity) Gibraltar Reservoir typically fills and spills two out of every three years. Gibraltar has spilled four times since May 2011. The most recent spill was March 20, 2020. The projected long-term average supply from Gibraltar is 4,330 AF under pass-through operations.
Mission Tunnel	Groundwater that seeps into Mission Tunnel is an important part of the City's water supply. Its long-term average yield is 1,125 AFY.
Groundwater	After heavy groundwater pumping during the drought, the City focused on resting its groundwater basins in 2020 to help them recover to pre-drought levels. The City plans to continue to rest its wells in 2021.
SWP	The City has a 3,300 AF Table A allotment (with drought buffer), subject to availability. The 2021 SWP Table A allocation is 5% as of April 2021.
Desalination	The desalination plant was reactivated in May 2017. It can produce up to 3,125 AFY in 2021.
Recycled Water	The City's recycled water system serves parks, schools, golf courses, other large landscapes, and some public restrooms. In 2021, the City plans to continue to meet demand of roughly 1,000 AFY.

Note: The water year runs from October 1 through September 30. All data are as of September 30, 2020.

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[10] The WY2020 report can be found at: www.santabarbaraca.gov/civicax/filebank/blobdload.aspx?BlobID=233003.

The annual Water Supply Management Report also includes a three-year supply and demand projection assuming extended drought conditions and no additional flows into Lake Cachuma or Gibraltar Reservoir. The DRA is a five-year supply and demand projection, so it builds upon the analysis in the annual Water Supply Management Report. Projection assumptions for each supply are listed below and summarized in Table 19:

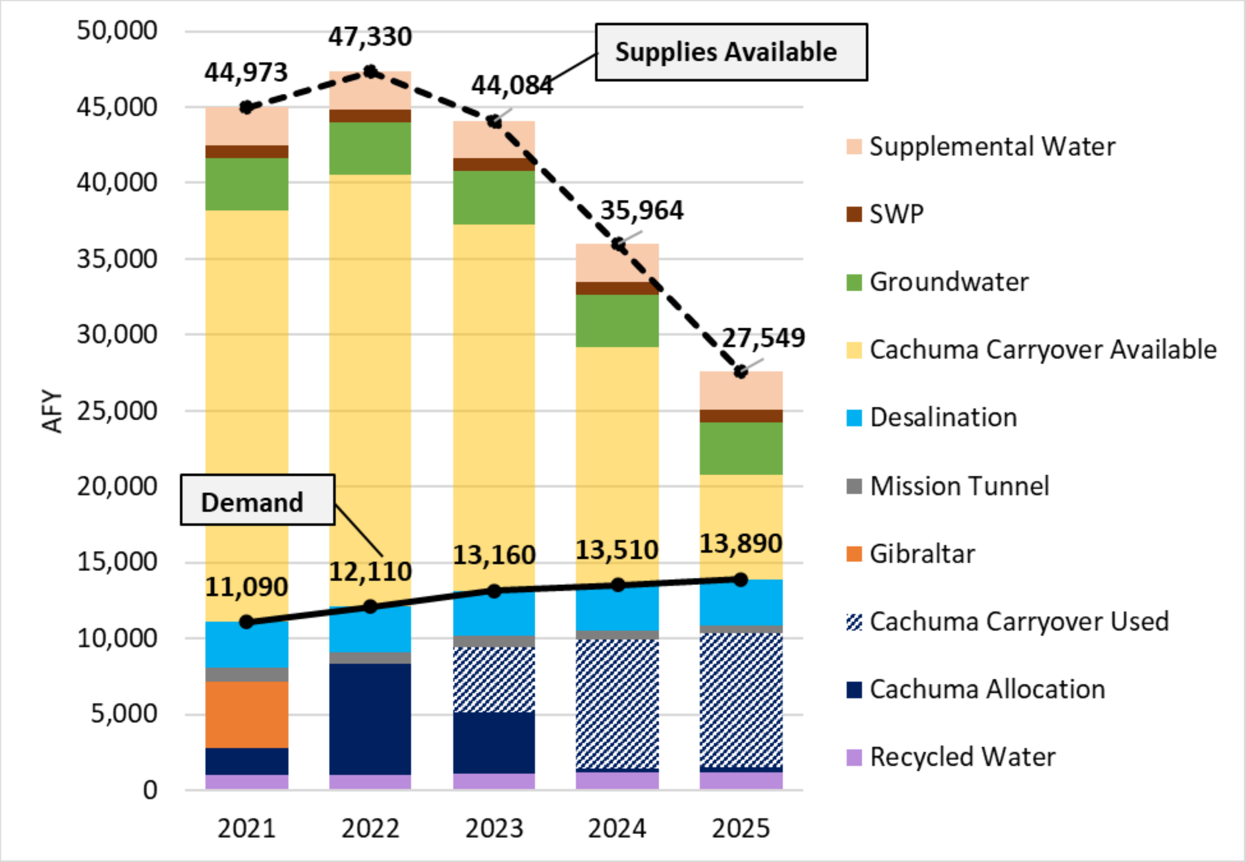
- **Cachuma Project:** Uses 2013–2016 allocations for 2021—2024 and assumes no allocation in 2025 based on no lake inflows; Plus 300 AFY from Montecito Water District per the Juncal Agreement.
- **Cachuma Project Carryover:** Starts at 20,298 AF in 2021, as shown in Table 18
- **Gibraltar Reservoir:** 4,335 AF in storage and no additional inflows result in using all supplies in 2021.
- **Mission Tunnel:** Uses actual 2013–2016 yield for 2021–2024 and assumes same yield in 2025 as 2024
- **Desalination:** Annual yield is based on existing desalination plant capacity (3.0 mgd) and 93.6% operational time—3,125 AFY.
- **Groundwater:** 24,200 AF of drought storage is available, and production is only limited by existing pumping capacity of roughly 3,500 AFY.
- **SWP:** Average Table A allocation of 25% is assumed based on lowest five-year average allocation from 2019 SWP DCR simulation from 1988 to 1992.
- **Supplemental Water:** Assumed to be purchased up to a maximum of 3,300 AFY based on the City's reliability capacity in Central Coast SWP conveyance facilities
- **Recycled Water:** Assumes recycled water use increases from current level (945 AF in FY2020) to expanded system of 1,221 AFY in 2025

Table 19: 2021–2025 Drought Risk Assessment Supply Availability Projections

Supplies	2021	2022	2023	2024	2025
Cachuma Project	8,577	8,577	4,025	300	300
Cachuma Project Carryover	20,298 (storage at beginning of 2021)				
Gibraltar Reservoir	4,335 (storage at beginning of 2021)				
Mission Tunnel	963	815	728	574	574
Desalination	3,125	3,125	3,125	3,125	3,125
Groundwater	3,500	3,500	3,500	3,500	3,500
SWP	825	825	825	825	825
Supplemental Water	2,475	2,475	2,475	2,475	2,475
Recycled Water	1,000	1,055	1,111	1,166	1,221

Based on the projected demand and available supplies, Figure 11 presents the projected supplies used to meet demand and the remaining available supply each year. As shown in the figure, Cachuma carryover water is used starting in 2023 as Cachuma allocations decrease. By the end of the five-year drought, the City still has supplies available. Note that these projections contrast with the need to implement extraordinary conservation measures during the previous drought due to the addition of desalination, which adds a base-loaded annual supply and allows the City to accumulate carryover storage in Cachuma. The City did not have Cachuma carryover storage at the beginning of the last drought because Lake Cachuma spilled in 2011, which resulted in all carryover storage being lost. Desalination was not brought online until 2017.

Figure 11: 2021–2025 Drought Risk Assessment, Supply and Demand Projections



Note: Values are summarized in the UWMP Standardized Tables, Table 7-5 (Appendix B).

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8 Water Shortage Contingency Plan

The Water Shortage Contingency Plan (WSCP) is a detailed plan for how the City intends to respond to foreseeable and unforeseeable water shortages. A water shortage occurs when the water supply is reduced to a level that cannot support typical demand at any given time. The WSCP is used to provide guidance to the City's governing body, staff, and the public by identifying response actions to allow for efficient management of any water shortage with predictability and accountability. Preparation provides the tools to maintain reliable supplies and reduce the impacts of supply interruptions due to extended drought or catastrophic supply interruptions. The WSCP includes the following:

1. **Water Supply Reliability Analysis**: Summarizes the City's water supply analysis and reliability and identifies any key issues that may prompt a shortage condition
2. **Annual Water Supply and Demand Assessment Procedures**: Describes the key data inputs, evaluation criteria, and methodology for assessing the system's reliability for the coming year and the steps to formally declare any water shortage levels and response actions
3. **Standard Shortage Stages**: Establishes water shortage levels to clearly identify and prepare for shortages
4. **Shortage Response Actions**: Describes the response actions that may be implemented or considered for each stage to reduce gaps between supply and demand as well as to minimize social and economic impacts to the community
5. **Communication Protocols**: Describes communication protocols under each stage to ensure that customers, the public, and government agencies are informed of shortage conditions and requirements
6. **Compliance and Enforcement**: Defines compliance and enforcement actions available to administer demand reductions
7. **Legal Authority**: Lists the legal documents that grant the City the authority to declare a water shortage and implement and enforce response actions
8. **Financial Consequences of WSCP Implementation**: Describes the anticipated financial impact of implementing water shortage stages and identifies mitigation strategies to offset financial burdens
9. **Monitoring and Reporting**: Summarizes the monitoring and reporting techniques used to evaluate the effectiveness of shortage response actions and overall WSCP implementation. Results are used to determine if additional shortage response actions should be activated or if efforts are successful and response actions should be reduced
10. **WSCP Refinement Procedures**: Describes the factors that may prompt updates to the WSCP and outlines how to complete an update
11. **Special Water Features Distinctions**: Identifies exemptions for ponds, lakes, fountains, pools, and spas, etc.
12. **Plan Adoption, Submittal, and Availability**: Describes the process for WSCP adoption, submittal, and availability after each revision

The 2021 WSCP is a stand-alone document that can be modified as needed. It is included as Appendix K.

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9 Demand Management Measures

The City's Water Conservation Program began as a response to drought in the late 1970s. In 1988, the Water Conservation Program was increased in accordance with the recommendations from the City's Five-Year Water Policy Action Plan. As a result of the 1987–1991 drought, the City accelerated implementation of the Water Conservation Program. The City's 1994 LTWSP identified a goal of 1,500 AFY of additional water conservation, a target that was met and exceeded.

In December 1990, the Santa Barbara County Regional Water Efficiency Program (RWEP) was established as a collaboration among the many local water purveyors and the County Water Agency of Santa Barbara. RWEP promotes the efficient use of urban and agricultural water supplies countywide and provides information and assistance to the 16 local water purveyors within the county, including the City. RWEP members coordinate cooperative water conservation efforts among purveyors, co-fund projects and programs, act as a clearinghouse for information on water efficiency, manage specific projects and programs, and monitor local, State, and national legislation related to efficient water use.

In January 1992, the City joined the California Urban Water Conservation Council, now the California Water Efficiency Partnership, by signing the Memorandum of Understanding Regarding Urban Water Conservation. Since that time, the City has been actively implementing the BMPs and additional water conservation measures. In addition, implementing the BMPs satisfies contractual requirements with the USBR for the Cachuma Reservoir Project.

The City's Water Conservation Program aims to minimize the use of potable water supplies, meet BMP requirements, and achieve compliance with SB X7-7's 20% by 2020 per capita water use reduction requirements and other mandated water conservation requirements. Water conservation measures are evaluated for cost-effectiveness based on the avoided cost of additional water supplies.

Water use efficiency in the City is supported by a coordinated effort of City and RWEP initiatives to create a holistic approach to providing the needed water conservation tools to both the water system and each customer within the service area. The City requires water efficiency in building codes and standards as a result of State-guided mandates as well as increasingly strict local ordinances.

In December 2020, City Council approved the 2020 Water Conservation Strategic Plan's recommended conservation program, which includes 17 measures and represents a thoroughly robust program with the highest benefit–cost ratio. The City's 2020 Water Conservation Strategic Plan is included in Appendix H.

9.1 Existing Demand Management Measures

This section describes the City's existing demand management measures.

9.1.1 Utility Operations Programs

Utility operations measures encompass preventing water waste, reducing water loss, and addressing water efficiency in development projects.

- **Water Waste Prevention:** City Ordinance No. 4558, adopted in February 1989, prohibits the waste of water, which is defined as any excessive, unnecessary, or unwarranted use of water, including, but not limited to: 1) any use which causes significant runoff beyond the boundaries of property served by a meter; 2) failure to repair any leak or rupture in any water pipes, faucets, valves, plumbing fixtures, or other water service appliances within 72 hours after notice by the City; and 3) irrigation during and for a period of 48 hours after a measurable rainfall event. The City makes educating the community on water waste practices a high priority. The City's water waste ordinance can be found in the City's municipal code SBMC §14.20.007, Prohibition Against Waste of Water. Enforcement of the City's water waste ordinance is found in SBMC §14.20.226, Penalties and Charges.

- **Water Loss Control:** Refer to Section 4.2 for a description of the City's water loss control efforts.
- **Landscape Design Standards:** For development projects, the City has adopted Landscape Design Standards for Water Conservation that are more stringent than California's Model Water Efficient Landscape Ordinance. The City has submitted an annual report to the state since December 2015 that includes the total number of approved projects and square feet of new/revised landscape for that year. As of December 2019, over 300 landscape projects totaling over 2.7 million square feet have been approved. The City reviews plans and conducts inspections to ensure compliance with design standards, including a Water Wise plant palette, efficient irrigation, proper pressure regulation, smart irrigation controllers, mulch, and more. The landscape design standards were originally adopted by the City Council in 1989 and updated in 2008.

9.1.2 Public Information and Outreach

The City attempts to raise awareness among all customer types regarding the importance of efficient and responsible water use. The City effectively works to foster a culture of conservation within the community and affect impactful behavioral changes. Components of the City's existing public education program include the following:

- **Communicating the value of water:** The City regularly provides the public with images and status updates of water sources. In addition, each May, the City celebrates Water Awareness Month with public displays in City Hall and libraries about local water sources, the history of water in Santa Barbara, water efficiency, and more.
- **Providing information on methods and opportunities for reducing consumption:** The City engages customers in water efficiency through its website, newsletters, informational videos, social media, printed materials, public presentations, workshops, and more. The City promotes the use and maintenance of water-efficient WaterSense products, practices, and services. Free Water Checkup appointments are available to all customers, which feature an onsite evaluation with City staff to discuss water usage and opportunities for efficiency.
- **Delivering consistent, persistent messages and media campaigns:** The City delivers consistent messaging through radio messages, TV commercials, print advertising, social media messaging, digital advertising, and more, including messaging for both indoor and outdoor water use efficiency. Messages are delivered year-round and are tailored to the season (i.e., "turn it down" in the fall and "sprinkler spruce up" in the spring).

9.1.2.1 Current Public Information Programs

- **Water Conservation Hotline:** The hotline handles incoming calls for the Water Conservation Program. Staff schedule free Water Checkup appointments, educate customers on water usage, and direct customers to resources.
- **Website:** The City maintains a Water Conservation Program website,[11] and it contributes to and promotes the website for RWEP.[12]
- **Conservation Videos:** Informational videos on sustainable landscaping, leak detection, efficient irrigation, water supply, and more are available on the City's water conservation YouTube channel.[13]
- **Media Campaign:** Spring, summer, and fall media campaigns are implemented by the City, often in conjunction with RWEP to expand reach. Advertisements are placed online, on TV, in movie theaters, in print publications, and on the radio.

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[11] Available at: www.SantaBarbaraCA.org/WaterWise

[12] Available at: www.WaterWiseSB.org

[13] Available at: www.YouTube.com/SaveWaterSB

- **Water Bill Messages/Bill Inserts/e-Newsletters:** Monthly water conservation messages are printed directly on water bills and are customized by customer classification. A monthly water bill insert is mailed with all water bills and available electronically for online bill pay customers. A Water Resources e-newsletter is sent out quarterly, and a citywide "City News in Brief" e-newsletter is sent out weekly, with a water efficiency section included at least once a month.
- **Social Media:** Outreach on water conservation actions and events are posted on the Nextdoor website, www.Facebook.com/SaveWaterSB, and www.Twitter.com/SaveWaterSB.
- **Demonstration Gardens:** The Water Conservation Program has many beautiful water-wise demonstration gardens to showcase sustainable landscaping, including Alice Keck Park Memorial Garden, in conjunction with the Parks Department; the Firescape Garden, in conjunction with the Fire Department; Spencer Adams Park, in conjunction with the Parks Department and via a Surfrider Foundation Whale Tail Grant; the El Estero Recycled Water Garden; the Water Wise Home Garden, in conjunction with the Santa Barbara Botanic Garden; and the Santa Barbara Association of Realtors Rainwater Garden, in conjunction with the Association of Realtors.
- **Public Events:** City staff set up tables and displays and engage the public in water efficiency information at local events, such as Earth Day, the All Around Landscape Expo, the Santa Barbara Botanic Garden Fall Plant Sale, various school science nights, and neighborhood association meetings.
- **"Garden Wise" TV show:** "Garden Wise" is a 30-minute quarterly TV show about designing and maintaining sustainable landscapes. Featured segments include Plant Rant, What Tree is That?, Crimes Against Horticulture, and Design a Water-Wise Garden featuring local designers. This program is coordinated and co-funded through RWEP.
- **Water-wise Gardening for the Santa Barbara County Website:** This robust website of gardening information is tailored to the Santa Barbara climate with an extensive plant database of over 1,000 water-wise plants, more than 300 photos of local gardens, and guidance on gardening design and practices. It is available at www.waterwisegardeningsb.org. This program is coordinated and co-funded through RWEP.

9.1.2.2 Current School Education Programs

- **Classroom Presentations:** This program involves fun and engaging K-6 presentations about Santa Barbara's water supply, the water cycle, water conservation, and wastewater treatment. Songs, photos, and videos are used, based on the age group. Sixth grade presentations include the Living Wise kit and curriculum—a take-home kit with water and energy fixtures and activities to conduct at home. Presentations are tailored to grade or class objectives and are aligned to California content standards and the Education and the Environment Initiative Curriculum.
- **Field Trips:** Water facilities such as the El Estero Water Resource Center, Cater Water Treatment Plant, Charles E. Meyer Desalination Plant, Sheffield Reservoir, and the Firescape Garden are available for school and community group tours, with City personnel to lead and educate attendees.
- **Musical Assemblies:** Musical-comedy education shows about water supplies, the value of water, groundwater, and water efficiency are part of this program, which is coordinated and co-funded through RWEP.
- **WaterWise High School Video Contest:** This annual countywide contest has high schoolers create and submit a 30-second public service announcement for water efficiency. Winning videos are used for TV and movie theater advertising. This program is coordinated and co-funded through RWEP.
- **WaterWise Science Fair Award:** This special award is part of the larger Santa Barbara County Science Fair for junior and senior science fair projects that address water efficiency, water supplies, or water treatment. This program is coordinated and co-funded through RWEP.

9.1.3 Outdoor Water Use Efficiency

The City's outdoor water use efficiency programs are intended to promote the "new normal" of water-wise landscaping through proper design, installation, and maintenance of new and existing landscapes and irrigation systems. The City's active measures also include water-wise landscape design information, landscape classes, hands-on workshops, demonstration gardens, irrigation how-to videos, and educational programs.

- **Smart Landscape Rebate Program:** This is a rebate to replace turfgrass and/or an inefficient sprinkler system in commercial and residential landscapes. The rebate is for 50% of the material costs of pre-approved irrigation equipment and landscape materials.
- **Irrigation Evaluations:** As an element of Water Checkup appointments, staff perform site-specific landscape irrigation surveys that include checking the irrigation system for needed maintenance and repairs, reviewing the irrigation schedule, and making recommendations for adjusting the programing of the irrigation controller.
- **Irrigation Budgets for Dedicated Irrigation Meters:** The City has budget-based rates for accounts with dedicated irrigation meters to incentivize water efficiency. For the City's over 750 irrigation meters, the monthly water budget is determined by the property's irrigated landscaped area, the water requirements of plants, and the current weather conditions. The purpose of providing a monthly water budget is to bill based on the water needs of the landscaping; water use that exceeds the budget is billed at a higher rate. Monthly online water use reports provide education to customers to identify ways to irrigate more efficiently and track their usage compared to their budget.
- **Green Gardener Program:** Taught through Santa Barbara City College School of Extended Learning, gardeners are trained in resource efficiency and pollution prevention landscape maintenance practices. Gardeners attend a 15-week course taught in both English and Spanish covering irrigation design and maintenance, fertilization, soil health, integrated pest management, pruning, and green waste reduction. This program is coordinated and co-funded through RWEP.
- **Mulch Delivery Rebate:** The City will rebate the cost of up to two dump truck loads per year of county mulch deliveries to reduce evaporation and increase water retention in the soil.
- **Graywater Information:** The City provides education on the use of graywater with handouts, fact sheets, sample plan sheets, hands-on workshops, 101 classes, videos, and information on the City's website. The City promotes the use of graywater in accordance with the California Plumbing Code Chapter 16A (California Department of Water Resources. 2016).
- **WaterWise Garden Recognition Contest:** Residential gardens are evaluated for water efficiency, design elements, and sustainability. The winning garden is submitted to the countywide contest for the top prize. Winning properties receive an engraved sandstone boulder and are highlighted in public outreach to encourage water-wise practices. This program is coordinated and co-funded through RWEP.

9.1.4 Residential Programs

In addition to the programs previously listed, the following programs are geared toward residential customers:

- **Water Checkup Appointments:** The City's Water Resources Specialists conduct free Water Checkup appointments upon request by water customers. A Water Checkup includes evaluating all water uses on the property and providing recommendations to the customer for improved efficiency, including indoor usage, leak detection, meter reading demonstration, irrigation systems evaluation, and specific recommendations on improvements and upgrades.

- **High-efficiency Washing Machine Rebate Program:** The Smart Rebates Program is coordinated by the California Water Efficiency Partnership for participating water suppliers throughout California. The City participates with high-efficiency clothes washer rebates for residential customers who replace an existing high water use washing machine with a qualifying high-efficiency model.

9.1.5 Commercial, Industrial, and Institutional Programs

In addition to the programs previously listed, the following programs are geared toward commercial, industrial, and institutional (CII) customers:

- **CII WaterWise Survey and Incentive Program:** This tailored program for high water use CII customers includes a comprehensive water survey as well as rebate incentives for making recommended upgrades. The survey includes identifying high water use appliances, searching for hidden leaks, cataloging fixture use and flow rates, and identifying areas for improvement. A summary report includes an analysis of the facility's water use, water and cost-saving recommendations eligible for monetary incentives from the City, and estimated payback periods.
- **Lodging Industry Towel and Linen Cards:** Free linen cards and towel rack hangers are available to encourage patrons to conserve water during their stay by reusing towels and linens.
- **Restaurant Table Cards:** Free table tents are available to inform restaurant customers that water will be served upon request.
- **Green Business Program of Santa Barbara County:** Existing businesses are certified through onsite evaluations from City staff. New and existing certified Green Businesses receive workshops, trainings, resources, and recognition. This program is organized by the California Green Business Network of Santa Barbara County.

9.2 Reporting Implementation

Table 20 lists participation levels for the City's active water conservation programs from FY2016 to FY2020.

Table 20: Water Conservation Program Participation Numbers, FY2016 to FY2020

Program	Description	Participation Numbers
Water Checkup Appointments	City staff evaluate indoor water fixtures, such as toilets, water heaters, and faucets, and provide efficiency recommendations	7,192
6th Grade Living Wise Program	Includes literature and water saving devices	1,529
Water e-Sources	Water Resources Division newsletter (people who opened)	90,097
Bill Insert Articles	Delivered 12 times a year to City water customers in paper form and electronically	120,000
101 Classes	Classes provide an overview of the concepts, design, and BMPs for landscape site assessment, rainwater harvesting, graywater, and landscape maintenance	451
Water Checkup Appointments with Irrigation Evaluations	City staff evaluate the irrigation controller schedule and provide efficiency recommendations	3,676

Program	Description	Participation Numbers
Landscape Design Standards Review	City staff perform plan checks for land development projects that include new/revised landscaping and ensure that the City's landscape design standards are met	434
Free Rain Sensor Program	For customers who have compatible irrigation controllers, City staff provide a free wired rain sensor	170
Mulch Program	City water customers can get a up to two free dump truck loads of mulch delivered a year	1,837
High-Efficiency Clothes Washer Rebate	$150 rebate for replacing high water using clothes washers with eligible high-efficiency washer models	229
Irrigation and Landscape Rebate(1)	Smart Landscape Rebate Program rebates up to $1,000 per residential meter or $2,000 per multifamily or commercial meter to replace lawn with low water using plants and/or to install efficient irrigation	1,255
Other Landscape Workshops	Includes drip irrigation, sheet mulching, hands-on workshops	3,795
Green Gardener Program	Educates local gardeners in resource-efficient landscape management (with RWEP)	309
Educational Videos(2)	Videos on how to read your meter, check for leaks, identify your water supply, etc. (YouTube hits)	14,612
Landscape Educational Videos(2)	Videos on how to set up irrigation timers, adjust sprinklers, select plants, etc. (YouTube hits)	46,567
Landscape Educational Videos —Spanish(2)	Videos on how to set up irrigation timers, adjust sprinklers, select plants, etc. (YouTube hits)	266

1. As of 2017, Water Wise landscaping rebates have resulted in 740,000 square feet of lawn replaced.
2. YouTube hits are based on the year the video was posted, not when the video was viewed.

9.3 Recommended Conservation Program

In December 2020, City Council approved the 2020 Water Conservation Strategic Plan's recommended conservation program, which includes 17 measures and represents a thoroughly robust program with the highest benefit–cost ratio. A description of each measure is provided in Table 21.

Table 21: Recommended Conservation Program Measure Descriptions

Measure Name	Description
Commercial	
CII Water Survey Level 2 and Customized Rebate	Eligible CII customers can receive a thorough level 2 water survey targeting indoor and non-irrigation outdoor water uses. Financial incentives will be provided after analyzing the benefit–cost ratio of each proposed project. Rebates are tailored to each individual site and will be granted at the sole discretion of the City while funding lasts.
Ultra-High-Efficiency Urinal Rebate	Provides a rebate for the installation of ultra-high-efficiency urinals flushing 0.125 gpf (1 pint) or less
Pre-Rinse Spray Nozzle Giveaway	Provides free 1.15 gpm (or lower) spray nozzles and possibly free installation for the rinse and clean operation in restaurants and other commercial kitchens
Dipper Well Rebate	Provides a rebate for retrofitting traditional constant-flow dipper wells with on-demand wells or a hot well dipper. Dipper wells are common in ice cream and smoothie businesses.
Irrigation	
Irrigation and Landscape Rebate	Provides a rebate on pre-approved irrigation equipment and landscape materials, such as drip irrigation, smart controllers, and water-wise plants
Free Sprinkler Nozzle Program	Provides low-precipitation sprinkler nozzles free of charge via an online voucher program to be redeemed at local irrigation stores
Mulch Program	Subsidizes delivery charges for free mulch offered by the County, up to two free deliveries every 12 months, to reduce evaporation
Residential	
Residential Rebates for High-Efficiency Clothes Washers	Provides a rebate for a high-efficiency clothes washer. Only applicable on eligible models and for replacing an existing high water using washer.
Pressure Reduction Valve Rebate	Provides a rebate for installing a pressure-regulating valve on existing properties with pressure exceeding 80 psi
Leak Detection Device Rebate	Provides a rebate for a private leak detection/alert device that provides real-time water usage data to the customer and may allow for remote shutoff by the customer
Ultra-High-Efficiency Toilet Rebate	Provides a rebate for replacing a toilet that uses 1.6 gallons per flush or more with a US Environmental Protection Agency WaterSense-approved toilet that uses 0.8 gpf or less
Full AMI Implementation – Online Water Use Software and Leak Detection Customer Notification	Full AMI implementation cost for the meter transmitting units, radio or cellular network, and meter data management software. Measure includes customer leak notification via online water consumption software, phone, or email.

Measure Name	Description
Community & Education	
Water-Conserving Landscape and Irrigation Codes	Enforces City landscape design standards for water conservation. Compliance with the standards is mandatory for all new or altered landscaping proposed as a part of a project subject to review by any City design review body.
School Education	Offers school presentations, field trips, musical assemblies, video contests, teacher training, and multiple online and hands-on resources. The Living Wise Program—a water and energy efficiency take-home kit program for sixth graders designed to generate immediate and long-term resource savings—is included in this measure.
General Public Education	Includes the City's general public outreach efforts, such as advertising, educational websites, gardening websites, and all printed materials for events, Water Checkup appointments, fliers, restaurant and lodging display cards, posters, etc.
Water Checkup Appointments	Provides an onsite assistance program to work with customers to assess their water usage on their property, find leaks/causes of high water use, and identify ways to use water more efficiently
Irrigation Evaluations	Provides an onsite assistance program to work with customers to evaluate their irrigation systems and provide specific recommendations on irrigation improvements, scheduling, and upgrades

9.3.1 Tracking and Monitoring

The City will continue to monitor progress and track the level of participation and effectiveness of conservation measures through the following:

- Prepare an annual performance plan in concert with the budget planning process.
- Set up a method to store and measure participation, cost, and other data to gauge successes and areas that need improvement.
- Review Conservation Plan goals annually and update measure participation or other elements that are refined through experience.
- Track water use to ensure that the Water Conservation Strategic Plan is on track to meet water use reduction goals. Use input from City staff and the annual work planning process as the forum to amend the plan, budget, staffing, contracting, schedule, and so forth to stay on track.

9.3.2 Next Steps

Next steps in 2020 Water Conservation Strategic Plan implementation include the following:

- Engage in the State processes to establish the urban water supplier efficiency standards as part of SB 606 and AB 1668. The City will review State documents, submit written comments as needed, and participate in public workshops and stakeholder groups.
- Review program staff needs, and hire staff accordingly to adequately support program needs.
- Prioritize measures for implementation, with the highest priority for implementation given to measures that contribute the most to meeting water saving targets and/or can be implemented with relative ease. Develop implementation plans that describe in detail how to implement each conservation measure.
- Form partnerships and apply for grants where appropriate.
- Continue to collect and analyze measure participation, costs, and other data to gauge successes and areas that need improvement.

10 Plan Adoption, Submittal, and Implementation

This section describes steps taken to adopt and submit the UWMP and to make it publicly available.

10.1 Notice of Public Hearing

The City notified the public within its service area of the opportunity to provide input regarding the plan. A copy of the public outreach materials, including newspaper notices and invitation letters, is included in Appendix E. In addition, the following agencies were advised of the availability of the City's draft plan for review:

- Central Coast Water Authority
- Cachuma Operation and Maintenance Board
- Santa Barbara County Water Agency
- Goleta Water District
- Montecito Water District
- Carpinteria Valley Water District
- Santa Ynez River Water Conservation District, Improvement District No. 1
- Other interested parties

The Draft 2020 Enhanced UWMP was discussed with the Board of Water Commissioners on May 20, 2021. The Commission supported the plan content and recommendations and provided comments. A public hearing, with public notice pursuant to California Government Code Section 6066, was held before the City Council on May 25, 2021. No comments were received prior to or at the public hearing. At a subsequent City Council meeting on June 29, 2021, Council voted unanimously to adopt the plan. Documentation of public noticing and City Council action is included in Appendix E.

10.2 Plan Submittal

Copies of the plan were sent to the office of the County of Santa Barbara's Clerk of the Board and the California State Library at the time of submittal of this plan to the DWR. There are no other cities in which the City of Santa Barbara provides water.

10.3 Public Availability

A copy of the plan will be posted on the City's website within 30 days of the filing date and will be available for review at the City Water Resources Division offices during normal business hours.

10.4 Plan Amendments or Updates

Amendments or updates to the City's 2020 Enhanced UWMP will be made on an as-needed basis. Projections and assumptions used in the 2020 Enhanced UWMP were prepared with the best information available at the time. The Adaptive Management Plan accounts for potential changes to baseline conditions and key assumptions used in the long-term water supply analysis. In addition to regular 5-year updates to this plan as required by State law, the long-term supply analysis should be updated if there are substantial changes to projected baseline conditions or key assumptions that materially affect the City's ability to make informed water resources decisions.

Should the City need to amend the adopted 2020 Enhanced UWMP in the future, the City will hold a public hearing for review of the proposed amendments to the documents. The City will send a 60-day notification letter to all cities and counties within its service area and notify the public in the same manner as set forth in Chapter 2 of this UWMP. Once the amended document is adopted, a copy of the finalized version will be sent to the California State Library, DWR (electronically using the WUE data reporting tool), and all cities and counties within the City's service area within 30 days of adoption. The updated version will be posted to the City's website and hard copies and will be available for review at the City Water Resources Division offices during normal business hours.

11 References

American Water Works Association. "M36 Water Audits and Loss Control Programs, 4th Edition." 2016.

California Department of Water Resources,. "20x2020 Water Conservation Plan." 2010.

California Department of Water Resources. "California Plumbing Code. Chapter 16A Non-Potable Water Reuse Systems." 2016.

—. *CIMIS Station Reports. Monthly Reports. Station No. 107.* 2021. http://wwwcimis.water.ca.gov/WSNReportCriteria.aspx (accessed March 2021).

Carollo. *City of Santa Barbara Potable Reuse Feasibility Study.* City of Santa Barbara, 2017.

Carollo Engineers. "Water Supply Planning Study." Prepared for the City of Santa Barbara, 2009.

Freckleton. "United States Geological Survey Report 89-4017, Geohydrology of the Foothill Groundwater Basin Near Santa Barbara." Prepared in cooperation with the City of Santa Barbara, Pre 1989., 1989.

Freckleton, Martin and Nishikawa. "United States Geological Survey Report 97-4121. Geohydrology of Storage Unit III and a Combined Flow Model of the Santa Barbara and Foothill Groundwater Basins, Santa Barbara County, CA." Prepared in Cooperation with the City of Santa Barbara., 1998.

Impact Sciences, Inc.,. "Cachuma Project Water Rights Hearing Environmental Impact Report." 2012.

Maddaus Water Management. "City of Santa Barbara Water Conservation Strategic Plan." 2020.

Martin. "United States Geological Survey Report 2197. Groundwater Monitoring at Santa Barbara CA: Phase 2 - Effects of Pumping on Water Levels and on Water Quality in the Santa Barbara Groundwater Basin." Prepared in cooperation with the City of Santa Barbara, 1984.

MNS Engineers, Inc. "City of Santa Barbara Gibraltar Lake Bathymetric Study Report." 2020.

Muir, K.S. "Ground-water reconnaissance of the Santa Barbara-Montecito area, Santa Barbara County, California: U.S. Geological Survey Water-Supply Paper 1859-A, 28 p." 1968.

Nishikawa, T. "Santa Barbara and Foothill groundwater basins Geohydrology and optimal water resources management—Developed using density dependent solute transport and optimization models, U.S. Geological Survey, Scientific Investigations Report 2018-5059." 2018.

Santa Barbara County Association of Governments. "Regional Growth Forecast 2050 Santa Barbara County." 2019.

Santa Barbara County Planning and Development Department. "Mission Canyon Community Plan." April 2014.

Santa Barbara Couny Association of Governments. "Regional Growth Forecast 2050 Santa Barbara County." 2019.

State of California. Department of Finance. *E-1 Population Estimates for Cities, Counties, and the State — January 2020.* May 2020. https://www.dof.ca.gov/Forecasting/Demographics/Estimates/E-1/ (accessed March 2021).

U.S. Census Bureau. *Profile of General Population and Housing Characteristics: 2010 Demographic Profile Data "Mission Canyon CDP, California.".* 2011. http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=CF (accessed March 2016).

Wallace Group. *Lake Cachuma Formed by Bradbury Dam. Results of 2013 Survey & Sedimentation Update.* Prepared fro the County of Santa Barbara Public Works Department., 2014.

Williams, A. Park, et al. *Large Contribution from Anthropogenic Warming to an Emerging North American Megadrought.* Science, Apr 17 2020, 314-318.

Appendix A: UWMP Checklist

2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location
Chapter 1	10615	A plan shall describe and evaluate sources of supply, reasonable and practical efficient uses, reclamation and demand management activities.	Introduction and Overview	Executive Summary
Chapter 1	10630.5	Each plan shall include a simple description of the supplier's plan including water availability, future requirements, a strategy for meeting needs, and other pertinent information. Additionally, a supplier may also choose to include a simple description at the beginning of each chapter.	Summary	Executive Summary
Section 2.2	10620(b)	Every person that becomes an urban water supplier shall adopt an urban water management plan within one year after it has become an urban water supplier.	Plan Preparation	N/A
Section 2.6	10620(d)(2)	Coordinate the preparation of its plan with other appropriate agencies in the area, including other water suppliers that share a common source, water management agencies, and relevant public agencies, to the extent practicable.	Plan Preparation	Section 2.2
Section 2.6.2	10642	Provide supporting documentation that the water supplier has encouraged active involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during the preparation of the plan and contingency plan.	Plan Preparation	Appendix E & Appendix F
Section 2.6, Section 6.1	10631(h)	Retail suppliers will include documentation that they have provided their wholesale supplier(s) - if any - with water use projections from that source.	System Supplies	Appendix E
Section 3.1	10631(a)	Describe the water supplier service area.	System Description	Section 3.1
Section 3.3	10631(a)	Describe the climate of the service area of the supplier.	System Description	Section 3.2
Section 3.4	10631(a)	Provide population projections for 2025, 2030, 2035, 2040 and optionally 2045.	System Description	Section 3.3
Section 3.4.2	10631(a)	Describe other social, economic, and demographic factors affecting the supplier's water management planning.	System Description	Section 3.3
Sections 3.4 and 5.4	10631(a)	Indicate the current population of the service area.	System Description and Baselines and Targets	Section 3.3
Section 3.5	10631(a)	Describe the land uses within the service area.	System Description	Section 3.3
Section 4.2	10631(d)(1)	Quantify past, current, and projected water use, identifying the uses among water use sectors.	System Water Use	Chapter 4
Section 4.2.4	10631(d)(3)(C)	Retail suppliers shall provide data to show the distribution loss standards were met.	System Water Use	Section 4.2
Section 4.2.6	10631(d)(4)(A)	In projected water use, include estimates of water savings from adopted codes, plans and other policies or laws.	System Water Use	Section 4.3.2
Section 4.2.6	10631(d)(4)(B)	Provide citations of codes, standards, ordinances, or plans used to make water use projections.	System Water Use	Section 4.3.2
Section 4.3.2.4	10631(d)(3)(A)	Report the distribution system water loss for each of the 5 years preceding the plan update.	System Water Use	Appendix G
Section 4.4	10631.1(a)	Include projected water use needed for lower income housing projected in the service area of the supplier.	System Water Use	Section 4.3.4
Section 4.5	10635(b)	Demands under climate change considerations must be included as part of the drought risk assessment.	System Water Use	Section 4.3.3.4
Chapter 5	10608.20(e)	Retail suppliers shall provide baseline daily per capita water use, urban water use target, interim urban water use target, and compliance daily per capita water use, along with the bases for determining those estimates, including references to supporting data.	Baselines and Targets	Chapter 5

2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location
Chapter 5	10608.24(a)	Retail suppliers shall meet their water use target by December 31, 2020.	Baselines and Targets	Section 5.5
Section 5.2	10608.24(d)(2)	If the retail supplier adjusts its compliance GPCD using weather normalization, economic adjustment, or extraordinary events, it shall provide the basis for, and data supporting the adjustment.	Baselines and Targets	N/A
Section 5.5	10608.22	Retail suppliers' per capita daily water use reduction shall be no less than 5 percent of base daily per capita water use of the 5 year baseline. This does not apply if the suppliers base GPCD is at or below 100.	Baselines and Targets	Section 5.5
Section 5.5 and Appendix E	10608.4	Retail suppliers shall report on their compliance in meeting their water use targets. The data shall be reported using a standardized form in the SBX7-7 2020 Compliance Form.	Baselines and Targets	Appendix I & Appendix J
Sections 6.1 and 6.2	10631(b)(1)	Provide a discussion of anticipated supply availability under a normal, single dry year, and a drought lasting five years, as well as more frequent and severe periods of drought.	System Supplies	Section 6.13
Sections 6.1	10631(b)(1)	Provide a discussion of anticipated supply availability under a normal, single dry year, and a drought lasting five years, as well as more frequent and severe periods of drought, *including changes in supply due to climate change.*	System Supplies	Section 7.1
Section 6.1	10631(b)(2)	When multiple sources of water supply are identified, describe the management of each supply in relationship to other identified supplies.	System Supplies	Section 7.2
Section 6.1.1	10631(b)(3)	Describe measures taken to acquire and develop planned sources of water.	System Supplies	Section 6.11
Section 6.2.8	10631(b)	Identify and quantify the existing and planned sources of water available for 2020, 2025, 2030, 2035, 2040 and optionally 2045.	System Supplies	Section 6.13
Section 6.2	10631(b)	Indicate whether groundwater is an existing or planned source of water available to the supplier.	System Supplies	Section 6.7
Section 6.2.2	10631(b)(4)(A)	Indicate whether a groundwater sustainability plan or groundwater management plan has been adopted by the water supplier or if there is any other specific authorization for groundwater management. Include a copy of the plan or authorization.	System Supplies	Section 6.7
Section 6.2.2	10631(b)(4)(B)	Describe the groundwater basin.	System Supplies	Section 6.7.1
Section 6.2.2	10631(b)(4)(B)	Indicate if the basin has been adjudicated and include a copy of the court order or decree and a description of the amount of water the supplier has the legal right to pump.	System Supplies	N/A
Section 6.2.2.1	10631(b)(4)(B)	For unadjudicated basins, indicate whether or not the department has identified the basin as a high or medium priority. Describe efforts by the supplier to coordinate with sustainability or groundwater agencies to achieve sustainable groundwater conditions.	System Supplies	Section 6.7.3
Section 6.2.2.4	10631(b)(4)(C)	Provide a detailed description and analysis of the location, amount, and sufficiency of groundwater pumped by the urban water supplier for the past five years	System Supplies	Section 6.7.2
Section 6.2.2	10631(b)(4)(D)	Provide a detailed description and analysis of the amount and location of groundwater that is projected to be pumped.	System Supplies	Section 6.13
Section 6.2.7	10631(c)	Describe the opportunities for exchanges or transfers of water on a short-term or long- term basis.	System Supplies	Section 6.5.2
Section 6.2.5	10633(b)	Describe the quantity of treated wastewater that meets recycled water standards, is being discharged, and is otherwise available for use in a recycled water project.	System Supplies (Recycled Water)	Section 6.8.2
Section 6.2.5	10633(c)	Describe the recycled water currently being used in the supplier's service area.	System Supplies (Recycled Water)	Section 6.8.3

2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location
Section 6.2.5	10633(d)	Describe and quantify the potential uses of recycled water and provide a determination of the technical and economic feasibility of those uses.	System Supplies (Recycled Water)	Section 6.8.3
Section 6.2.5	10633(e)	Describe the projected use of recycled water within the supplier's service area at the end of 5, 10, 15, and 20 years, and a description of the actual use of recycled water in comparison to uses previously projected.	System Supplies (Recycled Water)	Section 6.8.3
Section 6.2.5	10633(f)	Describe the actions which may be taken to encourage the use of recycled water and the projected results of these actions in terms of acre-feet of recycled water used per year.	System Supplies (Recycled Water)	Section 6.8.4
Section 6.2.5	10633(g)	Provide a plan for optimizing the use of recycled water in the supplier's service area.	System Supplies (Recycled Water)	Section 6.8.4
Section 6.2.6	10631(g)	Describe desalinated water project opportunities for long-term supply.	System Supplies	Section 6.9
Section 6.2.5	10633(a)	Describe the wastewater collection and treatment systems in the supplier’s service area with quantified amount of collection and treatment and the disposal methods.	System Supplies (Recycled Water)	Section 6.8.2
Section 6.2.8, Section 6.3.7	10631(f)	Describe the expected future water supply projects and programs that may be undertaken by the water supplier to address water supply reliability in average, single-dry, and for a period of drought lasting 5 consecutive water years.	System Supplies	Section 6.11
Section 6.4 and Appendix O	10631.2(a)	The UWMP must include energy information, as stated in the code, that a supplier can readily obtain.	System Suppliers, Energy Intensity	Section 6.12
Section 7.2	10634	Provide information on the quality of existing sources of water available to the supplier and the manner in which water quality affects water management strategies and supply reliability	Water Supply Reliability Assessment	Section 6.6 & Section 7.1
Section 7.2.4	10620(f)	Describe water management tools and options to maximize resources and minimize the need to import water from other regions.	Water Supply Reliability Assessment	Chapter 6
Section 7.3	10635(a)	Service Reliability Assessment: Assess the water supply reliability during normal, dry, and a drought lasting five consecutive water years by comparing the total water supply sources available to the water supplier with the total projected water use over the next 20 years.	Water Supply Reliability Assessment	Section 7.2
Section 7.3	10635(b)	Provide a drought risk assessment as part of information considered in developing the demand management measures and water supply projects.	Water Supply Reliability Assessment	Section 7.3
Section 7.3	10635(b)(1)	Include a description of the data, methodology, and basis for one or more supply shortage conditions that are necessary to conduct a drought risk assessment for a drought period that lasts 5 consecutive years.	Water Supply Reliability Assessment	Section 7.3
Section 7.3	10635(b)(2)	Include a determination of the reliability of each source of supply under a variety of water shortage conditions.	Water Supply Reliability Assessment	Section 7.2
Section 7.3	10635(b)(3)	Include a comparison of the total water supply sources available to the water supplier with the total projected water use for the drought period.	Water Supply Reliability Assessment	Section 7.2

2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location
Section 7.3	10635(b)(4)	Include considerations of the historical drought hydrology, plausible changes on projected supplies and demands under climate change conditions, anticipated regulatory changes, and other locally applicable criteria.	Water Supply Reliability Assessment	Section 7.2
Chapter 8	10632(a)	Provide a water shortage contingency plan (WSCP) with specified elements below.	Water Shortage Contingency Planning	Appendix K
Chapter 8	10632(a)(1)	Provide the analysis of water supply reliability (from Chapter 7 of Guidebook) in the WSCP	Water Shortage Contingency Planning	Appendix K Section 1.1
Section 8.10	10632(a)(10)	Describe reevaluation and improvement procedures for monitoring and evaluation the water shortage contingency plan to ensure risk tolerance is adequate and appropriate water shortage mitigation strategies are implemented.	Water Shortage Contingency Planning	Appendix K Section 1.10
Section 8.2	10632(a)(2)(A)	Provide the written decision-making process and other methods that the supplier will use each year to determine its water reliability.	Water Shortage Contingency Planning	Appendix K Section 1.2
Section 8.2	10632(a)(2)(B)	Provide data and methodology to evaluate the supplier's water reliability for the current year and one dry year pursuant to factors in the code.	Water Shortage Contingency Planning	Appendix K Section 1.2
Section 8.3	10632(a)(3)(A)	Define six standard water shortage levels of 10, 20, 30, 40, 50 percent shortage and greater than 50 percent shortage. These levels shall be based on supply conditions, including percent reductions in supply, changes in groundwater levels, changes in surface elevation, or other conditions. The shortage levels shall also apply to a catastrophic interruption of supply.	Water Shortage Contingency Planning	Appendix K Section 1.3
Section 8.3	10632(a)(3)(B)	Suppliers with an existing water shortage contingency plan that uses different water shortage levels must cross reference their categories with the six standard categories.	Water Shortage Contingency Planning	Appendix K Section 1.3
Section 8.4	10632(a)(4)(A)	Suppliers with water shortage contingency plans that align with the defined shortage levels must specify locally appropriate supply augmentation actions.	Water Shortage Contingency Planning	Appendix K Section 1.4
Section 8.4	10632(a)(4)(B)	Specify locally appropriate demand reduction actions to adequately respond to shortages.	Water Shortage Contingency Planning	Appendix K Section 1.4.1
Section 8.4	10632(a)(4)(C)	Specify locally appropriate operational changes.	Water Shortage Contingency Planning	Appendix K Section 1.4.3
Section 8.4	10632(a)(4)(D)	Specify additional mandatory prohibitions against specific water use practices that are in addition to state-mandated prohibitions are appropriate to local conditions.	Water Shortage Contingency Planning	Appendix K Section 1.4
Section 8.4	10632(a)(4)(E)	Estimate the extent to which the gap between supplies and demand will be reduced by implementation of the action.	Water Shortage Contingency Planning	DWR UWMP Table 8-2
Section 8.4.6	10632.5	The plan shall include a seismic risk assessment and mitigation plan.	Water Shortage Contingency Plan	Appendix K Section 1.4.5
Section 8.5	10632(a)(5)(A)	Suppliers must describe that they will inform customers, the public and others regarding any current or predicted water shortages.	Water Shortage Contingency Planning	Appendix K Section 1.5
Section 8.5 and 8.6	10632(a)(5)(B) 10632(a)(5)(C)	Suppliers must describe that they will inform customers, the public and others regarding any shortage response actions triggered or anticipated to be triggered and other relevant communications.	Water Shortage Contingency Planning	Appendix K Section 1.5
Section 8.6	10632(a)(6)	Retail supplier must describe how it will ensure compliance with and enforce provisions of the WSCP.	Water Shortage Contingency Planning	Appendix K Section 1.6
Section 8.7	10632(a)(7)(A)	Describe the legal authority that empowers the supplier to enforce shortage response actions.	Water Shortage Contingency Planning	Appendix K Section 1.7

2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location
Section 8.7	10632(a)(7)(B)	Provide a statement that the supplier will declare a water shortage emergency Water Code Chapter 3.	Water Shortage Contingency Planning	Appendix K Section 1.4
Section 8.7	10632(a)(7)(C)	Provide a statement that the supplier will coordinate with any city or county within which it provides water for the possible proclamation of a local emergency.	Water Shortage Contingency Planning	Appendix K Section 1.5
Section 8.8	10632(a)(8)(A)	Describe the potential revenue reductions and expense increases associated with activated shortage response actions.	Water Shortage Contingency Planning	Appendix K Section 1.8
Section 8.8	10632(a)(8)(B)	Provide a description of mitigation actions needed to address revenue reductions and expense increases associated with activated shortage response actions.	Water Shortage Contingency Planning	Appendix K Section 1.8
Section 8.8	10632(a)(8)(C)	Retail suppliers must describe the cost of compliance with Water Code Chapter 3.3: Excessive Residential Water Use During Drought	Water Shortage Contingency Planning	Appendix K Section 1.8
Section 8.9	10632(a)(9)	Retail suppliers must describe the monitoring and reporting requirements and procedures that ensure appropriate data is collected, tracked, and analyzed for purposes of monitoring customer compliance.	Water Shortage Contingency Planning	Appendix K Section 1.9
Section 8.11	10632(b)	Analyze and define water features that are artificially supplied with water, including ponds, lakes, waterfalls, and fountains, separately from swimming pools and spas.	Water Shortage Contingency Planning	Appendix K Section 1.11
Sections 8.12 and 10.4	10635(c)	Provide supporting documentation that Water Shortage Contingency Plan has been, or will be, provided to any city or county within which it provides water, no later than 30 days after the submission of the plan to DWR.	Plan Adoption, Submittal, and Implementation	Appendix K Section 1.12
Section 8.14	10632(c)	Make available the Water Shortage Contingency Plan to customers and any city or county where it provides water within 30 after adopted the plan.	Water Shortage Contingency Planning	Appendix K Section 1.12
Sections 9.2 and 9.3	10631(e)(1)	Retail suppliers shall provide a description of the nature and extent of each demand management measure implemented over the past five years. The description will address specific measures listed in code.	Demand Management Measures	Section 9
Chapter 10	10608.26(a)	Retail suppliers shall conduct a public hearing to discuss adoption, implementation, and economic impact of water use targets (recommended to discuss compliance).	Plan Adoption, Submittal, and Implementation	Appendix E
Section 10.2.1	10621(b)	Notify, at least 60 days prior to the public hearing, any city or county within which the supplier provides water that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan. Reported in Table 10-1.	Plan Adoption, Submittal, and Implementation	Appendix E
Section 10.4	10621(f)	Each urban water supplier shall update and submit its 2020 plan to the department by July 1, 2021.	Plan Adoption, Submittal, and Implementation	Appendix E
Sections 10.2.2, 10.3, and 10.5	10642	Provide supporting documentation that the urban water supplier made the plan and contingency plan available for public inspection, published notice of the public hearing, and held a public hearing about the plan and contingency plan.	Plan Adoption, Submittal, and Implementation	Appendix E
Section 10.2.2	10642	The water supplier is to provide the time and place of the hearing to any city or county within which the supplier provides water.	Plan Adoption, Submittal, and Implementation	Appendix E
Section 10.3.2	10642	Provide supporting documentation that the plan and contingency plan has been adopted as prepared or modified.	Plan Adoption, Submittal, and Implementation	Appendix E

2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location
Section 10.4	10644(a)	Provide supporting documentation that the urban water supplier has submitted this UWMP to the California State Library.	Plan Adoption, Submittal, and Implementation	Section 10.2
Section 10.4	10644(a)(1)	Provide supporting documentation that the urban water supplier has submitted this UWMP to any city or county within which the supplier provides water no later than 30 days after adoption.	Plan Adoption, Submittal, and Implementation	Section 10.2
Sections 10.4.1 and 10.4.2	10644(a)(2)	The plan, or amendments to the plan, submitted to the department shall be submitted electronically.	Plan Adoption, Submittal, and Implementation	Section 10.2
Section 10.5	10645(a)	Provide supporting documentation that, not later than 30 days after filing a copy of its plan with the department, the supplier has or will make the plan available for public review during normal business hours.	Plan Adoption, Submittal, and Implementation	Section 10.3
Section 10.5	10645(b)	Provide supporting documentation that, not later than 30 days after filing a copy of its water shortage contingency plan with the department, the supplier has or will make the plan available for public review during normal business hours.	Plan Adoption, Submittal, and Implementation	Section 10.3
Section 10.6	10621(c)	If supplier is regulated by the Public Utilities Commission, include its plan and contingency plan as part of its general rate case filings.	Plan Adoption, Submittal, and Implementation	N/A
Section 10.7.2	10644(b)	If revised, submit a copy of the water shortage contingency plan to DWR within 30 days of adoption.	Plan Adoption, Submittal, and Implementation	N/A

Appendix B: DWR UWMP Standard Tables

2-1R | Public Water Systems

Public Water System Number	Public Water System Name	Number of Municipal Connections 2020	Volume of Water Supplied 2020
CA4210010	CITY OF SANTA BARBARA WATER DEPARTMENT	27,405	9,860
Total:		**27,405**	**9,860**
Includes potable water connections and water supplied only. Does not include sales/transfers/exchanges. Does not include recycled water system deliveries.			

2-2 | Public Water Systems

Type of Plan	**Member of RUWMP**	**Member of Regional Alliance**	**Name of RUWMP or Regional Alliance**
Individual UWMP	No	No	N/A

2-3 | Agency Identification

Type of Supplier	Year Type	First Day of Year		Unit Type
		DD	MM	
Retailer	Fiscal Years	1	7	Acre Feet (AF)

Conversion to Gallons: *325851*
Conversion to Gallons per Day: *892.7425*

2-4R | Water Supplier Information Exchange

Wholesale Water Supplier Name
Central Coast Water Authority
United States Bureau of Reclamation / Cachuma Operation and Maitenance Board

3-1R | Current & Projected Population

Population Served	**2020**	**2025**	**2030**	**2035**	**2040**	**2045**
City Limits	93,511	97,187	99,373	101,332	103,292	105,251
Mission Canyon	2,516	2,588	2,660	2,731	2,802	2,873
Total	**96,027**	**99,775**	**102,033**	**104,063**	**106,094**	**108,124**

Sources:
City Limits: 2020 value from CDOF and growth rate from SBCAG 2019 Regional Growth Forecast 2050.
Mission Canyon: Based on 2010 census data and growth is based on Mission Canyon Community Plan EIR (2014).

4-1R | Actual Demands for Water

Use Type	**Additional Description**	**Level of Treatment When Delivered**	**2020 Volume**
Single Family		Drinking Water	4,043
Multi-Family		Drinking Water	2,459
Commercial		Drinking Water	1,638
Industrial		Drinking Water	164
Institutional/Governmental	included in commercial	Drinking Water	
Landscape		Drinking Water	514
Agricultural irrigation		Drinking Water	
Sales/Transfers/Exchanges to Other Agencies		Drinking Water	31
Losses		Drinking Water	1,042
Other		Drinking Water	
		Total:	**9,891**

Losses includes all non-revenue water.
Does not include recycled water

4-2R | Projected Demands for Water

Use Type	**Additional Description**	**Projected Water Use**				
		2025	**2030**	**2035**	**2040**	**2045**
Single Family		4,429	4,584	4,460	4,395	4,351
Multi-Family		2,778	2,918	2,885	2,892	2,919
Commercial		2,142	2,366	2,464	2,605	2,738
Industrial		228	250	259	270	283
Institutional/Governmental	included with commercial	-	-	-	-	-
Landscape		604	654	680	715	758
Agricultural irrigation		-	-	-	-	-
Sales/Transfers/Exchanges to Other Agencies	MWD WSA	1,430	1,430	1,430	1,430	1,430
Losses		1,058	1,174	1,178	1,191	1,210
Other	Blend water to recycled water system	-	-	-	-	-
Total:		**12,669**	**13,376**	**13,356**	**13,498**	**13,689**

Sales includes the City's Water Suppply Agreement (WSA) with Montecito Water District.
Losses includes all non-revenue water.
Other (blend water for recycled water system) is not planned for following recent recycled water treatment plant upgrades.

4-3R | Total Gross Water Use

	2020	2020	2030	2035	2040	2045
Potable and Raw Water From Table 4-1R and 4-2R	9,891	12,669	13,376	13,356	13,498	13,689
Recycled Water Demand* From Table 6-4R	945	1,221	1,221	1,221	1,221	1,221
Total Water Use:	**10,836**	**13,890**	**14,597**	**14,577**	**14,719**	**14,910**

4-4R | 12 Month Water Loss Audit Reporting

Report Period Start Date		Volume of Water Loss*
MM	YYYY	
7	2016	177
7	2017	22
7	2018	-234
7	2019	955
7	2020	1,042

<add note about meter replacements>

4-5R | Inclusion in Water Use Projections

Are Future Water Savings Included in Projections? Refer to Appendix K of UWMP Guidebook.	Yes
Section or page number where the citations utilized in the demand projects can it be found:	Section 4.3
Are Lower Income Residential Demands Included in Projections?	Yes

5-1R | Baselines & Targets Summary

Baseline Period	Start Year	End Year	Average Baseline GPCD*	Confirmed 2020 Target *
10-15 Year	2000	2009	130	117
5 Year	2006	2010	135	N/A
*All values are in Gallons per Capita per Day (GPCD)				

5-2R | 2020 Compliance

Actual 2020 GPCD*	Optional Adjustments to 2020 GPCD					2020 GPCD* (Adjusted if applicable)	Supplier Achieved Targeted Reduction in 2020
	Extraordinary Events*	Economic Adjustment*	Weather Normalization*	Total Adjustments*	Adjusted 2020 GPCD*		
92				0	0	0	Yes

*All values are in Gallons per Capita per Day (GPCD)

6-1R | Groundwater Volume Pumped

Select One

Groundwater Type	Location or Basin Name	2016	2017	2018	2019	2020
Alluvial Basin	Foothill Basin	1,901	1,544	164	432	199
Alluvial Basin	Storage Unit #1	580	628	-	-	-
Alluvial Basin	Storage Unit #3	61	14	-	26	-
	Total:	**2,542**	**2,186**	**164**	**458**	**199**

6-2R | Wastewater Collected within Service Area in 2020

The supplier will complete the table.

Percentage of 2020 service area covered by wastewater collection system (optional):

Percentage of 2020 service area population covered by wastewater collection system (optional):

Wastewater Collection			**Recipient of Collected Wastewater**			
Name of Wastewater Collection Agency	**Wastewater Volume Metered or Estimated**	**Wastewater Volume Collected from UWMP Service Area in 2020**	**Name of Wastewater Agency Receiving Collected Wastewater**	**Wastewater Treatment Plant Name**	**Wastewater Treatment Plant Located within UWMP Area**	**WWTP Operation Contracted to a Third Party**
City of Santa Barbara	Estimated	6,291	**City of Santa Barbara**	El Estero	Yes	No
County Service Area	Estimated	153	**City of Santa Barbara**	El Estero	Yes	No
Goleta Sanitary District	Estimated	25	**Goleta Sanitary District**	Goleta WWTP	No	No
	Total:	**6,469**				

A small amount of parcels on the western edge of the City's water sercie area receives sewer service the from the adjacent Goleta Sanitary District. These parcels account for 93 accounts out of approximately 25,400 City sewer accounts.
As of 2009, there were approximately 785 parcels connected to on-site septic systems treating an estimated 400 ac-ft per year of flow.

6-3R | Wastewater Treatment & Discharge Within Service Area in 2020

The supplier will complete the table.

Wastewater Treatment Plant Name	Discharge Location Name or Identifier	Discharge Location Description	Wastewater Discharge ID Number	Method of Disposal	Plant Treats Wastewater Generated Outside the Service Area	Treatment Level	2020 Volumes				
							Wastewater Treated	Discharged Treated Wastewater	Recycled Within Service Area	Recycled Outside of Service Area	Instream Flow Permit Requirement
El Estero	El Estero Outfall	Pacific Ocean	NPDES NO. CA0048143	Ocean outfall	Yes	Secondary, Disinfected - 23	6,444	5,499	945	-	-
						Total:	**6,444**	**5,499**	**945**	**-**	**-**

Wastewater generated outside of the City's water service area generally originates from either neighborhoods on their own groundwater wells or small areas of County land that themselves lie completely within City limits. These "islands" are served potable water by Goleta Water District.

6-4R | Recycled Water Direct Beneficial Uses Within Service Area

The supplier will complete the table.

Name of Supplier Producing (Treating) the Recycled Water:	City of Santa Barbara
Name of Supplier Operating the Recycled Water Distribution System:	City of Santa Barbara
Supplemental Volume of Water Added in 2020:	81 AF
Source of 2020 Supplemental Water:	Non-potable well

Beneficial Use Type	Potential Beneficial Uses of Recycled Water	Amount of Potential Uses of Recycled Water	General Description of 2020 Uses	Level of Treatment	2020	2025	2030	2035	2040	2045
Landscape Irrigation (excludes golf courses)				Tertiary	356	500	500	500	500	500
Golf Course Irrigation				Tertiary	311	400	400	400	400	400
Commercial Use				Tertiary	6	20	20	20	20	20
Industrial Use			see notes	Tertiary	271	300	300	300	300	300
Other			see notes	Tertiary	1	1	1	1	1	1
				Total:	**945**	**1,221**	**1,221**	**1,221**	**1,221**	**1,221**
Internal Reuse (Not included in Statewide Recycled Water Volume).										

"Industrial Use" includes process water and irrigation used at El Estero WRC.
"Other" includes dust control, flushing sewers, vactor trucks.

6-5R | 2015 Recycled Water Use Projection Compared to 2020 Actual

The supplier will complete the table.

Use Type	2015 Projection for 2020	2020 Actual Use
Agricultural Irrigation		-
Landscape Irrigation (excludes golf courses)		356
Golf Course Irrigation		311
Commercial Use		6
Industrial Use		271
Geothermal and Other Energy Production		-
Seawater Intrusion Barrier		-
Recreational Impoundment		-
Wetlands or Wildlife Habitat		-
Groundwater Recharge (IPR)*		-
Surface Water Augmentation (IPR)*		-
Direct Potable Reuse		-
Other	675	1
Total:	**675**	**945**

In 2015, "Other" includes all recycled water uses: landsacape irrigation, golf course irrigation, and commercial use (toilet flushing). In 2020, "Other" includes dust control, flushing sewers, vactor trucks. Industrial Use includes process water, and irrigation used at El Estero WRC.

6-6R | Methods to Expand Future Recycled Water Use

The supplier will complete the table below.

Name of Action	Description	Planned Implementation Year	Expected Increase of Recycled Water Use
Expand non-potable reuse	Construct distribution pipelines to expand non-potable reuse	2025	200
Potable reuse	Re-evaluate direct potable reuse once regulations are issued by California	2030	4,000
		Total:	**4,200**

The City's 2020 Long-Term Water Supply Plan recommended re-evaluating the feasibility and cost of direct potable reuse once potable reuse regulations are issued by California and the City needs a new water supply. The potential use is dependent on the supply need at the time.

6-7R | Expected Future Water Supply Projects or Programs

Some or all of the supplier's future water supply projects or programs are not compatible with this table and are described in a narrative format.

		Page Location for Narrative in UWMP:	Section 6.12			
Name of Future Projects or Programs	**Joint Project with Other Suppliers**	**Agency Name**	**Description**	**Planned Implementation Year**	**Planned for Use in Year Type**	**Expected Increase in Water Supply to Supplier**
Water Conservation Program	No		Refer to Chapter 6 text		All Year Types	
Cachuma Project Carryover Storage	Yes	USBR, COMB, CCRB	Refer to Chapter 6 text		All Year Types	
Gibraltar Reservoir Pass-Through Operations	Yes	USBR, COMB, CCRB	Refer to Chapter 6 text		All Year Types	
Optimized Groundwater Management	No		Refer to Chapter 6 text		All Year Types	
Increased SWP Delivery Reliability	Yes	CCWA	Refer to Chapter 6 text		All Year Types	
Recycled Water System Expansion	No		Refer to Chapter 6 text		All Year Types	
Potable Reuse	No		Refer to Chapter 6 text		All Year Types	
Desalination Expansion	No		Refer to Chapter 6 text		All Year Types	

6-8R | Actual Water Supplies

Water Supply	**Additional Detail on Water Supply**	**2020**		
		Actual Volume	**Water Quality**	**Total Right or Safe Yield**
Surface water (not desalinated)	Cachuma Project	1,565	Drinking Water	
Surface water (not desalinated)	Lake Gibraltar	3,836	Drinking Water	
Surface water (not desalinated)	Devil's Canyon	100	Drinking Water	
Other	Mission Tunnel (infiltration)	1,128	Drinking Water	
Groundwater (not desalinated)		199	Drinking Water	
Desalinated Water - Surface Water		2,763	Drinking Water	
Recycled Water	Non-potable reuse	945	Recycled Water	
Transfers	From Montecito Water District	300		
Purchased or Imported Water	State Water Project	-		
	Total:	**10,836**		**-**

6-8DS | Source Water Desalination

The supplier will complete the table below.

Plant Name or Well ID	Plant Capacity	Intake Type	Source Water Type	Influent TDS	Brine Discharge	Volume of Water Desalinated in AFY				
						2016	2017	2018	2019	2020
Charles Meyer Desalination Plan	3	Open-water Intake (screened or unscreened)	Sea Water	34,500	Sewer	-	71	1,680	3,071	2,763
					Total:	**-**	**71**	**1,680**	**3,071**	**2,763**

6-9R | Projected Water Supplies

		Projected Water Supply									
		2025		2030		2035		2040		2045	
Water Supply	**Additional Detail on Water Supply**	**Reasonably Available Volume**	**Total Right or Safe Yield**	**Reasonably Available Volume**	**Total Right or Safe Yield**	**Reasonably Available Volume**	**Total Right or Safe Yield**	**Reasonably Available Volume**	**Total Right or Safe Yield**	**Reasonably Available Volume**	**Total Right or Safe Yield**
Surface water (not desalinated)	Cachuma Project	8,277		8,277		8,277		8,277		8,277	
Surface water (not desalinated)	Gibraltar Reservoir / Devil's Canyon	3,510		3,510		3,510		3,510		3,510	
Other	Mission Tunnel Infiltration	1,210		1,210		1,210		1,210		1,210	
Purchased or Imported Water	SWP Table A Allocation	1,865		1,815		1,766		1,716		1,716	
Groundwater (not desalinated)	Storage Unit #1 and Foothill Basin	1,250		1,250		1,250		1,250		1,250	
Desalinated Water - Surface Water	Charles E. Meyer Ocean Desalination Facility	3,125		5,000		5,000		5,000		5,000	
Recycled Water	Non-Potable	1,221		1,221		1,221		1,221		1,221	
Groundwater (not desalinated)	Storage Unit #3 (augment recycled water system)	-		-		-		-		-	
Transfers	Annual transfer from Montecito Water District per Juncal Agreement	300		300		300		300		300	
	Total:	**20,758**	**-**	**22,583**	**-**	**22,534**	**-**	**22,484**	**-**	**22,484**	**-**

Note: Refer to text for the basis for the water supply projections

7-1R | Basis of Water Year Data (Reliability Assessment)

Quantification of available supplies is not compatible with this table and is provided elsewhere in the UWMP.

Page Location for Narrative in UWMP: Section 7.2.3

Year Type	Base Year	Available Supply if Year Type Repeats	
		Volume Available	Percent of Average Supply
Average Year			
Single-Dry Year			
Consecutive Dry Years 1st Year			
Consecutive Dry Years 2nd Year			
Consecutive Dry Years 3rd Year			
Consecutive Dry Years 4th Year			
Consecutive Dry Years 5th Year			

7-2R | Normal Year Supply and Demand Comparison

	2025	2030	2035	2040	2045
Supply Totals From Table 6-9R	20,758	22,583	22,534	22,484	22,484
Demand Totals From Table 4-3R	13,890	14,597	14,577	14,719	14,910
Difference:	**6,868**	**7,986**	**7,957**	**7,765**	**7,574**

7-3R | Single Dry Year Supply & Demand Comparison

	2025	2030	2035	2040	2045
Supply Totals	13,890	14,600	14,580	14,720	14,910
Demand Totals	13,890	14,600	14,580	14,720	14,910
Difference:	**0**	**0**	**0**	**0**	**0**

Note: Refer to supporting table for assumptions for each indivdual supply availability. Cachuma Project carryover water is used to meet supply shortfalls in a single dry year.

7-4R | Multiple Dry Years Supply & Demand Comparison

		2025	2030	2035	2040	2045
First Year	**Supply Totals**	23,050	24,930	24,930	24,930	24,930
	Demand Totals	13,890	14,600	14,580	14,720	14,910
	Difference:	**9,160**	**10,330**	**10,350**	**10,210**	**10,020**
Second Year	**Supply Totals**	22,350	24,220	24,220	24,220	24,220
	Demand Totals	13,890	14,600	14,580	14,720	14,910
	Difference:	**8,460**	**9,620**	**9,640**	**9,500**	**9,310**
Third Year	**Supply Totals**	20,680	22,560	22,560	22,560	22,560
	Demand Totals	13,890	14,600	14,580	14,720	14,910
	Difference:	**6,790**	**7,960**	**7,980**	**7,840**	**7,650**
Fourth Year	**Supply Totals**	16,300	18,170	18,170	18,170	18,170
	Demand Totals	13,890	14,600	14,580	14,720	14,910
	Difference:	**2,410**	**3,570**	**3,590**	**3,450**	**3,260**
Fifth Year	**Supply Totals**	12,020	13,900	13,900	13,900	13,900
	Demand Totals	11,110	11,680	11,660	11,770	11,930
	Difference:	**910**	**2,220**	**2,240**	**2,130**	**1,970**
Sixth Year	**Supply Totals**					
	Demand Totals					
	Difference:	**0**	**0**	**0**	**0**	**0**

Note: Extraordinary conservation measures are assumed to be implemented to reduce total demand by 20% in Year 5

7-5 | Five-Year Drought Risk Assessment Tables to Address Water Code Section 10635(b)

2021	**Gross Water Use**	11,090
	Total Supplies	45,970
	Surplus/Shortfall without WSCP Action	**34,880**
	Planned WSCP Actions (Use Reduction and Supply Augmentation)	
	WSCP (Supply Augmentation Benefit)	0
	WSCP (Use Reduction Savings Benefit)	0
	Revised Surplus/Shortfall	**34,880**
	Resulting Percent Use Reduction from WSCP Action	**0%**
2022	**Gross Water Use**	12,110
	Total Supplies	47,330
	Surplus/Shortfall without WSCP Action	**35,220**
	Planned WSCP Actions (Use Reduction and Supply Augmentation)	
	WSCP (Supply Augmentation Benefit)	0
	WSCP (Use Reduction Savings Benefit)	0
	Revised Surplus/Shortfall	**35,220**
	Resulting Percent Use Reduction from WSCP Action	**0%**
2023	**Gross Water Use**	13,160
	Total Supplies	44,080
	Surplus/Shortfall without WSCP Action	**30,920**
	Planned WSCP Actions (Use Reduction and Supply Augmentation)	
	WSCP (Supply Augmentation Benefit)	0
	WSCP (Use Reduction Savings Benefit)	0
	Revised Surplus/Shortfall	**30,920**
	Resulting Percent Use Reduction from WSCP Action	**0%**
2024	**Gross Water Use**	13,510
	Total Supplies	35,960
	Surplus/Shortfall without WSCP Action	**22,450**
	Planned WSCP Actions (Use Reduction and Supply Augmentation)	
	WSCP (Supply Augmentation Benefit)	0
	WSCP (Use Reduction Savings Benefit)	0
	Revised Surplus/Shortfall	**22,450**
	Resulting Percent Use Reduction from WSCP Action	**0%**
2025	**Gross Water Use**	13,890
	Total Supplies	27,550
	Surplus/Shortfall without WSCP Action	**13,660**
	Planned WSCP Actions (Use Reduction and Supply Augmentation)	
	WSCP (Supply Augmentation Benefit)	0
	WSCP (Use Reduction Savings Benefit)	0
	Revised Surplus/Shortfall	**13,660**
	Resulting Percent Use Reduction from WSCP Action	**0%**

Note: Refer to Section 7.4 for for assumptions for each indivdual supply availability.

8-1 | Water Shortage Contingency Plan Levels

Shortage Level	**Percent Shortage Range[1] (Numerical Value as a Percent)**	**Water Shortage Condition**
Normal Supply	0%	Full Cachuma entitlement is projected for the coming water year and there are no extraordinary shortages in other City supplies.
1	0% -15%	Water Shortage Watch: A Cachuma entitlement reduction is projected for the coming water year, assuming continued dry weather; or an extraordinary reduction in other City supplies has been identified.
2	15% - 25%	Water Shortage Alert: Continuing conditions of average or less rainfall have resulted in continued decline in Cachuma storage following a reduction in entitlement; or an extraordinary reduction in other City supplies has been identified.
3	25% - 50%	Water Shortage Emergency: Cachuma supplies are projected to be exhausted during the coming water year; or a catastrophic interruption to City water supplies has occurred.
4	> 50%	Catatrophic Water System Emergency: Catastrophic interruption to City water supplies has occurred

[1] One stage in the Water Shortage Contingency Plan must address a water shortage of 50%.

8-2 | Demand Reduction Actions

Shortage Level	Demand Reduction Actions	How much is this going to reduce the shortage gap? [1]	Additional Explanation or Reference	Penalty, Charge, or Other Enforcement
All	Expand Public Information Campaign	0-5%	Community outreach that includes increased advertising, presentations to community groups, workshops, and enhanced website resources	No
All	Offer Water Use Surveys	0-1%	Indoor and outdoor water checkups available to all customer classes	No
All	Provide Rebates on Plumbing Fixtures and Devices	0-1%	Offer or expand rebates on a variety of plumbing fixtures that are high efficiency such as washers, toilets, and urinals	No
All	Provide Rebates for Landscape Irrigation Efficiency	0-1%	Offer or expand rebates for drip irrigation conversions, smart irrigation controllers, water wise plants, and rain sensors to improve efficiency	No
All	Provide Rebates for Turf Replacement	0-1%	Offer or expand rebates for community members who wish to replace their turf with a water wise garden	No
All	Decrease Line Flushing, or Pursue Zero Discharge Flushing Methods	0-1%	The City uses zero discharge water recycling trucks for water main and wastewater collection system cleaning.	No
All	Other – Leaky device	0-1%	Customers are required to repair any leaky or malfunctioning devices within 72 hours of notification of leak	Yes
All	Landscape – Runoff	0-1%	Landscape irrigation in excess leading to runoff onto nearby surfaces is prohibited	Yes
All	Other – Post-rainfall prohibition	0-1%	Prohibit irrigation with potable water during and within 48 hours after measurable rainfall	Yes
1	Reduce System Water Loss	0-1%	The City increases efforts to correct water system losses, including repairing leaks and eliminating illicit connections.	No
2	Increase Water Waste Patrols	0-1%	Patrols to discourage water wasting and correct water wasting practices in the community.	Yes
2	Other - Nozzles	0-1%	Only hoses with automatic shutoff nozzle fixtures are permitted	Yes
2	Other - Prohibit vehicle washing	0-1%	Prohibit washings cars, boats, trailers, aircraft, or other vehicles except with hose shutoff nozzle or at commercial or fleet vehicle washing facilities using water recycling equipment	Yes
2	Landscape - Limit landscape irrigation to specific times	0-5%	Prohibit irrigation during the hours when evaporation is highest.	Yes
2	CII - Lodging linen service	0-1%	Hotels/motels must provide guests with option to reuse towels and linens for more than one day	Yes

Shortage Level	Demand Reduction Actions	How much is this going to reduce the shortage gap? 1	Additional Explanation or Reference	Penalty, Charge, or Other Enforcement
2	CII - Restaurants serve water upon request	0-1%	No restaurant, hotel, café, cafeteria, or other public place where food is served shall serve drinking water to any customer unless expressly requested	Yes
2	Other	0-1%	Require posting of water shortage notice at restaurants, hotels/motels, and commercial showering & car washing facilities	Yes
2	Pools and Spas - Require covers for pools and spas	0-1%	Require covers for swimming pools and spas when not in use	Yes
3	Other - Prohibit use of potable water for washing hard surfaces	0-1%	Prohibit use of potable water to wash sidewalks, walkways, driveways, parking lots, open ground, or other hard surfaced areas except where necessary for public health or safety.	Yes
3	Landscape - Limit landscape irrigation to specific days	5-10%	Limit to assigned watering days, may depend on seasonal changes as well such as summer and winter.	Yes
3	Water Features - Restrict water use for decorative water features	0-1%	Prohibit use of potable water to fill or maintain decorative fountains and water features unless located in indoors or home to aquatic life.	Yes
3	Other water feature or swimming pool restriction	0-1%	Restrict draining and refiling of pools	Yes
3	Other	0-1%	Limit the use of potable water hydrant meters, except as exempted by the Public Works Director	Yes
4	Landscape - Other landscape restriction or prohibition	5-10%	Restrict irrigation to high efficiency methods	Yes
4	Landscape - Other landscape restriction or prohibition	5-20%	Restrict irrigation to watering by hand only	Yes
4	Landscape - Other landscape restriction or prohibition	5-20%	Prohibit/restrict irrigation of turf	Yes
4	Other	20-40%	Prohibit all outdoor water use	Yes
4	Other	20-70%	Institute water rationing	Yes
4	Moratorium or Net Zero New Demand	0-1%	The City may temporarily limit or ban new water service connections within the service area.	No

Notes:
1.Reduction in the shortage gap is estimated and can vary significantly.

8-3R | Supply Augmentation & Other Actions

Shortage Level	Supply Augmentation Methods and Other Actions by Water Supplier	How much is this going to reduce the shortage gap?	Additional Explanation or Reference
All	Groundwater	Varying	Groundwater is pumped from drought storage volume. The amount is dependent on diminished quantity from City's supply portfolio
All	Water Purchases	Varying	Amount of water purchased dependent on diminished quantity from City's supply portfolio

10-1R | Notification to Cities & Counties

City	**60 Day Notice**	**Notice of Public Hearing**	**Other**
City of Santa Barbara	Yes	Yes	

County	**60 Day Notice**	**Notice of Public Hearing**	**Other**
County of Santa Barbara	Yes	Yes	

Other	**60 Day Notice**	**Notice of Public Hearing**	**Other**
Goleta Water District	Yes	Yes	
Montecito Water District	Yes	Yes	
Carpinteria Valley Water District	Yes	Yes	
Santa Ynez River Water Conservation District-ID#1	Yes	Yes	

Appendix C: 2021 Long-Term Water Supply Plan

DATE: 6/30/2021

TO: Dakota Corey, City of Santa Barbara

CC: Joshua Haggmark, PE, Cathy Taylor, PE, Dana Hoffenberg

PREPARED BY: Rob Morrow, PE, Heather Freed, PE

REVIEWED BY: Jeff Szytel, PE

PROJECT: Water Vision Santa Barbara

SUBJECT: **2021 LONG TERM WATER SUPPLY PLAN**

Terminology

The following are terms used throughout this document with brief descriptions. They are described further within the document:

- **Baseline**: This document has projections or simulations for a variety of supply and demand variables. The "baseline" values are the primary values used for comparison with projections or simulations with different assumptions applied to the variables.
- **Demand Envelope**: Defines a range of potential future demand conditions by adjusting assumptions to key baseline demand projection variables, such as population growth and job growth.
- **Design Drought**: Extended drought conditions used to evaluate supply portfolios performance during extraordinary water supply conditions. For this evaluation, the recent drought from 2012 to 2019 was extended three years, assuming below-average supplies to create a ten year "design drought" (2012-2022).
- **Extraordinary Conservation**: Additional conservation measures above and beyond the City's normal conservation program required during periods of extraordinary water supply conditions that will enable the City to meet water demands using available supplies.
- **Prompts**: Significant changes in the City's water resources operating conditions, such as regulatory actions requiring reassessment of supply and demand projections and implementation phases.
- **Risk Adjusted Supplies**: Risk adjusted supply projections were developed to capture potential risks to long-term supply reductions, such as climate variability or regulatory actions.
- **State Water Project (SWP), Table A**: SWP water is conveyed from Northern California to Lake Cachuma for use by the City and other local SWP participants. The City's contract for 3,300 AFY of SWP water is referred to as its "Table A" contract amount. Each year, a percentage of the contract amount is made available depending on hydrologic conditions and other considerations.
- **Supplemental Water**: The SWP pipeline provides the City with the ability to convey supplemental water purchases to augment drought year supplies. During the recent drought, the City purchased water from other SWP water contractors for a negotiated price, along with a requirement for the City to repay the lending SWP water contractor a specified percentage of the purchased water.
- **Supply Portfolio**: Portfolios include a group of supplies, including levels of conservation. The City's Existing Portfolio reflects the City's existing supplies and demands. Future Portfolios include modifications to the existing portfolio, such as new supplies or additional conservation measures.
- **Triple Bottom Line (TBL)**: A method to evaluate water supply portfolios that considers economic, social, and environmental impacts and benefits. The TBL approach combines multiple measures of performance into one analysis. This allows the City to consider the varying importance of different performance measures to different stakeholder groups. The approach allows the City and stakeholders to objectively evaluate trade-offs between various water supply options and portfolios.
- **Water Vision Santa Barbara (WVSB)**: Refers to the City's overall long-term supply planning effort highlighted by an open and transparent process for stakeholder and public involvement.

Executive Summary

For over 25 years, the City of Santa Barbara's (City) primary water supply management tool has been its Long-Term Water Supply Plan (LTWSP). The LTWSP, which was last updated in 2011, has served as an important decision-making tool for City water managers, and has significantly influenced City water resources planning for that past three decades. In 2012, the City began experiencing an unprecedented drought, in both duration and severity, which exceeded the historical drought of record (1947 to 1951) that was used as the design basis for the 2011 LTWSP. The recent drought extended from 2012 through 2019. As of this writing, local groundwater basins have yet to completely recover.

Water Vision Santa Barbara updates the 2011 LTWSP by reassessing the adequacy, reliability, resiliency, and sustainability of the City's water resources portfolio, including evaluation of both available supply and anticipated demand. The effort considers cost and reliability, as well as economic, environmental, and social measures, and risks and uncertainties. Water Vision Santa Barbara includes an open and transparent process for stakeholder and public engagement. The project culminates in policy recommendations for the City's various water supplies and an Adaptive Management Plan that will help guide the City's water supply management decisions into the future.

The water supply evaluation is incorporated into the City's 2020 Urban Water Management Plan (UWMP) update. The UWMP meets State reporting requirements and incorporates updated water resources evaluations. The combined document - an **Enhanced UWMP** - becomes the City's consolidated water supply planning reference document for the next 30 years.

Existing Portfolio Analysis

The City's existing portfolio was analyzed over an 81-year simulation period (1942-2022), applying historical hydrology (1942-2019), plus three additional drought years (2020-2022) to extend the drought of record (2012-2019) to create a ten year "design drought" (2012-2022). Based on the analysis (presented in Section 4), the following findings were made:

- Existing demands can be met with existing supplies and risk-adjusted supplies under historic hydrologic variability, including an extended drought.
- At the upper bound of demand projections, existing supplies require extraordinary conservation during an extended drought, as was needed during the most recent drought. At the upper bound of demand conditions, risk-adjusted supplies require unacceptable levels of extraordinary conservation that are either too onerous for water customers, or economically infeasible to execute.
- The City's biggest water supply challenge is providing sufficient supplies to meet demands during an extended drought. Extraordinary conservation will be needed during an extended drought if supply availability is reduced below current levels and demands increase.
- Desalination, groundwater, State Water Project (SWP) water, and supplemental water are essential to meeting demands during a drought, especially to avoid drastic extraordinary conservation measures.
- The City should always be preparing for a future drought by capitalizing on available water supplies exceed demands during normal and wet periods.
- The largest projection variables are:
    - Potential demand rebound from the most recent drought, and its impact on demand projections.
    - Supply projections associated with incremental changes in supply availability (e.g., climate change or sedimentation) or immediate changes in supply availability (e.g., regulatory decisions).

Future Portfolio Analysis Findings

Nine future portfolios were defined and simulated over a 30-year projection period (2020 to 2050). The triple bottom line (TBL) method, which considers economic, social, and environmental impacts and benefits, was used to evaluate the portfolios. Four TBL criteria weighting scenarios were developed to capture perspectives and priorities. In summary, the future portfolio TBL analysis found:

- **Optimized Portfolio B (Desalination Expansion**) ranked first or second in each TBL weighting scenario.
- **Portfolio 5 (Minimize Environmental Impacts)** consistently ranked the next highest in most weighting scenarios followed by **Optimized Portfolio A (Potable Reuse)**; however, Portfolio 5 was not considered further due to the extremely high costs - $183 million versus $39 million for Optimized Portfolio B – and the associated rate impacts.
- Optimized Portfolio B has several benefits over Optimized Portfolio A:
  - Lowest cost portfolio, but the analysis should be revisited once potable reuse regulations are finalized.
  - Easier to permit and faster to implement, which would allow the City to quickly respond to unexpected supply conditions.

If demands increase, expansion of the City's desalination plant from 3,125 AFY to 5,000 AFY is currently the best performing new supply to bridge the supply/demand gap during drought conditions. Desalination is needed in most years to bridge the supply/demand gap during non-drought conditions, especially if existing supplies decline. The City should track demand trends closely. If demands do not increase as projected, the desalination expansion may be unnecessary. These considerations are addressed in more detail in the Adaptive Management Plan.

Water storage is essential to avoid extraordinary conservation during an extended drought. Listed below is a summary of the City's water storage opportunities and associated concerns.

- **Lake Cachuma:** The lake is the City's largest and most important storage facility. It provides the City with the flexibility to best manage its water supplies. Storage of the City's excess annual Cachuma water allotment (carryover water) allows the City to use other water supplies when available, and to build reserves of Cachuma supplies in preparation for drought. Loss or a reduction of carryover water would limit the City's ability to optimally manage their water supply portfolio. Additionally, any replacement supplies would be much more expensive than carryover water. Based on current projections, the City is expected to use roughly 29,000 AF of carryover water over the next 30 years. The impacts of limiting carryover water are discussed below.
- **Gibraltar Reservoir:** Gibraltar Reservoir and Dam were constructed in 1920, and the dam was raised in 1948 to recover lost capacity from sedimentation inflows into the reservoir. Still today, approximately two thirds of Gibraltar's storage capacity has been lost due to sedimentation. Gibraltar's storage capacity will continue to be diminished by continued sedimentation inflows into the reservoir. The costs and environmental impacts of removing sediment from Gibraltar to recover lost capacity are too great to make the project feasible. An environmental impact report would most likely make a determination that the preferred project is an alternate project, such as desalination expansion or potable reuse. Recommendations to mitigate projected sedimentation are discussed below.
- **Groundwater:** The City produces water from two groundwater basins – Foothill Basin and Storage Unit I. The City's groundwater storage provides approximately 20% of supplies during drought conditions. However, the groundwater basins are susceptible to being over-pumped, and can be rapidly depleted during an extended drought. Basin recovery following a drought generally takes seven to ten years.
- **San Luis Reservoir:** SWP carryover water in San Luis Reservoir has served the City well in the past, but current operating projections from the California Department of Water Resources indicate that with the

anticipated operation of the Delta Conveyance Project, there will be less available storage in San Luis Reservoir. SWP water is prohibited from being stored in Lake Cachuma more than 30 days under normal circumstances. (The United States Bureau of Reclamation (USBR) granted temporary suspension of this rule during the recent drought in response to unprecedented meager water allocations and low lake levels).

- **SWP:** SWP water and supplemental water purchases combined provide over 20% of supplies during an extended drought. However, SWP water is often unavailable during dry periods. Storage of SWP water is essential for the City during extended drought conditions (e.g., groundwater banking), or through a long-term purchase agreement for storage. As discussed in Section 5.7, the City should work with Central Coast Water Authority (CCWA) to identify the City's preferred method for increasing the certainty of SWP water and supplemental water during extended drought conditions.

Recommendations

What steps should the City take now to prepare for next extended drought?

- **Conservation (Section 5.1):** Implement the recommended conservation program from the City's Water Conservation Strategic Plan (Conservation Program B) (1), which estimates 1,740 AF of passive conservation (e.g., plumbing code implementation) savings by 2050, and 880 AF of active conservation savings by 2050. Additionally, demand trends should be monitored for indications that customers are returning to pre-drought water-use levels.
- **Cachuma Project (Section 5.7):** Preserve the ability to store carryover water in Lake Cachuma and pursue the ability to store non-Project water in the lake. The lake is the City's largest storage option and Cachuma carryover water is essential to the City's long-term water supply planning. The City's water supplies have been developed around the planned use and storage of Cachuma carryover water. Cachuma carryover water provides an incentive for community conservation and operation of desalination and recycled water. Cachuma carryover plays a critical role in providing a secure drought buffer that the City can plan its water supplies around. Restrictions on the volume of carryover water would have devastating impacts on the City's ability to meet the community's water demands in addition to making water in Cachuma a "take-it-or-lose-it" supply.

  The other existing large storage options are SWP water in San Luis Reservoir and groundwater storage in the City's groundwater basins, but both have smaller storage and production capacities. The ability to store non-Project supplies, such as Gibraltar Reservoir "pass-through" water (see the next item), SWP water, or other surface water conveyed to the lake, would provide the City with additional operational flexibility and cost-effective reliable supplies during drought conditions.
- **Gibraltar Reservoir (Section 5.7):** Obtain a Warren Act contract from USBR to store Gibraltar water in Lake Cachuma to offset diminished Gibraltar supplies resulting from continued sedimentation in the reservoir. Such a Warren Act contract is stipulated in the Upper Santa Ynez River Operations Agreement (Pass-Through Agreement). The benefits are primarily for non-drought periods when Gibraltar is spilling. However, "pass-through" water would enable the City to better manage the use of its other supplies and prepare for a drought. The City should also consider preparing a feasibility study to evaluate the viability of slant wells or horizontal directional drilled wells into the historic gravel bed below Gibraltar Reservoir to secure more stable diversions from Gibraltar.
- **Mission Tunnel:** No recommendations.
- **Groundwater (Section 5.4):** The City should work with the United States Geological Service (USGS) to update the City's sustainable yield estimate and drought storage estimate from the Foothill Basin and

Storage Unit I. Additionally, the City should prepare an annual report on the current basin conditions to inform annual water supply planning efforts. The City should also consider creating a Groundwater Sustainability Plan (GSP) in accordance with the Sustainable Groundwater Management Act (SGMA), or an equivalent GSP that meets the City's needs, but is outside of SGMA compliance and reporting requirements.

- **State Water Project (Section 5.3):** SWP water and supplemental water are essential during a drought, but the City's only existing option for storing SWP water is in San Luis Reservoir, which is not preferable for long-term storage since the water is lost when the reservoir spills. Additionally, the use of San Luis Reservoir for carryover storage will be severely limited if the Delta Conveyance Project is implemented. Lastly, long-term reliability of SWP water continues to decline, especially in drought years. Several options to increase the reliability of accessing SWP water or supplemental water in drought years were discussed in this report, but no recommendations were made because CCWA is currently conducting a broader regional study that will better define the City's options. The City should work with CCWA to identify a preferred method for increasing certainty of SWP water or supplemental water availability during extended drought conditions – whether via groundwater banking or long-term water purchase agreements. This effort could also identify the potential to sell SWP water supplies on an annual basis when unneeded for City use in that year, or for future drought year supplies.
- **Non-Potable Recycled Water (Section 5.5):** The City should update the recycled water market assessment documented in the 2009 Water Supply Planning Study (2), and prepare updated cost estimates to expand the recycled water system. Up to 220 AFY of non-potable demand could potentially be delivered cost effectively, offsetting potable water demand, depending on the water market and cost updates. The water market assessment should also consider the future implementation of potable reuse, which could render recycled water obsolete since much of the existing recycled water system would be used to deliver potable reuse water to Lauro Reservoir for treatment and distribution.
- **Potable Reuse (Section 5.6):** Once raw water augmentation regulations are issued by the State and the City needs a new supply, the City should revisit the project definition assumptions from the 2017 Potable Reuse Feasibility Study (3) and cost estimates documented in this report. Because of uncertainty with future regulations, both documents relied on many assumptions that should be revisited once regulations are in place. The City can then update its future supply comparison with desalination, recycled water, and conservation.

What factors affect the recommendations listed above?

The largest projection variables are:

- Demand rebound from the most recent drought and its impact on demand projections.
- Supply projections associated with incremental changes in supply availability (e.g., climate change, sedimentation in Lake Cachuma and Gibraltar Reservoir) or immediate changes in supply availability (e.g., regulatory decisions).

The adaptive management plan identifies "prompts" for significant changes in operating conditions. These include:

- **Cachuma Project Regulatory Action(s):** Cachuma members anticipate a new biological opinion to be issued by the National Marine Fisheries Service soon, but the requirements and impact of the biological opinion are unknown. The risk-adjusted projections for Cachuma Project water accounted for some potential reductions required by a biological opinion or other regulatory action, but the projections should be revisited once operating requirements are defined.

- **Cachuma Project Storage:** The ability to store non-project water in Lake Cachuma would broaden the City's ability to manage its supply portfolio by allowing storage of water when it is available. On the other hand, restrictions to Cachuma carryover water would limit the City's ability to build drought reserves and may require additional local, reliable supplies to offset the lost drought buffer provided by carryover water.
- **Desalination Regulations / Permitting:** Any change in ocean desalination regulations or permitting that alters the cost or operating risk profile for the City's existing desalination plant should prompt a re-evaluation of the costs associated with the desalination supply and any future expansion efforts.
- **Wastewater Regulations / Permitting:** Over the last decade, there were several draft legislative and regulatory actions that proposed to significantly reduce ocean discharge of treated wastewater. A future mandate to reduce ocean discharges of treated wastewater could make potable reuse a priority. This change should be a prompt for re-evaluation of the City's supply options.

What is the role of desalination in the City's water portfolio?

The City's most recent policy regarding the use of desalination was established in the 2011 LTWSP, which defined desalination as a drought supply. The best performing portfolio in the TBL analysis requires the use of desalination in every year to meet demands with baseline demand projections and risk-adjusted supplies. However, with existing supplies (which are unadjusted for risk), desalination is needed during a drought, during certain non-drought periods to build reserves for the next drought, and during drought recovery. The City may also need to operate the desalination plant to meet its obligations under the long-term water supply agreement with the Montecito Water District. Therefore, the City should operate the desalination plant at its current capacity, 3,125 AFY, to protect and optimize the City's other water supplies, and to enhance the City's ability in preparing for and responding to future drought conditions. The Adaptive Management Plan (described further below) does allow the City's Water Resources Manger to put the desalination plant in standby mode when water supply conditions warrant it. Some suggested water reserve thresholds to assist the Water Resources Manager in making this decision include:

- Projected supplies for the upcoming water year are sufficient to meet demand without need for desalination, supplemental water, groundwater from storage, or extraordinary conservation.
- Groundwater basins are at non-drought levels, meaning drought storage is full and annual sustainable yield is available for City use. (The City will work with USGS in the near future to better define drought storage and sustainable yield for this metric.)
- Lake Cachuma's volume and the City's Cachuma carryover storage volume at the end of the wet season. This threshold allows for operation of desalination early in a potential drought cycle, and saves Cachuma carryover water for use in subsequent years.
- SWP carryover water storage of unused Table A allocation water in San Luis Reservoir should be maximized. However, the CCWA SWP storage options study should be completed before a recommendation is made.

Additional factors that consider the impacts of converting the desalination plant to standby mode and back to operational mode should be evaluated, but are beyond the scope of this report. The City should complete an in-depth cost-benefit analysis of converting the desalination plant between operating and standby modes. The suggested minimum reserve thresholds would be updated based on the analysis. The analysis should answer questions such as:

- How to retain and manage the workload and cost of keeping certified professional water treatment operators when the desalination plant is in standby mode?

- How the City wants to manage the risk of being unable to bring the desalination plant online quickly during a catastrophic emergency when it will take approximately ten weeks to put the desal plant into operation from standby mode?
- What are the costs and benefits of turning off the desal plant for a single year and reactivating it in the following year?

Future Portfolio Analysis Conclusion

For decades, the City has made consistent, significant investments in developing and sustaining available water supplies, as well as encouraging effective water conservation within its service area. Notably, during the most recent drought, the City's customers reduced per capita demand by up to 40%, and continue to maintain on average a 27% reduction in water use as compared to 2013. The City concurrently built and put into service an ocean desalination facility. As a result, the City is well positioned to provide reliable water service to its customers at current demand levels and without any significant interruptions in existing supplies. However, as demands increase and/or existing supplies are impacted by various risks, the City will be faced with a supply deficit that must be filled.

This future portfolio analysis evaluated nine different water supply portfolios to meet the range of expected future demands. Optimized Portfolio B, which includes expansion of the City's desalination facility, scored the highest in the TBL analysis and was the best performing new future supply option. This option was one of three that looked to optimize the best attributes of the City's diverse water supply sources. Optimized Portfolio B utilizes an adaptive management approach that has the City leveraging water conservation and the City's current supplies, in a scenario where demands have significantly increased or existing supplies have been diminished, before considering expansion of the desalination plant to 5,000 acre-feet per year (AFY). Timing of any desalination facility expansion will depend on the pace of demand growth and the ongoing availability and reliability of existing supplies. Additionally, new regulations and/or advancements in treatment technology may increase the favorability of potable reuse, which scored highly in this analysis. The Adaptive Management Plan outlines prompts and corresponding next steps to enable the City to adapt to changing conditions, while making timely investments to maintain a high level of service to its customers.

Adaptive Management Plan

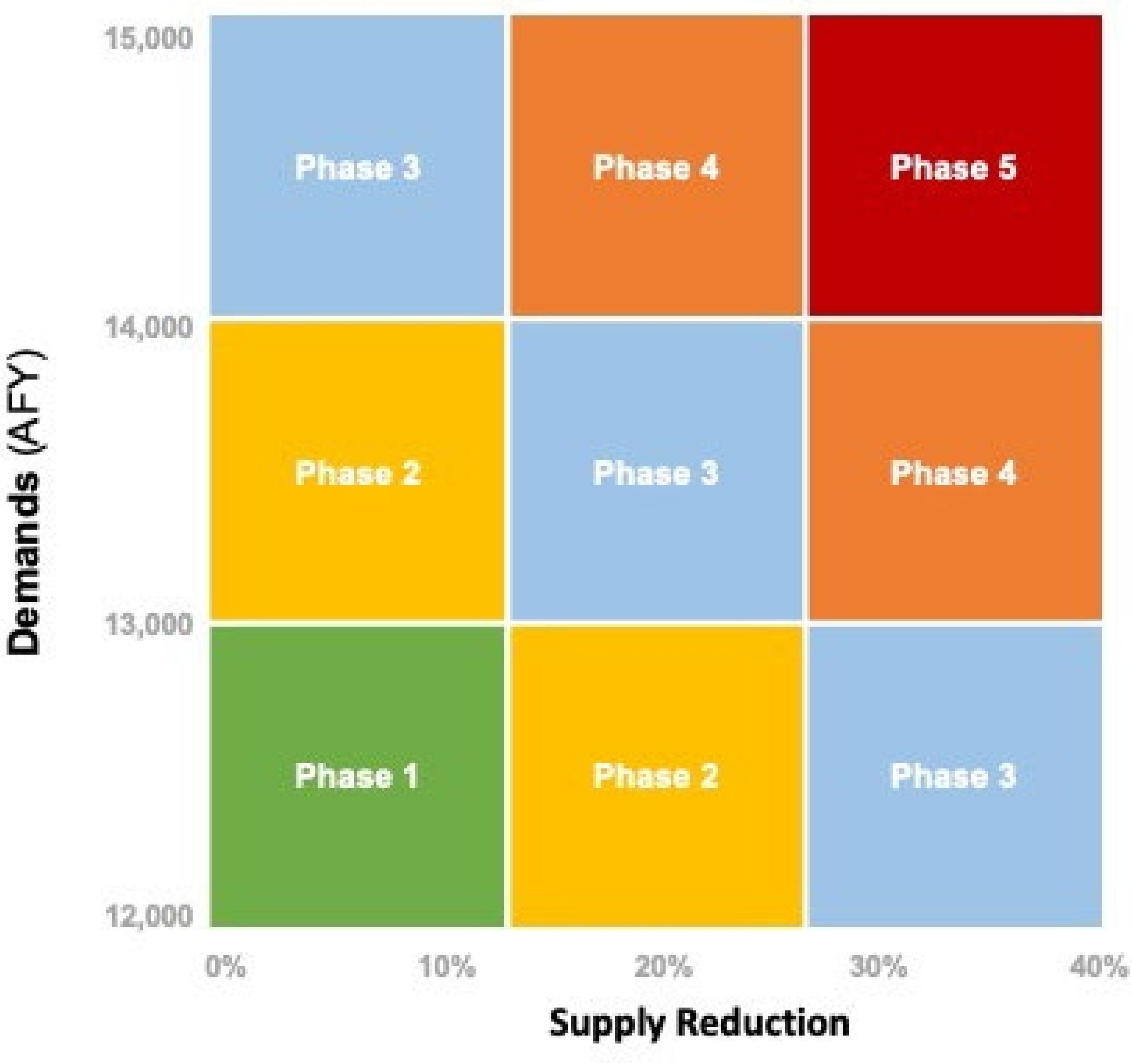
The future portfolio analysis identified several variables that impact supplies and demands that will influence future water resources decisions for the City – increased existing customer demands post-drought, incremental changes in supply availability, and immediate changes in supply availability. The City has limited control of most of these variables; however, the Adaptive Management Plan provides a framework for the City to anticipate actions and respond to changes to future water resources conditions through a series of phases driven by changes in supply or demand. The phases are graphically shown in **Figure ES-1** and include the following actions:

- **Phase 1 (Existing Conditions):**
    - Monitor demand and supply conditions, particularly the potential post-drought demand rebound.
    - Implement recommendations for Gibraltar (Warren Act Contract per the Pass-Through Agreement), groundwater (updated yield estimates), SWP (water management strategies), recycled water (update non-potable market assessment; track potable reuse regulations).
    - Operate the desalination plant at its current capacity, 3,125 AFY, to protect and optimize the City's other water supplies, and to enhance the City's ability in preparing for and responding to future drought conditions.
- **Phase 2:** Begin planning for a new supply for implementation in Phase 3. Update desalination expansion and potable reuse evaluation based on potable reuse regulations and updated desalination operational

costs and expansion considerations, if available. Determine if higher conservation is a realistic and economically feasible path for managing demands to avoid new supply investments.

- **Phase 3:** If demands are the driving factor for entering Phase 3, implement a new supply (desalination expansion or potable reuse) to prepare for drought conditions. If supply reductions are the driving factor for entering Phase 3, desalination should be operated at all times at existing capacity, since additional water is needed to meet demands during non-drought conditions.
- **Phase 4:** Implement both a new supply (desalination expansion or potable reuse) and plan to operate desalination at all times at existing capacity. Identify additional new supply opportunities for Phase 5.
- **Phase 5:** Implement new supplies beyond those identified in this plan, such as additional desalination expansion, potable reuse, or higher conservation.

Figure ES-1. Adaptive Management Plan Phases



Schedule

The timing of each phase will be dependent on when each supply or demand prompt is reached. The baseline demand projections expect 13,000 AFY of demand to be reached by 2025 and 14,000 AFY of demand by 2030 while the lower drought rebound projection reaches 13,000 AFY in 2050. In addition, several “prompts” for significant changes in operating conditions were identified, including Cachuma project regulatory action(s), Cachuma project storage rules, desalination regulations / permitting, and wastewater regulations / permitting. The adaptive management plan should be re-evaluated and updated in response to such changes.

Costs

Results of the TBL analysis show that the best performing new water supply is desal expansion. Expanding desal production from 3,125 AFY to 5,000 AFY is estimated to cost $27.6 million (2020 dollars), and increase operating costs by $0.5 million per year, or $40/AF. Aside from investing in new supplies, annual costs are projected to increase if there is a need to purchase additional SWP water or supplemental water. The cost of supplemental water will be determined based on the upcoming analysis by CCWA for SWP water management strategies.

Policies

Four distinct policy recommendations arise from the Enhanced UWMP:

1. Implementing recommended actions for existing water supplies
2. Executing the Adaptive Management Plan
3. Continuing ocean desalination as part of Santa Barbara’s water supply portfolio to support drought preparedness, response, and recovery
4. Updating the long-term water supply analysis in the 2020 Enhanced UWMP if baseline conditions or key assumptions substantially change and affect the City’s ability to make informed water resources decisions

Each policy recommendation is described in detail below.

Policy 1. Implementing Recommended Actions for Existing Water Supplies

This policy proposes the following recommendations to protect and better manage the City’s existing water supplies:

- Water Demand and Conservation: Implement the recommendations from the City’s Water Conservation Strategic Plan (Program B). Program B includes the City’s current water conservation measures, plus rebates for ultra-high efficiency toilets and urinals, leak detection devices, pressure reduction valves and dipper wells; full implementation of the City’s AMI program; a free sprinkler nozzle program; and a pre-rinse spray nozzle giveaway program.
- Cachuma Project: Preserve the ability to store carryover water and non-Project water in Lake Cachuma, which is the City’s largest storage option.
- Gibraltar Reservoir: Obtain a Warren Act contract from the USBR to store Gibraltar water in Lake Cachuma.
- Groundwater: Update the City’s sustainable groundwater basin yield and drought storage estimates. Consider preparing a Groundwater Sustainability Plan.
- State Water Project (SWP): Identify methods to increase the certainty of SWP or supplemental water availability during extended drought conditions, including groundwater banking or long-term purchase agreements (which are considered in the current CCWA study).
- Non-Potable Recycled Water: Update the recycled water market assessment and update the cost/benefit analysis for further recycled water system expansion.

- Potable Reuse: Once the State issues raw water augmentation regulations and a new supply is needed, revisit the feasibility and priority of potable reuse.

Policy 2. Executing the Adaptive Management Plan

Executing the Adaptive Management Plan as policy would provide the City's Water Resources Manager with the flexibility to manage the City's water resources in real time based on current water supply conditions. This adaptive management approach includes a continued emphasis on water conservation, and making conservation a way of life, as outlined in the Water Conservation Strategic Plan (1). The Enhanced UWMP recognizes that while a new water supply is currently unneeded, the City's demand and supply sources must be closely tracked to forecast when a new supply source will be needed. An adaptive management approach is crucial to preserving and optimizing the City's water supplies in an uncertain future.

Policy 3. Continuing Ocean Desalination as Part of Santa Barbara's Water Supply Portfolio to Support Drought Preparedness, Response, and Recovery

The City's most recent policy regarding the use of desalination was established in the 2011 LTWSP, which defined desalination as a drought supply. In 2015, in response to the recent unprecedented and prolonged drought, City Council voted to reactivate the Charles E. Meyers Desalination Plant to provide critical water supplies and enable the City to meet demands when other supplies were unavailable. Results of the analytical work described in this report indicate that adoption of this policy allows the City to better prepare for, respond to, and recover from droughts.

Under this policy, the desalination plant will operate at its current capacity, 3,125 AFY, to protect and optimize the City's other water supplies, and to enhance the City's ability in preparing for and responding to future drought conditions. The Adaptive Management Plan does allow the City's Water Resources Manger to put the desalination plant in standby mode when water supply conditions warrant it. This report provides some suggested water reserve thresholds to assist the Water Resources Manager in making this decision.

Policy 4. Updating the Long-Term Water Supply Analysis in the 2020 Enhanced UWMP if Baseline Conditions or Key Assumptions Substantially Change

Projections and assumptions used in the 2020 Enhanced UWMP were prepared with the best information available at the time. The Adaptive Management Plan accounts for potential changes to baseline conditions and key assumptions used in the long-term water supply analysis. In addition to regular 5-year updates to this plan as required by State law, the long-term supply analysis should be updated if there are substantial changes to projected baseline conditions or key assumptions that materially affect the City's ability to make informed water resources decisions.

1. Introduction

1.1. Purpose

The purpose of this Long-Term Water Supply Plan (LTWSP) is to develop and analyze the sufficiency, reliability, and risk profile of future water portfolios for the City of Santa Barbara (City). This report is organized into the following sections:

1. Introduction
2. Demand and Supply Projections
3. Planning Basis
4. Existing Portfolio Analysis
5. Future Portfolios Components
6. Future Portfolios Development
7. Future Portfolios Evaluation
8. Future Portfolios Analysis Findings
9. Adaptive Management Plan

The following attachments are included at the end of the report:

A. Water Vision Santa Barbara (WVSB) Communications and Engagement Summary Technical Memorandum (TM)
B. WVSB Demand Projections TM
C. WVSB Water Supply and Climate Change Analysis for Lake Cachuma and Gibraltar Reservoir TM
D. WVSB Groundwater Management Recommendations TM
E. WVSB Cost Basis TM
F. WVSB State Water Project Exchange and Storage Options TM

1.2. Background

For over 25 years, the City of Santa Barbara's (City) primary water supply management tool has been its Long-Term Water Supply Plan (LTWSP). The City has relied on its LTWSP, last updated in 2011, to evaluate and prioritize water resource decisions and ultimately set City water resources policy. In 2012, the City began experiencing an unprecedented drought, in both duration and severity, which exceeded the historical drought of record (1947 to 1951) that was used as the design basis for the 2011 LTWSP. The City weathered the drought with high levels of conservation by its customers and investment in desalination. In addition, the City faces potential long-term questions on supply availability from mounting evidence of climate variability, pending Cachuma Project biological opinion, evolving State Water Project (SWP) conveyance proposals, enactment of the Sustainable Groundwater Management Act (SGMA), and statutory deadlines for potable reuse regulations. Finally, the City has also experienced multiple natural disasters that threatened water service (wildfires, mudslides) and witnessed the impacts of natural disasters in other communities (earthquake, tsunami).

Water Vision Santa Barbara (WVSB) updated the 2011 LTWSP by reassessing the adequacy, reliability, resiliency, and sustainability of the City's water resources portfolio, including evaluation of both available supplies and anticipated demand. This 12-month effort considered cost and reliability, as well as economic, environmental, and social measures, and evaluates risks and uncertainties. Water Vision Santa Barbara included an open and transparent process for stakeholder and public involvement. The project culminated in policy recommendations for the City's various water supplies and an Adaptive Management Plan that will help guide the City's water supply management decisions into the future.

The evaluation is incorporated into the City's 2020 Urban Water Management Plan (UWMP) update. The UWMP meets State reporting requirements and incorporates updated water resources evaluations. The combined document - an **Enhanced UWMP -** becomes the City's consolidated water supply planning reference going forward.

1.2.1. Water Vision Santa Barbara Context

The City's water resources are vulnerable to dramatic supply shifts due to hydrologic, environmental, and political conditions. The scenario-based planning process included in WVSB allows the City to consider a wide range of challenges to future reliability along with actions necessary to mitigate the impacts of those challenges. WVSB is not intended to predict the future. Rather, it provides context within which the City can adapt to changing conditions based on informed decisions regarding preferred strategies to address future uncertainties and guide cost effective investments that optimize resources and support water affordability.

WVSB is intended to better characterize supplies and demands and to inform the City's future actions and policies. WVSB is part of an ongoing adaptive water resources management strategy that includes planning, implementing, monitoring, and evaluating. The plan considers potential benefits and consequences of different actions under a range of future conditions and identifies "prompts" that require taking or avoiding certain actions as conditions change. Ultimately, the plan addresses several questions about the City's long-term supply conditions:

- What steps should the City take now to prepare for next extended drought?
- What factors affect these recommendations?
- What is the role of desalination in the City's water portfolio?

1.3. Project Objectives and Vision Statement

The following project objectives were developed for Water Vision Santa Barbara to set the expectations for planning the City's future water supply:

1. Define a diverse, reliable, and resilient water supply portfolio that provides reliable and safe drinking water for the entire community, even during an extended water supply shortage.
2. Provide an adaptable roadmap for the City's current and future supply needs.
3. Conduct an open and transparent stakeholder process for the development of the Enhanced UWMP.
4. Prepare a robust analysis of current and future supplies, considering reliability as well as resilience and adaptability to climate change, natural disasters, and other changing conditions.
5. Manage costs and affordability.
6. Elevate the community's awareness of the importance of water supply diversity and resiliency through effective outreach, engagement, and education.
7. Deliver a comprehensive Enhanced UWMP on-schedule.

The following vision statement was developed to concisely capture the desired outcome of Water Vision Santa Barbara:

Provide long-term water security for the City of Santa Barbara by preparing a water supply plan that is equitable, fiscally and environmentally responsible, adaptable to future conditions, and builds on the City's legacy of effective water management.

1.4. Water Vision Santa Barbara Planning Process

The Water Vision Santa Barbara planning process (**Figure 1)** includes five steps that are addressed in this report:

1. Planning basis (addressed in Section 2 and Section 3)
2. Existing portfolio analysis (Section 4)
3. Future portfolio development (Section 5 and Section 6)
4. Future portfolio analysis (Section 7)
5. Adaptive Management Plan (Section 8)

Figure 1. Water Vision Santa Barbara Planning Process

1.5. Stakeholder Input

Communications and engagement with the general public, WVSB stakeholder group, City Water Commission, and City Council were instrumental in the planning process. The process is summarized in the WVSB Communications and Engagement Summary TM (**Attachment A**) and the efforts, materials, and summaries are available at www.SantaBarbaraCA.gov/WaterVision. Exercises and interviews during the Water Vision Santa Barbara stakeholder engagement process resulted in a synthesis of the following community values:

- Access for all, including most vulnerable
- Water sustainability
- Water affordability
- Reliable, safe, clean drinking water
- Local water independence
- Environmentally protective
- An informed and empowered public
- Sustainable water planning
- Transparent decision making
- Diverse water supplies

In addition, the group developed Five Pillars, listed below, to inform the Water Vision Santa Barbara long-term supply planning process:

1. The cost of water is equitable, affordable, and just.
2. Access to water is reliable and resilient, including the effects of climate change.
3. Our water decisions responsibly support human and environmental health.
4. The community’s water is valued and conserved.
5. Our water decisions responsibly support quality of life.

Refer to WVSB Communications and Engagement Summary TM (**Attachment A**) for additional information on the stakeholder effort.

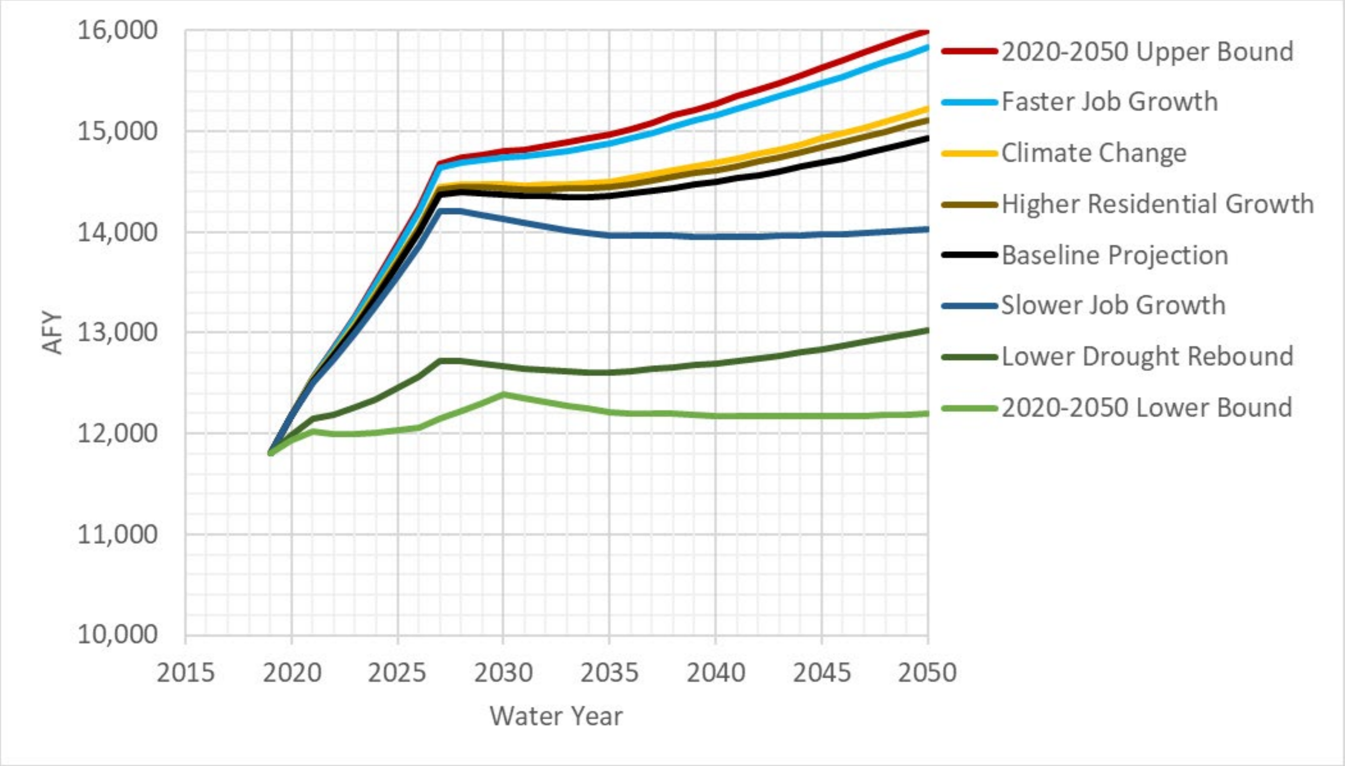
2. Demand and Supply Projections

2.1. Demand Projections

The baseline demand projection was defined in the City's Water Conservation Strategic Plan (1). The WVSB baseline demand projection adds approximately 1,000 acre-feet per year (AFY) for recycled water demand and 1,430 AFY for the Water Supply Agreement with Montecito Water District. Several projection scenarios were developed that consider the key variables in the baseline projection – population (residential) growth, job (commercial) growth, existing customer drought rebound, and climate – to form a demand projection envelope. Assumptions used for the baseline projection and each scenario are described in the WVSB Demand Projections Basis TM (Attachment B). The demand scenarios are shown in **Figure 2** and the demand envelope is shown in **Figure 3**.

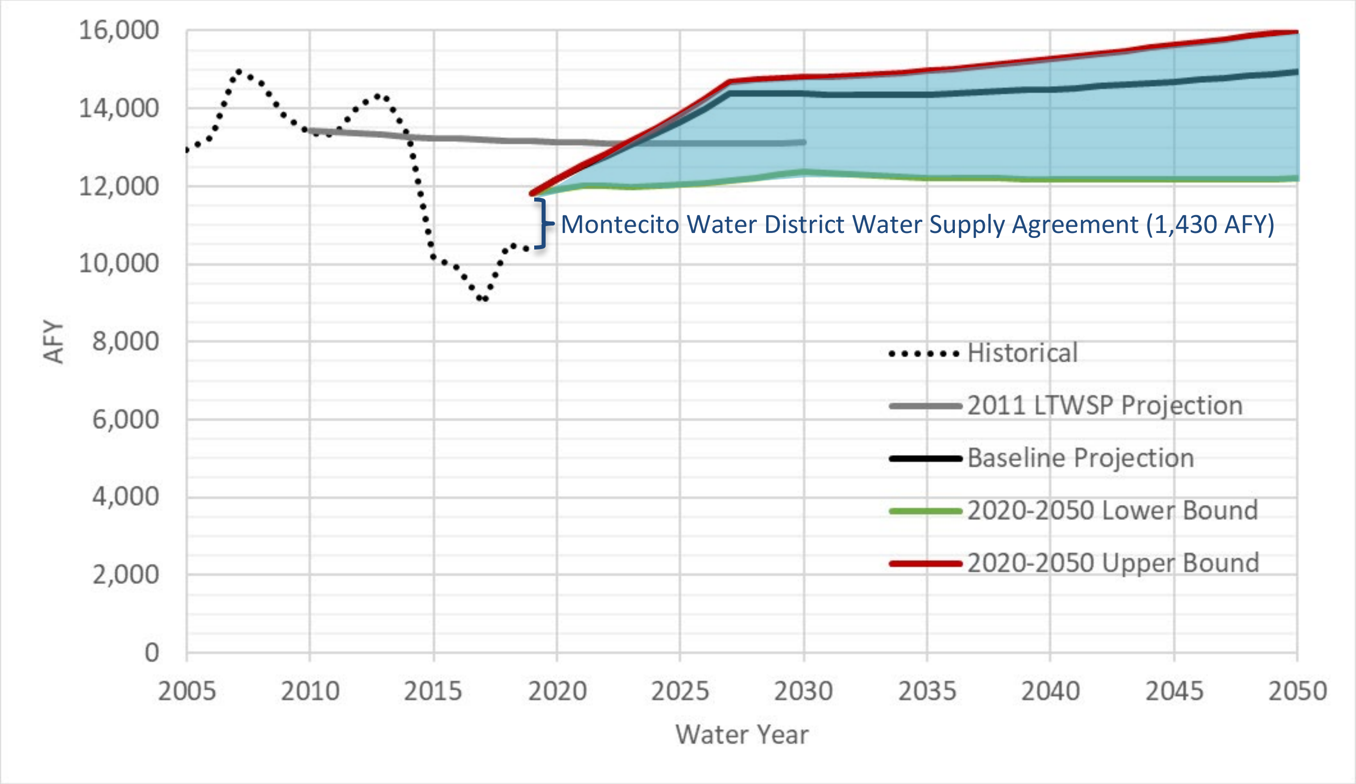
As shown in Figure 2, the post-drought demand rebound assumption ("Lower Drought Rebound" scenario) has the largest impact (13% vs. baseline) on demand in 2050 followed by employment growth projections ("Faster Job Growth" and "Slower Job Growth" scenarios) (6%), and then population growth projections ("Higher Residential Growth" scenario) (1%). Water use of existing customers and the extent to which their use increases as the area emerges from the most recent drought conditions has the biggest impact on the demand projections. This assumption represents a difference of roughly 1,700 AFY by 2030 and 1,900 AFY by 2050. The low impact from population growth assumptions is because almost all new residents are expected to be housed in multi-family units or accessory dwelling units, which have a relatively low per capita water use. The City is largely built out, with very little vacant space available for single-family residential development. Based on the clear impact of the drought rebound variable, the City plans to continue to actively track customer water use. WVSB recommendations ultimately include an adaptive management strategy that adjust based on the extent of the demand rebound.

Figure 2. Demand Projection Scenarios



Note: All scenarios are described in the WVSB Demand Projections Basis TM (**Attachment B**).

Figure 3. Demand Projection Envelope



Note: Montecito Water District deliveries start in 2022, but are shown starting in 2020 to simplify the demand analysis.

2.2. Supply Projections

2.2.1. Historical Supply and Demand

The City's water supply is comprised of the following sources, illustrated conceptually in **Figure 4**:

- Gibraltar Reservoir: The City has pre-1914 water rights to divert water from the Santa Ynez River and completed construction of Gibraltar Dam in 1920. The reservoir had an initial storage capacity of 15,793 AF. Siltation has reduced the reservoir volume to 4,559 AF based on a 2020 bathymetric survey (4). Water from Gibraltar Reservoir is conveyed to the City through Mission Tunnel for treatment at Cater Water Treatment Plant (WTP). Current Gibraltar Reservoir operations are based on the 1989 Upper Santa Ynez River Operations Agreement (Pass-Through Agreement) by which the City agreed to defer a second enlargement of the reservoir in exchange for the right to receive a portion of its Gibraltar water through Lake Cachuma. The City is working to obtain a Warren Act contract from the US Bureau of Reclamation (USBR) as the preferred method for water accounting and storage under the Pass-Through mode of the agreement.
- Devil's Canyon Diversion: The City has pre-1914 water rights to divert water from Devil's Canyon Creek and maintains a small diversion works on Devil's Canyon Creek below Gibraltar Dam, which diverts water from Devil's Canyon Creek into Mission Tunnel. From 1976 to 2019, annual yield ranges from 0 AFY to 557 AFY, and is 120 AFY on average.
- Mission Tunnel Infiltration: Mission Tunnel is 3.7 miles long, and conveys water from Gibraltar Reservoir through the Santa Ynez Mountains to the City. Infiltration through cracks and fissures into the tunnel from watersheds on both sides of the mountains contributes to the City's water supply. Infiltration

to Mission Tunnel is dependent on rainfall and, from 1976 to 2019, annual yield ranged from 520 AFY to 2,063 AFY and averaged 1,230 AFY.

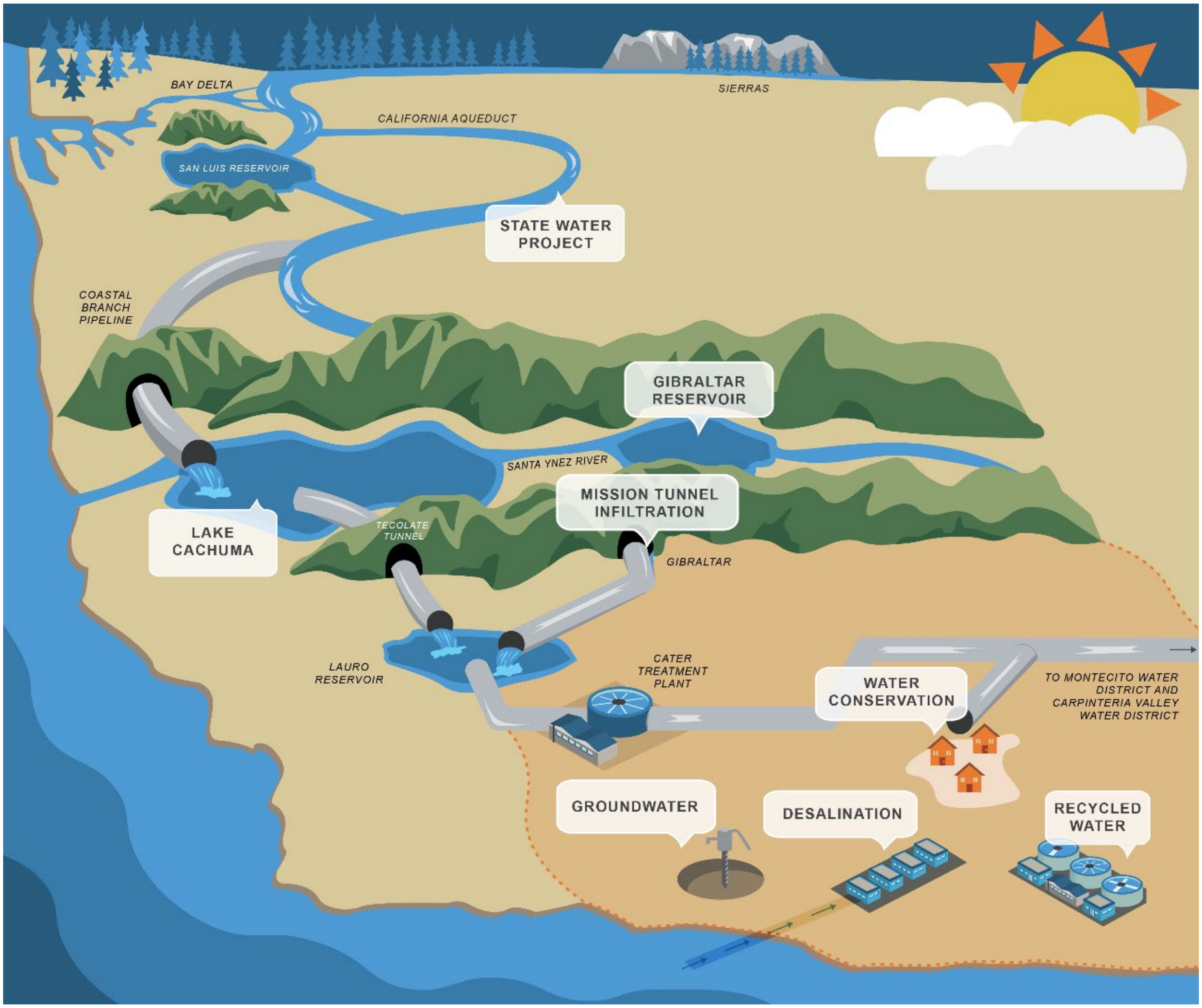
- Lake Cachuma: USBR constructed Lake Cachuma and Bradbury Dam as part of the Cachuma Project in the early 1950s. Lake Cachuma originally had a storage capacity of 205,000 AF in 1952 and a 2013 bathymetric survey (5) indicates the current storage capacity is 193,305 AF (at elevation 753 feet). Project water is delivered to Cachuma Member Units in accordance with a 1996 Master Contract with USBR and the project operates under a permit granted by the State Water Resources Control Board (SWRCB) order that includes requirements for releases to protect downstream interests (downstream groundwater pumpers, riparian groundwater pumpers, and instream flows for fish). The project is currently operated at a total annual supply yield for Cachuma Member Units of 25,714 AFY in non-drought periods. Of this amount, the City's share of the annual yield is 8,277 AFY. Water is delivered for treatment at Cater WTP via the Tecolote Tunnel and South Coast Conduit.

  The lake can hold supply to meet multiple years of the City's demand. Although, lake operations are controlled by USBR and lake capacity is shared with other Cachuma Member Units and used for environmental flows. The City can "carryover" Cachuma water that was allocated in the previous water year and store it in Lake Cachuma. This allows the City to use other cost-effective supplies when available and build up reserves of Cachuma supplies. The water is subject to evaporative losses and could be lost if the lake fills and spills. Also, downstream users can store water in the lake if Cachuma Member Units are not using the capacity.

- State Water Project (SWP): The City's SWP Table A amount is 3,300 AFY, including a 10 percent drought buffer. The water is conveyed to Lake Cachuma from SWP facilities in the Central Valley via the Central Coast Branch of the California Aqueduct. The City has a share of rated pipeline capacity approximately equal to 3,300 AFY. Once in Lake Cachuma, the water is conveyed along with Cachuma Project water, via the Tecolote Tunnel, to Cater WTP for treatment and distribution. Note that SWP water is not allowed to be stored in Lake Cachuma more than 30 days under normal circumstances. (USBR granted temporary suspension of this rule during the recent drought due unprecedented low allocations and low lake levels).
- Supplemental Water: The SWP pipeline provides the City with the ability to convey supplemental water purchases to augment drought year supplies. During the recent drought, the City purchased water through from other SWP water contractors based on a negotiated price that included money and future delivery of the City's SWP water to the other party.
- Cater Water Treatment Plant: All the above supplies are treated at Cater WTP, which has a treatment capacity of 37 MGD. Cater WTP is a regional plant, treating the water for the City, as well as Montecito and Carpinteria Valley Water Districts.
- Desalination: The Charles E. Meyer Desalination Plant was re-started in 2017 in response to the most recent drought. The plant can provide 3.0 MGD of supply, equivalent to 3,125 AFY at 93% of production capacity.
- Groundwater: The City pumps groundwater from three hydrogeologic units: Foothill Basin, Storage Unit I and Storage Unit III. The basis for the estimates are described in Section 5.4 and documented in Attachment C. The sustainable yield of Foothill Basin and Storage Unit I is 450 AFY and 800 AFY, respectively for a total sustainable yield of 1,250 AFY. Combined drought storage for these basins is 10,500 AF and maximum production capacity is 3,500 AFY. Storage Unit III has a sustainable yield of 100 AFY, but is poor quality and is only used to supplement the recycled water system.

- Recycled Water: Recycled water is produced at the El Estero Water Resource Center (El Estero WRC) for distribution to the recycled water system for irrigation of sites with large water demands and toilet flushing at a handful of locations. Historically, the recycled water system was blended with potable water and non-potable groundwater from Storage Unit No. 3 to improve recycled water quality, or make up for recycled water production shortfalls. The City upgraded the recycled water treatment system at El Estero WRC in 2015. As a result, blending is no longer required to improve recycled water quality. Blend water is anticipated to be needed only for short temporary occasions when plant maintenance is required.
- Water Conservation: Water conservation by customers is an important part of the City's water supply. Thanks to the commitment from residents and businesses in the City, Santa Barbara has much to be proud of when it comes to conservation. In fact, even with modest population growth from the 1980's to 2012 (pre-drought), the City's water use dropped by more than 20%. Water use in 2020 with a population of 93,000 is equal to the water use of the City in the 1950's, when the population was half of what it is today.

Figure 2. City Water Supplies



As shown in **Figure 4**, Cachuma and Gibraltar represent the primary supplies for the City in normal and wet years, but their availability can substantially decline during drought periods – as shown in the 1990 to 1993 and 2012 to 2019 drought periods. Also shown is the addition of new sources – recycled water in 1990, desalination in 1992 (temporarily) and 2017, and State Water Project water beginning in 2002. The City's supply availability can substantially change during a drought. In addition to re-activating the desalination plant, the City has historically increased use of groundwater and supplemental water purchases during drought periods. The City also implements an extraordinary conservation program to bridge the supply and demand gap. **Figure 5** compares historical supplies used (1976 to 2019) with the most recent drought period (2012 to 2019).

Figure 4. Historical Supplies Used (Water Year 1976 – 2019)

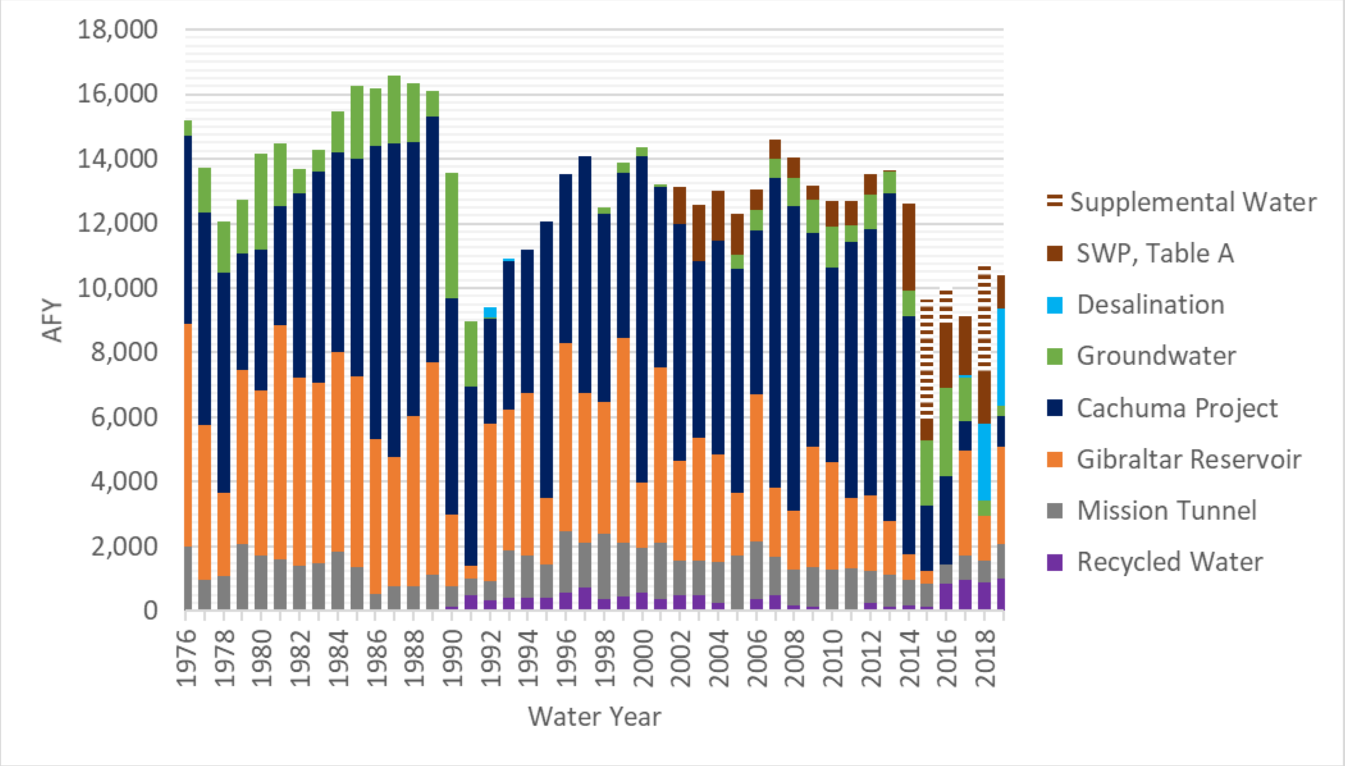
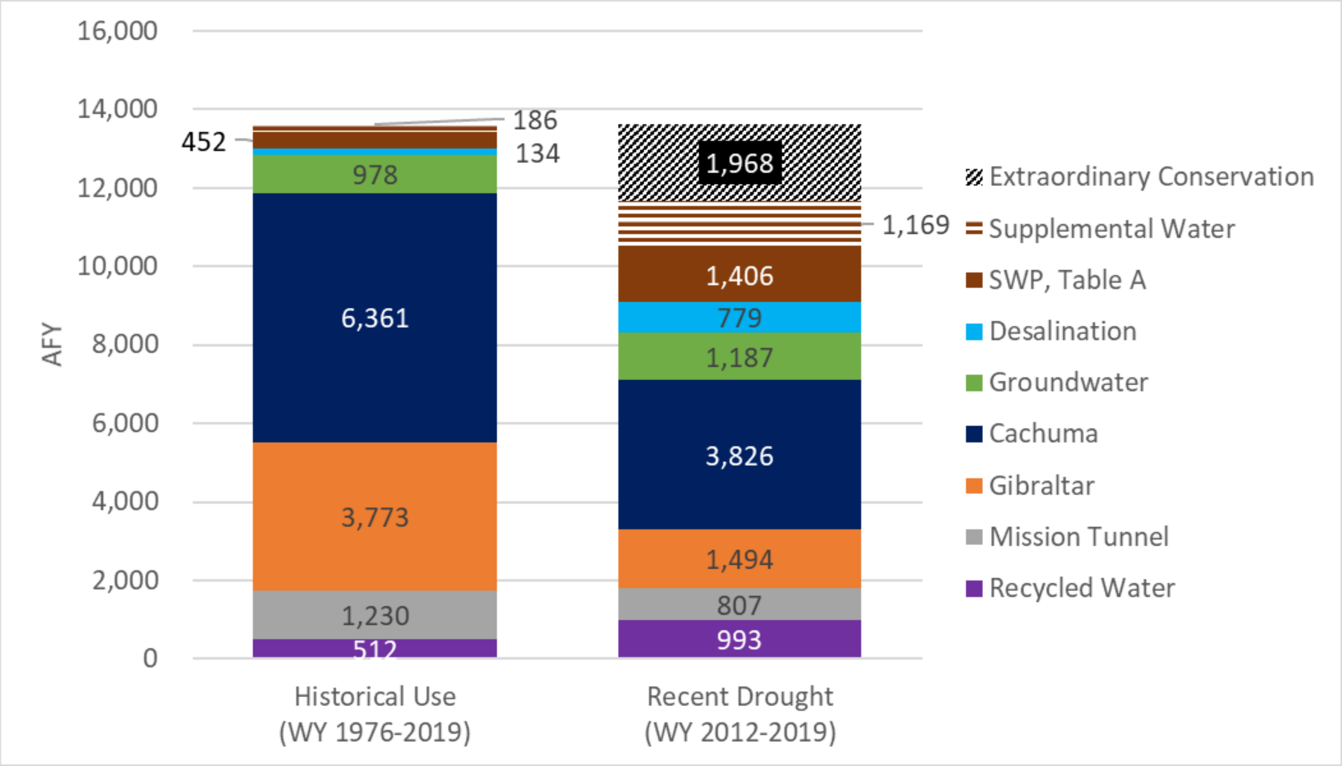


Figure 5. Average Annual Historical Supplies Used



2.2.2. Baseline Supply Projections

The RiverWare Model of the Santa Ynez River was recently updated to simulate potential diversions from Gibraltar and Cachuma by applying historical hydrology with existing facilities and operational strategies. The model simulation period is Water Year (WY) 1942 to 2017, and the model methodology and assumptions are described in the WVSB Water Supply and Climate Change Analysis for Lake Cachuma and Gibraltar Reservoir TM (**Attachment C**). Since these two sources represent the predominant year-to-year supplies for the City, the baseline simulation period for the City's existing portfolio was developed for WY 1942 to 2022. The period was extended to 2022 to capture the historic drought through 2019 plus three extended drought years to create a 10 year "design drought". Assumptions made for each water supply simulation include:

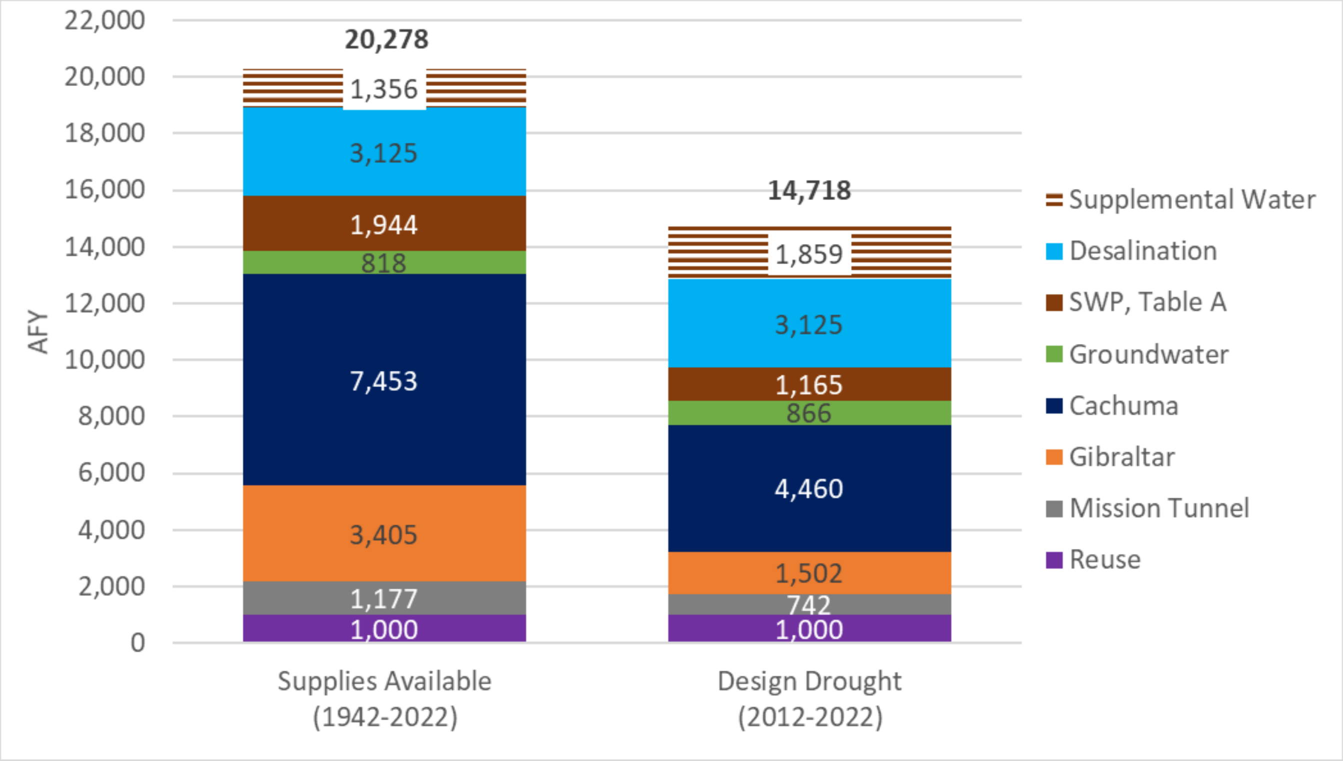
- Gibraltar Reservoir and Lake Cachuma: Applies RiverWare model with operational constraints based on the 2019 SWRCB Water Rights Order (which is described in Attachment D). Model outputs were used for the supply simulation from WY 1942 to 2012. Actual Gibraltar diversions and Cachuma Project allocations were used for WY 2012 to 2019 because the model was unable to sufficiently re-create unique water release rules implemented during the drought.
- Mission Tunnel: Actual yield from Mission Tunnel was used for WY 1976 to 2019. For WY 1942 to 1975, Mission Tunnel yields were estimated based on a best fit formula that considered the previous three-year running average precipitation.
- Desalination: Annual yield is based on existing desalination plant capacity (3.0 mgd) and 93.6% operational time, which equates to 3,125 AFY.
- Groundwater: The simulation considers three factors for groundwater – Sustainable Yield (for non-drought conditions), Drought Storage (for drought conditions), and Maximum Production Capacity (for

drought conditions). As described in Section 5.4 and detailed in **Attachment D**, sustainable yield is 1,250 AFY, assumed drought storage is 10,500 AF, and maximum production capacity is 3,500 AFY.

- SWP: Simulation for SWP Table A water for WY 1942 to 2003 were used from the 2019 SWP Delivery Capability Report (6). The report simulates SWP water deliveries using historical hydrology with current regulations and operating assumptions for WY 1922 to 2003. This resulted in an average yield of 58%. Annual allocation estimates were scaled down to 48% average yield based on long-term yield projections used by Central Coast Water Authority (CCWA). Actual SWP Table A allocations were used for WY 2004 to 2019.
- Supplemental Water: Supplemental water purchases are limited by available capacity in Central Coast SWP conveyance facilities, which was assumed to be 3,300 AFY based on the City's reliable capacity and operations during the recent drought. Available capacity for supplemental water is the balance remaining after SWP Table A allocation so that the maximum amount of SWP Table A and supplemental water in any year is 3,300 AF. Note that additional pipeline capacity may be available if other Cachuma Member Units do not use all of their capacity, but this possible additional capacity cannot be relied on for planning purposes. As described in Section 5.3 and Attachment D, spot market purchases of supplemental water are the default assumption.
- Recycled Water: The new recycled water treatment system at El Estero WRC started operating in 2015 and can produce up to 3.0 mgd of recycled water for non-potable use. Current demands are approximately 1,000 AFY.

The baseline supply simulation over the period (1942-2022) for each supply is shown in **Figure 6**. As shown in the figures, the recent drought period (2012 to 2019), resulted in declines for most supplies: Gibraltar by nearly 70% and Cachuma by nearly 50%, Mission Tunnel by 35%, and SWP by 35%.

Figure 6. Average Annual Supplies Available, Baseline Simulation

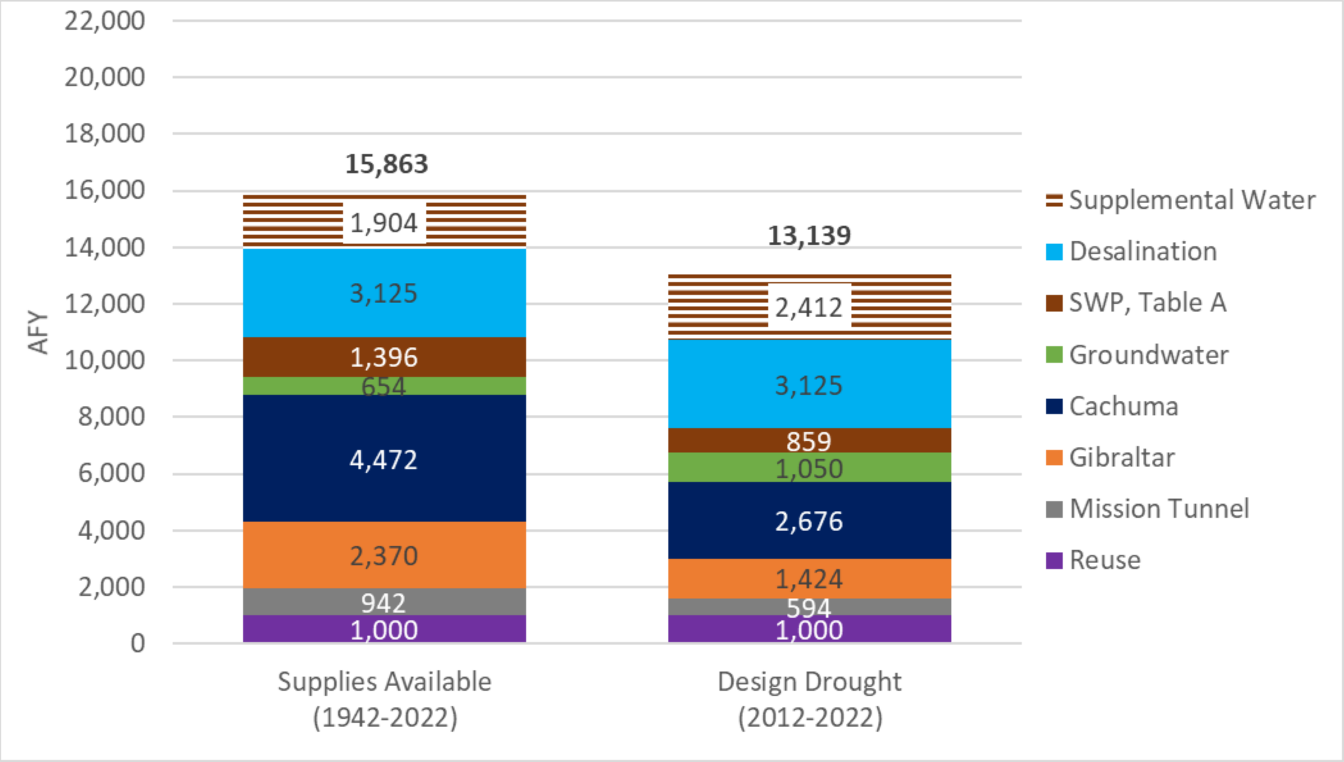


2.2.3. Risk Adjusted Supply Projections

Risk adjusted supply projections were developed to capture potential long-term risks with future supply conditions. Note that each supply has short-term production risks, such as from natural disasters or infrastructure failures, and these are captured in the resiliency scenarios described in Section 3.3.1. The risk adjusted supply projections assumptions are:

- Gibraltar: High sedimentation scenario where existing capacity is reduced by roughly 50% (from 4,583 AF to 2,000 AF). Refer to Attachment D for description. No Warren Act contract for pass through operations is assumed to evaluate the full risk; however, the City intends to continue to pursue the Warren Act contract with the USBR.
- Cachuma: Reduced by 40% from baseline to capture multiple risks - climate change, increased releases from Lake Cachuma in response to new regulations, and increased sedimentation.
- Mission Tunnel: Reduced by 20% from baseline to capture reduced cumulative infiltration due to multiple risks from climate change – extended dry periods and similar average precipitation but with more intense storms, which results in higher runoff instead of infiltration.
- Groundwater: Sustainable yield reduced by 20% (from 1,250 AFY to 1,000 AFY) from reduced recharge due to multiple risks from climate change – more intense storms, extended dry periods, and sea level rise.
- SWP: Reduced from baseline projection (48% average yield) to conservative projection (42% average yield), which is based on ECHO scenario from 2015 SWP Delivery Capability Report (7).
- Supplemental Water: Spot market purchase costs increased by 50%.
- Desalination: No change.
- Recycled Water, Non-Potable Reuse: No change.
- Recycled Water, Potable Reuse: No change.

Figure 7. Average Annual Supplies Available, Risk Adjusted Supply Simulation



2.2.4. Design Drought

As demonstrated in the previous section, the City's water supply portfolio has more than sufficient supplies during non-drought periods, but is tested during extended drought periods. The non-drought periods can be used to prepare for the drought periods. This was highlighted during the 1987-1991 drought, which resulted in construction of the recycled water system and desalination plant and approval to construct SWP facilities. During the 1987-1991 drought, extraordinary demand reductions of up to 50% were required, which came at a considerable sacrifice to the community. The City decided to avoid these large reductions in the future, which was the focus of the 1994 LTWSP.

The 2011 LTWSP applied a six-year "design drought" based on the historical critical drought period for the area during the five-year period of 1947-1951 with a sixth year added. (The 1987-1991 drought was somewhat less severe but had higher demands). The most recent drought, which started in 2012, exceeded previous droughts in both duration and severity. The supply conditions required significant investments to re-start the City's desalination plant and purchases of supplemental water imported via SWP facilities. Also, the City benefitted from the availability of SWP water supplies due to high precipitation in Northern California while the drought continued locally.

Historically, the City has defined the end of a drought period to be when Lake Cachuma spills. Regarding the recent drought, as of February 2021, the lake volume had increased to 64% capacity, but did not spill. The City's groundwater basins, which are important for helping meet demands during drought conditions, are still recovering from the recent drought. Therefore, as of this writing, the City remains in a Stage 1 Water Supply Condition.

The "design drought" for the portfolio analysis is a 10-year drought period based on the 2012-2019 drought and extended for an additional three years until 2022. (Note that this period included above average allocations from the SWP in 2016, 2017, and 2019, as well as relatively wet conditions in 2019 for Cachuma and Gibraltar). For 2020 to 2022, the following supply assumptions were made:

- Deliveries from Cachuma, Gibraltar, Mission Tunnel, and SWP are assumed to be the average of the deepest three years of drought (2015 to 2017).
- Desalination (3,125 AFY) and recycled water (1,300 AFY) deliveries are assumed to continue to produce at their baseline rate
- Groundwater is produced at up to 3,500 AFY from drought storage, up to a total of 10,500 AF produced during the drought period
- Up to 3,300 AFY may be supplied to Cachuma with SWP facilities from a combination of SWP Table A water and supplemental water purchases
- Extraordinary conservation is the supply of last resort

3. Planning Basis

Future portfolios will be evaluated considering multiple metrics, described in this section:

- Level of Service (Section 3.1)
- Triple Bottom Line (Section 3.2)
- Risk and Uncertainties (Section 3.3)
- Cost Basis (Section 3.4)
- Energy Consumption Basis (Section 3.5)

3.1. Level of Service

The level of service goals will be used to evaluate water supply portfolios and eliminate portfolios that cannot meet the minimum level of service goals. The following section describes previous level of service goals from the 2011 LTWSP and 2016 Water Shortage Contingency Plan (WSCP) and provides an updated set of level of service goals for Water Vision Santa Barbara.

3.1.1. Previous Plans

The 2011 LTWSP had two primary level of service goals:

- Meet 100% of unrestricted customer demand in most years
- Meet 85% of demands during the latter portion of a six-year period of below average rainfall (critical drought)

The first goal was met, but the second goal was not met during the last drought - the City ultimately required 40% reduction in water demands due to unprecedented drought conditions. The reductions followed rate increases, drought messaging, and City Council declaration of several water supply condition stages and conservation resolutions:

- February 2014: Stage 1 Water Supply Condition - voluntary 20% reduction in water use
- May 2014: Stage 2 Water Supply Condition - mandatory 20% reduction
- May 2015: Stage 3 Water Supply Condition - mandatory 25% reduction
- April 2016: Maintain Stage 3 Water Supply Condition with increased mandatory 35% reduction
- December 2016: Maintain Stage 3 Water Supply Condition with increased mandatory 40% reduction
- March 2017: Maintain Stage 3 Water Supply Condition with reduced mandatory 30% reduction
- January 2019: Reduced to Stage 1 Water Supply Condition with voluntary 15% reduction

During preparation of the 2015 UWMP, the City also updated its WSCP, revising the water shortage stages:

- Stage 1 – Water Shortage Watch: 0-15% reduction in water demand
- Stage 2 – Water Shortage Alert: 15-25% reduction in water demand
- Stage 3 – Water Shortage Emergency: up to 50% reduction in water demand (depending upon specific circumstances)

These updated water shortage stages will be used as the starting point for establishing level of service goals.

3.1.2. Updated Water Shortage Stages

Based on the City's experience during the recent historic drought, the level of service goals during periods of extended drought need to be updated to reflect updated priorities – providing adequate water supply to maintain community health, environmental health, and economic activity.

- Community health – maintaining basic health and safety / indoor uses
- Environmental health – maintaining irrigation of public resources – City trees and parks
- Economic activity – avoiding mandatory commercial or industrial reductions

During non-shortage conditions, the City will retain the level of service goal to meet 100% of unrestricted customer demand. Additionally, the City intends to comply with state mandated reductions in unrestricted per capita demand. However, recognizing the connection between water supply shortage conditions, City management strategies, and corresponding reductions in customer demand due to mandatory and non-mandatory water conservation measures, the City desires to establish level of service goals that align with its WSCP.

In addition, the California Department of Water Resources (DWR) updated WSCP requirements to include six stages, with the last stage being over 50% water shortage to reflect emergency conditions. Suppliers can choose a different number of stages and correlate the supplier's stages with State guidelines. As shown in **Table 1**, the City has chosen to maintain existing shortage stages and add a new stage for greater than 50% reduction in water. The proposed WSCP stages, corresponding demand reduction, and the assumed recurrence frequency is included in **Table 1**. These demand reductions and recurrence frequency constitute the City's updated level of service goals. The 2021 WSCP will include a menu of potential reduction measures for each stage.

Table 1: Water Shortage Stages

Water Shortage Stage	% of Unrestricted Demand Met(1)	% Water Conservation Range
Normal Supply	≥ 100%	N/A
Stage 1	≥ 85%	0% - 15%
Stage 2	≥ 75%	15% - 25%
Stage 3	≥ 50%	25% - 50%
Stage 4(2)	≤ 50%	> 50%

Notes:
1. Based on 2016 WSCP except for Stage 4, which is new and was added to address draft DWR WSCP guidance.
2. Lower bound of this category is demand required to meet minimum health and safety needs.

For purposes of future portfolio analysis, the portfolios must meet at least 85% of demands (e.g., Stage 1) in the latter portion of the design drought. This approach provides a safety factor by having the ability to move to Stage 2 or Stage 3 Water Shortage if unanticipated conditions are experienced.

3.2. Triple Bottom Line

The City desired to evaluate water supply options and portfolios by applying a Triple Bottom Line (TBL) analysis that considers economic, social, and environmental impacts and benefits. The TBL approach combines multiple measures of performance into one analysis. This allows the City to consider the varying importance of different performance measures to different stakeholder groups. The approach allows the City and stakeholders to objectively evaluate trade-offs between various water supply options and portfolios.

For this analysis, estimates of the capital, operations, maintenance, and asset replacement costs of each supply option were developed and presented as net present value (NPV). Criteria that cannot be monetized are divided into three groups (8):

- **Economic** measures are variables that evaluate the value of affected resources and the flow of money that results from a project, policy, or program.
- **Social** measures are variables that reflect the social characteristics of a community, region, or state. Common measures include education, fairness/equity, environmental justice, health and well-being, quality of life, and social capital.
- **Environmental** measures are variables that reflect the type and quality of environmental and natural resources that would be potentially influenced by or would affect the viability of a project, policy, or program. These measures typically incorporate air and water quality, energy consumption, natural and environmental resources located in the study area, solid and toxic waste generation, and land use.

Triple bottom line criteria are summarized in **Table 2**. Criteria are organized by the TBL groups described above (i.e. economic, social, and environmental) and prioritized (A, B or C), with A being the highest priority and C being the lowest priority). Each criterion includes performance measures for making relative comparisons between supply options and portfolios. For effective decision-making, criteria should align with project objectives and be developed with the following attributes (9):

- **Distinctive:** objectives should be developed to distinguish between one portfolio and another
- **Measurable:** objectives should be measurable, either quantitatively or qualitatively, to determine if they are being achieved
- **Non-Redundant:** objectives should discrete, separate, and distinct
- **Understandable:** objectives should be easily explainable
- **Concise:** objectives should be kept to manageable numbers

Table 2: Triple Bottom Line Criteria, Description

Criteria	Priority(1)	Scoring Guide / Performance Measure(2)
Economic		
Unit Cost	A	NPV unit cost ($ per AF produced). Lower is better.
Potential for External Funding	B	Rating (H/M/L/N): Likelihood of capital costs offset by grant funding, which considers alignment with CA state planning priorities. Higher likelihood is better.
Speed of Implementation	C	Rating (H/M/L/N): Time required to implement a new project in the portfolio because new supplies may be required in a relatively short timeframe if supplies are lost from regulatory or climatic reasons. Higher is better.
Social		
Reliability during design drought	A	Rating (H/M/L/N): Number of years of extraordinary conservation required to meet demand projections. Lower number of year results in higher reliability.
Resilience to disaster or catastrophic event	B	Rating (H/M/L/N): Number and quantity of supplies available under several resilience scenarios. (Refer to Section 3.3.1). Higher number and quantity results in higher resilience.
Local Control	C	Rating (H/M/L/N): Based on the amount of supplies controlled by the City, including Gibraltar, Mission Tunnel, groundwater, desalination, and recycled water. Higher is better.
Environmental		
Protects / enhances habitats and wildlife	A	Cachuma & SWP Use (H/M/L/N): Based on the amount of Cachuma and SWP water used over the evaluation period. Lower is better.
Protects / enhances ocean water quality	B	Desalination Production (H/M/L/N): Based on the amount of desalinated water produced over the evaluation period. Lower is better.
Permitting or regulatory complexity	C	Rating (H/M/L/N): Implementation risk due to regulatory or permitting challenges. Lower is better.
Energy Consumption	C(3)	Energy Consumption (H/M/L/N): Based on the amount of energy consumed by the supplies in each portfolio. Lower is better.

Notes:

1. Priority will be used to develop weightings. “A” is highest relative priority and “C” is lowest relative priority.
2. “H/M/L/N” = High / Medium / Low / None.
3. The City’s energy will be 100% renewable sources starting in the early to mid-2020s. Therefore, all projects considered, except for SWP water, would be produced with renewable energy. For the SWP, DWR also has ambitious goals to reduce the carbon footprint of the SWP and use 100% renewable energy sources by 2045 (California DWR, 2020). Since greenhouse gas emissions would be generally similar across portfolios, this criterion received a lower priority than if greenhouse gas emissions would be a differentiator.

The following criteria were not included due to lack of relevance or as a differentiator for the City's setting:

- *Affordability*: The City Council has adopted a policy that allocates the least-expensive water sources to the highest priority uses (Tier 1), with the intent of providing the most affordable water service for the basic health and sanitation needs of all our residential customers. City water rates are developed according all applicable laws and regulations, including that rates may not exceed the estimated cost of providing the service to each customer class and tier, and must be reasonable, equitable, and proportional. Affordability is a function of different customer types and needs, and is dependent upon income levels and rate design. For this analysis, affordability is captured in the comparative unit cost criteria since it rewards the lower cost portfolios.
- *Impacts on Disadvantaged Areas*: For this analysis, the two new infrastructure projects – expanded desalination and potable reuse – would be on parcels with existing industrial activities within existing industrial zones and, therefore, should not disproportionately impact disadvantaged areas.
- *Temporary Local Construction Impacts*: Local construction causes temporary local impacts that can be mitigated under CEQA, but still impact the local community, especially off-site (e.g., pipeline) work. For this analysis, the two new infrastructure projects – expanded desalination and potable reuse – are located within industrial zones and, therefore, should have limited local impact.
- *Impacts to Endangered Species*: This topic is addressed by all portfolios since Cachuma Project and SWP supplies must meet endangered species protection requirements - Cachuma water rights order, Cachuma biological opinion, and SWP delivery projections. Also, "Protects / Enhances Habitats and Wildlife" is measured by the amount of Cachuma and SWP use.
- *Aesthetics*: Ability to maintain local aesthetics (e.g., tree infrastructure and public places) during drought conditions and ability to maintain local aesthetic impacts from new infrastructure. The drought condition component is addressed by incorporating this demand into the minimum Level of Service goals (Section 3.1) that must be met by the recommended portfolio. The new infrastructure component would be addressed by mitigation measures where needed. However, the two new infrastructure projects – expanded desalination and potable reuse – are located within industrial zones and, therefore, should not create aesthetic issues.
- *Compatibility with Current Water System*: The cost to incorporate all supplies into the current water system will be included in the cost of the supply so this will be captured by the unit cost criterion.
- *Alignment with State Planning*: This is captured by the "Potential for External Funding" criterion listed in Table 2.

3.2.1. Sensitivity Analysis

The baseline criteria prioritization was based on input from City staff and informed by stakeholder input. However, stakeholder perspectives vary, so several different prioritization models were developed as a sensitivity analysis. As shown in **Table 3**, prioritization scenarios that consider an emphasis on economic criteria, social criteria, and environmental criteria were defined.

Table 3: Triple Bottom Line Criteria, Prioritization Sensitivity

Criteria	Criteria Prioritization			
	Baseline	**Affordability Emphasis**	**Social Emphasis**	**Environmental Emphasis**
Economic				
Affordability	A	A	B	B
Potential for External Funding	B	A	B	C
Speed of Implementation	C	B	C	C
Social				
Reliability during design drought	A	B	A	B
Resilience to disaster or catastrophic event	A	B	A	B
Local Control	C	B	A	C
Environmental				
Protects / enhances habitats and wildlife	B	C	B	A
Protects / enhances ocean water quality	B	C	B	A
Permitting or regulatory complexity	C	C	C	A
Energy Consumption	C	B	B	A

Note: Priority will be used to develop weightings. “A” is highest relative priority and “C” is lowest relative priority.

3.3. Risk and Uncertainties

A **risk** is an event that could adversely affect water system performance where the likelihood of the occurrence and the impact are known or can be reasonably estimated. An **uncertainty** is an event that could adversely affect water system performance where the likelihood of the occurrence and/or the impact is unknown or cannot be estimated confidently (10). Risks and uncertainties are used in multiple steps throughout the planning process, including risk adjusted supplies (Section 2.2.3), development of thematic portfolios (Section 6.1), and developing resilience scenarios (Section 3.3.1) to test the preferred portfolios. Supply risks and uncertainties that will be considered in the analysis are described in **Table 4**.

Table 4: Risk Criteria, Description

Risk / Uncertainty	**Description**	**Relative Importance**[(1)]
Hydrology / Climate		
Climate Variability[(2)]	More extreme droughts, increased evapotranspiration, reduced yield, more intense rainfall/flooding, and higher variability from surface water supplies.	A
Sea Level Rise[(2)]	Potential for recycled water quality degradation from flooding of coastal facilities	C
Megadrought[(3)]	A prolonged drought lasting two decades or longer.	B
Environmental		
Lake Cachuma Increased Releases	The 2016 draft Biological Opinion (BO) updated the 2000 BO, which impacts current Cachuma operations. The 2016 draft BO was terminated, but an updated BO is expected in the future.	A
Gibraltar Reservoir High Sedimentation	Sedimentation has substantially reduced the annual Gibraltar yield. The City as yet to successfully exercise its Pass-Through Agreement with the USBR to shift its lost Gibraltar storage capacity to Lake Cachuma under a Warren Act Contact.	A
Surface Water Quality Degradation	Surface water quality degradation due to wildfires and warmer temperatures impact Cachuma and Gibraltar, making them susceptible to algae blooms, which negatively impact water quality.	B
Ocean Water Quality Degradation	Desalination is at risk under water quality degradation scenarios from algae blooms, debris flows, oil spills, and sewage spills.	B
Desalination Regulations	Permanent loss or reduction of desalination supply due to changes in law or regulatory policy would return the City to supply conditions prior to the desalination plant activation in 2017.	A
SWP Yield	SWP project yield and reliability has continued to decline, especially during dry periods. The City does not benefit from average and wet supplies due to lack of storage beyond carryover water in San Luis Reservoir. As a result, the City receives limited benefits from SWP. Delta Conveyance Project construction would further reduce the reliability of SWP water, since San Luis Reservoir will spill more frequently and the City lose its carryover water after spill events.	A
Groundwater Contamination	Contamination could result in new treatment costs or the loss of groundwater supplies. Additionally, changes in groundwater constituents has the added risk of making the groundwater basin non-compliant with its Basin Plan, which hinders the permitting of aquifer storage and recovery (ASR) projects. ASR projects replenish the groundwater basin and help prepare for the next drought.	C

Risk / Uncertainty	Description	Relative Importance[(1)]
Business / Operations		
Cachuma Carryover	USBR recently proposed reducing the City's ability to carryover unused allocated water from year to year in Lake Cachuma, which is an essential water supply tool need to manage the City's diverse supplies. A reduction in the ability to carryover Cachuma water would reduce supply reliability.	A
Increased Energy Costs	The most energy intensive supplies are desalination followed by SWP and potable reuse. Increased energy costs would cause higher supply costs.	B
Revenue Fluctuation	Rapid changes in demands result in rapid changes in revenue, which causes revenue shortfalls since roughly 80% of the City's water costs are fixed while roughly 30% of rates include fixed costs. Changes occur due to events, such as extraordinary demand in drought, recession, and pandemics.	B
Catastrophic Event		
Catastrophic Event	Includes a range of scenarios that result in a temporary (< 6 months) loss of a major supply, such as infrastructure failure, regional power outage, natural disaster (earthquake, tsunami), or terrorism. The impact is dependent on the location and type of the event, and will be evaluated by the Temporary Loss of One or More Supplies resilience scenario.	A

Note:

1. Priority is used to develop weightings. "A" is highest relative priority and "C" is lowest relative priority.
2. The impacts on the City's water supplies from climate change due to increased drought and sea level rise vary significantly, and thus were broken out in this analysis. Sea level rise is not anticipated to be as high a risk for the City's water supplies compared to other climate change impacts.
3. Per Williams, et al (2020) (11), "Global warming has pushed what would have been a moderate drought in southwestern North America into megadrought territory. Williams et al. used a combination of hydrological modeling and tree-ring reconstructions of summer soil moisture to show that the period from 2000 to 2018 was the driest 19-year span since the late 1500s and the second driest since 800 CE. This appears to be just the beginning of a more extreme trend toward megadrought as global warming continues."

The risks and uncertainties in the table above were applied to the future portfolio analysis in several ways:

- Risk Adjusted Supply Projections: Climate Change, Lake Cachuma Increased Releases, Gibraltar Reservoir High Sedimentation are captured in the risk adjusted supply projections described in Section 2.2.3. Climate change is also captured in the demand projection envelope.
- Resilience Scenarios (Section 3.3.1)
    - Temporary Loss of One or More Supplies: Catastrophic Event, Surface Water Degradation, and Ocean Water Quality Degradation will be captured by Resilience Scenarios that consider loss of one or supplies
    - Megadrought: Megadrought will be captured by a Resilience Scenario that assumes low yield from surface water supplies.
- SWP Yield is addressed by a SWP options evaluation. This topic is explored in Section 5.3.

- Cachuma Carryover is discussed as part of the importance of storage to the City in Section 5.7.
- Increased Energy Costs risks are captured by the energy consumption TBL criteria.
- Desalination Permitting is low likelihood but high impact that will continue to be actively monitored by the City.
- Revenue Fluctuation is unaddressed in the portfolios since this is more of a rate-setting issue. The City's rates are structured so that only 30% of revenues come from fixed charges, although the fixed expenses to operate the water system account for much approximately 80% of overall costs. The City is dedicated to empowering customers to control their water bill by limiting the amount of revenue collected through fixed charges. The variable rates are structured into tiers to encourage conservation and so that customers pay more for high water use.

The risks and uncertainties with a relative importance of “C” were not directly incorporated into the analysis but are included here to inform future water supply considerations.

3.3.1. Resilience Scenarios

Two different resilience scenarios were developed to evaluate the future portfolio performance under different risks and uncertainties:

- Temporary Loss of One or More Supplies (**Table 5**)
- Megadrought (described after Table 5)

Temporary Loss of One or More Supplies (Table 5) considers several scenarios where the City is without one or more supplies for a short period (from power outage) or extended period (from major infrastructure failure). In addition to the supplies lost, the scenarios assume groundwater can be produced at the maximum production capacity of 3,500 AFY to make up for lost supplies. If desalination is in standby mode, it is assumed to be unavailable for short-term outages, but can be activated within ten weeks for longer term outages (8).

Table 5: Resilience Scenarios – Temporary Loss of One or More Supplies

Resiliency Scenario	Impact to Supplies
Short-Term (< 1 month) Outage	
Loss of Cater WTP(1)	Equivalent to combined impact of loss of Mission Tunnel and Tecolote Tunnel
Regional power outage(2)	Loss of desalination
Potable reuse outage(2)	Loss of potable reuse
Medium-Term (1 to 24 months) Outage	
Mission Tunnel Failure(1)	Loss of Gibraltar and Mission Tunnel
Tecolote Tunnel Failure(1)	Loss of Cachuma and SWP
SWP Failure	Loss of SWP and supplemental water

Notes:

1. This would also capture the risk of Surface Water Quality Degradation.
2. This would also capture the risk of Ocean Water Quality Degradation.

A drought can be defined in different ways – most commonly as multiple years of below average precipitation or runoff. A megadrought is considered a prolonged drought lasting two decades or longer. From a supply perspective, rainfall dependent supplies are expected to experience low availability. For this resilience scenario, supply availability during the last three years of the design drought is assumed. These estimates were based on average supply available from the most recent drought (2012 to 2019). The scenario looks at the available supplies with these assumptions, where only desalination and recycled water provide reliable supplies.

- Gibraltar: Average supply available from the most recent drought (1,600 AFY), which is roughly 50% of average baseline simulation yield. Baseline simulation projections are presented in Attachment D.
- Cachuma: 60% (based on supply risk adjustment) of average supply available from the most recent drought - 3,000 AFY
- Mission Tunnel: Roughly 50% of average historical yield – 720 AFY.
- Groundwater: Assumed to be exhausted.
- SWP: 25% allocation – 700 AFY.
- Supplemental Water: Spot market is not available.
- Desalination: No change.
- Non-Potable Reuse: No change. Although, irrigation uses can fall during drought periods as customers conserve even if the restrictions do not apply recycled water customers. However, the change is minor relative to the total supplies available, so no change is assumed.
- Potable Reuse: No change.

3.4. Comparative Cost Basis

The comparative cost basis is documented in the WVSB Cost Basis TM (**Attachment E**) and is summarized in this section. The comparative cost analysis for the future portfolio analysis is intended for comparing water supply portfolios, so only costs that affect future portfolio analysis are included. For consistent comparison across projects, all costs presented in this memo are in 2020 dollars unless noted otherwise. When needed, costs were escalated to 2020 dollars using Engineering News Report (ENR) Construction Cost Index (CCI) 20-Cities Average[1]. Preliminary cost estimates were prepared or compiled based on the design criteria and information presented in previous studies. The estimates are consistent with Class 5 estimates as defined by the Association for the Advancement of Cost Engineering, International (AACEI) in their publication 56R-08 (-30% to +50% expected accuracy range). The following assumptions were made for the present value evaluation:

- Inflation Rate: 3%; based on 30-year annual average for ENR CCI 20-Cities Average.
- Discount Rate: 3%; set to the inflation rate because use of supplies is dependent on when the next drought occurs and the analysis assumes the next extended drought occurs in the latter portion of a 30-year period.
- Financing:
  - Rate: 2.1% based on average of 2000 to 2020 interest loan rates from the State Revolving Fund
  - Term: 20 years for desalination and 30 years for potable reuse

Variable and selected fixed costs for the City's existing supplies are summarized in **Table 6.** Existing debt service and fixed costs that apply to all portfolios are not shown, since they do not impact the future portfolio analysis.

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[1] https://www.enr.com/economics/historical_indices/construction_cost_index_history

Table 6. Existing Water Supply Comparative Costs

Supply	Debt Service ($M/yr) (Year Debt is Retired)	Annual Fixed Cost ($M/yr)	Variable Cost ($/AF)	Additional Variable Cost in Drought ($/AF)
Cater WTP	$1.1 (2025)	$5.6	--(4)	
Gibraltar Reservoir	--	$0.5	$100	
Lake Cachuma	--	$2.8	$100	$50
Mission Tunnel	--		$100	
Groundwater, Foothill Basin	--		$200	
Groundwater, Storage Unit #1	$1.7 (2036)	$0.1	$400	
State Water Project	$1.4 (2023)	$2.8	$420	$90
Recycled Water (Non-Potable)	--	$0.8	$230	
Desalination	$4.2 (2038)			
Standby Cost		$1.6		
Production Operating Cost		$1.0	$550	
Total Operating Cost	*$4.2*	*$2.6*	*$550*	

Note: Refer to the Cost Basis TM (Attachment E) for the derivation of the cost estimates.

Estimated costs for future water supplies were also documented in the WVSB Cost Basis TM (Attachment E) for higher water conservation expanded desalination, potable reuse, and supplemental water. These costs are summarized in **Table 7**.

Table 7. Summary of Future Supply Comparative Cost Estimates

Item[1]	Higher Water Conservation	Recycled Water Expansion	Desalination Expansion	Moderate (2,900 FY) Potable Reuse	High (6,000 AFY) Potable Reuse	Supplemental Water, Spot Market[2]	Supplemental Water, Groundwater Bank
Initial Payment		--					$5.0 M
Debt Payments		--	$1.7 M/yr	$3.9 M/yr	$7.1 M/yr		
Annual Fixed Cost		--	$0.5 M/yr				$0.04 M/yr
Variable Cost	$1,800/AF-$2,400/AF	--	$550/AF	$1,200/AF	$1,200/AF	$760/AF to $1,740/AF	$740/AF
Yield	Up to 800 AFY	Up to 220 AFY	1,875 AFY	2,900 AFY	6,000 AFY	Up to 3,300 AFY	Up to 3,300 AFY
Unit Cost	**$1,800/AF-$2,400/AF**	**Up to $1,860/AF**	**$1,800/AF**	**$2,580/AF**	**$2,400/AF**	**$760/AF to $1,740/AF**	**$1,040/AF**

Notes:

1. Refer to Section 5 for discussion of each supply and the Cost Basis TM (Attachment E) for a cost basis explanation. Fixed annual and variable costs are escalated at 3% per year. Debt payments assume 2.1% interest rate over 20 years.
2. Range of costs is dependent on hydrologic year. Note the purchase cost estimates are based on prior transactions. Future purchase costs are subject to market conditions and have the potential to vary substantially. The water transfer market is expected to undergo notable changes due to proposed SWP contract changes that would broaden potential transactions and increased demand for supplemental water to support SGMA compliance across the State.

3.5. Energy Consumption Basis

Energy consumption is a TBL evaluation criterion and a component within annual O&M costs. To support the TBL analysis, energy consumption in kilowatt-hours per acre-foot (kW-hr/AF) for each supply is summarized in **Table 8**. The basis for each estimate is documented in the Cost Basis TM (Attachment E).

Table 8. Existing Water Supply Costs

Supply	Unit Energy Consumption (kW-hr/AF)
Surface Water (Gibraltar, Cachuma, Mission Tunnel)	450
Groundwater	1,610
State Water Project	2,970
Recycled Water (Non-Potable)	260
Desalination	5,310
Desalination Expansion	5,570
Potable Reuse	2,790

Note: Refer to Cost Basis TM (Attachment E) for the derivation of the energy consumption estimates.

4. Existing Portfolio Analysis

The purpose of the existing portfolio analysis was to identify potential supply / demand gaps to inform development of the future portfolios. The existing portfolio analysis evaluated the existing supplies and demand over the 81-year simulation period (1942-2022) under four scenarios:

1. Lower Bound Demand Projection & Existing Supplies
2. Lower Bound Demand Projections & Risk Adjusted Supplies
3. Upper Bound Demand Projection & Existing Supplies
4. Upper Bound Demand Projections & Risk Adjusted Supplies

The existing portfolio was evaluated by simulating water supplies used over the simulation period based on the existing supply prioritization:

1. Recycled Water
2. Mission Tunnel
3. Gibraltar
4. Cachuma, Carryover
5. Cachuma, Allocation
6. Groundwater, Perennial Yield
7. Desalination
8. SWP, Table A
9. Groundwater, Drought Storage
10. SWP, Supplemental Water
11. Extraordinary Conservation

The simulations are shown in **Figure 8** and the number of years with water shortage stages is summarized in **Table 9**. As shown in the table, the existing portfolio can reliably meet existing demands even with risk adjusted supplies, but the existing portfolio is unable to meet greater than 85% demand in all years in the simulation in the upper bound demand scenario. The risk adjusted supplies combined with upper bound demand shows substantial supply shortfalls, especially in an extended drought.

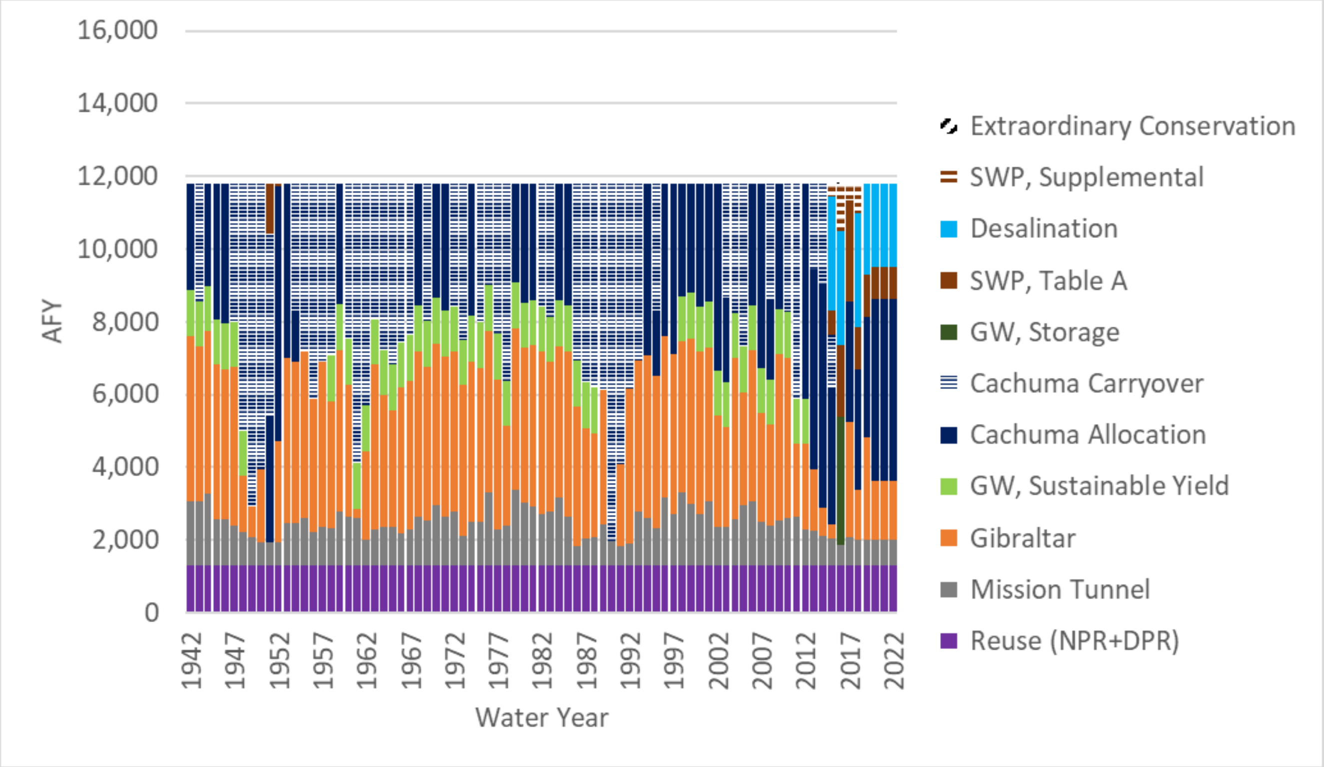
Table 9: Water Shortage Stages

Water Shortage Stage	% of Unrestricted Demand Met	% Extraordinary Water Conservation Range	Number of Years in Stage during 81-Year Simulation			
			Fig 8.1	Fig 8.2	Fig 8.3	Fig 8.4
			Lower Bound Demand		Upper Bound Demand	
			Existing Supply	Risk Adjusted Supply	Existing Supply	Risk Adjusted Supply
Normal	≥ 100%	N/A	80	80	74	62
Stage 1	≥ 85%	0% - 15%	1	1	6	12
Stage 2	≥ 75%	15% - 25%	--	--	--	5
Stage 3	≥ 50%	25% - 50%	--	--	1	2

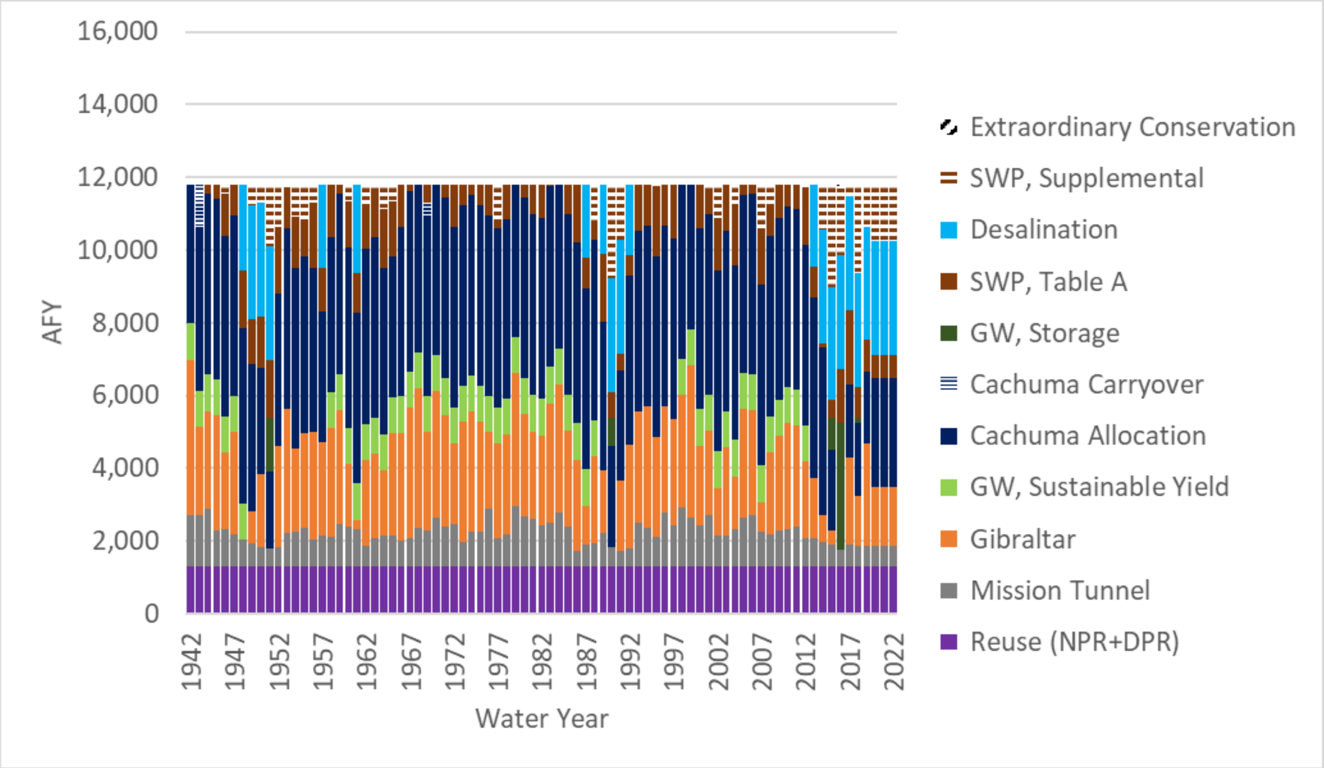
Note: Refer to Section 3.1.2 for discussion of water shortage stages.

Figure 8. Existing Portfolio Analysis Simulation Scenarios

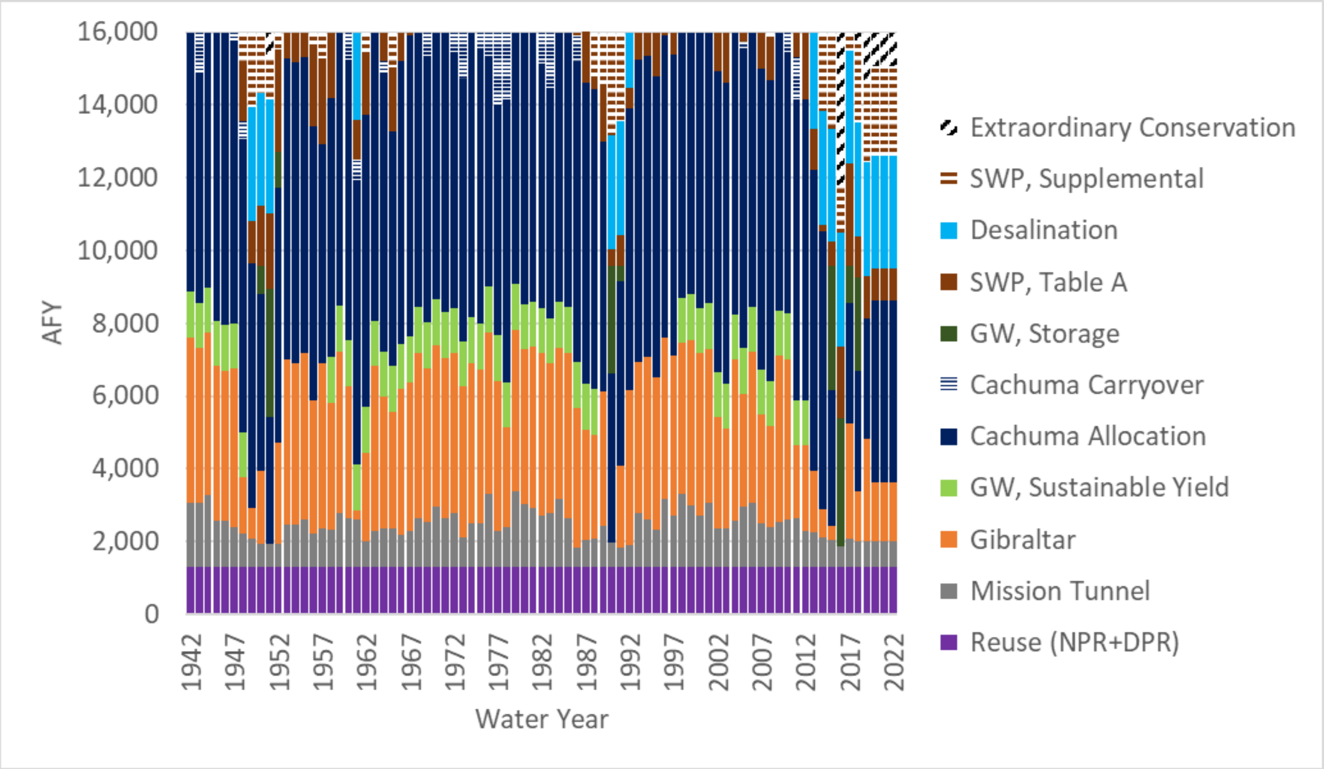
8.1) Lower Bound Demand Projection & Existing Supplies



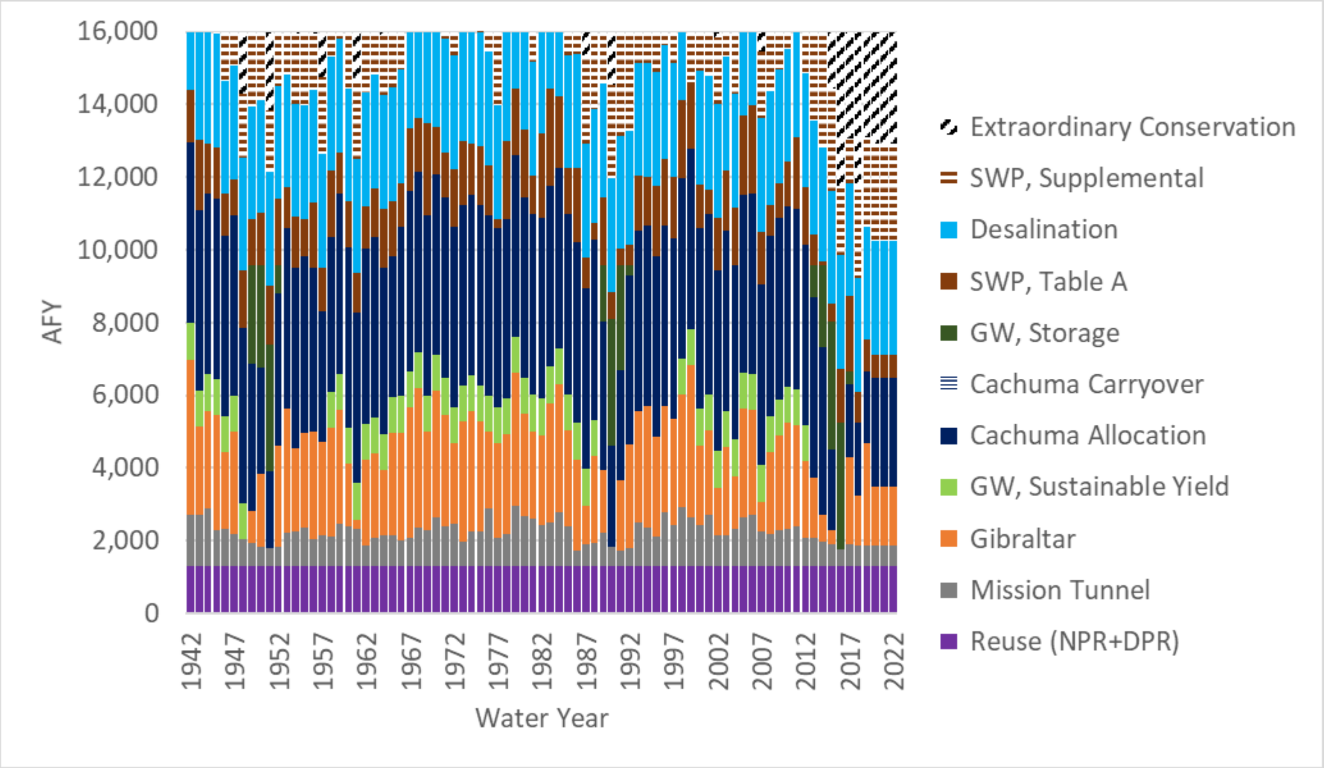
8.2) Lower Bound Demand Projections & Risk Adjusted Supplies



8.3) Upper Bound Demand Projection & Existing Supplies



8.4) Upper Bound Demand Projections & Risk Adjusted Supplies



4.1. Risks and Uncertainties

The likelihood and impact of potential risks and uncertainties (introduced in Section 3.3) was qualitatively evaluated for the existing portfolio. The findings are mapped in **Figure 9** and are described in **Table 11**.

Figure 9. Existing Portfolio Risk and Uncertainty Mapping

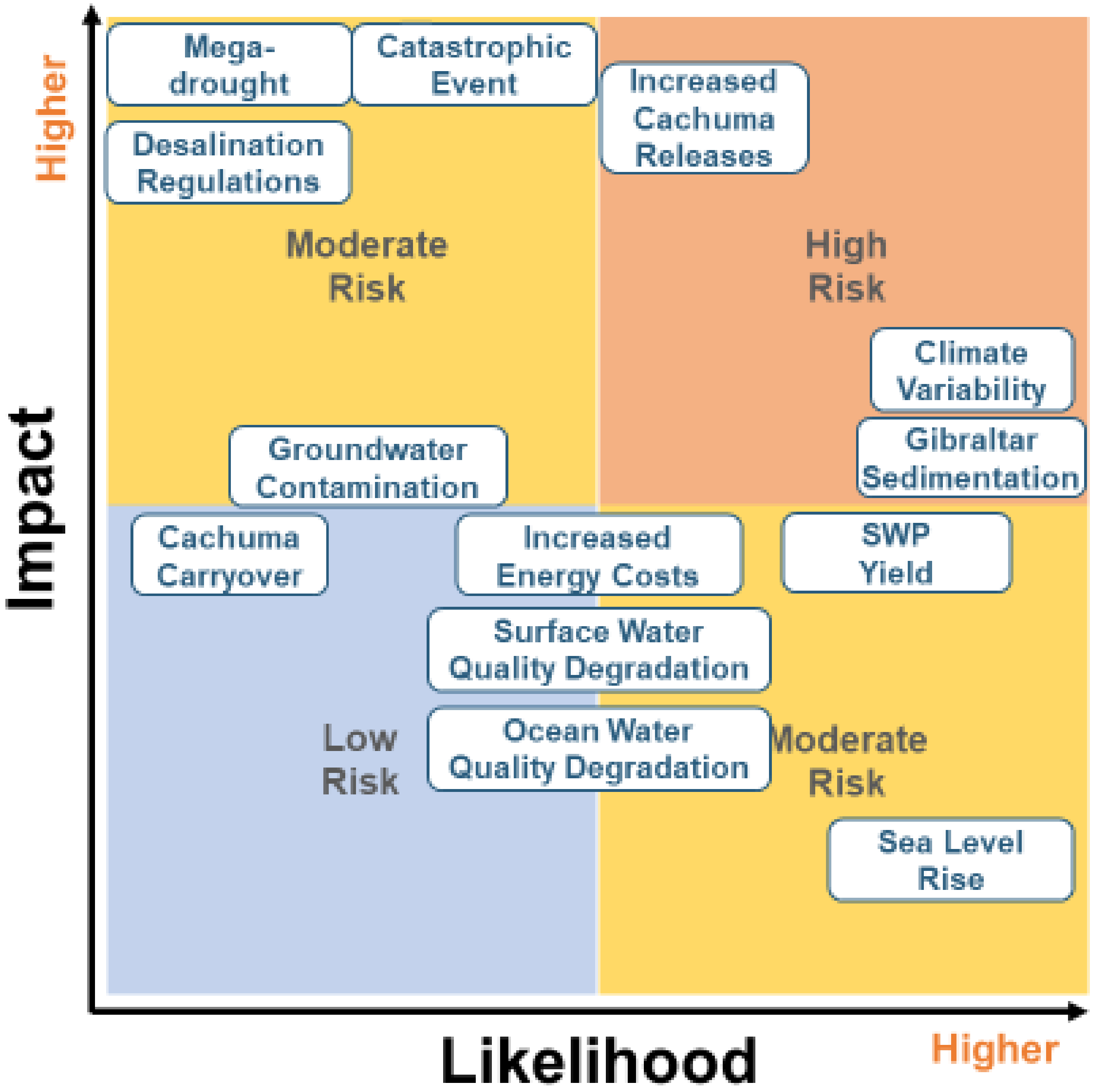


Table 10: Existing Portfolio, Qualitative Risk and Uncertainty Analysis

Risk / Uncertainty	Qualitative Analysis	Likelihood	Impact
Hydrology / Climate			
Climate Variability	Majority of supplies (Cachuma, Gibraltar, SWP) are subject to climate change impacts. Desalination provides a reliable supply regardless of climate change.	High	High
Megadrought	The only drought-proof supplies are desalination and recycled water. Supplemental water could fill a portion of the supply gap at substantial expense. This will be investigated as part of a resilience scenario.	Low	High
Sea Level Rise	Relatively lower impacts to the portfolio since Storage Unit #1 and recycled water are relatively small portion of the supply. The impact would be higher in drought conditions since both supplies play larger roles.	High	Low
Environmental			
Lake Cachuma Increased Releases	Cachuma represents the largest supply in the existing portfolio and one of the least expensive.	High	High
Gibraltar Reservoir High Sedimentation	Gibraltar represents the second largest supply in the existing portfolio and one of the least expensive.	High	Mod. / High
Surface Water Quality Degradation	The City's investment in ozone at Cater WTP has mitigated surface water quality issues from high levels of organics causing disinfection byproducts.	Mod.	Low / Mod.
Ocean Water Quality Degradation	Temporary (< 3 months) loss of desalination supplies could be managed in normal conditions but would have larger impacts during a drought. In drought conditions, increased production from other sources and/or supplemental water should be able to backfill temporary supply losses.	Mod.	Low / Mod.
Desalination Permitting	Desalination is the City's primary drought proof supply, and its loss would require the acquisition of new supplies and/or extraordinary conservation.	Low	High
SWP Yield	No proactive measures are assumed in the existing portfolio. These will be evaluated in future portfolios.	High	Mod.
Groundwater Contamination	Has the largest impact under drought conditions, when groundwater represents up to 30% of supplies.	Low	Mod.
Business / Operations			
Cachuma Carryover	Lake Cachuma can store water to meet multiple years of demand. Reductions or loss of this storage would reduce supply reliability and the ability of the City to optimally manage their supplies.	Low	Mod.
Increased Energy Costs	Higher long-term costs would translate into higher rates.	Mod.	Mod.
Catastrophic Event			
Catastrophic Event	Depending on the supplies lost and the hydrologic conditions when the event occurs, the City could meet a range of demands and should be able to meet essential demands, which is the level of service goal in Stage 4 (catastrophic) conditions. This will be investigated as part of a resilience scenario.	Mod.	High

Three risks were identified as high likelihood and high impact and represent highest risk the City's existing portfolio:

- **Climate Change**: The combination of more extreme droughts, reduced yield, more intense rainfall/flooding, and higher variability from surface water supplies stresses the portfolio, since only 21% of the portfolio is made up of climate-independent supplies – desalination and recycled water.
- **Lake Cachuma Increased Releases**: Significant reductions on the City's Cachuma Project yield would have ripple effects throughout the portfolio because the use of the other supplies would need to increase in normal conditions, reducing their availability in drought conditions. This would also increase the overall supply cost, since the Cachuma Project is one of the least expensive City supplies.
- **Gibraltar Reservoir High Sedimentation**: An increased amount of sedimentation at Gibraltar Reservoir would have substantial impacts, since Gibraltar represents the second largest supply in the existing portfolio (behind Cachuma). The City is pursuing a Warren Act Contract with the USBR to recover lost Gibraltar yield from sedimentation as stipulated in the Pass Through Agreement, but it is assumed to be incomplete in the existing portfolio.

Two items were identified as high impact but lower likelihood – natural disaster and megadrought. These are addressed as Resilience Scenarios – described in Section 3.3.1 and evaluated in Section 7.3. Also, methods to address SWP Yield concerns are discussed in Section 5.3 and Cachuma Carryover is discussed as part of the importance of storage to the City in Section 5.7.

4.2. Existing Portfolio Analysis Findings

The following broad conclusions were made from the existing portfolio analysis:

- Existing demands can be met with existing supplies and risk adjusted supplies under historic hydrologic variability, including an extended drought. Existing supplies require similar extraordinary conservation during an extended drought as were required in the most recent drought at the upper bound demand projection. Risk adjusted supplies require unacceptable levels of extraordinary conservation – in roughly one out of every four years and up to 30% reductions for eight of ten years in an extended drought (at the upper bound demand projection).
- The City's biggest water supply challenge is providing sufficient supplies to meet demands during an extended drought. Desalination, groundwater, SWP water, and supplemental water are essential to meeting demands during a drought without drastic extraordinary conservation. However, extraordinary conservation may be required during an extended drought if supply availability is reduced below current levels and demands increase.
- The City's biggest water supply opportunity is the potential to capitalize on available water supply assets during normal and wet periods when available supply exceeds demand, while always preparing for future drought conditions.
- The largest projection variables are
    - Demand rebound from the most recent drought, and its impact on demand projections
    - Supply projections associated with incremental changes in supply availability (e.g., climate change or sedimentation) or immediate changes in supply availability (e.g., regulatory decisions).

The conclusions raised several questions to be addressed by the future portfolio analysis:

- Demand / Water Conservation: What is the best level of conservation investment for the City?
- Desalination: What is the role of desalination outside of an extended drought?
- SWP: How should the City best position itself for the use of SWP water and supplemental water during a drought using its SWP rights in the years when SWP water is unneeded locally? What is the best approach to utilizing SWP and supplemental water during an extended drought? How should supplies be used outside of drought conditions to prepare for a future drought?
- Groundwater: How should the City best position its groundwater basins for use during a drought while also using some groundwater during non-drought periods and maintaining groundwater production infrastructure? How should groundwater be monitored and managed during an extended drought?
- Recycled Water, Non-Potable Reuse (NPR): How much more NPR water could be implemented? Should the NPR supply continue if potable reuse is implemented?
- Recycled Water, Potable Reuse: Should potable reuse be added to the City's portfolio in the future?
- Storage: What are the opportunities to improve reliability through long-term (seasonal and multi-year storage) and what are the risks?

5. Future Portfolios Components

Based on the questions listed above, an initial set of focused analyses was conducted on topics that inform portfolio development and may be part of most or all portfolios. This section addresses focused analyses on the following topics:

- Demand / Water Conservation
- Desalination
- SWP
- Groundwater
- Recycled Water
- Storage

5.1. Water Conservation

The City's Water Conservation Strategic Plan (1) recommended Conservation Program B, with an estimated 1,740 AF of passive conservation (e.g., plumbing code) savings by 2050 and 880 AF of active conservation savings by 2050. Over the 30-year planning period (2020 to 2050), the plan estimated an average annual savings of 980 AFY for passive conservation and 680 AFY for active conservation. The analysis used an avoided cost of $865/AF based on the avoided cost of existing supplies[2] to identify cost-effective measures.

Higher levels of conservation were explored for WVSB to determine if a higher investment in conservation program could avoid or reduce the need for new supplies. The "higher conservation" scenarios were modeled where the avoided cost (used to identify cost effective measures) was set to $2,400/AF and costs for implementing measures were shifted predominantly to the City to minimize cost to the customer with the goal to substantially increase uptake of conservation programs. As shown in **Figure 10**, the City's water conservation program investment would temporarily increase from roughly $1 million per year to over $7 million per year. Over 30 years, and annual average conservation expenditures would quadruple to $2.5 million per year.

The higher conservation scenario aimed to achieve higher levels of participation in most programs recommended for recommended conservation program (Program B), including Residential Rebates for high efficiency toilets and appliances, water and irrigation checkups, commercial and industrial customized rebates, irrigation and landscape rebates, leak detection device rebate, and hot water on demand pump systems. This also results in substantial increase in City staff from roughly 4 staff for the recommended conservation program (Program B) to 15 staff for the higher conservation program.

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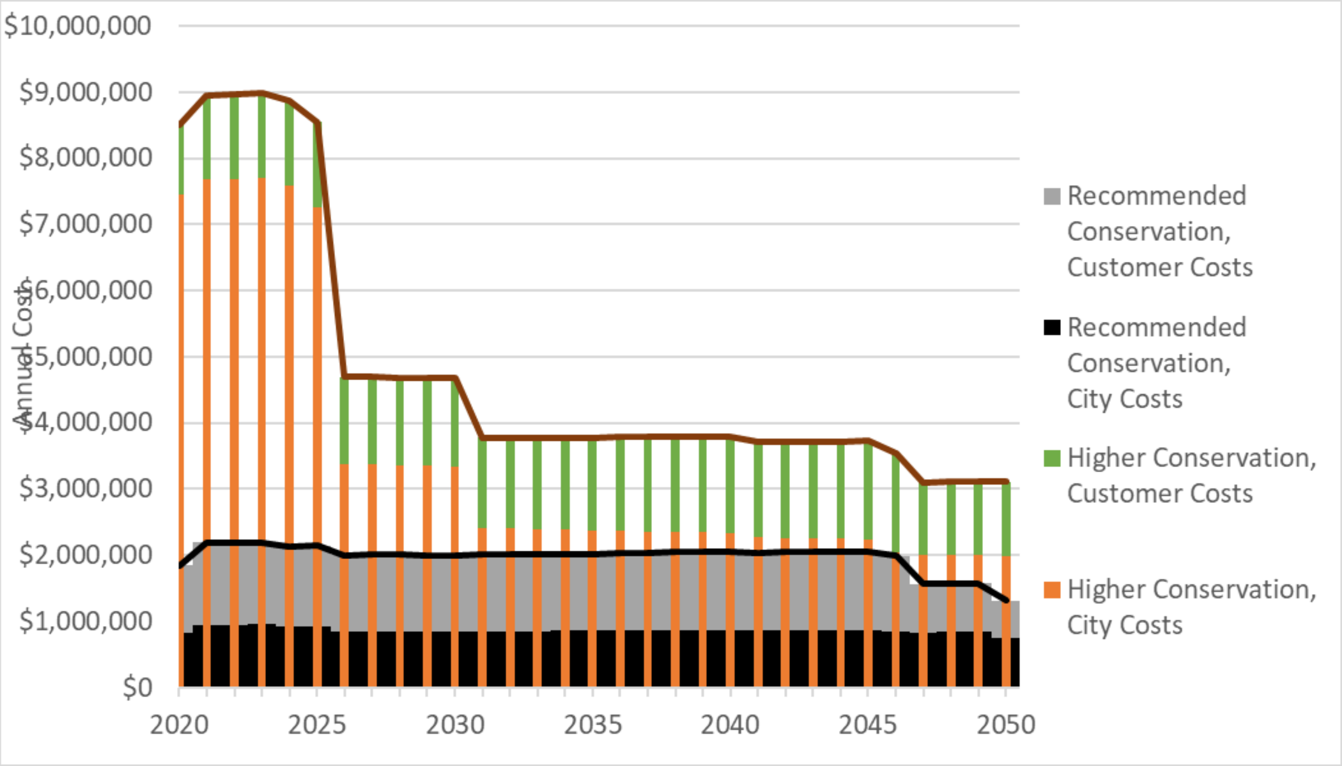
[2] Based on the City's estimated average water production cost, including treatment, energy, and transport costs. Cost is based on 2019 generated drought supplies and costs including the following supply sources: Cachuma, Gibraltar/Mission Tunnel, Cachuma carryover/MWD, groundwater, state water, banked water/water purchases, existing desalination, and expanded desalination). The value is similar to the additional operating cost of the desalination plant ($870/AF) discussed in Section 5.2.

Figure 10. Recommended Conservation and Higher Conservation Scenarios, Annual Costs



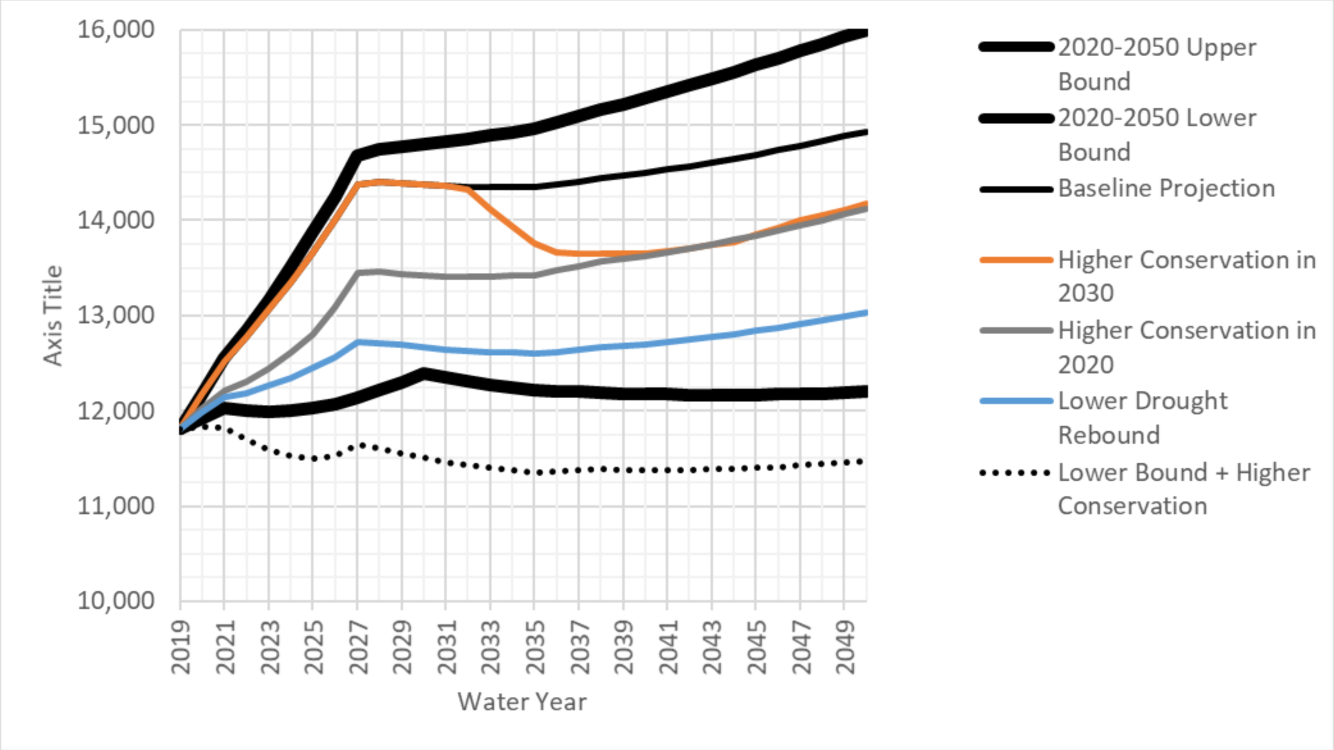
Ultimately, three "higher conservation" scenarios were modeled:

- Higher Conservation Scenario 1: Higher Conservation starting in 2020
- Higher Conservation Scenario 2: Higher Conservation starting in 2030
- Higher Conservation Scenario 3: Higher Conservation starting in 2020 combined with lower bound demand scenario (lower drought rebound and slower job growth)

The analysis found that the City could reduce demand by roughly 790 AFY on average over the 30-year planning period (2020 to 2050) if the "higher conservation" program is started in 2020 (Scenario 1), or roughly 710 AFY on average over the 30-year planning period (2020 to 2050) if the "higher conservation" program is started in 2030 (Scenario 2). While the reduced demand estimates were clear, the benefits in investing in conservation at costs that exceed the avoided cost are hard to justify. The higher avoided cost associated with higher conservation could be justified when conservation is offsetting new supplies at this higher cost, such as potable reuse or desalination expansion. Also, achieving the estimated conservation yield requires large initial investments in new staff and relies customer investment and engagement, but human behavior is difficult to predict so the aggressive conservation approach has higher risk when compared with investing in a new supply.

As shown in **Figure 11**, the lower demand rebound scenario, which does not include any additional investment from the City, achieves roughly double the demand reductions compared with the higher conservation scenario.

Figure 11. Higher Conservation Scenarios



A higher avoided cost may be justified in the future because the avoided cost is more in line with new water supplies, such as desalination expansion or potable reuse (see Table 7). Also, as shown in **Table 11**, implementing the higher conservation program in 2030 has a lower unit cost than starting in 2020. Therefore, the higher conservation scenario starting in 2030 is included in some future portfolios.

Table 11. Higher Water Conservation Scenarios Summary

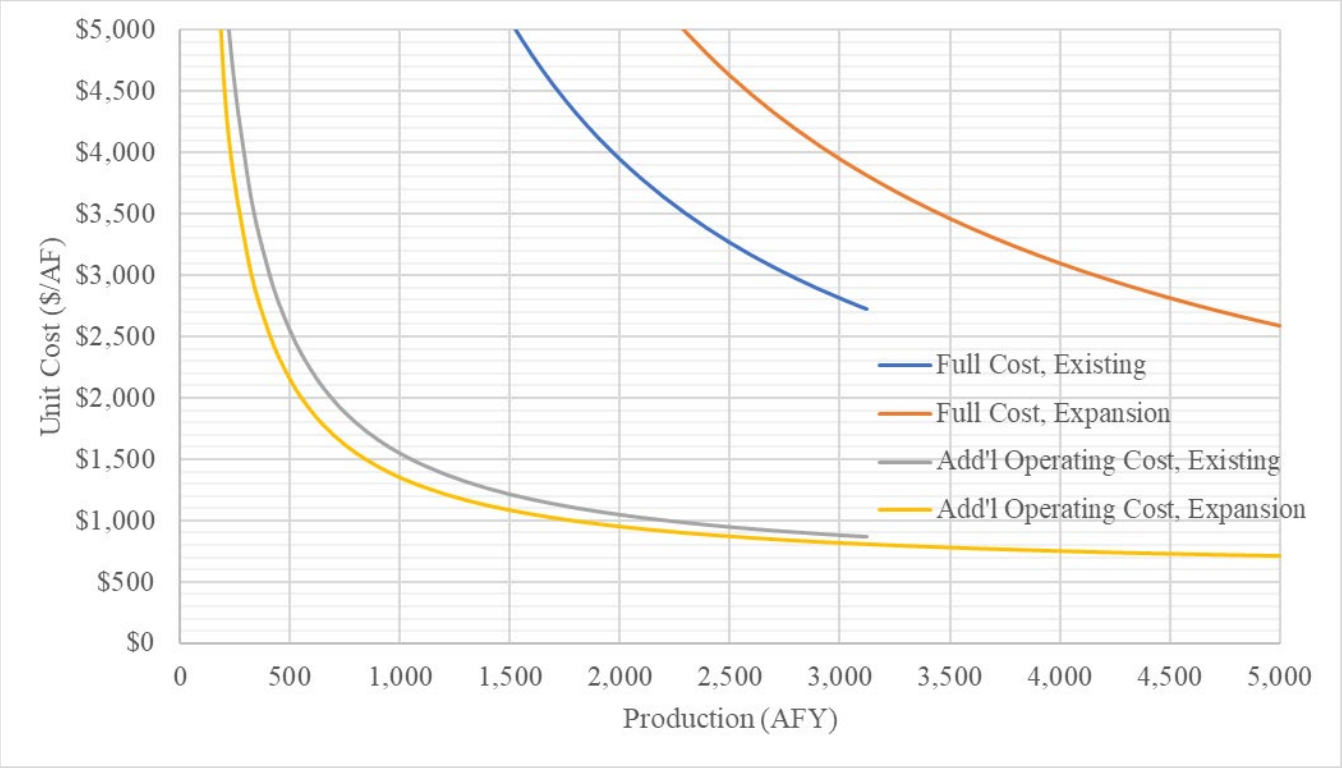
	Baseline	Higher Conservation Starting in 2020	Higher Conservation Starting in 2030
Average Cost per Year (in 2020 dollars)	$0.6 M/yr	$2.5 M/yr	$1.9 M/yr
Average Additional Cost per Year	--	$1.9 M/yr	$1.3 M/yr
Additional Conservation	--	25,400 AF	13,400 AF
Average Additional Conservation	--	790 AFY (2020-2050)	710 AFY (2030-2050)
Unit Cost of Conservation beyond Baseline	--	$2,400/AF	$1,840/AF

5.2. Desalination

Desalination costs include debt service, standby costs, and additional operating costs, as shown in Table 6. Additional operating costs are the difference between the total operating costs and the standby costs. Going forward, debt service and standby costs are essentially fixed costs that must be paid regardless of whether the desalination plant is operational or placed in standby. The additional operating cost is the avoided cost when not operating the desalination plant.

The additional operating cost for desalination is equivalent to $870/AF when 3,125 AFY of desalinated water is produced based on an annual cost of $1.0 M and variable cost of $550/AF. As shown in **Figure 12**, the unit cost of desalination is dependent on the amount of water produced. For example, multiple wet years could provide enough supply to meet City demands so that standby mode is chosen. The decision to change to production mode would occur if additional supply is needed and an alternative supply has higher costs than the additional cost curves, or if the City desires to store other water supplies. Note that converting between modes can take three to six months and entails extensive process conversions rather than a simple 'on/off' switch.

Figure 12. Desalination Unit Cost Depending on Production



Note: Cost information is detailed in the WVSB Cost Basis TM (Attachment E). Full costs include debt service, fixed costs, and variable costs. Additional operating costs are just the costs borne when choosing to operate the plant.

As shown in the figure, the unit cost to produce a relatively small volume of desalinated water is high, which is due to the fixed annual cost that applies regardless of whether 1 AF or 3,125 AF are produced. The curve begins to flatten around 1,500 AF of production so a minimum desalination production volume of 1,500 AFY is assumed for portfolio development.

The City evaluated the cost impacts of changes in production capacity at the desalination facility under multiple scenarios in the Desalination Plant Operating Scenarios Evaluation (9). In addition to the two modes of operation (full capacity and standby), the evaluation considered eight scenarios that are not included in the current Design-Build-Operate contract for the desalination facility but could be considered for future operations. The scenarios considered starting or stopping production in the middle of the year and different strategies to operate at a lower production capacity (e.g., reduced capacity year-round, during off-peak electrical hours, seasonal operations). The evaluation showed that the City could operate the plant at lower capacities and avoid some operational costs (mainly electrical and chemical) but the unit cost of production ($1,470/AF to over $4,000/AF excluding debt service) was always higher than if the plant operated at full capacity ($1,370/AF excluding debt service).

5.3. State Water Project & Supplemental Water

The City faces several challenges with the State Water Project:

- **Reliability**. Long-term yield for the SWP continues to decline, especially in dry years, which is typically when the City wants to use SWP water. DWR has proposed several project variations for conveyance of water across the Sacramento-San Joaquin Delta (Delta) to improve SWP yield and reliability. The current proposal is a single tunnel referred to as the Delta Conveyance Project. The City and CCWA have chosen not to participate in the project due to the high costs relative to the limited benefits considering SWP water is a supplemental supply for the City.
- **Alignment**. The City mostly needs SWP water during dry periods, when local surface water supplies (Cachuma and Gibraltar) are lower than average, but these are usually the same times that SWP water has limited availability. As a result, SWP water is not widely available when the City needs it most. Although, SWP hydrology, which is a function of precipitation in Sierra Mountains of Northern California can differ from local precipitation that feeds Cachuma and Gibraltar reservoir, as occurred in 2017.
- **Storage**. The City currently relies on San Luis Reservoir to store carryover water, which is the City's unused portion of its Table A allocation for a given year. When the reservoir spills, this carryover water is lost. One of the primary ways that the Delta Conveyance Project proposes to increase SWP reliability is by using unallocated storage in San Luis Reservoir. The City currently benefits from using this storage, but it may be significantly reduced if the Delta Conveyance Project is constructed, which would significantly reduce the City's ability to store SWP water. The loss of this storage will make alternate storage (e.g., groundwater banks) or supplemental water acquisition options (e.g., long-term purchase agreement) necessary to sustain SWP water deliveries in low allocation years.
- **Capacity.** The City has the capacity to convey up to 3,300 AFY through DWR and CCWA conveyance systems to Lake Cachuma. The City can convey more flows at times, depending on lake levels (and the associated conveyance infrastructure to the lake), or if other South Coast agencies are not using their capacity in the SWP pipeline to the lake. However, the City can only reliability plan to use 3,300 AFY, especially in drought conditions when other CCWA agencies are also using their full delivery capacity.

  Supplemental water (SWP or non-Project water) can be conveyed using the City's capacity in the SWP pipeline, which provides the City access to supplemental water. Purchase of supplemental water supplies is of course dependent on its availability and price (whether on spot market or via pre-negotiated agreement).
- **Fixed Costs.** The City will continue pay over $4 million each year to DWR and CCWA regardless of whether the City takes delivery of their SWP supplies. (Payments will be roughly $5.5 million per year until FY 21/22, when CCWA bond payments are retired, and would drop again in 2035 when DWR bond payments are retired. However, substantial new unavoidable expenses are expected, such as the cost to repair the Oroville Dam spillway in 2017).

Variable costs for delivery of water to Lake Cachuma range from $400/AF to $500/AF. This is relatively low, but are higher than the variable cost of most of the City's existing supplies.

Considering these challenges, the City developed a WVSB SWP Exchange and Storage Options TM (**Attachment F**) that explored potential approaches for increasing the reliability of SWP and supplemental water supplies. The evaluation was an initial, high level look at potential options for the City that considered spot-market purchases of supplemental water and groundwater banking options. CCWA is currently conducting a Water Management Strategies evaluation to look at a broader range of options than was considered by the City. Spot market purchases are typically short-term, and entail buying supplemental water each year on the spot market when that water is needed to meet demands and selling the City's unused SWP Table A allocation on the spot market in years when the water is unneeded. The supplemental water purchase could come from other SWP contractors' water or other non-project water, such as federal project water or exchange water. Such water would be conveyed to the City through the existing SWP infrastructure. The price of water on the spot market is typically high during drought due to high demand and low supply, while the opposite is true in wet conditions. Supplemental water could also be purchased through a long-term lease. This would have lower cost than spot market purchase, but was not considered for this evaluation.

The price of spot market water is expected to increase in the future as available surface water supplies are pursued by groundwater sustainability agencies to meet SGMA requirements to bring groundwater basins into balance by 2040. DWR has proposed changes to SWP water management that include removing the requirement to return water as part of a water exchange. (This is the primary driver behind CCWA's Water Management Strategies evaluation.) These changes are expected to expand the potential water exchange market opportunities.

Groundwater banking entails storing the City's surface water into a groundwater basin (either via physically recharging the basin, or by in-lieu delivery to a groundwater basin partner) so that the City can request the water when needed during a drought. The called water would be conveyed to the City via the existing SWP infrastructure.

The cost of each option is summarized in **Table 12**. As shown in the table, spot market transactions - purchases when needed and sales when SWP is unneeded - have a lower unit cost than a groundwater bank. The cost assumes the City can sell surplus SWP in normal and wet years. The price of the water is highly variable since it is based on limited historical transactions. The advantage of purchasing supplemental water on the spot market is that the City only commits funds when needed, but this is also when prices are high. By contrast, groundwater banking would require committing capital funds up front as an initial payment without confidence when the City would need to request the water. The groundwater bank has limitations – for example, 3,300 shares can provide up 9,900 AF of storage, but this volume could be consumed over three years during a drought, exhausting the bank during an extended drought. That is why the groundwater banking option includes some spot market water purchases.

Table 12. Supplemental Water Options Cost Estimates Summary

Item	Spot Market[(1)]	Groundwater Bank
Initial Payment		$6.7 M for 3,300 shares
Annual Fixed Cost		$0.06 M/yr for 3,300 shares
Variable Cost	$200/AF to $1,100/AF for Spot Market Purchase	$230/AF for 22,700 AF for Recharge and Recovery
Spot Market Purchase Cost (total over 30 years)	$24.6 M for 33,400 AFY	$6.6 M for 10,700 AF
Spot Market Sales Revenue (total over 30 years)	$10.2 M for 30,200 AFY	
Net Cost to City over 30 Years (total over 30 years)	**$14.4 M**	**$19.8 M**
Supplemental Water Average Unit Cost (2020-2050)	**$430/AF (for 33,400 AFY)**	**$590/AF (for 33,400 AF)**
Conveyance	$510/AF	$510/AF
Total Average Unit Cost (2020-2050)	**$940/AF**	**$1,100/AF**

Notes:

1. Spot market purchase costs and sales revenue are dependent on the hydrologic year. The basis for the cost estimates is included in the Attachment F. Note that the spot market purchase price is speculative and subject to future market conditions. These costs are provided as an example based on recent transaction data but are not necessarily reflective of future market condition.
2. In this example, one share allows for recharge or recovery of up to 1 AFY and storage of up to 3 AF.

5.4. Groundwater

The City currently operates the groundwater basin in three modes – Normal, Drought, Recovery – where:

- "Normal" operation is pumping the "sustainable yield," which maximizes groundwater production without impacting groundwater in storage for a drought.
- "Drought" operation is pumping up to the maximum well capacity and drawing down groundwater in storage.
- "Recovery" operations entail minimal pumping to maintain wells while allowing the groundwater in storage to recover.

Operating constraints for normal and drought operations are summarized in **Table 13** and were evaluated in the WVSB Groundwater Management Recommendations TM (Attachment D). In short, the sustainable yield and max production capacity values are used in the future portfolio analysis; however, WSC recommends that the City update its sustainable yield estimate using the recently updated the United States Geological Service (USGS) groundwater model (10). Also, WSC recommends updating the drought storage estimate because, as presented in Attachment C, the criteria used by USGS to develop the estimate do not align with the City's basin operating parameters – specifically, the acceptable level of increased chloride concentration in Storage Unit I (due to seawater intrusion) should be updated in the USGS model. In the interim, a drought storage volume of 10,500 AF, which is roughly equivalent to the volume pumped during the recent drought, will be used for the future portfolio analysis.

Table 13. Groundwater Yield Assumptions (AFY)

Criteria	Operating Mode	Foothill Basin	Storage Unit #1	Total	Revised Total[1]
Sustainable Yield[2]	Normal	450 AFY	800 AFY	**1,250 AFY**	**1,250 AFY**
Drought Storage[3]	Drought	8,100 AF	16,100 AF	**24,200 AF**	**10,500 AF**
Max Production Capacity[4]	Drought	900 AFY	2,600 AFY	**3,500 AFY**	**3,500 AFY**

Notes:

1. Revised Total is the value recommended for use in the portfolio analysis. See Note 3 for the rationale for adjusting drought storage value.
2. The City has historically used the term "perennial yield." For Foothill Basin, average yield is estimated to be approximately 905 AFY (11) and the average yield for the City is approximately 450 AFY assuming approximately 450 AFY for other pumpers. Storage Unit #1 estimate is from (12). WSC recommends the values be revisited using the recently updated groundwater model.
3. Drought storage in the Foothill Basin and Storage Unit #1 are based on USGS (10), Scenario 2B. However, it is unclear if the assumptions used in that modeling reflected operational parameters that are acceptable to the City. Therefore, WSC recommends using a revised drought storage volume of 10,500 AF, which is roughly equivalent to the volume pumped during the recent drought. WSC recommends the value be revisited using the recently updated groundwater model with operating parameters acceptable to the City.
4. Based on 90% of current well pumping capacity estimates.

In addition, WSC recommends that the City begin preparing a short annual report that describes the current conditions in the basin through a series of maps, charts, and tables. This annual reference would be used to better define and describe the City's groundwater basins and to inform ongoing operations policy and resource management decisions. After completing the first annual report, the City should consider whether to prepare a Groundwater Sustainability Plan (GSP) in compliance with SGMA or an equivalent GSP that meets the City's needs but is outside of SGMA compliance and reporting.

5.5. Recycled Water – Non-Potable Reuse

The City currently reuses roughly 1,000 AFY of recycled water for non-potable uses. Of this, roughly 230 AFY is used within the El Estero WRC and the balance (770 AFY) is distributed to roughly 90 customers across the City. The City's Water Supply Planning Study (2) (Carollo, 2009) included a detailed evaluation of recycled water (non-potable) system expansion. Over 400 AFY of potential demand from 56 potential customer sites were identified using water use records from 2006 to 2008. Nine projects were identified that could deliver up to 320 AFY to roughly 43 customers for irrigation, toilet flushing, and commercial laundries. Of this, the City has begun service to seven identified customers with estimated demands of 102 AFY, leaving roughly 220 AFY of potential recycled water demand.

For the purposes of future portfolio analysis, an additional 220 AFY of non-potable use is assumed for portfolios without potable reuse. If recycled water system expansion is included in the recommended portfolio, preparation of an updated recycled water market analysis is recommended as a first step to update demand and cost estimates to determine the cost effectiveness of future recycled water system expansion. Consideration could also be given to repurposing of recycled water infrastructure if the City pursues potable reuse in the future.

Based on the unit costs presented in the Cost Basis TM (Attachment E), some of the identified projects may be economically justified. However, the project analysis should be updated to reflect changes that may have occurred since the previous study and incorporate considerations noted in the study:

- Update demand estimates considering the substantial water demand changes that have occurred within the City since 2008
- Update recycled water quality to reflect impact of water conservation and confirm minimum water quality requirements for potential non-irrigation customers since many can be sensitive.
- Include the cost of customer conversion to recycled water since this can be notable to ensure potable water separation, especially at older irrigation sites or non-irrigation sites
- Consider the impacts of potable reuse. If potable reuse is implemented, most of the customers identified in Project 1 (existing customer expansion) and Project 2 (adjacent to system) would be removed from the recycled water system and supplied with potable water. Also, only three of the other six projects are in parts of the system that could continue to receive recycled water if potable reuse is implemented.

WSC recommends that the City consider cost-effective expansion of the recycled water system based on the updated evaluation and if potable reuse is not recommended for implementation.

5.6. Recycled Water – Potable Reuse

The City completed a Potable Reuse Feasibility Study in 2017 (3) that evaluated three types of potable reuse - groundwater augmentation, raw water augmentation, and treated drinking water augmentation. For Water Vision Santa Barbara, raw water augmentation was selected for incorporation into water portfolios because groundwater augmentation capacity was limited due the City's groundwater basin size and developing treatment and monitoring assumptions for treated drinking water augmentation was too speculative without a more developed regulatory framework. Regulations are not currently in place for raw water augmentation, but the smaller range of assumptions within the proposed regulatory framework allows for more confident planning. The raw water augmentation alternative included several assumptions used to define the necessary facilities:

- Treatment train consisted of microfiltration (MF), ultraviolet (UV) light disinfection, reverse osmosis (RO), and UV / advanced oxidation process (AOP) system.
- Treatment facilities are assumed to be located at the City's Corporation Yard.
- Use of existing recycled water (non-potable) system from El Estero WRC to the underground storage reservoir at the Santa Barbara Golf Course.[3] Recycled water service to recycled water customers along this portion of the recycled water system would be replaced with supplies form the potable water system.
- New pipeline from the Corporation Yard to the existing recycled water system, parallel pipeline for a portion of the distribution system, repurpose existing Golf Course Recycled Water Pump Station, new pipeline from the pump station to Lauro Reservoir.

Two potable reuse yield scenarios were defined: Moderate (2,900 AFY) and High (6,000 AFY). Potable reuse sizing was set to be similar to expanded desalination capacity – 5,000 AFY – or the incremental expansion capacity – 1,875 AFY – to enable comparison of different desalination and potable reuse combinations. It also includes an additional 1,000 AFY of yield to offset the existing 1,000 AFY of non-potable recycled water use that must be replaced with potable reuse such that the total target production for potable reuse is 6,000 AFY for "high" potable reuse and 2,900 AFY for "moderate" potable reuse. A rough cost estimate for the moderate and high potable reuse projects are summarized in **Table 14**. The basis for the cost estimate is presented in the WVSB Cost Basis TM (Attachment E).

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[3] The assumption to convert existing non-potable pipelines to convey purified water for potable reuse must be confirmed by the State Water Resources Control Board Division of Drinking Water.

Table 14. Potable Reuse Alternatives Cost Estimates

Cost Items	Moderate (2,900 AFY) Potable Reuse	High (6,000 AFY) Potable Reuse
Capital Cost	$86.2 M	$157.2 M
Debt Service	$3.9 M/yr	$7.1 M
O&M	$3.6 M/yr	$7.3 M
Total Annual Cost	**$7.5 M/yr**	**$14.4 M**
Yield	2,900 AFY	6,000 AFY
Unit Cost	**$2,580/AF**	**$2,400/AF**

Note: Refer to Attachment E for cost estimate basis.

Potable reuse projects can require some of the longest implementation periods – over a decade – due to the complex and unique technical, regulatory, and political aspects of these projects. Therefore, implementation efforts for a potable reuse project should start well ahead of the time that the supply may be needed. One timing consideration is that the current recycled water customer agreements expire in December 2034.

5.7. Long-Term Storage

Seasonal and year-over-year variability of precipitation necessitate reservoirs and groundwater replenishment facilities to improve reliability of available water supplies. The City's long-term storage facilities include:

- Lake Cachuma: At roughly 200,000 AF of capacity, the lake can hold multiple years of demand. Although, lake operations are controlled by USBR and lake capacity is shared with other Cachuma Member Units, downstream users, and environmental flows. The City can "carryover" Cachuma water that was allocated in the previous water year and store it in Lake Cachuma. The water is subject to evaporative losses and could be lost if the lake fills and spills. Also, downstream users can store water in the lake if Cachuma Member Units are not using the capacity.
- Gibraltar Reservoir: At roughly 4,000 AF of capacity and average use of 3,500 AFY, the City typically uses most of the water captured each year. This is about 30% of existing annual demand. Without a Warren Act contract, the City is unable to benefit from storing water in Gibraltar and capturing spill water in Lake Cachuma. Refer to the detailed evaluation below.
- Groundwater Basin: Foothill Basin and Storage Unit #1 have a drought storage volume of roughly 10,500 AF (refer to Section 5.4). Groundwater can be pumped for three years at maximum pumping capacity (3,500 AFY), providing about 30% of supply annually for three years.
- San Luis Reservoir: SWP carryover water is stored in San Luis Reservoir. The water is not subject to evaporation but is lost when the reservoir spills. Conveyance of the water to the City is limited by CCWA conveyance capacity, estimated to be 3,300 AFY. SWP carryover water in San Luis Reservoir has helped the City in the past, but much of the storage will be lost if the Delta Conveyance Project is constructed. Refer to Section 5.3 for more information.

Lake Cachuma is clearly the City's largest multi-year storage option. The ability to carryover water allows the City to use other supplies when appropriate and serves as a drought buffer.

As discussed in Section 5.3, the City should determine a preferred approach to more reliably access banked SWP water or supplemental water during drought conditions. These increasingly critical supplies are an important components of the City's future water supplies, especially during times of drought.

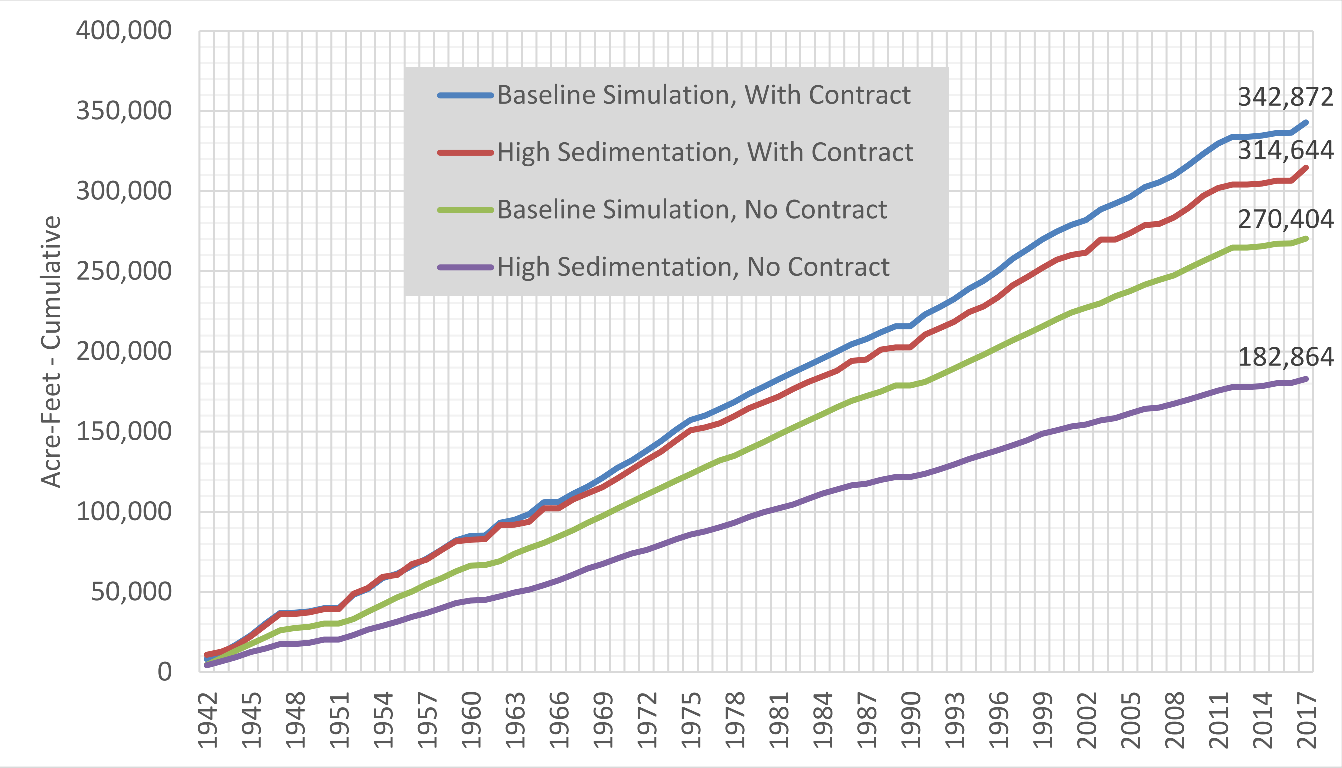
5.7.1. Warren Act Contract

The Pass-Through Agreement allows the City to track the yield of a hypothetical "Base Reservoir" that is equal to the 1988 Lake Cachuma storage capacity (8,567 AF), and operated under the procedures defined in the agreement. Pass-Through mode allows Gibraltar Reservoir diversions (including the passed-through portion taken out of Cachuma) up to the amount that could have been diverted under the "Base Reservoir" operations. As summarized in **Table 15** and shown in **Figure 13**, the agreement provides substantial yield under existing conditions and high sedimentation conditions. Because USBR operates the Cachuma Project, the Pass-Through Agreement cannot be fully implemented without a Warren Act contract from the USBR. Therefore, obtaining a Warren Act contract from the USBR should be a high priority for the City.

Table 15. Average Yield from Gibraltar Reservoir during Simulation Period (1942-2019)

	Without Warren Act Contract (No Pass-Through Yield)	With Warren Act Contract (Includes Pass-Through Yield)
Existing Reservoir Capacity	3,558 AFY	4,511 AFY
Reduced Reservoir Capacity	2,406 AFY	4,106 AFY

Figure 13. Cumulative Gibraltar Reservoir Yield during Simulation Period (1942-2019)



6. Future Portfolios Development

6.1. Future Portfolios - Characterization

An initial set of six future portfolios was developed based on findings from the existing portfolio analysis (summarized in Section 4) and input from the Water Vision Santa Barbara stakeholder group. These include:

1. Baseline (Status Quo): Existing portfolio for comparison with potential future portfolios. The portfolio includes:
    - Existing Portfolio
    - No changes to supply prioritization (based on least cost supply used first)
2. Baseline, Prioritized Supplies: Existing portfolio with management actions outside of new supply investments to improve portfolio performance, such as prioritizing SWP and desalination to store water for a drought. The portfolio includes:
    - Exiting Portfolio
    - Prioritize SWP Table A purchases and desalination ahead of Cachuma supplies
3. Maximize Reliability: Invest in supplies that, when combined, provide high reliability during extended drought conditions and temporary catastrophic events. This emphasizes drought resilient supplies like desalination and recycled water. The portfolio includes:
    - Potable Reuse (2,900 AFY)
    - Enhanced SWP Reliability (groundwater banking)
    - Prioritize SWP Table A purchases and desalination ahead of Cachuma supplies
4. Minimize Cost: Increase reliance on supplies with the lowest net present value cost while meeting level of service goals. This emphasizes Cachuma and Gibraltar over desalination or recycled water. The portfolio includes:
    - Existing Portfolio
    - Higher Conservation in 2030 (+ 710 AFY)
5. Minimize Environmental Impacts: Minimize impact to river systems and ocean. (Assumes energy use will be carbon neutral). This minimizes desalination operations and reduces reliance on Cachuma and SWP water. Potable reuse is needed to fill the void. The portfolio includes:
    - Minimize Cachuma, SWP, Desal
    - Add High Potable Reuse (6,000 AFY)
    - Higher Conservation in 2030 (+ 710 AFY)
6. Maximize Local Control: Maximize the amount of water produced locally. This increases desalination and/or potable reuse, maximizes conservation, and eliminates SWP. The portfolio includes:
    - No SWP or supplemental water purchases (sell all SWP Table A on spot market)
    - Expand Desalination (+1,875 AFY to 5,000 AFY)
    - Add Moderate Potable Reuse (2,900 AFY)
    - Higher Conservation (+ 710 AFY)

An initial evaluation of the first six portfolios highlighted the tradeoffs between reliability, cost, and environmental impact. A more reliable portfolio was typically much more expensive. Three additional portfolios were developed based on this initial evaluation. These portfolios sought to optimize performance and balance TBL scores among the three criteria – economic, social, and environmental – to create a portfolio that is reliable, resilient, does the least harm to the environment, and meets important social considerations:

7. Optimized Portfolio A (Potable Reuse): Add moderate amount of potable reuse to the existing portfolio. The portfolio includes:

   - Add Moderate Potable Reuse (2,900 AFY)
8. <u>Optimized Portfolio B (Desalination Expansion)</u>: Add desalination expansion to the existing portfolio. The portfolio includes:
   - Expand Desalination (+1,875 AFY to 5,000 AFY)
9. <u>Optimized Portfolio C (Desalination Expansion and Prioritization)</u>: Add desalination expansion to the existing portfolio and prioritized desalination to build up reserves for drought periods. The portfolio includes:
   - Expand Desalination (+1,875 AFY to 5,000 AFY)
   - Prioritize use of desalination in all years

Each portfolio builds on the existing portfolio and has a unique makeup of supplies or prioritization of supplies. The differences between each portfolio are highlighted in the list below, while **Table 16** presents the new supply components to each portfolio and **Table 17** presents the supply prioritization for each portfolio.

Table 16. Future Portfolios - Summary of New Supplies

	Portfolio #								
	1	2	3	4	5	6	A	B	C
Supply	**Baseline**	**Baseline, Prioritized**	**Max Reliability**	**Min Costs**	**Min Env. Impacts**	**Max Local Control**	**Potable Reuse**	**Expand Desal**	**Expand & Prioritize Desal**
2030 Higher Conservation				☑	☑	☑			
Expanded Desalination						☑		☑	☑
Desalination Prioritized		☑	☑			☑			☑
Moderate Potable Reuse (2,900 AFY)			☑			☑	☑		
High Potable Reuse (6,000 AFY)					☑				
Spot Market Purchases	☑	☑		☑	☑		☑	☑	☑
Groundwater Banking			☑						

Note: Refer to Section 5.1 for Higher Conservation description, Section 5.2 for Expanded Desalination description, Section 5.6 for Potable Reuse description, and Section 5.3 for Spot Market Purchases and Groundwater Banking descriptions.

Table 17. Future Portfolios - Summary of Supply Prioritization

	Themed Portfolio #						Optimized Portfolio #		
	1	2	3	4	5	6	A	B	C
Supply	**Baseline (Existing)**	**Existing, Prioritized**	**Max Reliability**	**Min Cost**	**Min Env. Impacts**	**Max Local Control**	**Potable Reuse**	**Expand Desal**	**Expand & Prioritize Desal**
Recycled Water	0	0	0	0	0	0	0	0	0
Mission Tunnel	1	1	1	1	1	1	1	1	1
Gibraltar	2	2	2	2	2	2	2	2	2
GW, Sustainable Yield	3	3	3	3	3	3	3	3	3
Cachuma Carryover	4	5	6	4	4	5	4	4	5
Cachuma Allocation	5	6	7	5	5	6	5	5	6
SWP, Table A	6	7	4	7	7	8	7	7	7
Desalination	7	4	5	6	6	4	6	6	4
SWP, Supplemental	8	9	8	8	8	9	8	8	8
GW, Storage	9	8	9	9	9	7	9	9	9

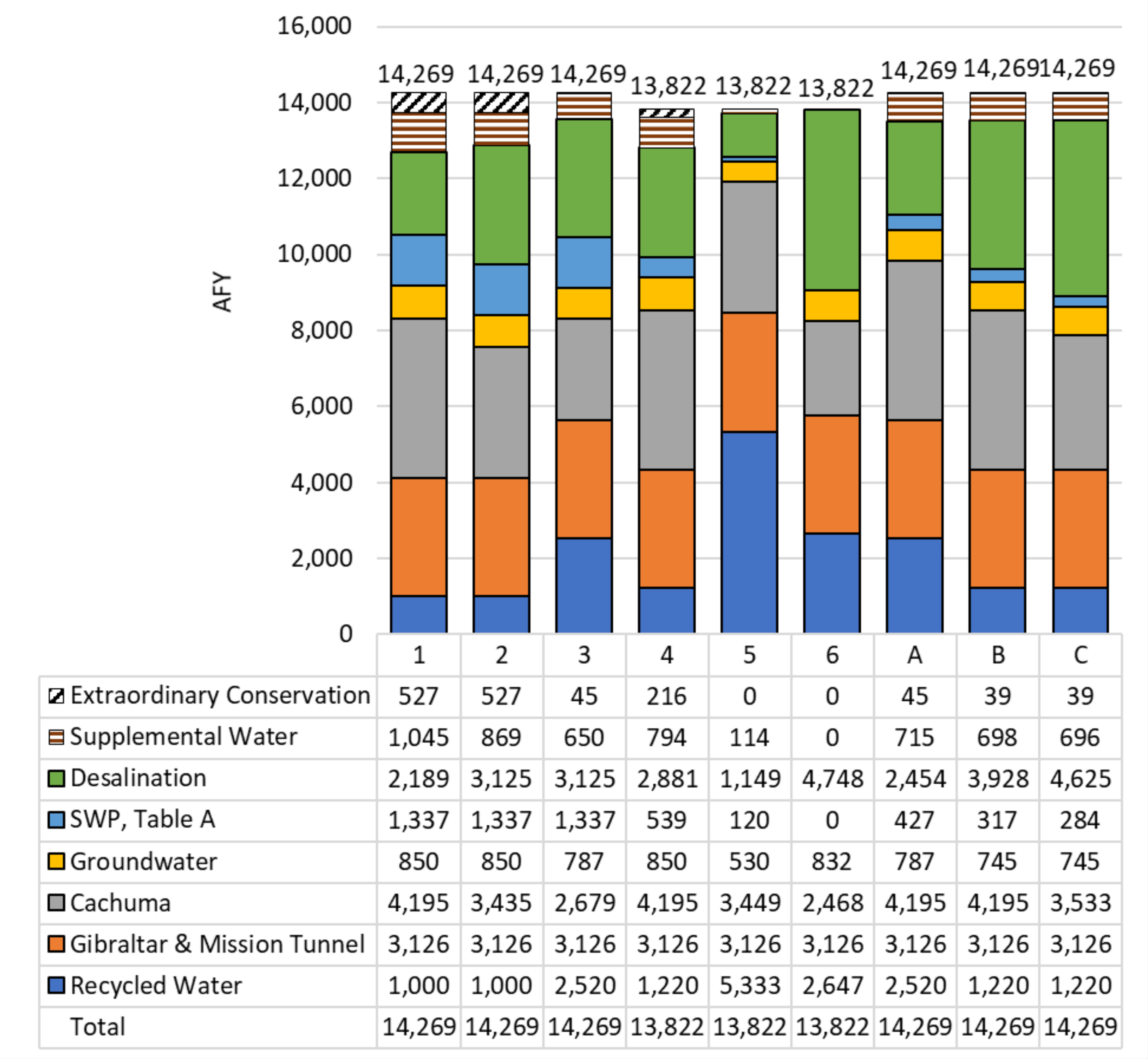
6.2. Future Portfolios – Simulations

Each portfolio was simulated over a 30-year projection period – 2020 to 2050 with the following assumptions:

- **Hydrology:** Applies historical hydrology from 1993 to 2019 plus 3 years of extended drought (2020-2022)
- **Demand:** Baseline demand projection (Section 2.1) unless Higher Conservation (Section 5.1) applied (for Portfolios 4 (Min Costs), 5 (Min Environmental Impacts), and 6 (Max Local Control)).
- **Existing Supplies:** Risk adjusted supply projections applied for existing supplies. See Section 2.2.
- **New Supplies:** Desalination expansion or potable reuse added per Section 6.1 when demands reach 14,000 AFY.
- **Extraordinary Conservation:** Used when needed to close the supply and demand gap in a given year.

Each supply was simulated in each year to meet the projected demand that year in the order of priority listed in Table 17. The use of each supply in each portfolio over the projection period (2020-2050) is summarized in **Figure 14** and the use of each supply in each portfolio in each year is presented in **Figure 15**.

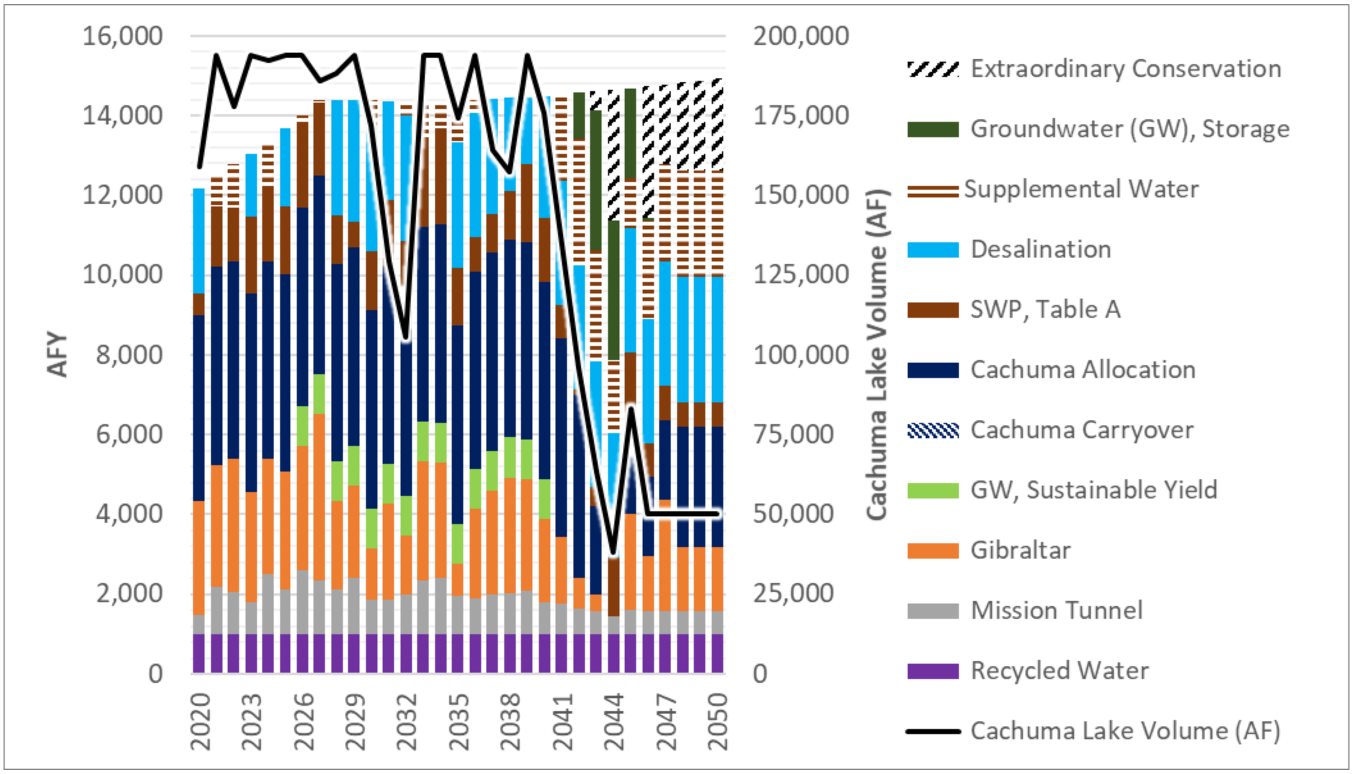
Figure 14. Future Portfolios, Average Supply Used (2020-2050)



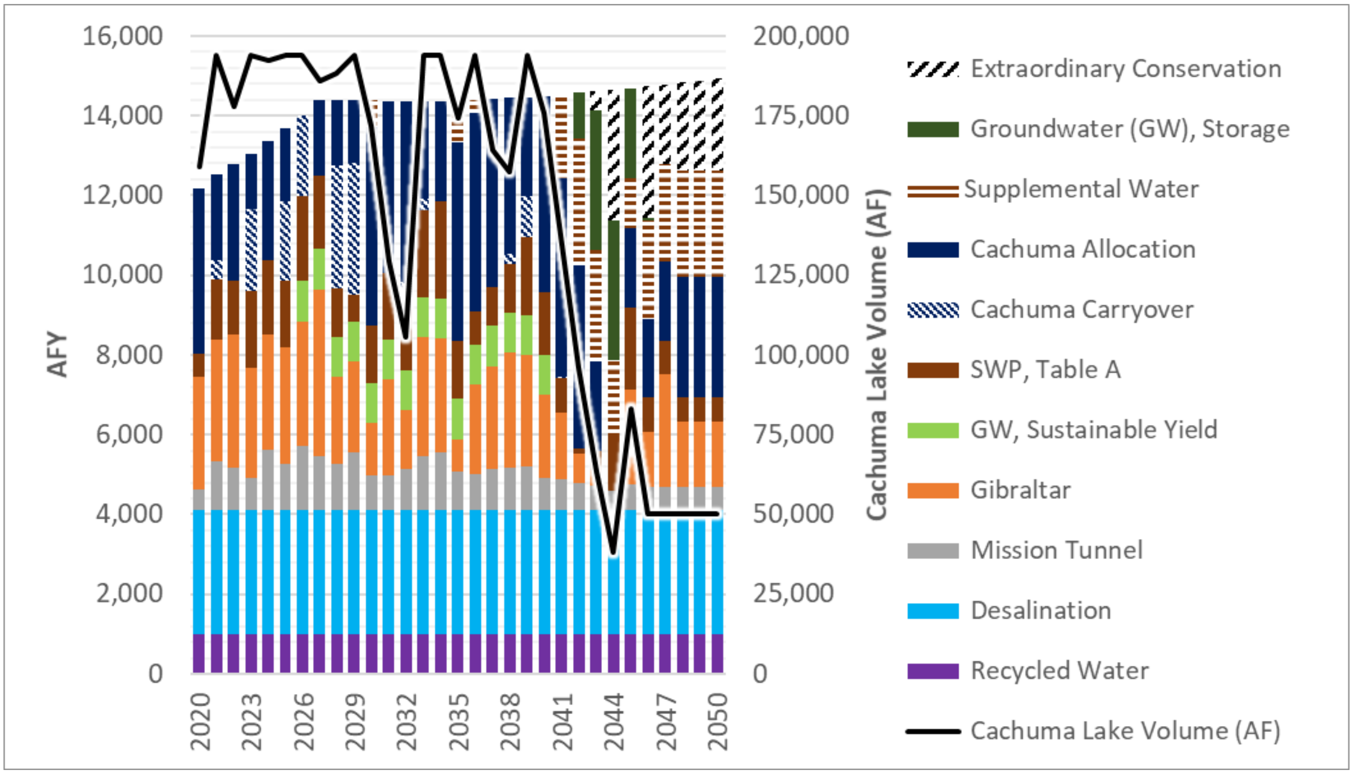
	1	2	3	4	5	6	A	B	C
▨ Extraordinary Conservation	527	527	45	216	0	0	45	39	39
▤ Supplemental Water	1,045	869	650	794	114	0	715	698	696
🟩 Desalination	2,189	3,125	3,125	2,881	1,149	4,748	2,454	3,928	4,625
🟦 SWP, Table A	1,337	1,337	1,337	539	120	0	427	317	284
🟨 Groundwater	850	850	787	850	530	832	787	745	745
⬜ Cachuma	4,195	3,435	2,679	4,195	3,449	2,468	4,195	4,195	3,533
🟧 Gibraltar & Mission Tunnel	3,126	3,126	3,126	3,126	3,126	3,126	3,126	3,126	3,126
🟦 Recycled Water	1,000	1,000	2,520	1,220	5,333	2,647	2,520	1,220	1,220
Total	14,269	14,269	14,269	13,822	13,822	13,822	14,269	14,269	14,269

Figure 15. Future Portfolios – 2020-2050 Projected Performance

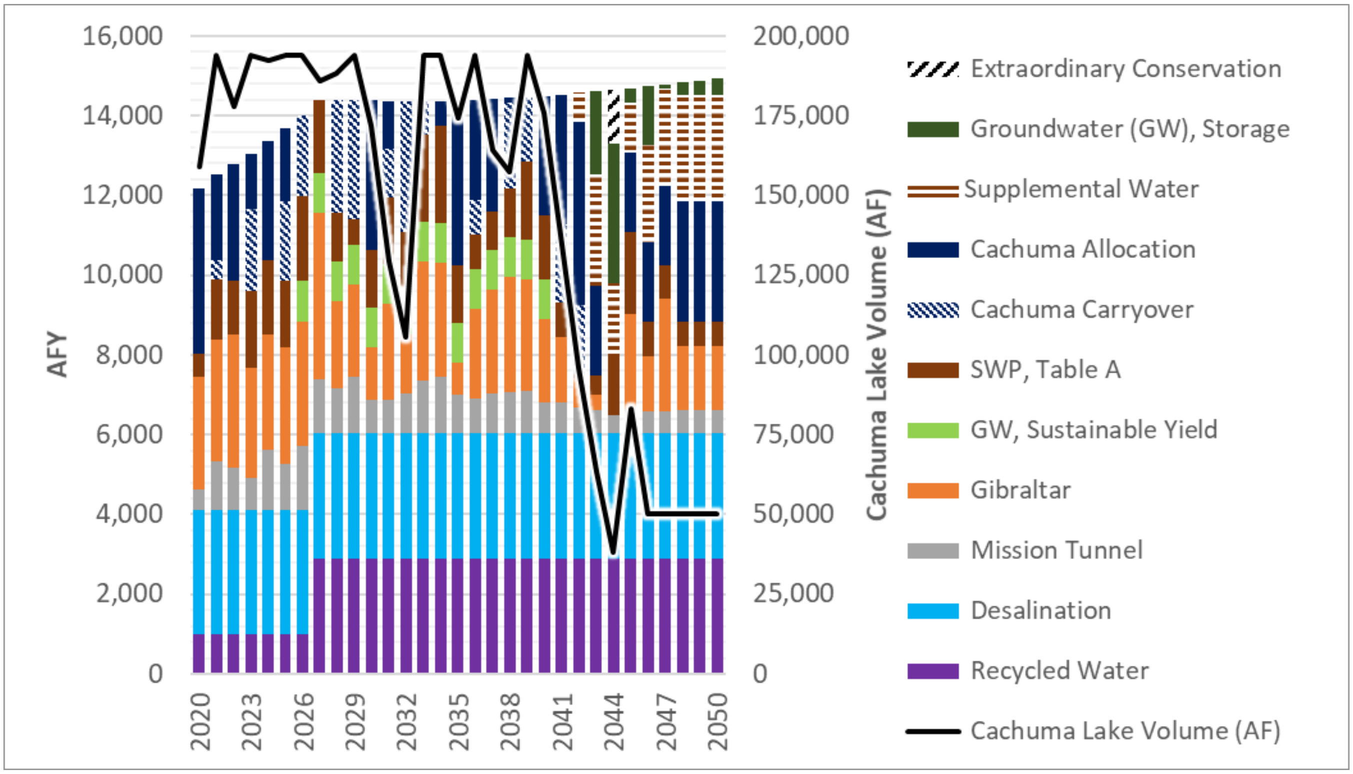
Portfolio 1: Baseline Portfolio



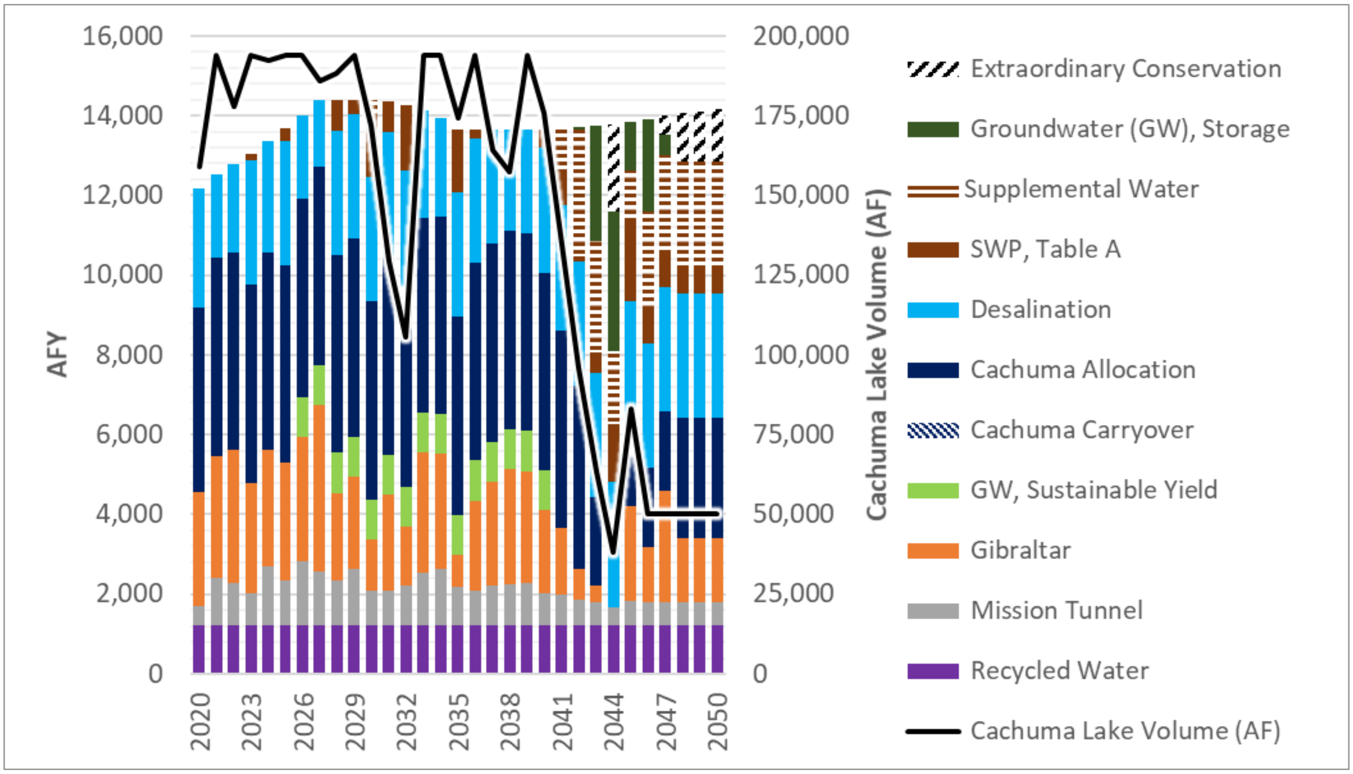
Portfolio 2: Baseline Prioritized



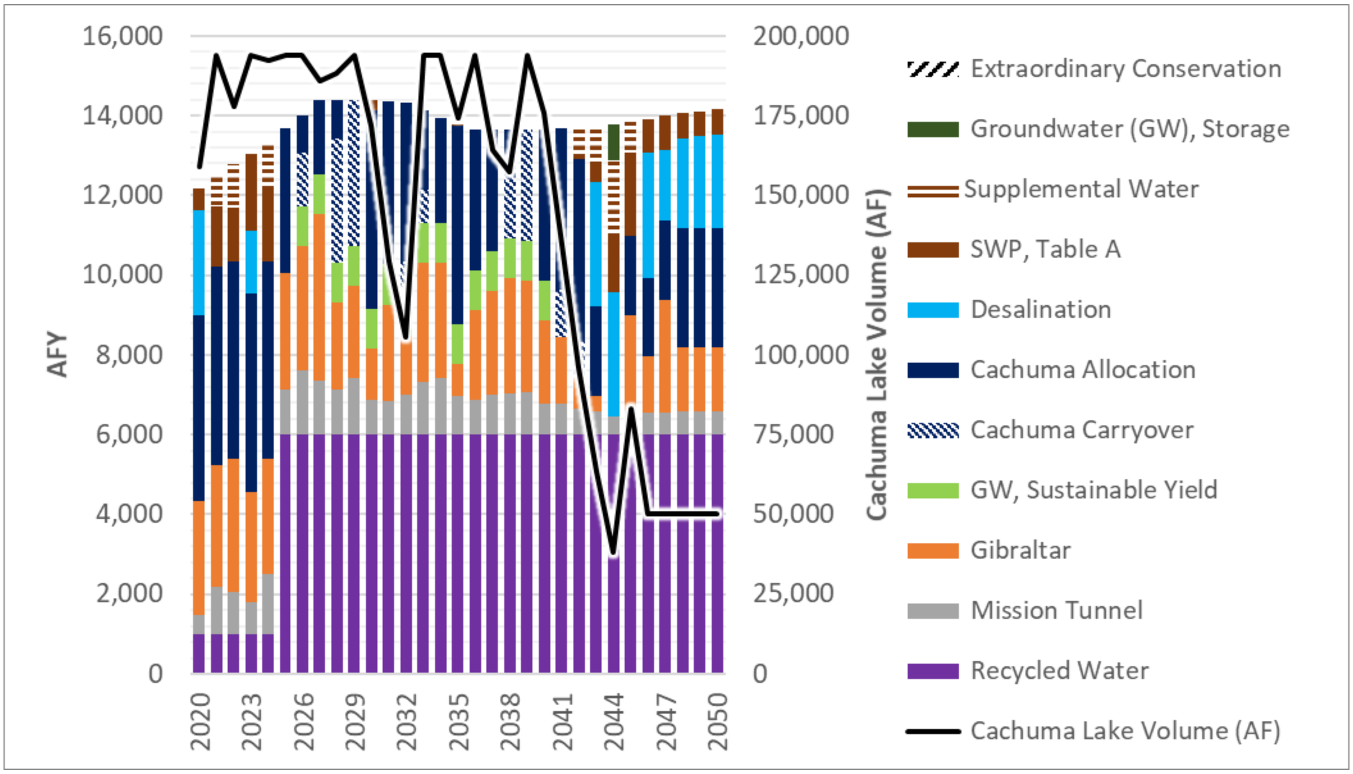
Portfolio 3: Maximize Reliability



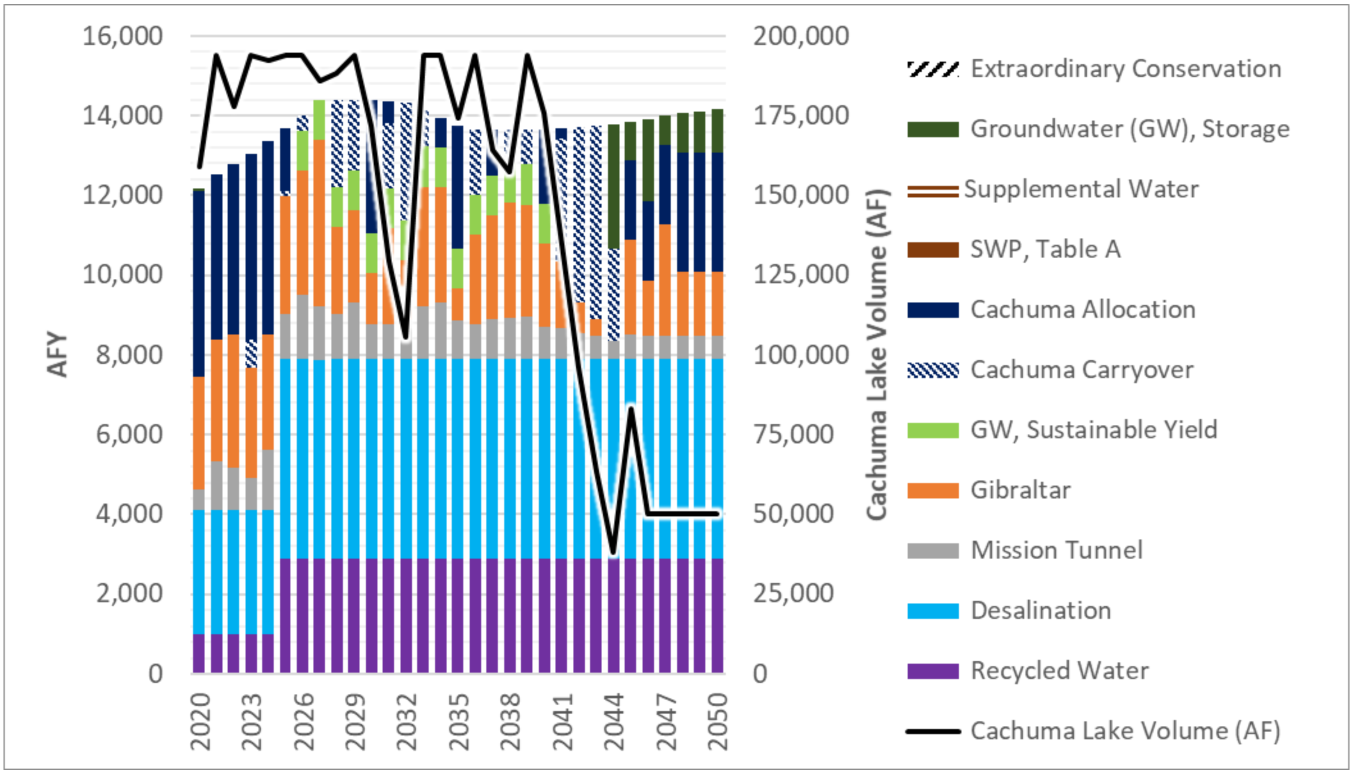
Portfolio 4: Minimize Cost



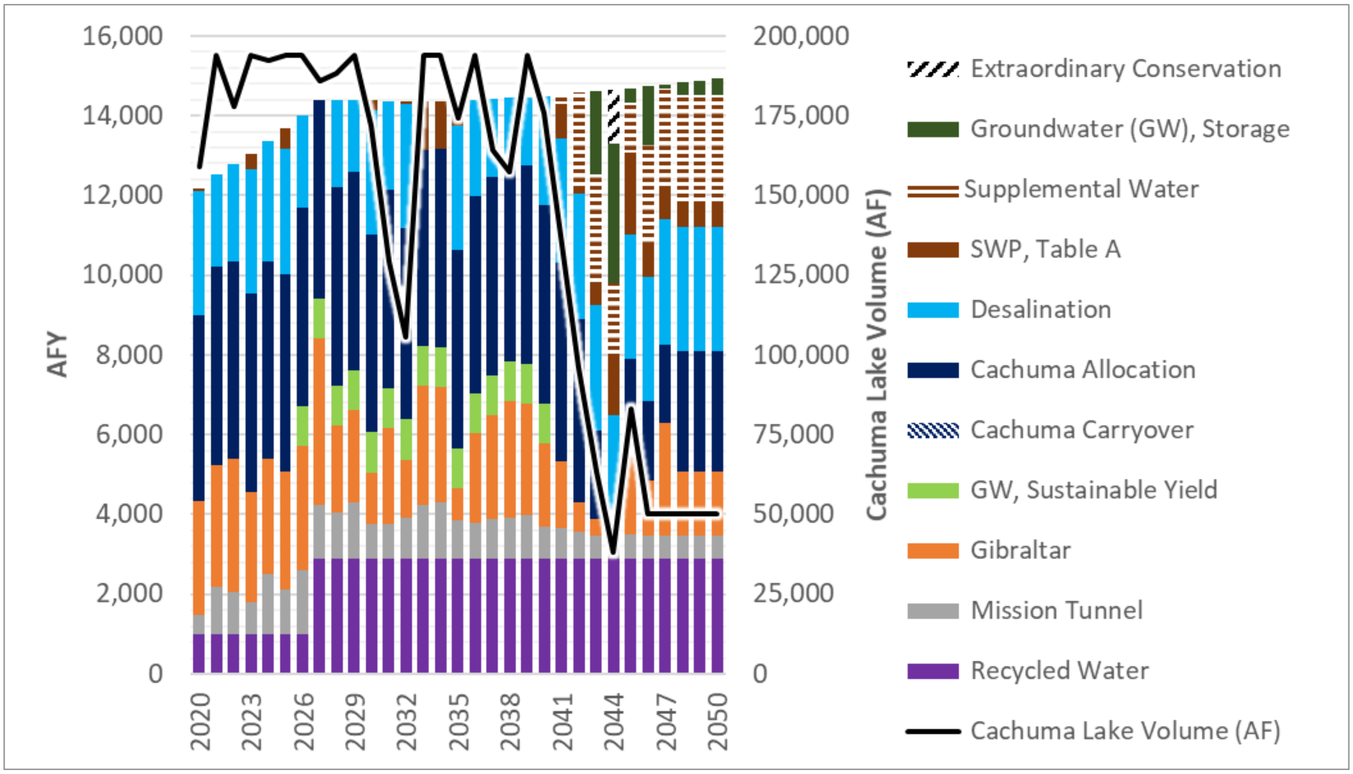
Portfolio 5: Minimize Environmental Impacts



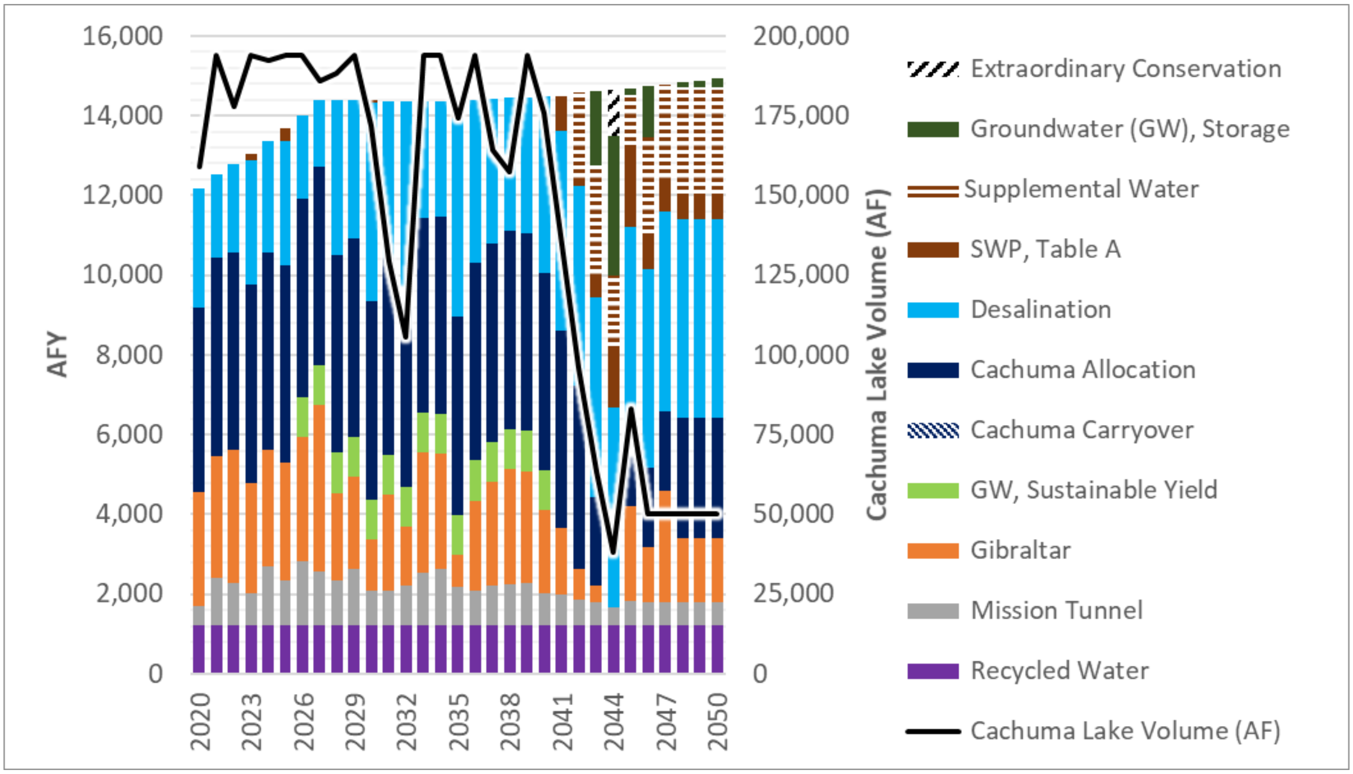
Portfolio 6: Maximize Local Control



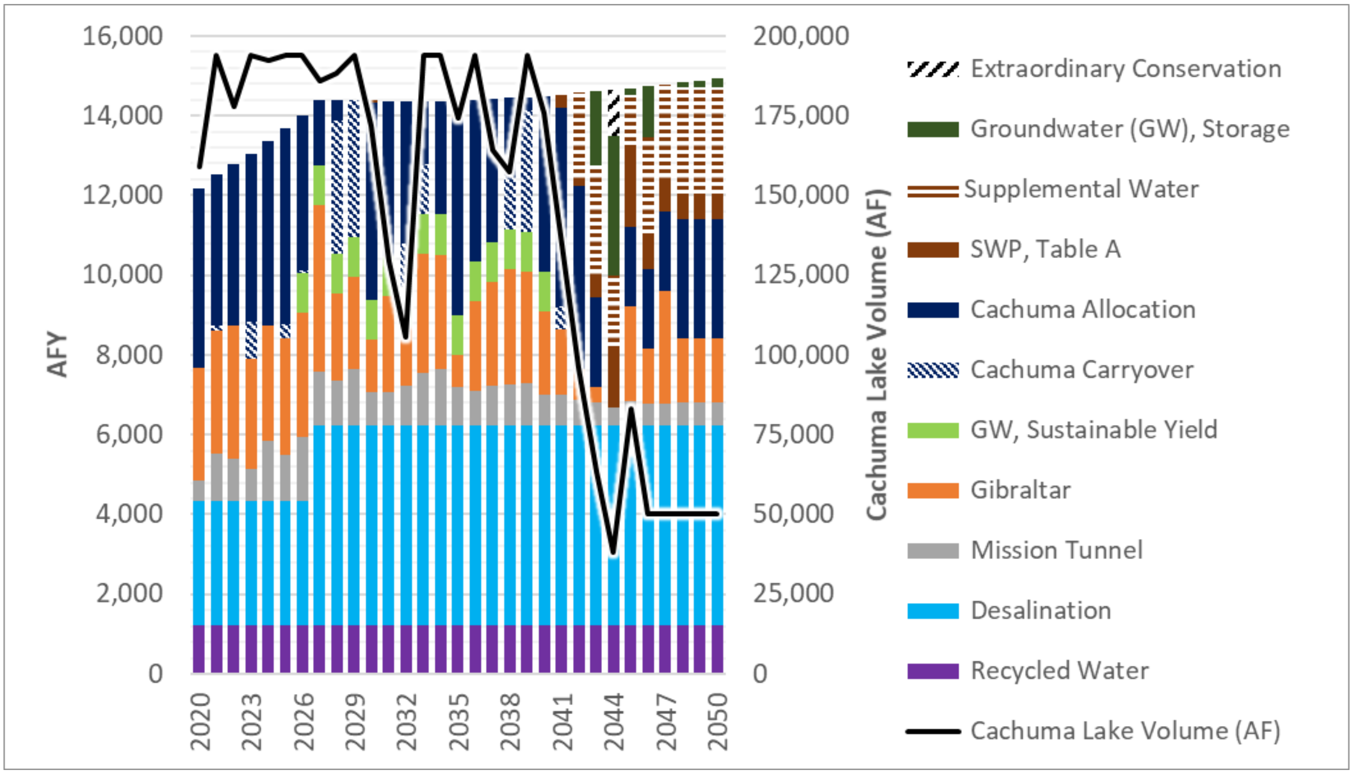
Optimized Portfolio A (Potable Reuse)



Optimized Portfolio B (Desalination Expansion)



Optimized Portfolio C (Desalination Expansion and Prioritization)



7. Future Portfolios Evaluation

The performance of each portfolio is summarized in **Table 18** and costs are graphically presented in **Figure 16** and **Figure 17**. There are several takeaways:

- **Portfolio 1 (Baseline) and 2 (Baseline Prioritized)** do not meet the level of service goal to provide at least 85% of supply in all years so these two portfolios are not analyzed further. The projected shortages occur during an extended drought with higher demand than today. Therefore, future portfolios aim to provide additional supplies that are reliable in an extended drought or reduce demand prior to entering the drought.
- **Portfolio 4 (Minimize Cost)** has the lowest unit cost but also has the most amount of years with water shortages (4 years versus 1 year or no years) and requires largest amount of extraordinary conservation (5,800 AF versus up to 1,400 AF). It is the only portfolio that meets level of service goals without investment in new water supply infrastructure.
- **Portfolio 5 (Minimize Environmental Impacts)** and **Portfolio 6 (Maximize Local Control)** have the highest costs due to local investments in potable reuse and/or desalination expansion. They are the only portfolios without water shortages in all simulated years.

Table 18. Future Portfolios – Performance Metrics

	1	2	3	4	5	6	A	B	C
	Baseline	**Baseline, Prioritized**	**Max Reliability**	**Min Costs**	**Min Env. Impacts**	**Max Local Control**	**Potable Reuse**	**Expand Desal**	**Expand + Prioritize Desal**
Number of Years in Each Water Storage Stage (2020-2050)(1)									
Stage 1 (≥85%)	3	3	1	5	--	--	1	1	1
Stage 2 (≥75%)	4	4	--	--	--	--	--	--	--
Stage 3 (≥50%)	--	--	--	--	--	--	--	--	--
Extraordinary Conservation, Total Shortfall (2020-2050)(1)									
AF	15,810	15,810	1,360	6,480	--	--	1,360	1,170	1,170
Comparative Cost Estimates (2020-2050)									
2020-2050 Cost Above Baseline	--	$6 M	$87 M	$27 M	$183 M	$156 M	$75 M	$39 M	$48 M
Unit Cost ($/AF)	$1,630	$1,640	$1,780	$1,710	$2,060	$2,000	$1,750	$1,670	$1,690
Triple Bottom Line Metrics									
Local Control (AFY)(2)	8,687	8,687	11,290	8,907	14,165	13,141	11,290	10,782	10,782
Cachuma & SWP Use (AFY)	6,577	5,641	4,666	5,528	3,683	2,468	5,337	5,210	4,514
Desalination (AFY)	2,189	3,125	3,125	2,881	1,149	4,748	2,454	3,928	4,625
Energy Efficiency (kWh/AF)	1,729	2,029	2,306	1,788	1,817	2,605	1,925	2,004	2,236

Notes:

1. Refer to Section 3.1.2 for a description of each water shortage stage. “>85%” indicates that at least 85% of demand can be met by the portfolio’s supplies in a given year. Extraordinary conservation is then needed close the supply and demand gap when a portfolio’s supplies cannot meet demands in a given year.
2. Local Control includes use of Gibraltar, Mission Tunnel, groundwater, desalination, and recycled water.

Figure 16. Future Portfolios – Comparative Cost Above Baseline Portfolio (2020 – 2050)

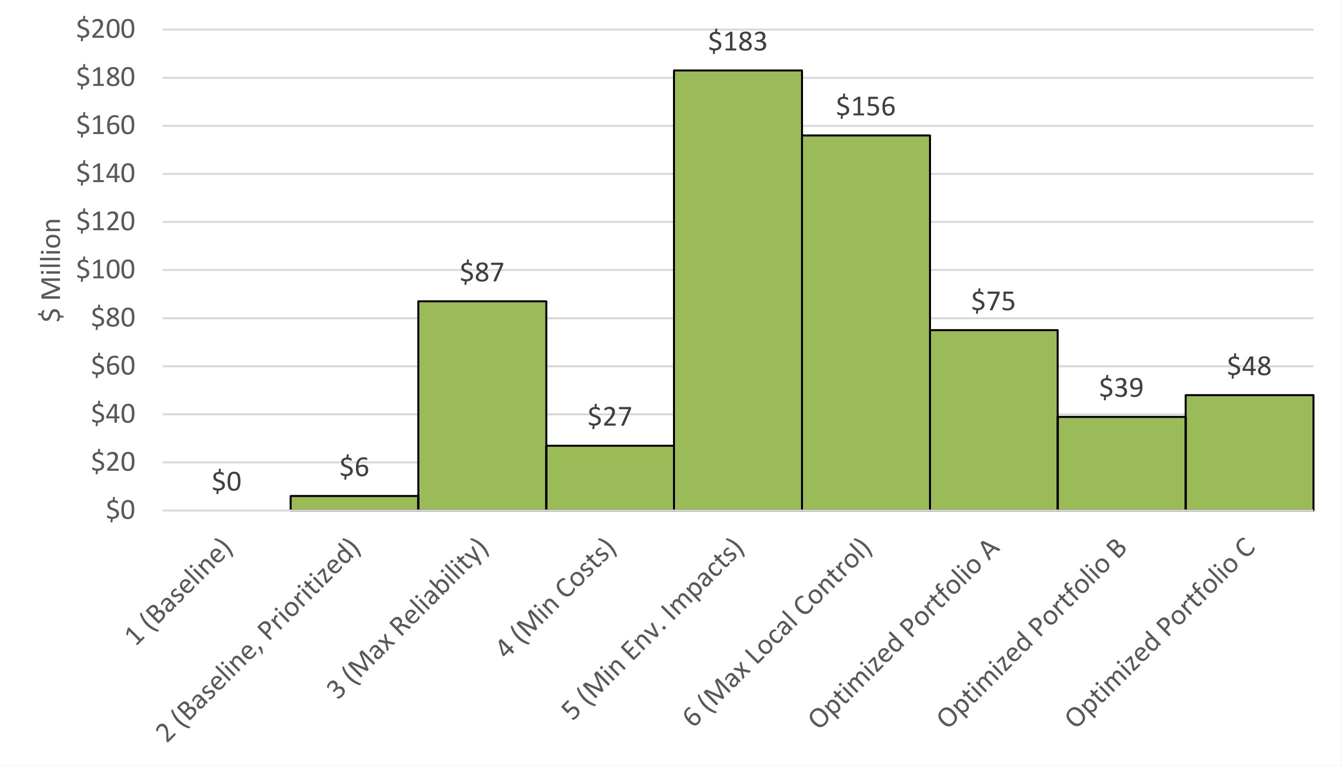
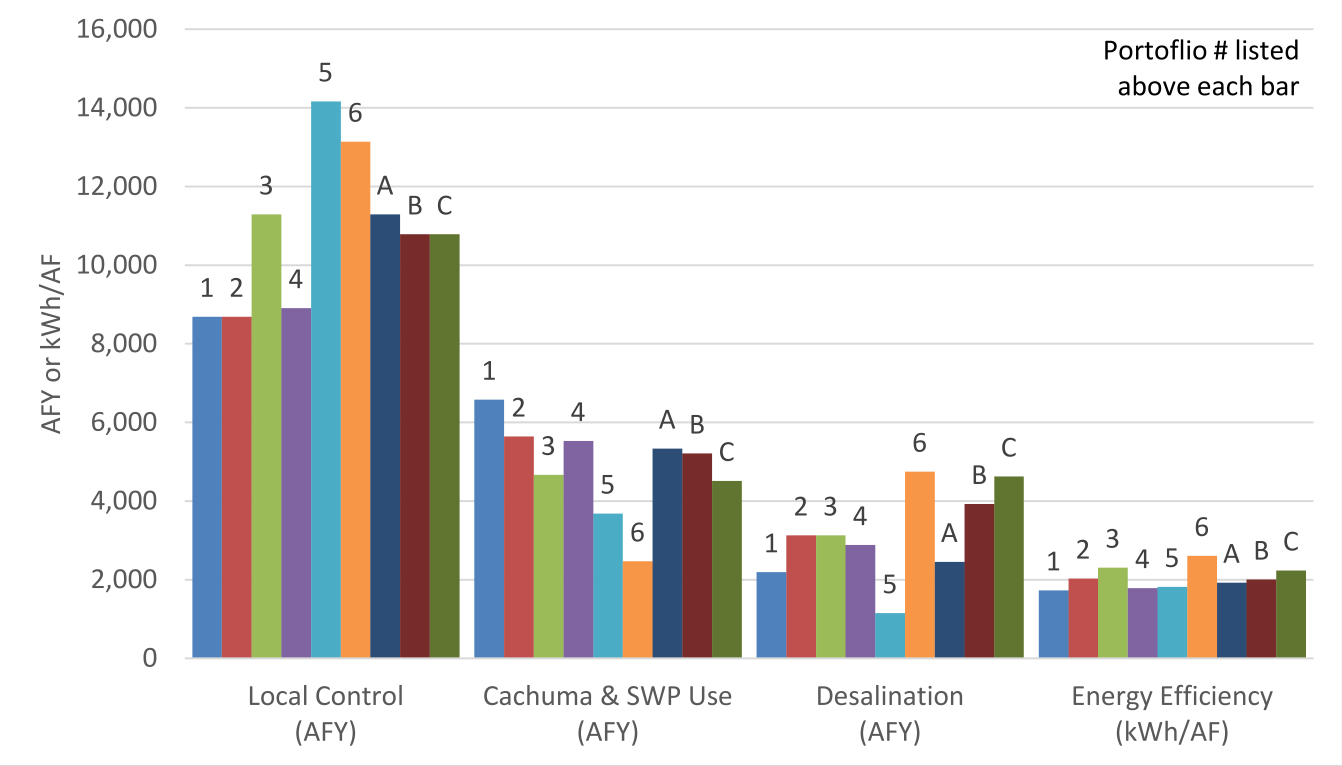


Figure 17. Future Portfolios – Triple Bottom Line Metrics



7.1. Triple Bottom Line

Each triple bottom line criteria was scored for each portfolio by applying the scoring basis described in **Table 19**. The individual scoring for each portfolio is shown in **Table 20** and the total score is presented in **Figure 18.** Higher scores indicate portfolios that performed better than others.

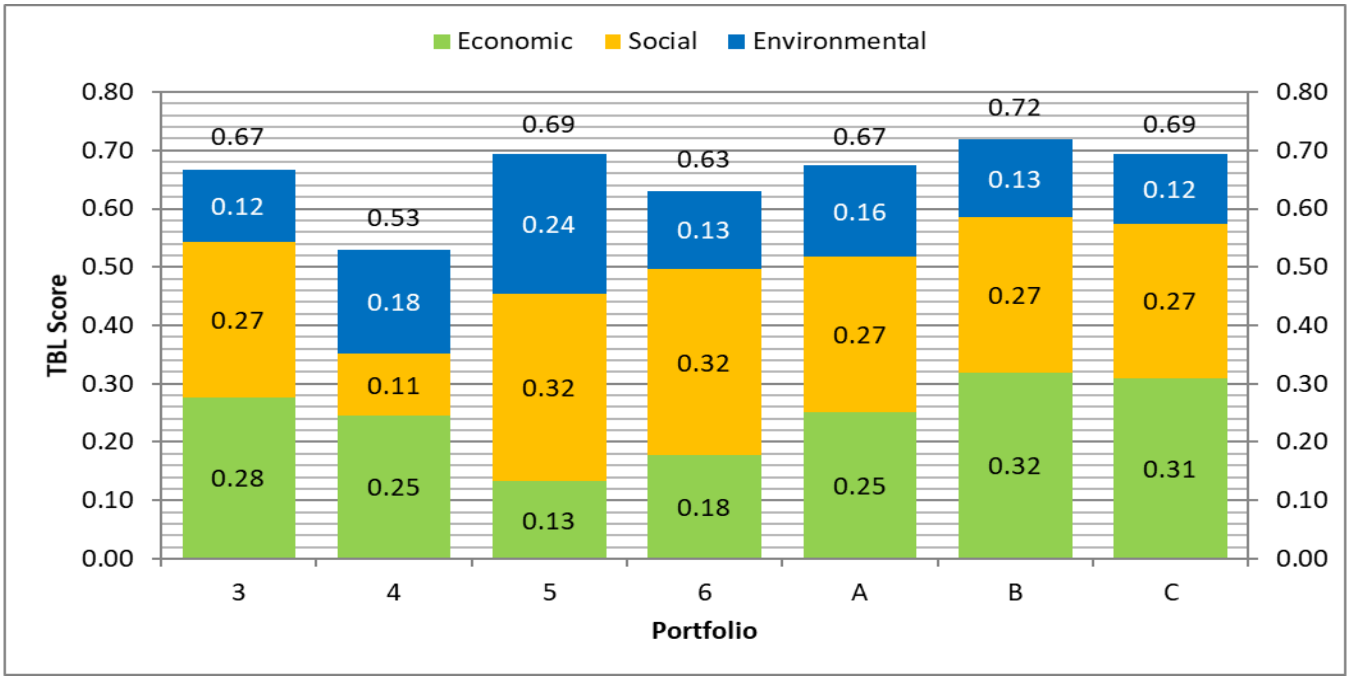
Table 19: Triple Bottom Line, Criteria Scoring Basis

Criteria	Scoring Guide
Economic	
Cost above Baseline Scenario	Lower cost is better. See Table 18 for values.
Potential for external funding	This criterion captures the potential to reduce portfolio costs. Desalination and potable reuse each have relatively higher amounts of funding available compared with conservation. High: Both potable reuse and desalination expansion Medium: Potable reuse or desalination expansion individually Low: Conservation
Speed of implementation	High: Desalination expansion since most infrastructure is existing Medium: Conservation since it is dependent on customer uptake Low: Potable reuse since regulations do not exist but they are expected to be rigorous and significant new treatment and conveyance infrastructure is needed
Social	
Reliability during design drought	High: No extraordinary conservation Medium: Up to three years (1 in 10 years over 30 years) of extraordinary conservation Low: Over three years of extraordinary conservation
Resilience to catastrophic event	Resilience scenarios are evaluated in Section 7.3. High: Above average performance across resilience scenarios Medium: Average performance across resilience scenarios Low: Below average performance across resilience scenarios
Local Control	Higher local control is better. The amount of average available supplies from Gibraltar Reservoir, Mission Tunnel, groundwater, desalination, and recycled water is considered High: > 12,000 AFY; Low: < 10,000 AFY; Medium: 10,000 to 12,000 AFY
Environmental	
Protects / enhances habitats and wildlife	Lower use of Cachuma and SWP is better. Measured with average use of 30-year projection period. See Table 20 for values. High: > 6,000 AFY; Low: < 4,000 AFY; Medium: 4,000 AFY to 6,000 AFY
Protects / enhances ocean water quality	Lower use of desalination is better. Measured with average use of 30-year projection period. See Table 20 for values. High: > 3,000 AFY; Low: < 1,500 AFY; Medium: 1,500 AFY to 3,000 AFY
Permitting or regulatory complexity	Potable reuse has the most complex permitting requirements. Desalination expansion is covered by existing permits, but may be subject to changing State policies. High: Portfolio includes higher conservation scenario only Medium: Portfolio includes desalination expansion only Low: Portfolio includes potable reuse
Energy Consumption	Lower energy consumption is better. Measured as average energy consumption per AF over 30-year projection period. See Table 20 for values. High: > 2,500 kWh/AF; Low: < 2,000 kWh/AF; Medium: 2,000 kWh/AF to 2,500 kWh/AF

Table 20. Triple Bottom Line, Portfolio Scoring Matrix

	3	4	5	6	A	B	C
Criteria	**Max Reliability**	**Min Costs**	**Min Env. Impacts**	**Max Local Control**	**Potable Reuse**	**Expand Desal**	**Expand & Prioritize Desal**
Economic							
Cost above Baseline Scenario	$87	$27	$183	$156	$75	$39	$48
Potential for External Funding	High	Low	High	High	Medium	Medium	Medium
Speed of Implementation	Low	Medium	Low	Medium	Low	High	High
Social							
<u>Reliability</u> during design drought	High	Low	High	High	High	High	High
<u>Resilience</u> to catastrophic event	Medium	Low	High	High	Medium	Medium	Medium
Local Control	Medium	Low	High	High	Medium	Medium	Medium
Environmental							
Protects / enhances habitats and wildlife	Medium	Low	Medium	High	Low	Low	Medium
Protects / enhances ocean water quality	Medium	Medium	High	Low	Medium	Low	Low
Permitting or Regulatory Complexity	Low	High	Low	Low	Low	Medium	Medium
Energy Consumption	Low	High	High	Low	High	High	Medium

Figure 18. Triple Bottom Line, Portfolio Scoring, <u>Baseline</u> Weighting



As shown in the previous table and figure, all the portfolios except for portfolio 4 (Minimize Cost) and Portfolio 6 (Local Control) are within 0.05 points of each other. However, each portfolio has different strengths and weaknesses:

- **Portfolio 3 (Maximize Reliability):** Potable reuse investment and prioritizing desalination provide higher reliability at a moderate cost. Scored in the middle in each set of criteria (economic, social, and environmental).
- **Portfolio 4 (Minimize Cost**): New supply investment is limited to higher conservation, which results in a low unit comparative cost that is offset by low reliability and resilience. Scored lower for economic and social criteria and higher for environmental criteria.
- **Portfolio 5 (Minimize Environmental Impacts):** High potable reuse and higher conservation investments resulted in high unit comparative cost and high reliability and resiliency combined with low environmental impacts. Scored low for economic criteria and high for social and environmental criteria.
- **Portfolio 6 (Maximize Local Control):** Potable reuse and desalination expansion investments resulted in the highest unit comparative cost and highest reliability and resiliency. Scored low for economic criteria, high for social criteria, and in the middle for environmental criteria.
- **Optimized Portfolio A (Potable Reuse**): Potable reuse investment provide higher reliability at a moderate cost. Scored in the middle for economic and social criteria and high for environmental criteria.
- **Optimized Portfolio B (Desalination Expansion):** Desalination expansion investment provides high reliability at the lowest unit comparative cost. Scored high for economic criteria, in the middle social criteria, and low for environmental criteria.
- **Optimized Portfolio C (Desalination Expansion and Prioritization):** Compared with Optimized Portfolio B, prioritizing desalination increases costs slightly and shift the environmental impacts by increasing energy consumption and desalination production and reducing use of Cachuma and SWP. Scored high for economic criteria, in the middle social criteria, and low for environmental criteria.

7.2. Sensitivity Analysis

The scoring in Figure 18 was based on the baseline criteria weighting, which was developed from City staff and stakeholder input. To account for different perspectives and priorities, three additional weightings were developed for a criterion weighting sensitivity analysis. These were described in Section 3.2.1 and the results are summarized in **Table 21** and presented in **Figure 19.**

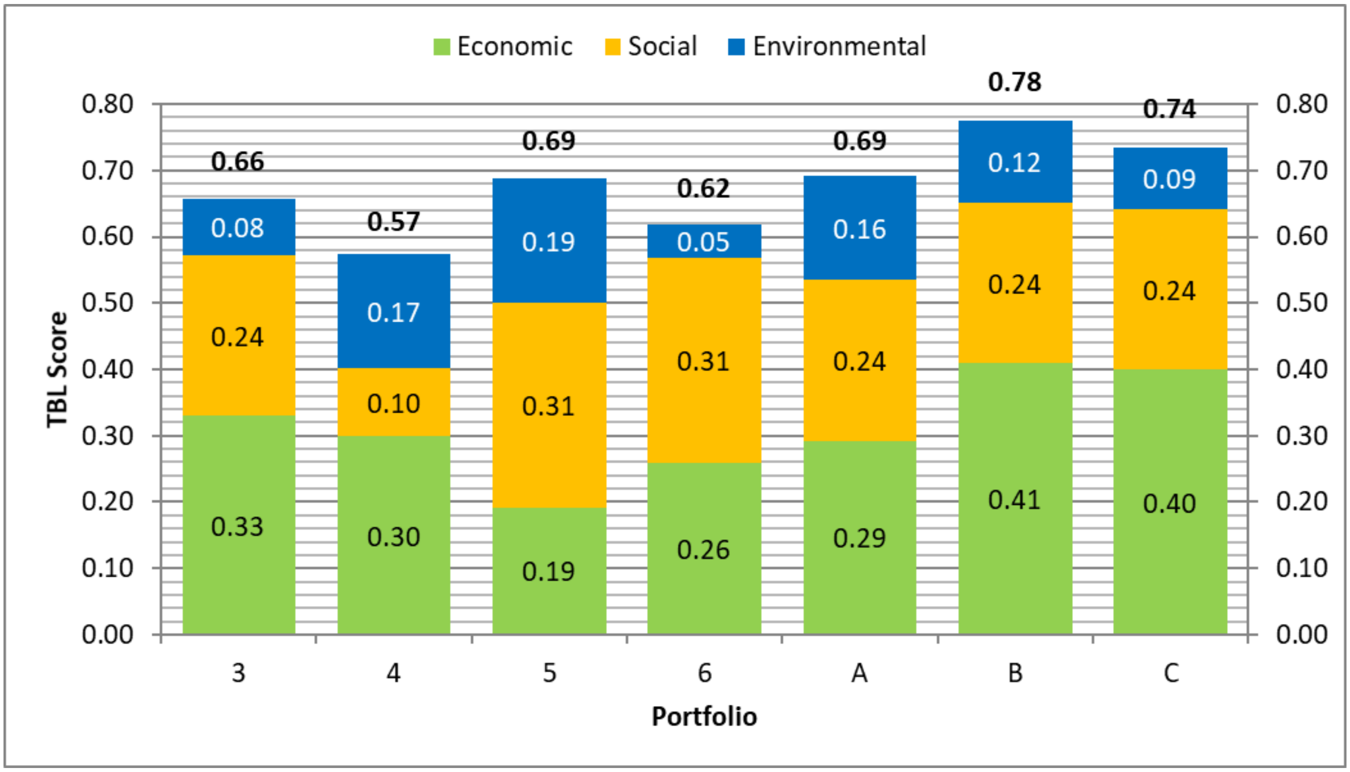
Table 21. Triple Bottom Line, Sensitivity Analysis – Portfolio Ranking

	3	4	5	6	A	B	C
Criteria Weighting Scenarios	**Max Reliability**	**Min Costs**	**Min Env. Impacts**	**Max Local Control**	**Potable Reuse**	**Expand Desal**	**Expand & Prioritize Desal**
Baseline	4	7	2	6	4	1	2
Affordability Focus	5	7	3	6	3	1	2
Social Focus	6	7	1	3	4	2	4
Environmental Focus	6	4	1	7	2	2	5

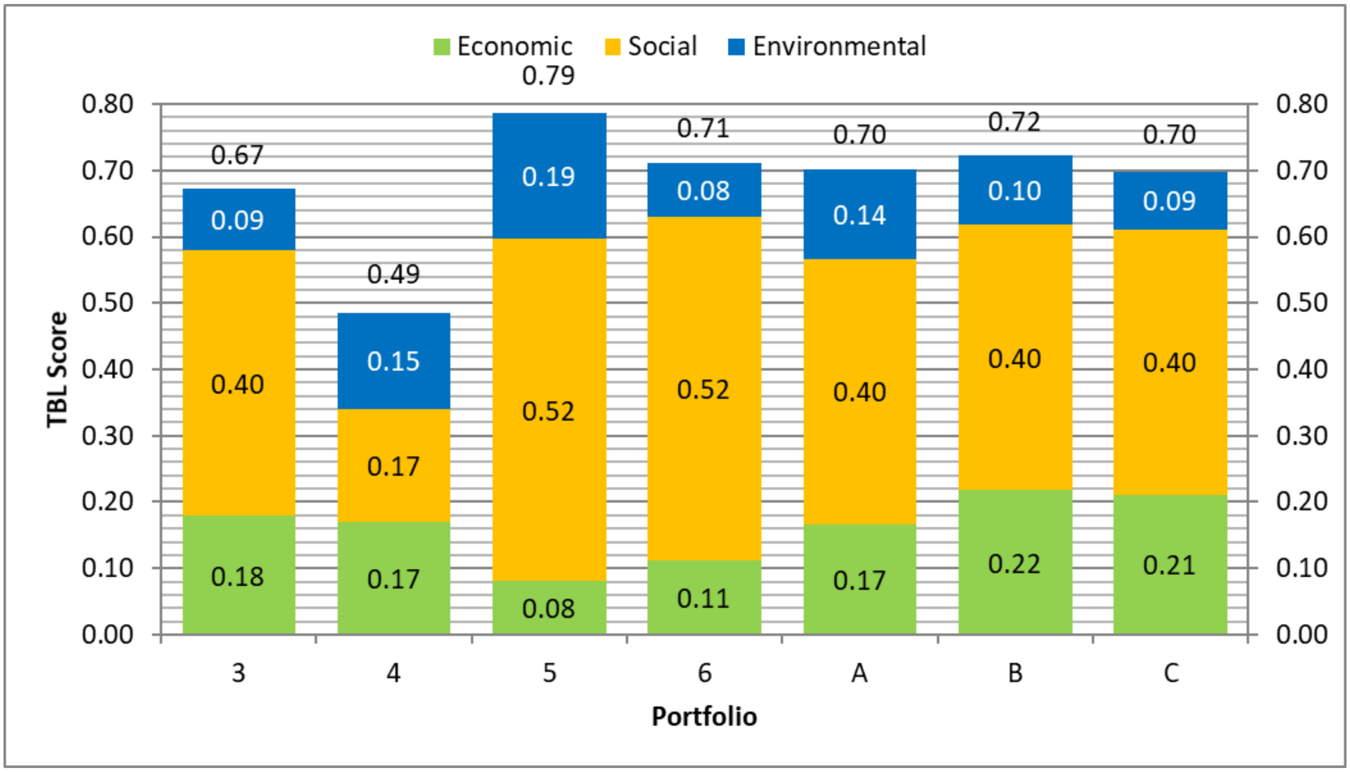
Note: Each scenario includes shading of portfolio ranking across the scenario with dark green for 1 to dark red for 7.

Figure 19. Triple Bottom Line, Portfolio Scoring

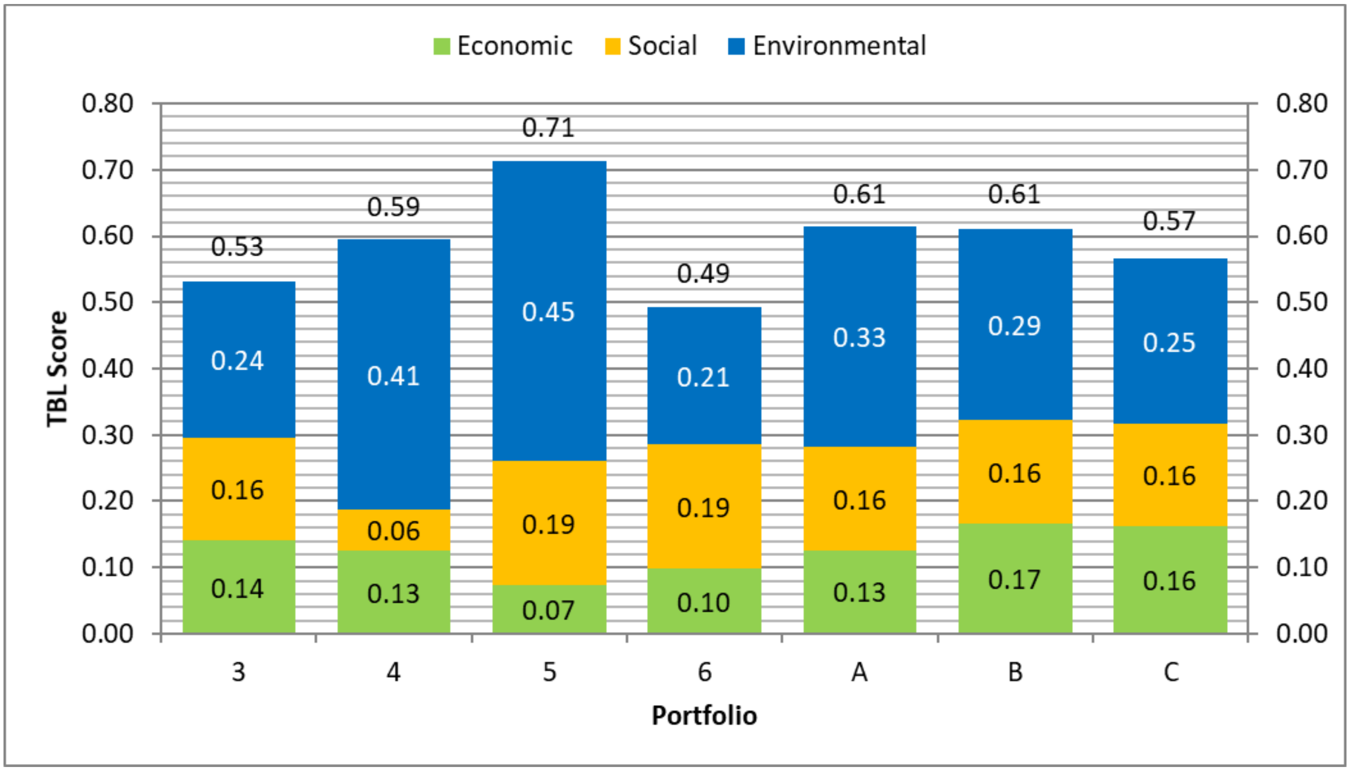
A) Affordability Emphasis



B) Social Emphasis



C) Environmental Emphasis



As shown in the previous table and figures, Optimized Portfolio B (Desalination Expansion) consistently is ranked first or second in each weighting scenario. Portfolio 5 (Minimize Environmental Impact) consistently ranks as the second highest in most weighting scenarios followed by Optimized Portfolio A (Potable Reuse). Portfolio 5 was not considered further due to the extremely high costs - $183 million versus $39 million for Optimized Portfolio B – and the associated rate impacts. Overall, Optimized Portfolio B has several benefits over Optimized Portfolio A:

- Lowest cost, but the analysis should be revisited once potable reuse regulations are finalized
- Higher speed of implementation since significant investments were already made in reactivating the desalination plant, which would allow the City to respond to unexpected supply conditions more quickly
- Lower permitting complexity

7.3. Resiliency Analysis

Several resilience scenarios were developed to evaluate the future portfolio performance under different risks and uncertainties described in Section 3.3. Six scenarios considered the Temporary Loss of One or More Supplies and one scenario addressed a megadrought. Temporary Loss of One or More Supplies (Table 5) considers several scenarios where the City is without one or more supplies for a short period (from power outage) or extended period (from major infrastructure failure). The portfolios were evaluated based on the amount of water that could be produced from the remaining supplies in a portfolio during drought conditions, since this is when the City's supplies are most stressed already. As shown in **Table 22**, Cater WTP outage results in the lowest supply available in the short-term outage scenarios. The portfolios with expanded desalination provide more supply but still only meet 60% of demand. The medium-term outage scenarios are color coded in comparison with each other where the highest yielding portfolio is dark green for highest yielding and the lowest yielding is dark red. Portfolio 6 (Max Local Control) provides the highest resiliency with the highest amount of local supplies and Portfolio 4 (Min Costs) has the lowest resiliency since no new supplies are included. The distribution for megadrought scenario is similar. Optimized Portfolio B (Desalination Expansion) and Optimized Portfolio C (Desalination Expansion and Prioritization) both performed well in the resiliency analysis.

Table 22. Resiliency Analysis

	3	4	5	6	A	B	C
Criteria Weighting Scenarios	**Max Reliability**	**Min Costs**	**Min Env. Impacts**	**Max Local Control**	**Potable Reuse**	**Expand Desal**	**Expand & Prioritize Desal**
Short-Term Outage Scenarios (Available Supply in AFY)							
Cater WTP Outage	Low	Low	Low	Medium	Low	Medium	Medium
Regional Power Outage	High	Medium	High	Medium	High	Medium	Medium
Potable Reuse Outage	High	High	Medium	Medium	High	High	High
Medium-Term Outage Scenarios (Available Supply in AFY)							
Collapse of Mission Tunnel	High	Medium	High	High	High	High	High
Collapse of Tecolate Tunnel	Medium	Low	High	High	Medium	Medium	Medium
SWP Failure	Medium	Medium	High	High	Medium	Medium	Medium
Long-Term Scenario (Available Supply in AFY)							
Mega Drought	Medium	Low	High	Medium	Medium	Medium	Medium

Note: "High" shown if at least 80% of demand is met for short term outage scenarios or 100% of demand for other scenarios. "Medium" shown if at least 60% of demand is met for short term outage scenarios or 80% of demand for other scenarios.

8. Future Portfolio Analysis Findings

Nine future portfolios were defined and simulated over a 30-year projection period (2020 to 2050). In summary:

- Optimized Portfolio B (Expand Desalination) ranked first or second in each TBL weighting scenario.
- Portfolio 5 (Minimize Environmental Impacts) consistently ranked the next highest in most weighting scenarios followed by Optimized Portfolio A (Potable Reuse); however, Portfolio 5 was not considered further due to the extremely high costs - $183 million versus $39 million for Optimized Portfolio B – and the associated rate impacts.
- Optimized Portfolio B has several benefits over Optimized Portfolio A:
    - Lowest cost portfolio, but the analysis should be revisited once potable reuse regulations are finalized.
    - Easier to permit and faster to implement, which would allow the City to quickly respond to unexpected supply conditions.
    - Lower permitting complexity

If demands increase, expansion of the City's desalination plant from 3,215 AFY to 5,000 AFY is currently the best performing new supply to bridge the supply/demand gap during drought conditions. Desalination is needed in most years to bridge the supply/demand gap during non-drought conditions, especially if existing supplies decline. The City should track demand trends closely. If demands do not increase as projected, the desalination expansion may be unnecessary. These considerations are addressed in more detail in the Adaptive Management Plan.

Water storage is essential to avoid extraordinary conservation during an extended drought. Listed below is a summary of the City's water storage opportunities and associated concerns.

- **Lake Cachuma:** The lake is the City's largest and most important storage facility. It provides the City with the flexibility to best manage its water supplies. Storage of the City's excess annual Cachuma water allotment (carryover water) allows the City to use other water supplies when available, and to build reserves of Cachuma supplies in preparation for drought. Loss or a reduction of carryover water would limit the City's ability to optimally manage their water supply portfolio. Additionally, any replacement supplies would be much more expensive than carryover water. Based on current projections, the City is expected to use roughly 29,000 AF of carryover water over the next 30 years. The impacts of limiting carryover water are discussed below.
- **Gibraltar Reservoir:** Gibraltar Reservoir and Dam were constructed in 1920, and the dam was raised in 1948 to recover lost capacity from sedimentation inflows into the reservoir. Still today, approximately two thirds of Gibraltar's storage capacity has been lost due to sedimentation. Gibraltar's storage capacity will continue to be diminished by continued sedimentation inflows into the reservoir. The costs and environmental impacts of removing sediment from Gibraltar to recover lost capacity are too great to make the project feasible. An environmental impact report would most likely make a determination that the preferred project is an alternate project, such as desalination expansion or potable reuse. Recommendations to mitigate projected sedimentation are discussed below.
- **Groundwater:** The City produces water from two groundwater basins – Foothill Basin and Storage Unit I. The City's groundwater storage provides approximately 20% of supplies during drought conditions. However, the groundwater basins are susceptible to being over-pumped, and can be rapidly depleted during an extended drought. Basin recovery following a drought generally takes seven to ten years.
- **San Luis Reservoir -** SWP carryover water in San Luis Reservoir has served the City well in the past, but current operating projections from the California State Department of Water Resources indicate that with the anticipated operation of the Delta Conveyance Project, there will be less available storage in San Luis Reservoir. SWP is prohibited from being stored in Lake Cachuma more than 30 days under normal

circumstances. (USBR granted temporary suspension of this rule during the recent drought in response to unprecedented meager water allocations and low lake levels).

- **SWP:** SWP and supplemental water purchases combined provide over 20% of supplies during an extended drought. However, SWP water is often unavailable during dry periods. Storage of SWP water is essential for the City during extended drought conditions (e.g., groundwater banking), or through a long-term purchase agreement for storage. As discussed in Section 5.7, the City should work with CCWA to identify the City's preferred method for increasing the certainty of SWP and supplemental water during extended drought conditions.

8.1. Recommendations

What steps should the City take now to prepare for next extended drought?

- **Conservation (Section 5.1):** Implement the recommended conservation program from the City's Water Conservation Strategic Plan (Conservation Program B) (1), which estimates 1,740 AF of passive conservation (e.g., plumbing code implementation) savings by 2050, and 880 AF of active conservation savings by 2050. Additionally, demand trends should be monitored for indications that customers are returning to pre-drought water-use levels.
- **Cachuma Project (Section 5.7):** Preserve the ability to store carryover water in Lake Cachuma and pursue the ability to store non-Project water in the lake. The lake is the City's largest storage option and Cachuma carryover water is essential to the City's long-term water supply planning. The majority of the City's water supplies have been developed around the planned use and storage of Cachuma carryover water. Cachuma carryover water provides an incentive for community conservation and operation of desalination and recycled water. Cachuma carryover plays a critical role in providing a secure drought buffer that the City can plan its water supply's around. Restrictions on the volume of carryover water would have devastating impacts on the City's ability to meet the community's water demands in addition to making water in Cachuma a "take-it-lose-it" supply.

  The other existing large storage options are SWP water in San Luis Reservoir and groundwater storage in the City's groundwater basins, but both have smaller storage and production capacities. The ability to store non-Project supplies, such as Gibraltar Reservoir "pass-through" water (see the next item), SWP water, or other surface water conveyed to the lake, would provide the City with additional operational flexibility and cost-effective reliable supplies during drought conditions.
- **Gibraltar Reservoir (Section 5.7):** Obtain a Warren Act contract from USBR to store Gibraltar water in Lake Cachuma to offset diminished Gibraltar supplies resulting from continued sedimentation in the reservoir. Such a Warren Act contract is stipulated in the Upper Santa Ynez River Operations Agreement (Pass-Through Agreement). The benefits are primarily for non-drought periods when Gibraltar is spilling. However, "pass-through" water would enable the City to better manage the use of its other supplies and prepare for a drought. The City should also consider preparing a feasibility study to evaluate the viability of slant wells or horizontal directional drilled wells into the historic gravel bed below Gibraltar Reservoir to secure more stable diversions from Gibraltar.
- **Mission Tunnel:** No recommendations.
- **Groundwater (Section 5.4):** The City should work with the USGS to update the City's sustainable yield estimate and drought storage estimate from the Foothill Basin and Storage Unit I. Additionally, the City should prepare an annual report on the current basin conditions to inform annual water supply planning efforts. The City should also consider creating a Groundwater Sustainability Plan (GSP) in accordance with

the Sustainable Groundwater Management Act (SGMA), or an equivalent GSP that meets the City's needs, but is outside of SGMA compliance and reporting requirements.

- **State Water Project (Section 5.3):** SWP and supplemental water are essential during a drought, but the City's only existing option for storing SWP water is in San Luis Reservoir, which is not preferable for long-term storage since the water is lost when the reservoir spills. Additionally, the use of San Luis Reservoir for carryover storage will be severely limited if the Delta Conveyance Project is implemented. Lastly, long-term reliability of SWP water continues to decline, especially in drought years. Several options to increase the reliability of accessing SWP or supplemental water in drought years were discussed in this report, but no recommendations were made because CCWA is currently conducting a broader regional study that will better define the City's options. The City should work with CCWA to identify a preferred method for increasing certainty of SWP or supplemental water availability during extended drought conditions – whether via groundwater banking or long-term water purchase agreements. This effort could also identify the potential to sell SWP water supplies on an annual basis when unneeded for City use in that year, or for future drought year supplies.
- **Non-Potable Recycled Water (Section 5.5):** The City should update the recycled water market assessment documented in the 2009 Water Supply Planning Study (2), and prepare updated cost estimates to expand the recycled water system. Up to 220 AFY of non-potable demand could potentially be delivered cost effectively, offsetting potable water demand, depending on the water market and cost updates. The water market assessment should also consider the future implementation of potable reuse, which could render recycled water obsolete, since much of the existing recycled water system would be used to deliver potable reuse water to Lauro Reservoir for treatment and distribution
- **Potable Reuse (Section 5.6):** Once raw water augmentation regulations are issued by the State and the City needs a new supply, the City should revisit the project definition assumptions from the 2017 Potable Reuse Feasibility Study (3) and cost estimates documented in this report. Because of uncertainty with future regulations, both documents relied on many assumptions that should be revisited once regulations are in place. The City can then update its future supply comparison with desalination, recycled water, and conservation.

What factors affect the recommendations listed above?

The largest projection variables are:

- Demand rebound from the most recent drought and its impact on demand projections.
- Supply projections associated with incremental changes in supply availability (e.g., climate change, sedimentation in Lake Cachuma and Gibraltar Reservoir) or immediate changes in supply availability (e.g., regulatory decisions).

The adaptive management plan identifies "prompts" for significant changes in operating conditions. These include:

- **Cachuma Project Regulatory Action(s):** Cachuma members anticipate a new biological opinion to be issued by the National Marine Fisheries Service soon, but the requirements and impact of the biological opinion are unknown. The risk-adjusted projections for Cachuma Project water accounted for some potential reductions required by a biological opinion or other regulatory action, but the projections should be revisited once operating requirements are defined.
- **Cachuma Project Storage:** The ability to store non-project water in Lake Cachuma would broaden the City's ability to manage its supply portfolio by allowing storage of water when it is available. On the other hand, restrictions to Cachuma carryover water would limit the City's ability to build drought reserves and may require additional local, reliable supplies to offset the lost drought buffer provided by carryover water.

- **Desalination Regulations / Permitting:** Any change in ocean desalination regulations or permitting that alters the cost or operating risk profile for the City's existing desalination plant should prompt a re-evaluation of the costs associated with the desalination supply and any future expansion efforts.
- **Wastewater Regulations / Permitting:** Over the last decade, there were several draft legislative and regulatory actions that proposed to significantly reduce ocean discharge of treated wastewater. A future mandate to reduce ocean discharges of treated wastewater could make potable reuse a priority. This change should be a prompt for re-evaluation of the City's supply options.

What is the role of desalination in the City's water portfolio?

The City's most recent policy regarding the use of desalination was established in the 2011 LTWSP, which defined desalination as a drought supply. The best performing portfolio in the TBL analysis requires the use of desalination in every year to meet demands with baseline demand projections and risk-adjusted supplies. However, with existing supplies (which are unadjusted for risk), desalination is needed during a drought, during certain non-drought periods to build reserves for the next drought, and during drought recovery. Therefore, the City should operate the desalination plant at its current capacity, 3,125 AFY, to protect and optimize the City's other water supplies, and to enhance the City's ability in preparing for and responding to future drought conditions. The Adaptive Management Plan (Section **Error! Reference source not found.**) does allow the City's Water Resources Manger to put the desalination plant in standby mode when water supply conditions warrant it. Some suggested water-reserve thresholds to assist the Water Resources Manager in making this decision include:

- Projected supplies for the upcoming water year are sufficient to meet demand without need for desalination, supplemental water, groundwater from storage, or extraordinary conservation.
- Groundwater basins are at non-drought levels, meaning drought storage is full and annual sustainable yield is available for City use. (The City will work with USGS in the near future to better define drought storage and sustainable yield for this metric.)
- Lake Cachuma's volume and the City's Cachuma carryover storage volume at the end of the wet season. This threshold allows for operation of desalination early in a potential drought cycle, and saves Cachuma carryover water for use in subsequent years.
- SWP carryover storage of unused Table A allocation water in San Luis Reservoir should be maximized. However, the CCWA SWP storage options study should be completed before a recommendation is made.

Additional factors that consider the impacts of converting the desalination plant to standby mode and back to operational mode should be evaluated, but are beyond the scope of this report. The City should complete an in-depth cost-benefit analysis of converting the desalination plant between operating and standby modes. The suggested minimum reserve thresholds would be updated based on the analysis. The analysis should answer questions like:

- How to retain and manage the workload and cost of keeping certified professional water treatment operators when the desalination plant is in standby mode?
- How the City wants to manage the risk of being unable to bring the desalination plant online quickly during a catastrophic emergency when it will take approximately ten weeks to put the desal plant into operation from standby mode?
- What are the costs and benefits of turning off the desal plant for a single year and reactivating it in the following year?

Figure 20 to **Figure 22** represent simulated supplies to meet projected demands over the next 30 years. The simulation applies historical hydrology from 1993 to 2019 plus three years of extended drought (2020-2022) for a 10-year design drought, and applies the Optimized Portfolio B supplies. Extraordinary conservation is used when needed to close the supply and demand gap in a given year. For modeling simulations, the most recent drought, which started in 2012, begins in 2040 in the figures. The minimum reserve thresholds should change if demands increase faster than projected or supply reliability decreases, as discussed in the Adaptive Management Plan.

Figure 20. Optimized Portfolio B Simulation (2020-2050)
Baseline Demand, Risk Adjusted Supplies

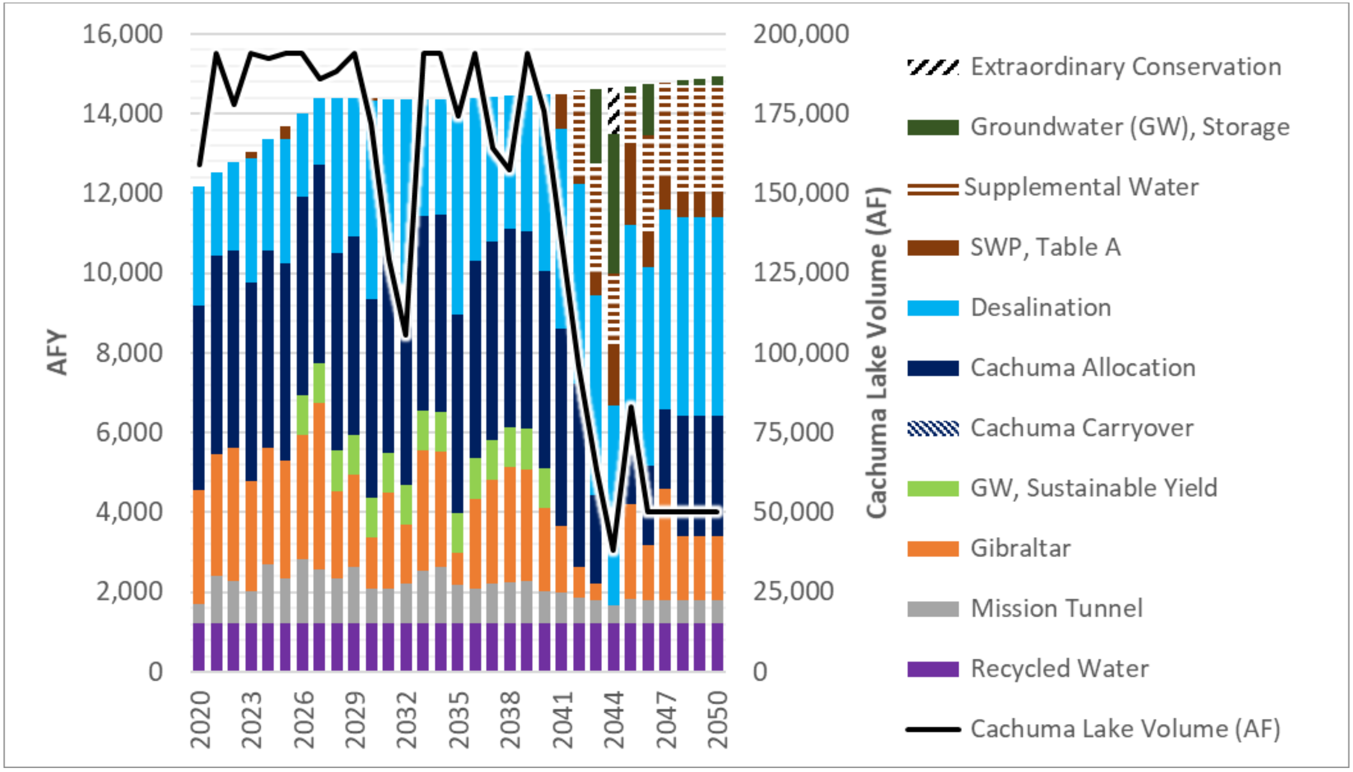


Figure 21. Optimized Portfolio B Simulation (2020-2050) Baseline Demand, Existing (No Risk Adjustment) Supplies

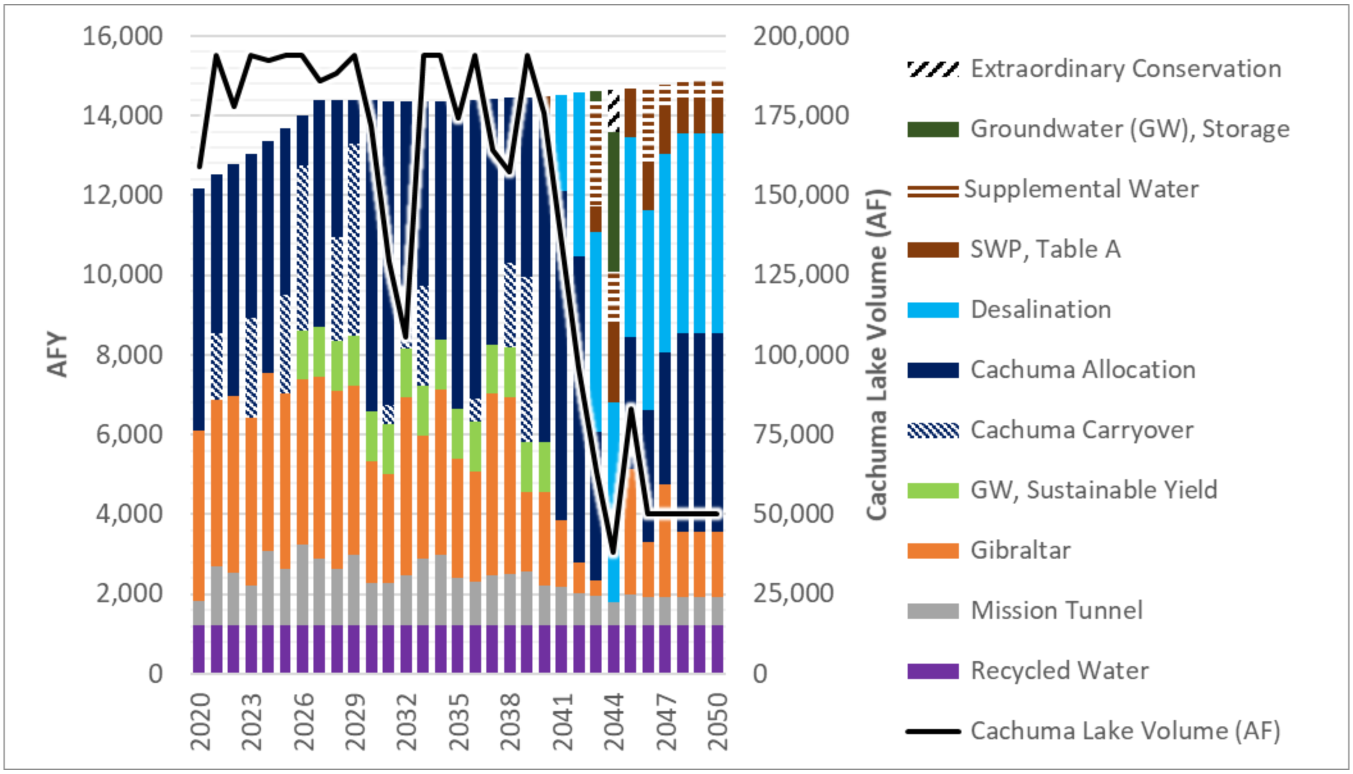
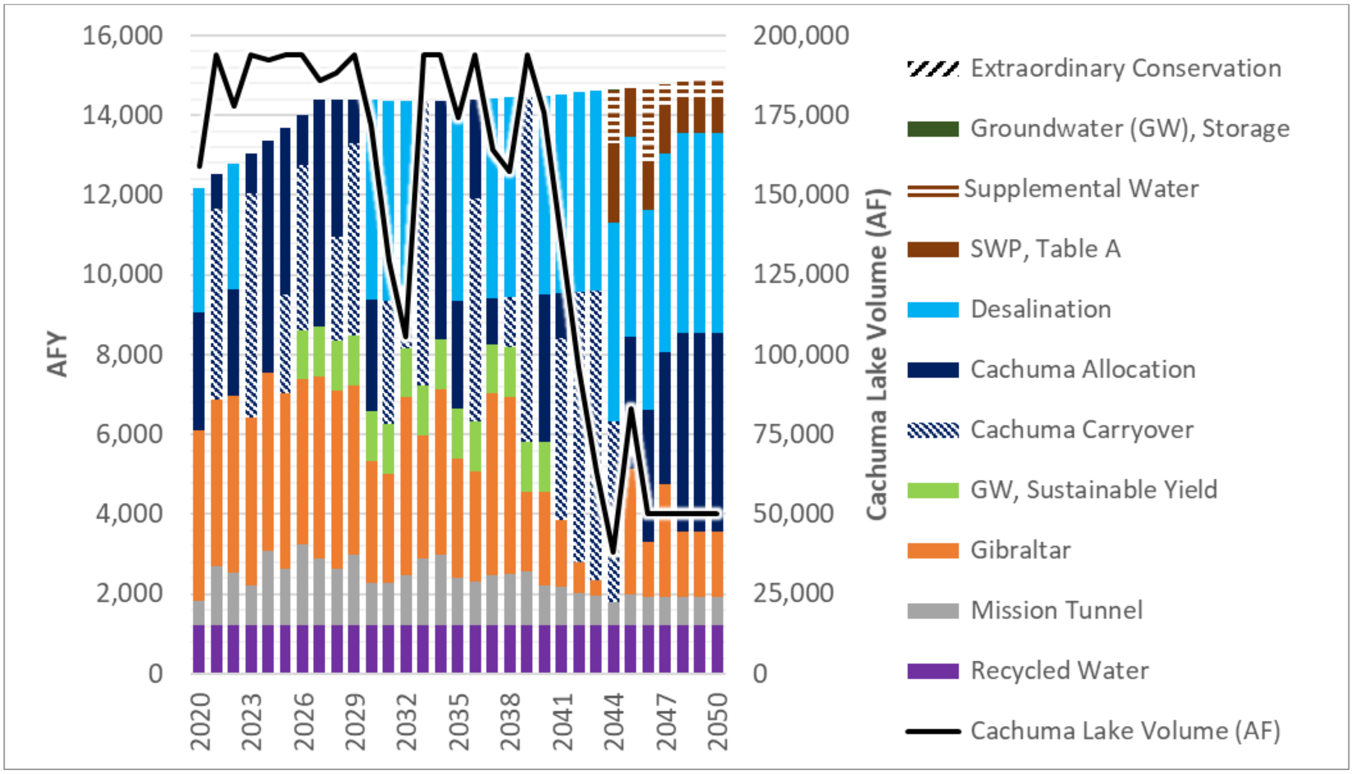


Figure 22. Optimized Portfolio B Simulation (2020-2050), Baseline Demand, Existing (No Risk Adjustment) Supplies Desalination Activated at Lake Volume < 180,000 AF



8.2. Future Portfolio Analysis Conclusion

For decades, the City has made consistent, significant investments in developing and sustaining available water supplies, as well as encouraging effective water conservation within its service area. Notably, during the most recent drought, the City's customers reduced per capita demand by up to 40%, and continue to maintain on average a 27% reduction in water use as compared to 2013. The City concurrently built and put into service an ocean desalination facility. As a result, the City is well positioned to provide reliable water service to its customers at current demand levels and without any significant interruptions in existing supplies. However, as demands increase and/or existing supplies are impacted by various risks, the City will be faced with a supply deficit that must be filled.

This future portfolio analysis evaluated nine different water supply portfolios to meet the range of expected future demands. Optimized Portfolio B, which includes expansion of the City's desalination facility, scored the highest in the TBL analysis and was the best performing new future supply option. This option was one of three that looked to optimize the best attributes of the City's diverse water supply sources. Optimized Portfolio B utilizes an adaptive management approach that has the City leveraging water conservation and the City's current supplies, in a scenario where demands have significantly increased or existing supplies have been diminished, before considering expansion of the desalination plant to 5,000 AFY. Timing of any desalination facility expansion will depend on the pace of demand growth and the ongoing availability and reliability of existing supplies. Additionally, new regulations and/or advancements in treatment technology may increase the favorability of potable reuse, which scored highly in this analysis. The Adaptive Management Plan outlines prompts and corresponding next steps to enable the City to adapt to changing conditions, while making timely investments to maintain a high level of service to its customers.

9. Adaptive Management Plan

The future portfolio analysis identified several variables that impact supplies and demands that will influence future water resources decisions for the City – increased existing customer demands post-drought, incremental changes in supply availability, and immediate changes in supply availability. The City has limited control of most of these variables, such as increased demand as the area emerges from an extended drought, or new regulatory constraints placed on existing supplies. However, the Adaptive Management Plan provides a framework for the City to anticipate actions and respond to changes to future water resources conditions through a series of phases driven by changes in supply or demand. The phases are graphically shown in **Figure 23.**

Figure 23. Adaptive Management Plan Phases

The five phases include the following actions:

- **Phase 1 (Existing Conditions):**
    - Monitor demand and supply conditions, particularly the potential post-drought demand rebound.
    - Implement recommendations listed in Section 8.1.1. Operate the desalination plant at its current capacity, 3,125 AFY, to protect and optimize the City's other water supplies, and to enhance the City's ability in preparing for and responding to future drought conditions.
- **Phase 2:** Begin planning for a new supply for implementation in Phase 3. Update desalination expansion and potable reuse evaluation based on potable reuse regulations, if available, and updated desalination operational costs and expansion considerations. Determine if higher conservation is a realistic and economically feasible path for managing demands to avoid new supply investments.
- **Phase 3:** I demands are the driving factor for entering Phase 3, implement a new supply (desalination expansion or potable reuse) to prepare for drought conditions. If supply reductions are the driving factor for entering Phase 3, desalination should be operated at all times at existing capacity, since additional water is needed to meet demands during non-drought conditions.
- **Phase 4:** Implement both a new supply (desalination expansion or potable reuse) and plan to operate desalination at all times at existing capacity. Identify additional new supply opportunities for Phase 5.
- **Phase 5:** Implement new supplies beyond those identified in this plan, such as additional desalination expansion, potable reuse, or higher conservation.

9.1. Schedule

The timing of each phase will be dependent on when each supply or demand prompt is reached. The baseline demand projections expect 13,000 AFY of demand to be reached by 2025 and 14,000 AFY of demand by 2030 while the lower drought rebound projection reaches 13,000 AFY in 2050. In addition, several "prompts" for significant changes in operating conditions were identified in Section 8.1.2, including Cachuma project regulatory action(s), Cachuma project storage rules, desalination regulations / permitting, and wastewater regulations / permitting. The adaptive management plan should be re-evaluated and updated in response to such changes.

9.2. Costs

Results of the TBL analysis show that the best performing new water supply is desal expansion. Expanding desal production from 3,125 AFY to 5,000 AFY is estimated to cost $27.6 million (2020 dollars), and increase operating costs by $0.5 million per year, or $40/AF. Aside from investing in new supplies, annual costs are projected to increase if there is a need to purchase additional SWP water or supplemental water. The cost of supplemental water will be determined based on the upcoming analysis by CCWA for SWP water management strategies.

9.3. Policies

Four distinct policy recommendations arise from the Enhanced UWMP:

1. Implementing recommended actions for existing water supplies.
2. Executing the Adaptive Management Plan.
3. Continuing ocean desalination as part of Santa Barbara's water supply portfolio to support drought preparedness, response, and recovery.
4. Updating the long-term water supply analysis in the 2020 Enhanced UWMP if baseline conditions or key assumptions substantially change and affect the City's ability to make informed water resources decisions.

Each policy recommendation is described in detail below.

Policy 1. Implementing Recommended Actions for Existing Water Supplies

This policy proposes the following recommendations to protect and better manage the City's existing water supplies:

- Water Demand and Conservation: Implement the recommendations from the City's Water Conservation Strategic Plan (Program B). Program B includes the City's current water conservation measures, plus rebates for ultra-high efficiency toilets and urinals, leak detection devices, pressure reduction valves and dipper wells; full implementation of the City's AMI program; a free sprinkler nozzle program; and a pre-rinse spray nozzle giveaway program.
- Cachuma Project: Preserve the ability to store carryover water and non-Project water in Lake Cachuma, which is the City's largest storage option.
- Gibraltar Reservoir: Obtain a Warren Act contract from the USBR to store Gibraltar water in Lake Cachuma.
- Groundwater: Update the City's sustainable groundwater basin yield and drought storage estimates. Consider preparing a Groundwater Sustainability Plan.
- State Water Project: Identify methods to increase the certainty of SWP or supplemental water availability during extended drought conditions, including groundwater banking or long-term purchase agreements (which are considered in the current CCWA study).
- Non-Potable Recycled Water: Update the recycled water market assessment and update the cost/benefit analysis for further recycled water system expansion.
- Potable Reuse: Once the State issues raw water augmentation regulations and a new supply is needed, revisit the feasibility and priority of potable reuse.

Policy 2. Executing the Adaptive Management Plan

Executing the Adaptive Management Plan as policy would provide the City's Water Resources Manager with the flexibility to manage the City's water resources in real time based on current water supply conditions. This adaptive management approach includes a continued emphasis on water conservation, and making conservation a way of life, as outlined in the Water Conservation Strategic Plan (1). The Enhanced UWMP recognizes that while a new water supply is currently unneeded, the City's demand and supply sources must be closely tracked to forecast when a new supply source will be needed. An adaptive management approach is crucial to preserving and optimizing the City's water supplies in an uncertain future.

Policy 3. Continuing Ocean Desalination as Part of Santa Barbara's Water Supply Portfolio to Support Drought Preparedness, Response, and Recovery

The City's most recent policy regarding the use of desalination was established in the 2011 LTWSP, which defined desalination as a drought supply. In 2015, in response to the recent unprecedented and prolonged drought, City Council voted to reactivate the Charles E. Meyers Desalination Plant to provide critical water supplies and enable the City to meet demands when other supplies were unavailable. Results of the analytical work described in this report indicate that adoption of this policy allows the City to better prepare for, respond to, and recover from droughts.

Under this policy, the desalination plant will operate at its current capacity, 3,125 AFY, to protect and optimize the City's other water supplies, and to enhance the City's ability in preparing for and responding to future drought conditions. The Adaptive Management Plan does allow the City's Water Resources Manger to put the desalination plant in standby mode when water supply conditions warrant it. This report provides some suggested water-reserve thresholds to assist the Water Resources Manager in making this decision.

Policy 4. Updating the Long-Term Water Supply Analysis in the 2020 Enhanced UWMP if Baseline Conditions or Key Assumptions Substantially Change

Projections and assumptions used in the 2020 Enhanced UWMP were prepared with the best information available at the time. The Adaptive Management Plan accounts for potential changes to baseline conditions and key assumptions used in the long-term water supply analysis. In addition to regular 5-year updates to this plan as required by State law, the long-term supply analysis should be updated if there are substantial changes to projected baseline conditions or key assumptions that materially affect the City's ability to make informed water resources decisions.

10. References

1. **Maddaus Water Management.** *City of Santa Barbara Water Conservation Strategic Plan.* December 3, 2020.

2. **Carollo.** *City of Santa Barbara Water Supply Planning Study.* 2009.

3. —. *City of Santa Barbara Potable Reuse Feasibility Study.* s.l. : City of Santa Barbara, 2017.

4. **MNS Engineers, Inc.** *City of Santa Barbara Gibraltar Lake Bathymetric Study Report.* 2020.

5. **Wallace Group.** *Lake Cachuma Formed by Bradbury Dam. Results of 2013 Survey & Sedimentation Update.* 2014.

6. **California Department of Water Resources.** *2019 State Water Project Delivery Capability Report.* 2020.

7. —. *2015 State Water Project Delivery Capability Report.* 2016.

8. **United States Bureau of Reclamation.** *Development of Methodologies to Evaluate the Environmental, Financial and Social Benefits of Water Reuse Projects.* September 2014. 2014-01-4180.

9. **City of San Diego.** *2012 Long-Range Water Resources Plan.* December 2013.

10. **Paulson, Edwin, et. al.** *Framework for Evaluating Alternative Water Supplies: Balancing Cost with Reliability, Resilience* . 2018. WRF Project No. 4615.

11. **Williams, A. Park, et al.** *Large Contribution from Anthropogenic Warming to an Emerging North American Megadrought.* s.l. : Science, Apr 17 2020. pp. 314-318.

12. **City of Santa Barbara.** Personal communication with Carlos Sanchez, City of Santa Barbara. September 24, 2020.

13. **Carollo.** *City of Santa Barbara Desalination Plant Operating Scenarios Evaluation.* 2020.

14. **United States Geological Survey.** *Santa Barbara and Foothill Groundwater Basins Geohydrology and Optimal Water Resources Management—Developed Using Density Dependent Solute Transport and Optimization Models.* 2018.

15. **Freckleton.** *United States Geological Survey Report 89-4017, Geohydrology of the Foothill Groundwater Basin Near Santa Barbara.* Prepared in cooperation with the City of Santa Barbara, Pre 1989. : s.n., 1989.

16. **Martin and Berenbrok.** *United States Geological Survey Report 86-4103. Groundwater Monitoring at Santa Barbara, CA: Phase 3 - Development of a Three Dimensional Digital Groundwater Flow Model for Strorage Unit 1 of the Santa Barbara Groundwater Basin.* Prepared in cooperation with the City of Santa Barbara : s.n., 1986.

17. **Freckleton, Martin and Nishikawa.** *United States Geological Survey Report 97-4121. Geohydrology of Storage Unit III and a Combined Flow Model of the Santa Barbara and Foothill Groundwater Basins, Santa Barbara County, CA.* 1998.

Attachment A – WVSB Communications and Engagement Summary TM

Water Vision SANTA BARBARA

Technical Memorandum

DATE: 4/30/2021

TO: Dakota Corey
City of Santa Barbara

CC: Joshua Haggmark, PE, Cathy Taylor, PE, Dana Hoffenberg

PREPARED BY: Tiffany Meyer

REVIEWED BY: Rob Morrow, PE and Jeffery Szytel, PE

PROJECT: Water Vision Santa Barbara

SUBJECT: **STAKEHOLDER ENGAGEMENT APPROACH AND RESULTS**

Introduction

The purpose of this technical memorandum (TM) is to summarize the activities employed by the City of Santa Barbara (City) to understand and represent the values and needs of the community within Water Vision Santa Barbara (WVSB) as well as summarize the outcomes of the engagement efforts.

Background

For over 25 years, the City's primary water supply management tool has been its Long-Term Water Supply Plan (LTWSP). The City has relied on its LTWSP, last updated in 2011, to evaluate and prioritize water resource decisions and ultimately set City water resources policy with a 30-year planning horizon. WVSB updates the 2011 LTWSP by reassessing the adequacy, reliability, resiliency, and sustainability of the City's water resources portfolio, including evaluation of both available supply and anticipated demand. This effort considers cost and reliability, as well as economic, environmental, and social measures, and evaluates risks and uncertainties. Water Vision Santa Barbara includes an open and transparent process for stakeholder involvement and education. The project culminates in a preferred long-term water supply portfolio for the City and recommends an implementation plan to City Council.

The water supply evaluation is incorporated into the City's 2020 Urban Water Management Plan (UWMP) update. The UWMP meets State reporting requirements and incorporates updated water resources evaluations. The combined document — an **Enhanced UWMP** — becomes the City's consolidated water supply planning reference going forward.

While the City has engaged stakeholders in past water supply planning efforts, within this project it aimed to take a more deliberate and inclusive approach that aligned with the City's One Water[1] approach to water management. In this manner, the City aimed to engage a more diverse representation of the uses and users of water within the community, as well as those who would be most affected by the City's water decisions.

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[1] One Water is an integrated planning and implementation approach to managing finite water resources for long-term resilience and reliability, meeting both community and ecosystem needs. (https://www.waterrf.org/research/projects/blueprint-one-water)

UWMP Requirements

California Water Code (Water Code) requires the City to prepare an UWMP every five years. The Water Code specifies several requirements for preparing a UWMP, including public notification and engagement. The primary public engagement requirements are:

- Make the UWMP available for public inspection and conduct a public hearing to gather community input
- Issue UWMP public hearing notification to the public at least 14 days prior to public hearing
- Submit the UWMP to the California State Library and all cities and counties within which the City provides water no later than 30 days after adoption by City Council

The City Council meeting on May 25, 2021 will serve as the public hearing for the UWMP. However, the City's stakeholder engagement efforts far surpass the minimum Water Code requirements and has allowed the stakeholder input to inform development of the UWMP in a transparent fashion.

Stakeholder Engagement and Outreach Approach

The following engagement and outreach goals were identified by the City and drove the Project Team's approach:

- Conduct a transparent, inclusive and equitable engagement process with diverse representation considering the variety of issues, challenges, needs, uses and users of water within the City.
- Engender public trust and inform decision-makers to achieve the desired result of an equitable, cost-effective, reliable, and environmentally responsible plan that aligns with the community's values and provides water supply through the 2050 planning horizon.
- Build public awareness on the value of diverse supply sources, and the unique challenges and opportunities for water supply in Santa Barbara.
- Build public trust in the City staff as passionate, capable and prepared to effectively manage water on behalf of the community.
- Communicate "early and often," and actively identify and eliminate barriers to stakeholder representation and participation.
- Align the storylines of Water Vision Santa Barbara and the One Water Strategic Plan effort.

To achieve these goals, the City grouped all project stakeholders into four segments. The approach and level of engagement with each segment depended on its role in the process, as outlined in **Table 1**.

Table 1. Engagement Strategy by Stakeholder Segment

Segment	Segment Description	Engagement Role	Approach
WVSB Stakeholder Group	Appointed group of community leaders representing the diverse issues, challenges, needs, uses and users of water within the City.	• Learn/Build Awareness • Share Perception/Opinion • Advocate	• One-on-One Interviews • Five Interactive Workshops • Public Meetings
General Public	City Water Customers not otherwise serving on the Stakeholder Group.	• Learn/Build Awareness • Share Perception/Opinion • Advocate	• Water Vision Month with virtual educational activities and community board • Public Meetings
City Water Commission	Appointed Water Commissioners, serving as Advisors to City Council on water policy decisions in manner that reflects the community's values/ needs and the project goals.	• Learn/Build Awareness • Share Perception/Opinion • Advise/Recommend	• One-on-One Interviews • Five Designated Public Meetings
City Council	Elected Santa Barbara City Council members and mayor, responsible for making water policy decisions that reflect the community's values/needs and the project goals.	• Learn/Build Awareness • Share Perception/Opinion • Decide	• Four Designated Public Meetings

Schedule of Engagement and Outreach Activities

The Project Team designed a robust set of activities to engage and/or inform each stakeholder segment at key decision points in the project. **Figure 1** shows the project process across five steps, noting said activities.

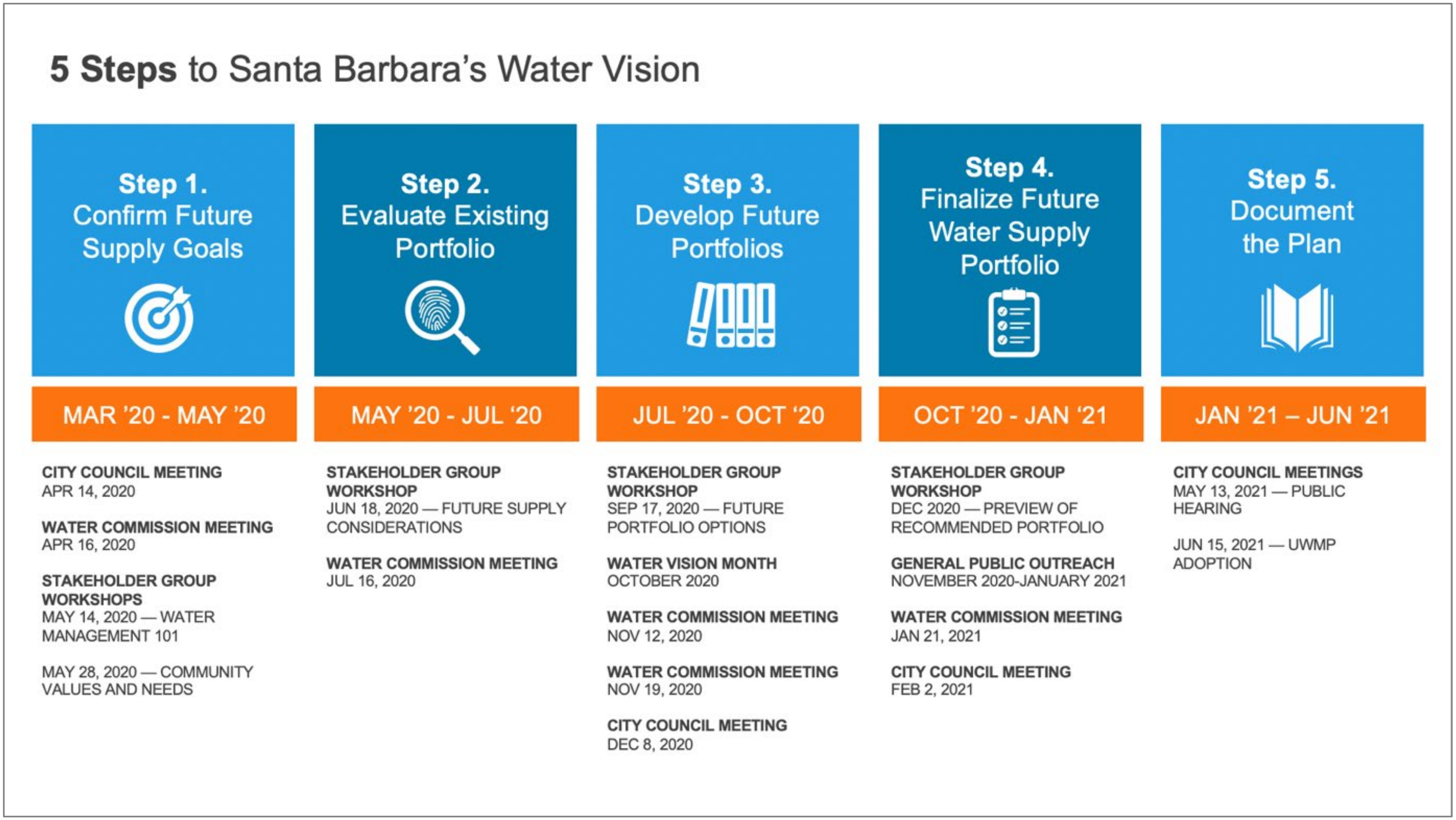
Water Vision Stakeholder Group Characterization

The California Department of Water Resources offers a framework for agencies creating groundwater management plans to identify the beneficial uses and users of groundwater within their basin — this framework is currently being used by agencies throughout California to create groundwater sustainability plans that are compliant with the Sustainable Groundwater Management Act.

The City used this framework to help map the stakeholder segments that best represent the beneficial uses and users of water within the Santa Barbara city limits, as well as those populations who may be most affected by the City's water supply planning decisions. In doing so, the City identified and invited 27 organizations representing 9 segments to participate in the WVSB Stakeholder Group. Where possible, delegates were asked to also be City water customers. The group's role was to share their perspective and opinions of themselves and their constituency within five interactive workshops scheduled at key decision points in the plan development; their input was used to directly inform the Water Vision. Further, we asked them to help disseminate educational content to their staff and constituents through the duration of the project.

Figure 2 shows the final makeup of the WVSB Stakeholder Group. Note that some organizations naturally can represent multiple segments but they are listed based on the primary segment they represent. Also, some organizations were on the front lines of the COVID pandemic, and therefore could not actively participate in the live workshops but were kept informed via workshop summaries and opportunities to comment following each workshop.

Figure 1. Project Timeline and Schedule of Engagement and Outreach Activities



5 Steps to Santa Barbara's Water Vision

Step 1. Confirm Future Supply Goals

MAR '20 - MAY '20

CITY COUNCIL MEETING
APR 14, 2020

WATER COMMISSION MEETING
APR 16, 2020

STAKEHOLDER GROUP WORKSHOPS
MAY 14, 2020 — WATER MANAGEMENT 101

MAY 28, 2020 — COMMUNITY VALUES AND NEEDS

Step 2. Evaluate Existing Portfolio

MAY '20 - JUL '20

STAKEHOLDER GROUP WORKSHOP
JUN 18, 2020 — FUTURE SUPPLY CONSIDERATIONS

WATER COMMISSION MEETING
JUL 16, 2020

Step 3. Develop Future Portfolios

JUL '20 - OCT '20

STAKEHOLDER GROUP WORKSHOP
SEP 17, 2020 — FUTURE PORTFOLIO OPTIONS

WATER VISION MONTH
OCTOBER 2020

WATER COMMISSION MEETING
NOV 12, 2020

WATER COMMISSION MEETING
NOV 19, 2020

CITY COUNCIL MEETING
DEC 8, 2020

Step 4. Finalize Future Water Supply Portfolio

OCT '20 - JAN '21

STAKEHOLDER GROUP WORKSHOP
DEC 2020 — PREVIEW OF RECOMMENDED PORTFOLIO

GENERAL PUBLIC OUTREACH
NOVEMBER 2020-JANUARY 2021

WATER COMMISSION MEETING
JAN 21, 2021

CITY COUNCIL MEETING
FEB 2, 2021

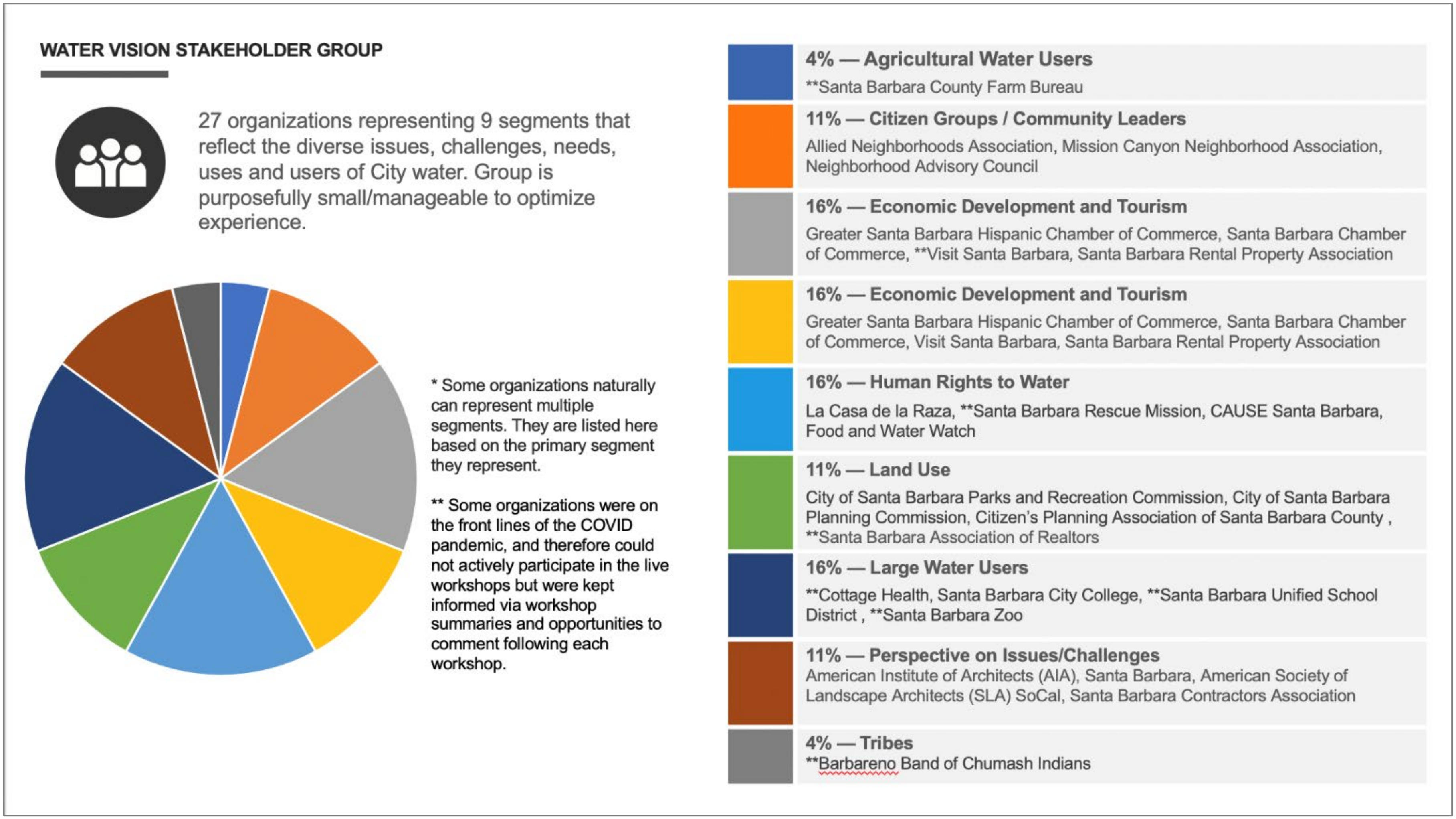
Step 5. Document the Plan

JAN '21 – JUN '21

CITY COUNCIL MEETINGS
MAY 13, 2021 — PUBLIC HEARING

JUN 15, 2021 — UWMP ADOPTION

Figure 2. Stakeholder Group Segments and Roster



WATER VISION STAKEHOLDER GROUP

27 organizations representing 9 segments that reflect the diverse issues, challenges, needs, uses and users of City water. Group is purposefully small/manageable to optimize experience.

* Some organizations naturally can represent multiple segments. They are listed here based on the primary segment they represent.

** Some organizations were on the front lines of the COVID pandemic, and therefore could not actively participate in the live workshops but were kept informed via workshop summaries and opportunities to comment following each workshop.

4% — Agricultural Water Users
**Santa Barbara County Farm Bureau

11% — Citizen Groups / Community Leaders
Allied Neighborhoods Association, Mission Canyon Neighborhood Association, Neighborhood Advisory Council

16% — Economic Development and Tourism
Greater Santa Barbara Hispanic Chamber of Commerce, Santa Barbara Chamber of Commerce, **Visit Santa Barbara, Santa Barbara Rental Property Association

16% — Economic Development and Tourism
Greater Santa Barbara Hispanic Chamber of Commerce, Santa Barbara Chamber of Commerce, Visit Santa Barbara, Santa Barbara Rental Property Association

16% — Human Rights to Water
La Casa de la Raza, **Santa Barbara Rescue Mission, CAUSE Santa Barbara, Food and Water Watch

11% — Land Use
City of Santa Barbara Parks and Recreation Commission, City of Santa Barbara Planning Commission, Citizen's Planning Association of Santa Barbara County , **Santa Barbara Association of Realtors

16% — Large Water Users
**Cottage Health, Santa Barbara City College, **Santa Barbara Unified School District , **Santa Barbara Zoo

11% — Perspective on Issues/Challenges
American Institute of Architects (AIA), Santa Barbara, American Society of Landscape Architects (SLA) SoCal, Santa Barbara Contractors Association

4% — Tribes
**Barbareno Band of Chumash Indians

Project-Wide Communications

A project website[2] centralized all project communication, including a project overview and timeline; how to get involved; stakeholder group roster; and stakeholder group workshop recordings and summaries. On the project website, community members could subscribe to the email group to receive updates any time new information was posted to the project website. **Figure 3** shows a screen shot of the project website homepage.

Figure 3: Water Vision Santa Barbara Website Homepage

Setting the vision for Santa Barbara's water future

WVSB Stakeholder Group Activities

The WVSB Stakeholder Group activities included interviews, workshops, e-mail outreach, and workshop summaries.

Interviews

At the project start, WSC held one-on-one interviews with most stakeholder group members to build trust, answer questions about the process, and to connect to the values, needs and priorities of the delegate and their constituency in advance of the workshops. From the interviews, WSC created snapshots of the stakeholder segments for the Project Team; this tool helped the full team ensure that all voices and perspectives were given equal voice within

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[2] https://SantaBarbaraCA.gov/WaterVision

the workshop experiences. This step also helped the team adapt workshop content to the educational needs of participants.

Email Outreach

The Project Team managed ongoing pre- and post-workshop email communications with the stakeholder group to keep them informed and actively participating throughout the process. This communication also helped the Project Team stay connected to the evolving needs of the group (including COVID-19, wildfires, and social justice protests occurring in the City).

Workshops

Five virtual workshops were held via Zoom from April through December 2020. All workshops were recorded and recordings were published to the project website following the live session. Below is a summary of the workshops held:

1. Water Supply Planning 101

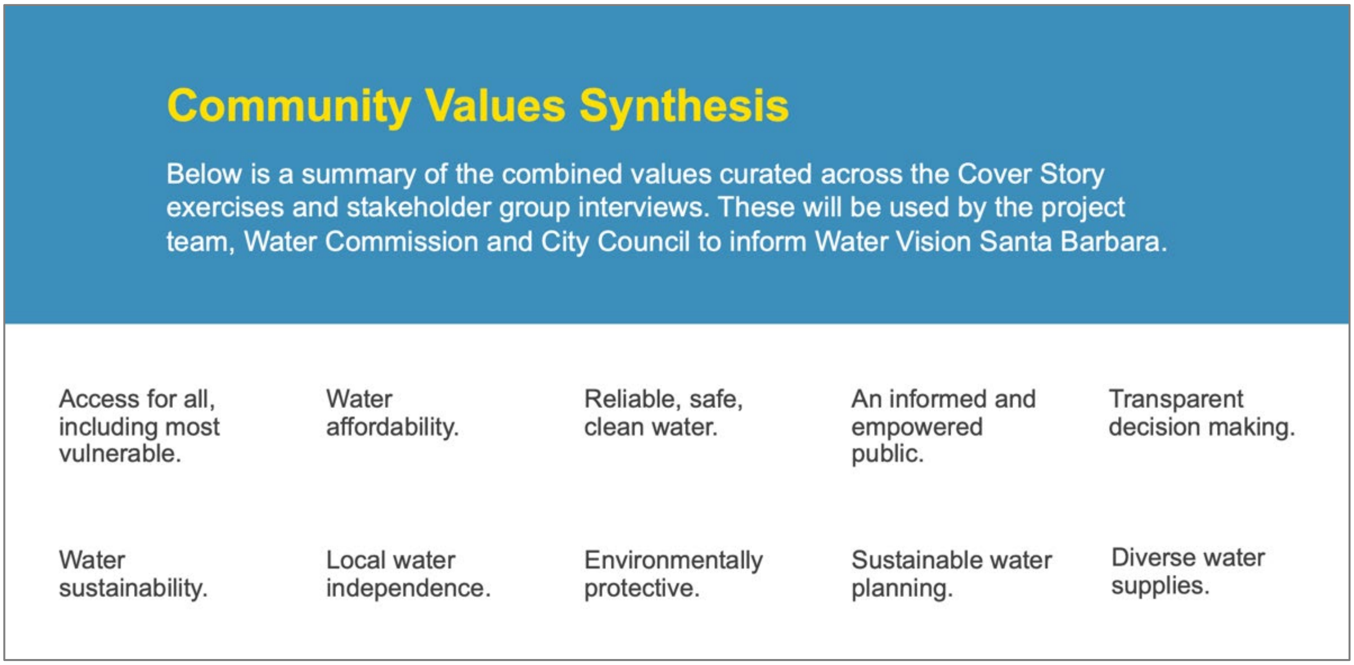
In this first, educational session, the Project Team presented an overview of key ideas to help ground the group and set a foundation for our future interactive work together, including:

- The water sources and conservation measures that contribute to Santa Barbara's current water supply
- Details about the unique challenges, opportunities, costs and benefits of each water source
- The evolving water supply challenges the City faces
- An overview of the five-step process the City will use to recommend a future supply that reflects the needs and values of our community
- An overview of the role the Stakeholder Group will play to inform the Water Vision

2. Community Values and Needs

In this workshop, the primary goal was to document the Stakeholder Group's perceptions of the top issues, concerns, challenges and values as they pertain to things like water security, affordability, quality, environmental health and resilience, among other topics. To set the stage for this discussion, the Project Team shared the project's purpose, objectives, how the City will evaluate success and the future supply options the City is considering, including an opportunity for stakeholders to provide their perspective on the impact and/or benefits of each supply. The Project Team and Stakeholder Group then broke out into small groups to help codify the values and outcomes most important to Stakeholder Group. The information gathered was used to develop a set of Community Values (**Figure 4**) and the Five Pillars (**Figure 5**) that informed all aspects of the portfolio development.

Figure 4. Synthesis of Community Values

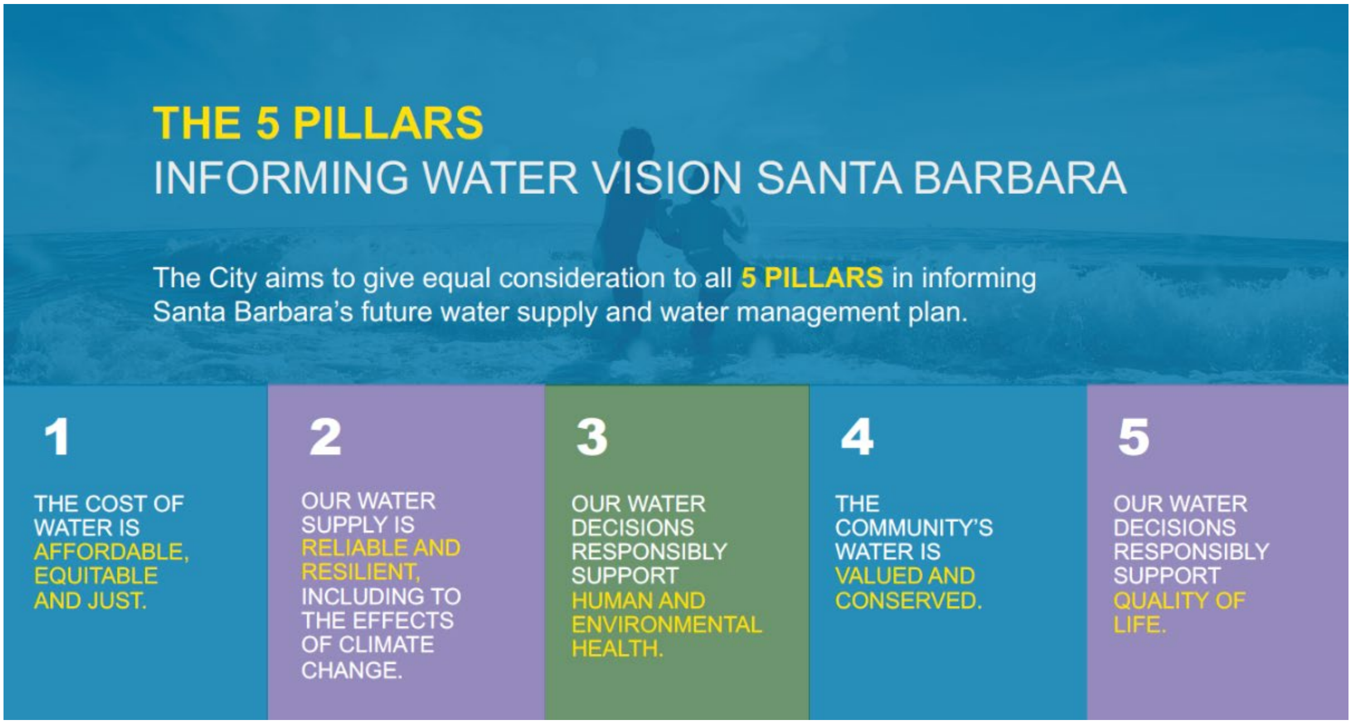


Community Values Synthesis

Below is a summary of the combined values curated across the Cover Story exercises and stakeholder group interviews. These will be used by the project team, Water Commission and City Council to inform Water Vision Santa Barbara.

Access for all, including most vulnerable.	Water affordability.	Reliable, safe, clean water.	An informed and empowered public.	Transparent decision making.
Water sustainability.	Local water independence.	Environmentally protective.	Sustainable water planning.	Diverse water supplies.

Figure 5. The 5 Pillars Informing Water Vision Santa Barbara.



THE 5 PILLARS
INFORMING WATER VISION SANTA BARBARA

The City aims to give equal consideration to all **5 PILLARS** in informing Santa Barbara's future water supply and water management plan.

1
THE COST OF WATER IS AFFORDABLE, EQUITABLE AND JUST.

2
OUR WATER SUPPLY IS RELIABLE AND RESILIENT, INCLUDING TO THE EFFECTS OF CLIMATE CHANGE.

3
OUR WATER DECISIONS RESPONSIBLY SUPPORT HUMAN AND ENVIRONMENTAL HEALTH.

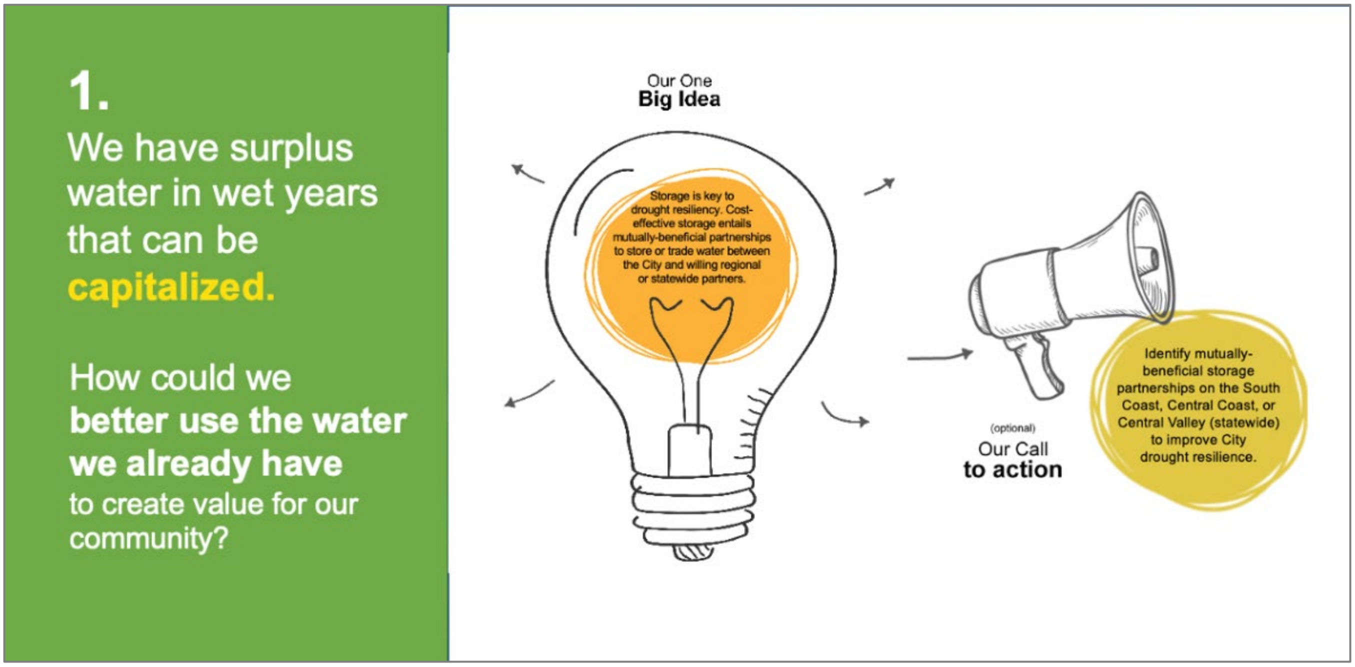
4
THE COMMUNITY'S WATER IS VALUED AND CONSERVED.

5
OUR WATER DECISIONS RESPONSIBLY SUPPORT QUALITY OF LIFE.

3. Future Supply Considerations

In this workshop, the Project Team summarized their technical evaluation of the City's existing water portfolio, giving a full picture of the risks, costs, benefits and gaps between the City's current water portfolio and its future water demand. Next, they shared some of the options the City is considering mitigating the known gaps between supply and future demand. From here, they used an interactive exercise to explore three key questions that aligned the top water supply risks to Stakeholder Group concerns. From these discussions the group developed one key takeaway and Calls to Action for City Council (**Figure 6**).

Figure 6. Calls to Action for City Council



1.

We have surplus water in wet years that can be **capitalized.**

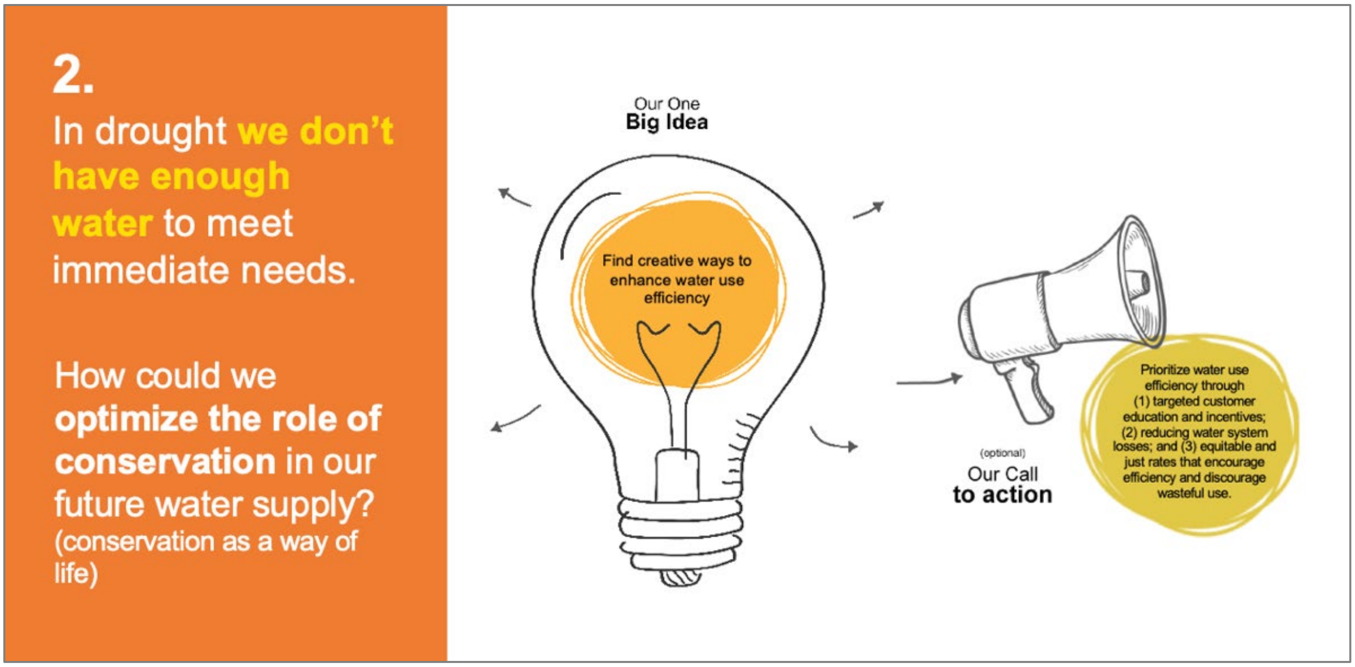
How could we **better use the water we already have** to create value for our community?

Our One **Big Idea**

Storage is key to drought resiliency. Cost-effective storage entails mutually-beneficial partnerships to store or trade water between the City and willing regional or statewide partners.

(optional) Our Call **to action**

Identify mutually-beneficial storage partnerships on the South Coast, Central Coast, or Central Valley (statewide) to improve City drought resilience.



2.

In drought **we don't have enough water** to meet immediate needs.

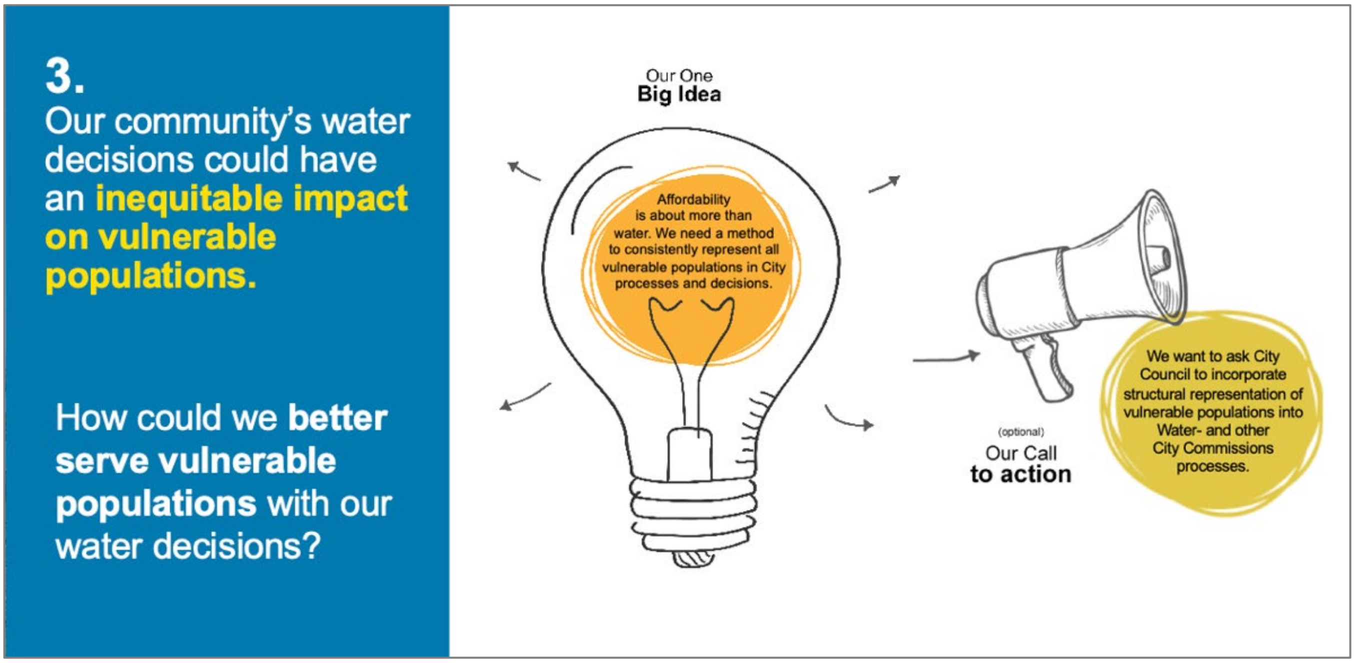
How could we **optimize the role of conservation** in our future water supply? (conservation as a way of life)

Our One **Big Idea**

Find creative ways to enhance water use efficiency

(optional) Our Call **to action**

Prioritize water use efficiency through (1) targeted customer education and incentives; (2) reducing water system losses; and (3) equitable and just rates that encourage efficiency and discourage wasteful use.



3.
Our community's water decisions could have an **inequitable impact on vulnerable populations.**

How could we **better serve vulnerable populations** with our water decisions?

Our One
Big Idea

Affordability is about more than water. We need a method to consistently represent all vulnerable populations in City processes and decisions.

(optional)
Our Call
to action

We want to ask City Council to incorporate structural representation of vulnerable populations into Water- and other City Commissions processes.

4. Future Portfolio Options

In this workshop, the Project Team described the process they used to develop several options for the City's future water portfolio, including use of the Five Pillars developed in partnership with the Stakeholder Group in the earlier workshop. The Project Team demonstrated the rigorous sensitivity and scenario testing used to land their resulting nine portfolio options. The remaining portion of the workshop was used to address questions and concerns. Additionally, the Project Team previewed the Water Vision Month, which offered several self-paced and virtual activities for the Santa Barbara community to learn about and inform Santa Barbara's Water Vision.

5. Preview of Recommended Portfolio

In the final workshop, the Project Team presented the recommended future portfolio and the City's adaptive management plan—their roadmap for keeping the portfolio adaptable to the community's evolving needs. The Project Team looked at a variety of future scenarios and stressors (such as climate change, extended drought, population growth, natural disaster, etc.) to show how the recommended portfolio will perform. Next, they facilitated an open conversation to give voice to any remaining questions or concerns among the Stakeholder Group members regarding the recommended portfolio. This information was summarized and shared with Water Commission and City Council.

Stakeholder Group Feedback Loop

The Project Team and City recognized the importance of using a transparent feedback loop to communicate what was heard from the Stakeholder Group, and how that information was used to inform decisions within the scope of this project. Where input or comments fell outside of the scope of the project, the City wanted to offer transparency about how or where that input would be addressed. Following each Stakeholder Group Workshop a summary was produced and distributed to the Group with an opportunity for members to comment on the summary. Summaries were then published to the project website along with the workshop recordings and slides.

Additionally, the City compiled all comments submitted by the Stakeholder Group across all activities into a Public Comments Summary, noting how each comment would be addressed by the City; this summary is included in **Attachment 1** and has been published to the website.

General Public Activities

The Project Team offered several opportunities for the general public water customers to learn about and inform WVSB, including project email alerts, virtual engagement and education, and invitations to attend public meetings where WVSB was on the agenda.

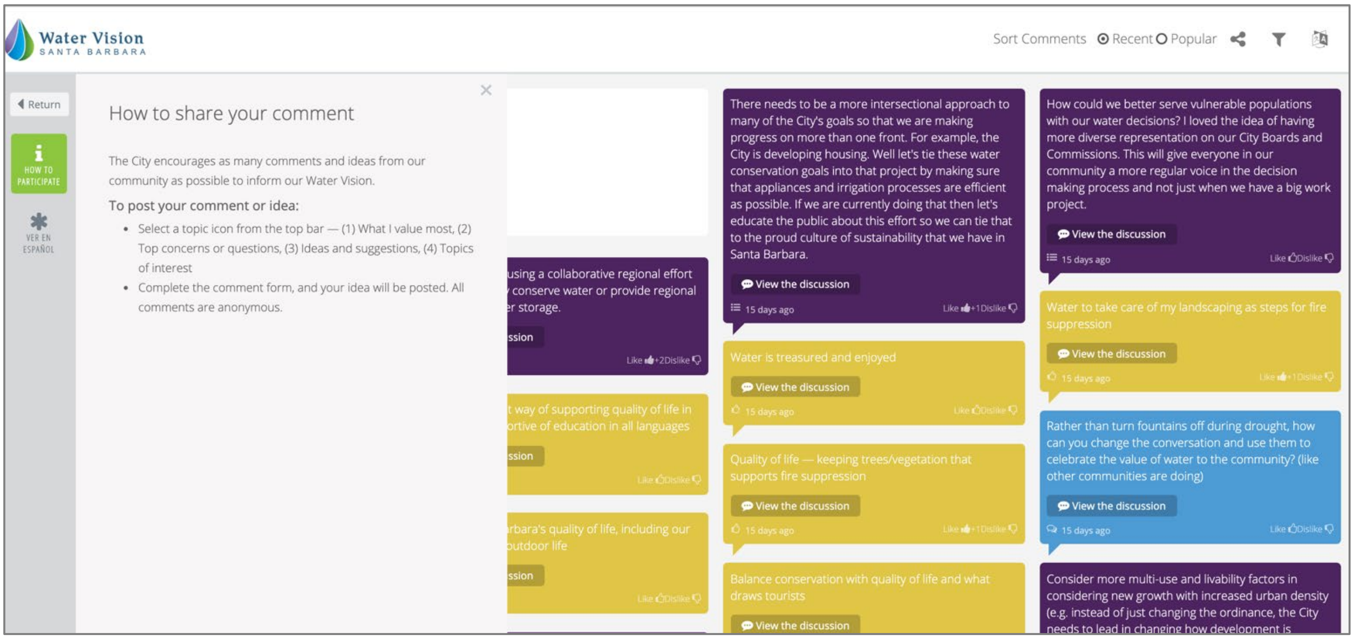
Project Email Alerts

Similar to other City led initiatives, the general public could subscribe to receive email alerts any time new information was posted to the WVSB project website at www.SantaBarbaraCA.gov/WaterVision.

Virtual Engagement and Education — Water Vision Month, October 2020

Throughout the month of October 2020, the City hosted several virtual engagement and outreach activities to give the public the opportunity to learn about and inform Santa Barbara's Water Vision. Included were self-paced educational videos on a range of water planning and supply topics (videos are being made available in Spanish); a virtual "ideas wall" (**Figure 7**) where community members could share comments, feedback, questions and concerns in an anonymous format (offered in English and Spanish); and five Lunch and Learns presented by City staff, offered with live Spanish translation (recordings were also translated into Spanish).[3]

Figure 7. Screenshot of Water Vision Month Ideas Wall



How to share your comment

The City encourages as many comments and ideas from our community as possible to inform our Water Vision.

To post your comment or idea:

- Select a topic icon from the top bar — (1) What I value most, (2) Top concerns or questions, (3) Ideas and suggestions, (4) Topics of interest
- Complete the comment form, and your idea will be posted. All comments are anonymous.

using a collaborative regional effort conserve water or provide regional r storage.

t way of supporting quality of life in ortive of education in all languages

rbara's quality of life, including our outdoor life

There needs to be a more intersectional approach to many of the City's goals so that we are making progress on more than one front. For example, the City is developing housing. Well let's tie these water conservation goals into that project by making sure that appliances and irrigation processes are efficient as possible. If we are currently doing that then let's educate the public about this effort so we can tie that to the proud culture of sustainability that we have in Santa Barbara.

Water is treasured and enjoyed

Quality of life — keeping trees/vegetation that supports fire suppression

Balance conservation with quality of life and what draws tourists

How could we better serve vulnerable populations with our water decisions? I loved the idea of having more diverse representation on our City Boards and Commissions. This will give everyone in our community a more regular voice in the decision making process and not just when we have a big work project.

Water to take care of my landscaping as steps for fire suppression

Rather than turn fountains off during drought, how can you change the conversation and use them to celebrate the value of water to the community? (like other communities are doing)

Consider more multi-use and livability factors in considering new growth with increased urban density (e.g. instead of just changing the ordinance, the City needs to lead in changing how development is

Public Meetings

The public was also invited to attend any of five designated Water Commission and four City Council meetings (listed in Figure 2) to learn about the project, ask questions, and/or to share project comments or concerns. City staff and members of the Project Team were available to answer any questions.

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[3] www.SantaBarbaraCA.gov/WaterVisionMonth

Water Commission Activities

Water Commission engagement activities included interviews and presentations at five Water Commission meetings.

One-on-One Interviews

At the project start, the Project Team held one-on-one interviews with Water Commissioners to build trust, answer questions about the stakeholder engagement approach, and to connect to the values, needs and priorities of each Commissioner as it pertained to the Water Vision and plan. This step helped the team adapt public meeting content to the educational needs of the Commissioners and their familiarity with the content.

Public Meeting Presentations

The Project Team presented at five public Water Commission meetings (listed in Figure 1) at key decision points in the project. Presentations kept Water Commission informed and supported their role as an advisor to City Council.

City Council Activities

Public Meeting Presentations

The Project Team presented at four City Council meetings (listed in Figure 1) at key decision points in the project. Presentations kept City Council informed and supported their role as the final decision authority on approving the resulting EUWMP.

Engagement and Outreach Results

Stakeholder Group Engagement Results

Among the 27 organizations recruited to the Group, about 20 were consistent, active participants across the five workshops, despite significant stresses from COVID, social justice protests, etc. Participation and engagement in the workshop activities was consistently high, and several members expressed interest in parallel water and/or conservation efforts and/or to form a more permanent public commission to support decision making.

Specifically, the Stakeholder Group activities resulted in four deliverables that informed the Water Vision: guiding documents: A synthesis of Community Values (Figure 5); the 5 Pillars Informing Water Vision Santa Barbara (Figure 6); Calls to Action for City Council (Figure 7); and Public Comments Summary. The Five Pillars informed several aspects of the plan, including the future portfolio themes, as well as the evaluation criteria for the future portfolios. Additionally, the activities helped forge new relationships with key constituencies that have been underrepresented in earlier planning efforts, including: Persons of Color, Disadvantaged Communities, and Human Rights to Water. The Project Team explored three key topics with the stakeholder group. Each discussion landed one high-level takeaway and a call to action that the group wanted to share with City Council.

General Public Engagement and Outreach Results

The City offered a series of public education and engagement activities to inform the UWMP throughout the month of October 2020, including virtual lunch and learns (offered in English and Spanish), pre-recorded videos, and a multi-lingual web-based engagement platform called Social Pinpoint. Water Vision Month was promoted across multiple channels and platforms as shown in **Figure 8**. The results of the engagement activities, including participation and input received is shown in **Figure 9**.

Figure 8. Water Vision Month Promotion

TACTIC	TIMEFRAME	REACH
City News in Brief" email newsletter	9/21, 9/28, 10/5, 10/12, 10/19, 10/26	31,000 residents / Avg open rate: 35%
Water Resources e-newsletter	9/18 and 10/2	20,000 residents / Avg open rate: 31%
Library e-newsletter:		41,000 residents / Avg open rate 18%
Facebook ads	Throughout October	6,229 views, 89 likes, 66 clicks
Bill insert	October bills	23,000 customers
Media release and pickups: KEYT Ed Hat Spanish radio El Latino newspaper	Throughout October	Undetermined
Social media posts:		
City of Santa Barbara Facebook	Throughout October	1,500 followers
Creeks Division Facebook	Throughout October	867 followers
Sustainability and Resiliency Dept Facebook	Throughout October	3,300 followers
Stakeholder group promotion	Throughout October	Undetermined

Figure 9. Water Vision Month Content Engagement

Educational Video Engagement

169	90	22	56%
▶ Views	Unique Viewers	Finishes	Avg. % Watched

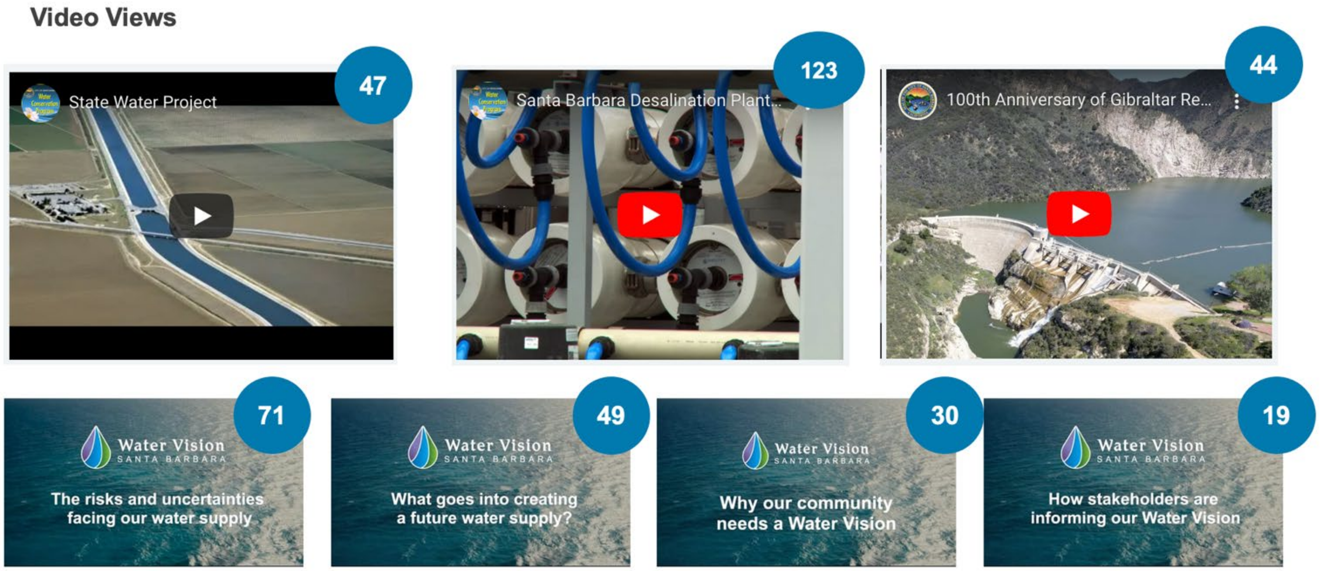
Total time watched
9h 57m 04s
View engagement report ›

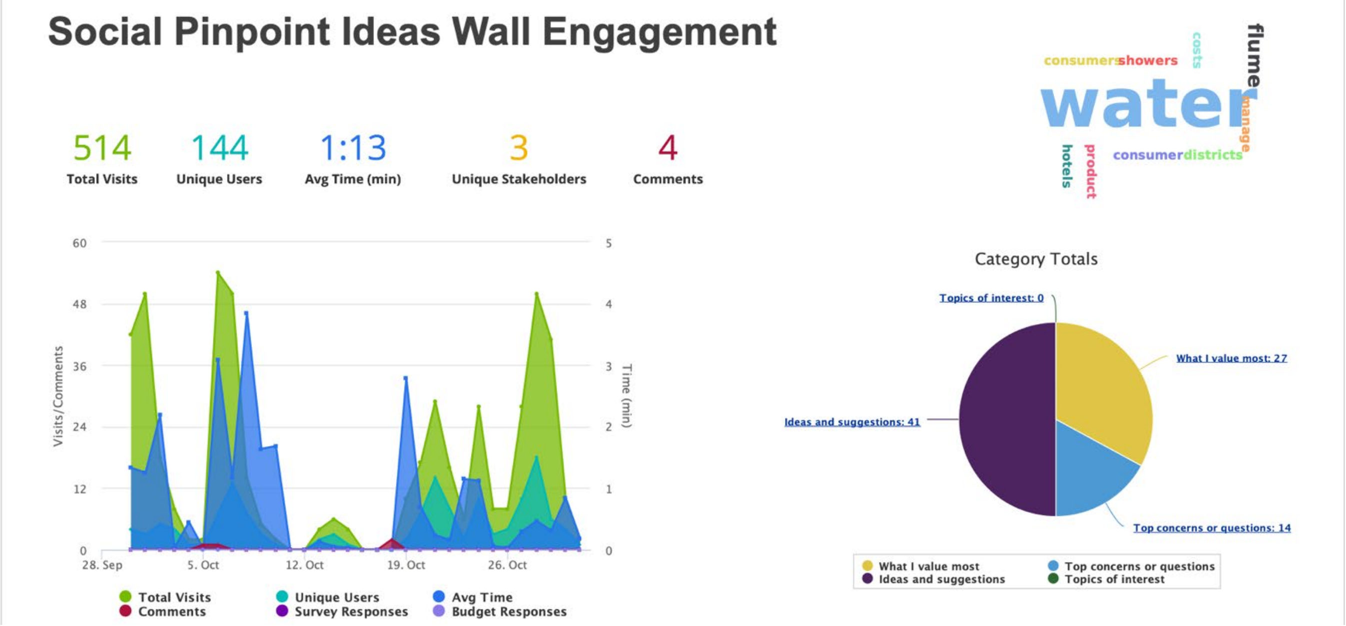
Average time per view
3m 36s
View engagement report ›

Lunch and Learn Registrants

9	Water Conservation Strategic Plan
22	Where Our Water Comes From
13	The Basics of Water Rates
18	Methods to Optimize Water Resilience and Reliability

Figure 9. Water Vision Month Content Engagement, continued





Attachment 1: Responses to Stakeholder Comments

Comment #	Pillar #	Stakeholder Comment	Within WVSB?	City's Response
1	All	Plan is aligned to the City's One Water Vision	Yes	The Plan exemplifies the City's One Water Vision.
2	1	"Cost" of water reflects both the financial and environmental cost of water	Partial	Water Vision Santa Barbara (WVSB) triple bottom line analysis considers financial, social, and environmental "costs" of supply portfolios. City water rates are developed according all applicable laws and regulations, including Proposition 218. Prop. 218 includes the requirement that rates may not exceed the estimated cost of providing the service (i.e., cost-based) to each customer class and tier, and must be reasonable, equitable, and proportional. Prop. 218 makes it difficult to internalize environmental costs because the water utility can only set rates based on the actual cost of providing water service. We do incorporate the environmental costs of water service that are known now and included in the operating and capital budgets, such as an allocated cost paid to the Energy Division that works on sustainability measures. In 2022, the City will be transitioning to 100% renewable electricity sources to power its water resources facilitates. The increased electrical costs will be factored into upcoming water rates.
3	1	Consider grants to offset cost of water to ratepayers	No	The City actively pursues grant opportunities to offset costs and maintains a list of grant opportunities and coordinates staff efforts to apply for grants. The City has successfully obtained several grants over the past year. The total value of grants received over the last 10 years totals approximately $15 Million.

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Comment #	Pillar #	Stakeholder Comment	Within WVSB?	City's Response
4	1	Cost by household isn't equitable, consider a change	No	The City Council has adopted a policy that allocates the least-expensive water sources to the highest priority uses (Tier 1), with the intent of providing the most affordable water service for the basic health and sanitation needs of all our residential customers. The Tier 1 rate applies to the first 4 units of water used each month, per residence. All residences (of the same meter size) have the same fixed monthly charge. Some agencies have implemented budget-based rates, which set a monthly water budget for basic needs and efficient water use based on characteristics of each individual household or property. These types of programs require considerable resources to implement and administer, leading to increases in operating costs and ultimately rates. Primarily, though, budget-based rates are implemented by communities seeking to achieve moderate to high levels of conservation. The City, on the other hand, has seen extraordinary conservation for several years, which is evidence that the current rate structure is effective in supporting the City's conservation goals. The City's analysis indicates that a budget-based rate would be higher than the current Tier 1 rate. Under this approach, households with minimal water use and already high levels of conservation would likely see their bills increase.
5	1	Empower ratepayers with information on their water use and water and money saving opportunities	No	Detailed rate information is provided on the City's website. (Full web address provided under this table.)

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		(separate out bill, more education, notify when they are about to into next tier, etc.)		Water Conservation staff maintain the water conservation hotline (805.564.5460), and, along with the hotline operated by Utility Billing staff (805.844.0038), answer questions about customer bills daily. Water Conservation staff help customers identify leaks and other over-usage of water and can schedule checkups at the customers' homes to investigate high water use further. Checkups are provided at no cost and are available to all customers. The City also offers rebates for all customers to help them reduce their water use and water bills. Once the automated metering infrastructure (AMI) project or "smart water meters" is implemented (currently underway), customers will have access real-time data on their water use and the City will be able to notify customers of unusually high usage and potential leaks.
6	1	Fairness in pricing so that the charge for the water reflects primarily the cost of water.	No	See Response to Comment #2
7	1	How is the cost of water playing into the idea of "affordability" for SB?	No	See Response to Comment #4
8	1	Identify additional sources of revenue to help offset water cost for ratepayers	No	See Response to Comment #3 and Comment #2
9	1	Improve water education to water users (where it comes from, cost, importance of conservation, and their own use), including renters and businesses	No	See Response to Comment #5

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10	1	It's tough to support economic vitality in the area when cost of water is so high. Water cost is considered when businesses are trying to sell their business, or homeowners trying to sell their home	No	The City's water rates are comparable to neighboring water agencies. Residential low water users experience some of the lowest water bills among our three neighboring water agencies. High water using customers in the City do pay more for their excessive water use. The water rate tiers are designed to encourage conservation. Note the City is also dedicated to empowering customers to control their water bill by limiting the amount of revenue collected through fixed charges. The City's rates are structured so that only 30% of revenues come from fixed charges, although the fixed expenses to operate the water system account for approximately 80% of overall costs.
11	1	Rates should reward conservation/lowest water users	No	See Response to Comment #4
12	1	Tiered pricing model based on use doesn't work for renters — because the price is distributed across all renters in a building	No	The City requires new multi-family buildings to install individual meters so each renter receives their own water bill, including all educational materials sent to water customers. The City is supportive of private sub-metering for older multi-family residential units that do not currently have separate water meters and can provide resources to property owners looking to privately sub-meter their complexes.
13	1	Tourism is big part of local economy; cost of water is passed on to tourism customers which may affect industry	No	The City's rate structure for commercial customers does not consider the type of commercial activity. All commercial customers have the same rate structure, including businesses

Comment #	Pillar #	Stakeholder Comment	Within WVSB?	City's Response
				related to tourism. State law (Proposition 218) does not allow residential customers to subsidize water to commercial users.
14	1	Transparency in water decisions	Yes	WVSB is intended to be a transparent process. In addition, the Water Commission is a great option for public participation in water decisions. Items going to City Council for decision are first taken to the Water Commission, with controversial items often going to the Water Commission multiple times. Water Rates, for example, go to the Water Commission at least twice followed by the Finance Committee and then finally City Council. All of these meetings are open to the public and the agenda is advertised a week in advance. Public engagement is highly encouraged.
15	1	Water decisions support environmental and social justice outcomes	No	See Response to Comment #2
16	1	Water needs to be affordable for all (and utilities as a whole); build fair rates based on usage and means	No	See Response to Comment #4
17	1 & 4	Better education on options for water meters in high fire areas — e.g., Rates are calculated based on size of water meter, education to more residents could result in better conservation or water use efficiency	No	No potable water system is designed to fight wildfires. The size of the pipes and reservoirs that would be needed would be cost prohibitive and lead to water quality degradation. This results in regulatory compliance issues related to water quality. Potable water systems are designed to fight individual structure fires but not dozens of structures at once. Residents should consider constructing defensible spaces and using low ignition landscaping and building materials. Depending on the amount of water used to maintain landscaping in fire-

Comment #	Pillar #	Stakeholder Comment	Within WVSB?	City's Response
				susceptible areas, customers may consider a separate dedicated landscape irrigation meter, which is billed based on a landscape irrigation budget, for the irrigation needs. Some customers have found this option to be more cost effective than watering their landscape with their single-family residential meter.
18	2	Adequate water pressure — ensure infrastructure can accommodate new sprinkler regulations in new building construction, particularly in wildfire	No	The City's water distribution system is designed to meet fire flows to address individual structure fires and to support current plumbing codes. The system is not designed to respond to wildfires, as such a system would be cost prohibitive, requiring a significant increase in the size of pipelines and water storage capacity. Treated drinking water degrades quickly and the storage of treated water for long periods of time will compromise drinking water quality and increases the risk of developing federally regulated disinfection byproducts in the drinking water.
19	2	Encourage City to think about having a neighborhood-scale infiltration approach vs. building by building	No	The City's landscape design standards (full web address provided under this table) encourage conservation and infiltration. Infiltration provides stormwater management and water quality benefits to our creeks and ocean. Unfortunately, infiltration has a limited benefit to our groundwater supply as a result of local geology. Infiltration on properties located above Oak Park have the greatest benefits to our groundwater basins. The biggest benefit to Water Supply from rain water infiltration comes from the water that is able to infiltrate individual landscapes and be stored in the soil for trees and shrubs to access in the spring and early summer, offsetting the need for potable water.

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20	2	Expand and incentivize gray water use options for homeowners so they can use it on landscaping	No	The City's water conservation group offers streamlined permitting for simple "laundry to landscape" greywater systems, along with workshops on how to install a simple laundry to landscape system. (Full web address provided under this table). Greywater is considered in the Water Conservation Strategic Plan.
21	2	Expand appropriate use of potable supplies	Yes	Noted
22	2	Expand the use of recycled water, including for irrigation, fire suppression, industrial use, street cleaning	Yes	WVSB will consider incremental expansion of recycled water for non-potable uses in the portfolio analysis.
23	2	Individuals and public resources will all have sufficient access to water (for example, irrigation levels in parks can improve if water is more plentiful and therefore more affordable)	Yes	Addressed in supply/demand and level of service analyses included with Water Vision Santa Barbara. The "level of service" establishes minimum demands that all portfolios must meet to be evaluated and recommended.
24	2	Look at the district-scale planning like a "Downtown area district" so solutions for things like stormwater looks at the right scale	No	City Community Development and Planning handle redevelopment. Although, no District-scale redevelopment is proposed at this point. Also, refer to response to Comment #19.
25	2	More flexible conservation and water use efficiency policy for the reality of homeowners. EX: rather than a policy that forces a homeowner to upgrade to use gray water, can we have more options with the same incentives?	No	The City's water conservation program and Water Conservation Strategic Plan include an array of cost-effective conservation measures that homeowners can choose from.
26	2	More transparency from City about anticipated population growth and anticipated water demand	Yes	WVSB demand projections include regional population projections provided by the City's Community Development

Comment #	Pillar #	Stakeholder Comment	Within WVSB?	City's Response
				Department. The data sources will be cited in the WVSB report/Enhanced Urban Water Management Plan. City Council approves the General Plan, and the Housing Element is currently being updated. Estimated water demand from new development is included within WVSB demand projections, and WVSB has developed a "demand envelope" to capture a range of potential future water demands based upon various assumptions about population growth, job growth, and climate change. This will allow the City to adaptively manage its water supplies as water demand changes in the future. Periodically, the Community Development Dept. in partnership with the Public Works Dept. update Water Commission and Council on the effects of new development/growth on water demands projected in the City's General Plan. To date, the actual increase in water demand has been much lower than projected in the General Plan. A link to the latest staff report on this topic can be found in the links below this document. As an interesting fact, water use today is the same as it was in the 1950's when the population of Santa Barbara was half of what it is today.
27	2	Optimize flexibility of water supply — some might be more expensive now but are more reliable long-term	Yes	This will be considered in the triple bottom line analysis, which evaluates the social, environmental, and economic costs and benefits of various water supply portfolios, performed in the analysis of potential future water supply portfolios for the Enhanced Urban Water Management Plan.

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28	2	The future of growth is increasing urban density (maybe double the density in some areas) — is the City's water infrastructure ready for that?	No	Addressed with Water Distribution Infrastructure Master Plan
29	2	Ensure adequate, reliable water pressure for fire suppression to protect homes, especially in high fire risk areas	No	See Response to Comment #17
30	2	Ensure reliable water access for all, to meet all basic human needs	Yes	See Response to Comment #4
31	2	Consider the climate-change related impacts on future demand	Yes	Considered in demand analysis
32	2	Consider the greenhouse gas emissions associated with our water decisions	Yes	This will be considered in the triple bottom line analysis, which evaluates the social, environmental, and economic costs and benefits of various water supply portfolios, performed in the analysis of potential future water supply portfolios for the Enhanced Urban Water Management Plan.
33	2 & 3	Reliability via diverse water sources — Have multiple water supplies so we don't have to rely on just one, leads to an even use of water and less depletion so we would survive a drought	Yes	This will be considered in the triple bottom line analysis, which evaluates the social, environmental, and economic costs and benefits of various water supply portfolios, performed in the analysis of potential future water supply portfolios for the Enhanced Urban Water Management Plan.
34	2 & 4	Resilient to drought and natural disasters; get ahead of that for the future	Yes	This will be considered in the triple bottom line analysis, which evaluates the social, environmental, and economic costs and benefits of various water supply portfolios, performed in the

Comment #	Pillar #	Stakeholder Comment	Within WVSB?	City's Response
				analysis of potential future water supply portfolios for the Enhanced Urban Water Management Plan.
35	3	Clean drinking water; no pathogens in the water supply	No	The City is required to provide safe drinking water and drinking water quality is documented in annual Consumer Confidence Reports. (Refer to web site provided under the table).
36	3	Consider recycled water irrigation for water, plants - trees.	Yes	See Response to Comment #22
37	3	Don't harm marine environment	Yes	This will be considered in the triple bottom line analysis, which evaluates the social, environmental, and economic costs and benefits of various water supply portfolios, performed in the analysis of potential future water supply portfolios for the Enhanced Urban Water Management Plan.
38	3	Exhaust all other alternatives first before turning to desal; then use desal to fulfill remaining shortfall with best technology	Yes	This will be considered in the triple bottom line analysis, which evaluates the social, environmental, and economic costs and benefits of various water supply portfolios, performed in the analysis of potential future water supply portfolios for the Enhanced Urban Water Management Plan.
39	3	Manage sedimentation in an environmentally-sustainable way	No	The City recognizes removal of sediment from Gibraltar Reservoir would not be environmentally-sustainable because of the volume of sediment to be removed, the number of truck trips that would be required, and the need for an environmentally responsible place to put the sediment once it was removed. For this reason, the City continues to pursue a Warren Act Contract with the USBR to store water that would have been stored in Gibraltar in Lake

Comment #	Pillar #	Stakeholder Comment	Within WVSB?	City's Response
				Cachuma instead. The City may also consider the feasibility of other projects in the future that could reclaim water supply benefits from Gibraltar, while not removing the sediment, such as slant-wells. For example, removal of sediment generated from the Zaca Fire in 2007 was estimated to cost well over $100M and that was just for the removal and trucking costs; it did not include disposal.
40	3	Maximize and incentivize conservation and water use efficiency	No	Cost effective water conservation measures are addressed in the Water Conservation Strategic Plan. A Minimize Environmental Impact portfolio, which includes maximized water conservation, is considered in the future portfolio analysis.
41	3	Maximize/prioritize reuse (recycled water, stormwater capture)	Yes	This will be considered in the triple bottom line analysis, which evaluates the social, environmental, and economic costs and benefits of various water supply portfolios, performed in the analysis of potential future water supply portfolios for the Enhanced Urban Water Management Plan.
42	3	Minimize energy intensity / reduce greenhouse gas emissions associated with water sources	Yes	This will be considered in the triple bottom line analysis, which evaluates the social, environmental, and economic costs and benefits of various water supply portfolios, performed in the analysis of potential future water supply portfolios for the Enhanced Urban Water Management Plan.
43	3	Optimize diversity of water resources so we are not over depleting one.	Yes	This will be considered in the triple bottom line analysis, which evaluates the social, environmental, and economic costs and benefits of various water supply portfolios, performed in the

Comment #	Pillar #	Stakeholder Comment	Within WVSB?	City's Response
				analysis of potential future water supply portfolios for the Enhanced Urban Water Management Plan.
44	3	Preserve local flora and fauna	No	This is beyond the scope of City water resources planning.
45	3	Protect and enhance soil health	No	This is beyond the scope of City water resources planning. Although, the City does offer a free mulch program to promote soil health and water retention. (Refer to web site provided under the table).
46	3	Protect depletable resources and maximize use of renewable resources	Yes	This will be considered in the triple bottom line analysis, which evaluates the social, environmental, and economic costs and benefits of various water supply portfolios, performed in the analysis of potential future water supply portfolios for the Enhanced Urban Water Management Plan.
47	3	Protect freshwater resources, creeks, marine life, ocean health	Yes	This will be considered in the triple bottom line analysis, which evaluates the social, environmental, and economic costs and benefits of various water supply portfolios, performed in the analysis of potential future water supply portfolios for the Enhanced Urban Water Management Plan.
48	3	Protect groundwater basins from sea level rise and overdraft	Yes	This will be considered in the triple bottom line analysis, which evaluates the social, environmental, and economic costs and benefits of various water supply portfolios, performed in the analysis of potential future water supply portfolios for the Enhanced Urban Water Management Plan.

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49	3	Reclaimed water in purple pipe irrigation has too high concentration of salts	Yes	Recycled water quality is considered when evaluating potential new customers. Salt tolerance is different between different turfgrass species.
50	3	Reduce the environmental impact of desalination, namely brine-waste discharge	Yes	This will be considered in the triple bottom line analysis, which evaluates the social, environmental, and economic costs and benefits of various water supply portfolios, performed in the analysis of potential future water supply portfolios for the Enhanced Urban Water Management Plan.
51	3	Support sustainable local agriculture	No	The City has very few agriculture accounts because most agriculture is outside City limits. The City does have a lower rate for agricultural customers for those that can prove they operate an agricultural business. (Refer to City web site provided under the table).
52	3	Use current and sound environmental impact data to make decisions on water sources or infrastructure	Yes	This will be considered in the triple bottom line analysis, which evaluates the social, environmental, and economic costs and benefits of various water supply portfolios, performed in the analysis of potential future water supply portfolios for the Enhanced Urban Water Management Plan.
53	4	Can City be less reactive and support "extreme conservation" as a way of life	No	See Response to Comment #40
54	4	Can City implement an ongoing water conservation task force vs. one that forms every 15 years?	No	Water conservation oversight is a primary role of the Water Commission, which is a 5-person committee appointed by the City Council to advise on all things Water. The City has also had limited term stakeholder groups focused on water conservation

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				in the past. The 2010 Water Conservation Plan was informed by a stakeholder group, and, pre-drought, the City participated in a Partners in Water Conservation Group that was a quarterly meeting designed to foster coordination between South Coast water agencies and landscape industry partners. The City would be open to another stakeholder group focused on water conservation. We want to discuss the goals of a water conservation group with the WVSB stakeholder group, such as customer messaging, regulations, or measures. Note that the various incentives and programs offered to support water conservation in the City are analyzed in the 2020 Water Conservation Strategic Plan, and were selected based on their potential for water savings, ability to meet the needs of each of the City's customer classifications, and cost-effectiveness.
55	4	Educate and/or incentive tourists/visitors on importance/value of conservation	No	The City participates in Water Wise Santa Barbara County's Restaurant and Lodging Water Conservation Program (See link provided below this table). This program provides restaurant table placards and hotel towel/linen cards to help businesses convey the importance of conservation to visitors in our community.
56	4	Encourage property owners supporting renters to save/conserve water	No	Water Conservation staff often receive calls from renters on the water conservation hotline. Staff empowers renters with information they can use to discuss with their landlords.

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Comment #	Pillar #	Stakeholder Comment	Within WVSB?	City's Response
				Ultimately, if the landlord is the water account holder, they make final decisions regarding water use on the property. In addition, City municipal code requires that all new multi-family residential housing units are separately metered so each renter receives their own water bill, including all educational materials sent to water customers. The City is supportive of private sub-metering for older multi-family residential units that do not currently have separate water meters and can provide resources to property owners looking to privately sub-meter their complexes.
57	4	Encourage/create more industry-specific opportunities for water efficiency and conservation? (e.g., tourism businesses, tourists/travelers service industry, etc.)	No	The Water Conservation Strategic Plan considers a range of options across different types of uses. Also, see the answer to #55 above.
58	4	Expand public education to make conservation and water efficiency a part of life and running a business in SB, vs. just a reaction to drought	No	The City has ongoing water conservation programs targeting its commercial/industrial/institutional (CII) customers, regardless of the region's drought status. See link below this table. In addition, the City offers water conservation programs and incentives to each of its customer classifications regardless of the region's drought status. See link below this table.
59	4	Further incentivize conservation without having the jump through a lot of hoops; such as loosen grey water regulations	No	See Response to Comment #20. Conservation incentives are also evaluated in the Water Conservation Strategic Plan.

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Comment #	Pillar #	Stakeholder Comment	Within WVSB?	City's Response
60	4	In future, expand to education businesses on water use and water efficiency, conservation to save money	No	See Response to Comment #58
61	4	Incentivize and reward water conservation vs. simply charging more	No	See Response to Comment #40
62	4	Prioritize environmentally sensitive and water-sustainable urban planning	No	The City has water efficient landscape standards that encourage conservation and follows green building codes. This would be addressed by Community Development.
63	4 & 5	Encourage conservation "without sacrifice"	No	See Response to Comment #40
64	4 & 5	Maintain a constant way of educating and advising people to not waste water & saving costs	No	See Response to Comment #58.
65	5	Balance conservation with quality of life and what draws tourists	No	See Response to Comment #40
66	5	Consider more multi-use and livability factors in considering new growth with increased urban density (e.g. instead of just changing the ordinance, the City needs to lead in changing how development is approached)	No	This is a General Plan/Community Development/City Council issue. The Water Division does not set policy around land development. We will share this comment with the Planning Commission and Community Development. We encourage stakeholders to participate in future public events (not yet scheduled) related to updates to the General Plan.
67	5	Limit impact of cost of water to cost of living	No	See Response to Comment #10
68	5	Maintain Santa Barbara's quality of life, including our trees, landscape, outdoor life	No	This is a priority of the City. The City's Water Shortage Contingency Plan allowed the City to prioritize maintaining street

Comment #	Pillar #	Stakeholder Comment	Within WVSB?	City's Response
				trees during the recent drought. The WVSB level of service goals, which are tied to City water shortage stages, prioritizes maintaining street trees during drought conditions.
69	5	Preserve the aesthetic of Santa Barbara	No	See Response to Comment #68
70	5	Quality of life — keeping trees/vegetation that supports fire suppression	No	See Response to Comment #68
71	5	Rather than turn fountains off during drought, how can you change the conversation and use them to celebrate the value of water to the community? (like other communities are doing)	No	The intent of the City's fountain regulation during the most recent drought was to reduce the amount of water lost to evaporation from large fountains (over 25 sq. ft. of water surface area). At the time the regulation was adopted, City Council decided it was an important optic to shut off fountains while the community was in a severe drought. The City's Water Shortage Contingency Plan gives Council many options for different regulations to reduce water use during a severe drought. In future droughts, Council may make different choices. The public is always welcome to participate in Water Commission and City Council meetings when decisions about water use regulations are being discussed.
72	5	Water is the truest way of supporting quality of life in community/ supportive of education in all languages	N/A	Noted
73	5	Water is treasured and enjoyed	N/A	Noted
74	5	Water to take care of my landscaping as steps for fire suppression	No	The City's Fire Prevention Bureau provides both High Fire Area Defensible Space and High Fire Area Landscape Requirements.

Comment #	Pillar #	Stakeholder Comment	Within WVSB?	City's Response
				While "zone 1" defensible space requirements including low growing, irrigated plants, there are many drought tolerant varieties available that meet the requirements. Please see links at the bottom of this table for more information, including a link to the County's Water Wise Gardening website that allows you to search for plants that are both drought tolerant and fire-wise. Regarding water used for landscape, there are no restrictions on the amount of water a homeowner can use on his/her property. To encourage conservation, water rates do increase with increased usage. If a customer has high landscape water usage at their property, they may want to evaluate whether or not they can save money on their water bill with a dedicated landscape irrigation meter. The dedicated landscape irrigation meter is billed based on a water budget that considers the individual needs of a particular landscape using real-time climate data. Some customers find it to be cost effective to have both a single-family residential meter and a landscape irrigation meter for their property. City staff can help evaluate whether or not a dedicated irrigation meter makes sense for your property.
75		I liked the idea of using a collaborative regional effort to more efficiently conserve water or provide regional solutions like water storage.	Yes	This will be considered in the triple bottom line analysis, which evaluates the social, environmental, and economic costs and benefits of various water supply portfolios, performed in the analysis of potential future water supply portfolios for the Enhanced Urban Water Management Plan.

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Comment #	Pillar #	Stakeholder Comment	Within WVSB?	City's Response
76	4	We need to get water conservation education to renters. The majority of our city are renters and many of them never see a water bill. We need an educational effort that goes beyond the message of "save money on your water bill" because that will not resonate with many renters.	No	See Response to Comment #56
77		How could we better serve vulnerable populations with our water decisions? I loved the idea of having more diverse representation on our City Boards and Commissions. This will give everyone in our community a more regular voice in the decision making process and not just when we have a big work project.	No	We will share this input with Water Commission and City Council.
78		There needs to be a more intersectional approach to many of the City's goals so that we are making progress on more than one front. For example, the City is developing housing. Well let's tie these water conservation goals into that project by making sure that appliances and irrigation processes are efficient as possible. If we are currently doing that then let's educate the public about this effort so we can tie that to the proud culture of sustainability that we have in Santa Barbara.	No	The City's One Water goals include increased intersectionality, both within the Water Resources Division and the Public Works Dept., and across City departments as related to water and wastewater decisions. In addition, the City's Water Supply group and Community Development Dept. work together closely on issues related to City growth and water demand and project design requirements related to water use. For example, the Water Supply group oversees the City's Landscape Design Standards, which were designed to require more water efficient landscapes on new and substantial re-development projects. For indoor water use, the

Comment #	Pillar #	Stakeholder Comment	Within WVSB?	City's Response
				City follows the Plumbing Code and the CALGreen green building standards code, over seen by Building and Safety. More could always be done to educate the public on what we are doing.

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City Websites by Comment Number

Comment #	Topic	Website
5	City's Web Page on Water Rates	www.santabarbaraca.gov/gov/depts/pw/resources/rates/wtrsewer/default.asp
19, 74	City's landscape design standards to encourage conservation	www.santabarbaraca.gov/gov/depts/pw/resources/conservation/landscaping/designstandards/default.asp
19	City's Stormwater Program (which is led by City Creeks Division)	www.santabarbaraca.gov/gov/depts/parksrec/creeks/quality/storm.asp
20	City's graywater information	www.santabarbaraca.gov/gov/depts/pw/resources/conservation/landscaping/graywater.asp
26	Water demand and population growth	https://civicaweb.santabarbaraca.gov/civicax/filebank/blobdload.aspx?BlobID=215753
35	City's Consumer Confidence Report (potable water quality)	www.santabarbaraca.gov/civicax/filebank/blobdload.aspx?BlobID=228122
35	City's Water Resources Laboratory (water quality - potable water, wastewater, creeks, ocean)	www.santabarbaraca.gov/gov/depts/pw/resources/system/lab.asp
45	City's free mulch program	www.santabarbaraca.gov/services/recycling/collect/mulch.asp
51	City's Agricultural Rate Application	www.santabarbaraca.gov/civicax/filebank/blobdload.aspx?BlobID=17604
55	Water Wise Santa Barbara Restaurant/Hotel Program	waterwisesb.org/restaurant.wwsb
58	City's CII Water Conservation Program	www.santabarbaraca.gov/gov/depts/pw/resources/conservation/business/default.asp
58	City's Water Conservation Program	www.santabarbaraca.gov/gov/depts/pw/resources/conservation/default.asp
74	City High Fire Area Landscape Requirements	https://www.santabarbaraca.gov/civicax/filebank/blobdload.aspx?BlobID=225058

The 5 Pillars Informing Water Vision Santa Barbara (WVSB):

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74	City High Fire Area Defensible Space Requirements	https://www.santabarbaraca.gov/civicax/filebank/blobdload.aspx?BlobID=16479
74	Water Wise Gardening in Santa Barbara County	http://waterwisegardeningsb.org/

Attachment B – WVSB Demand Projections TM

Water Vision
SANTA BARBARA

DRAFT Technical Memorandum

DATE: 11/2/2020
TO: Dakota Corey
City of Santa Barbara
CC: Joshua Haggmark, PE, Cathy Taylor, PE, Dana Hoffenberg
PREPARED BY: Spencer Waterman, Rob Morrow, PE, Heather Freed, PE
REVIEWED BY: Jeff Szytel, PE
PROJECT: Water Vision Santa Barbara
SUBJECT: **DEMANDS PROJECTIONS BASIS**

---

1. Introduction

1.1. Purpose

The purpose of this Technical Memorandum (TM) is to summarize the baseline demand projection for Water Vision Santa Barbara and present contingency factors to be incorporated into a demand projection envelope.

This TM is organized into the following sections:

1. Introduction
2. Conservation Plan Demand Projections
3. WVSB Demand Projections

2. Conservation Plan Demand Projections

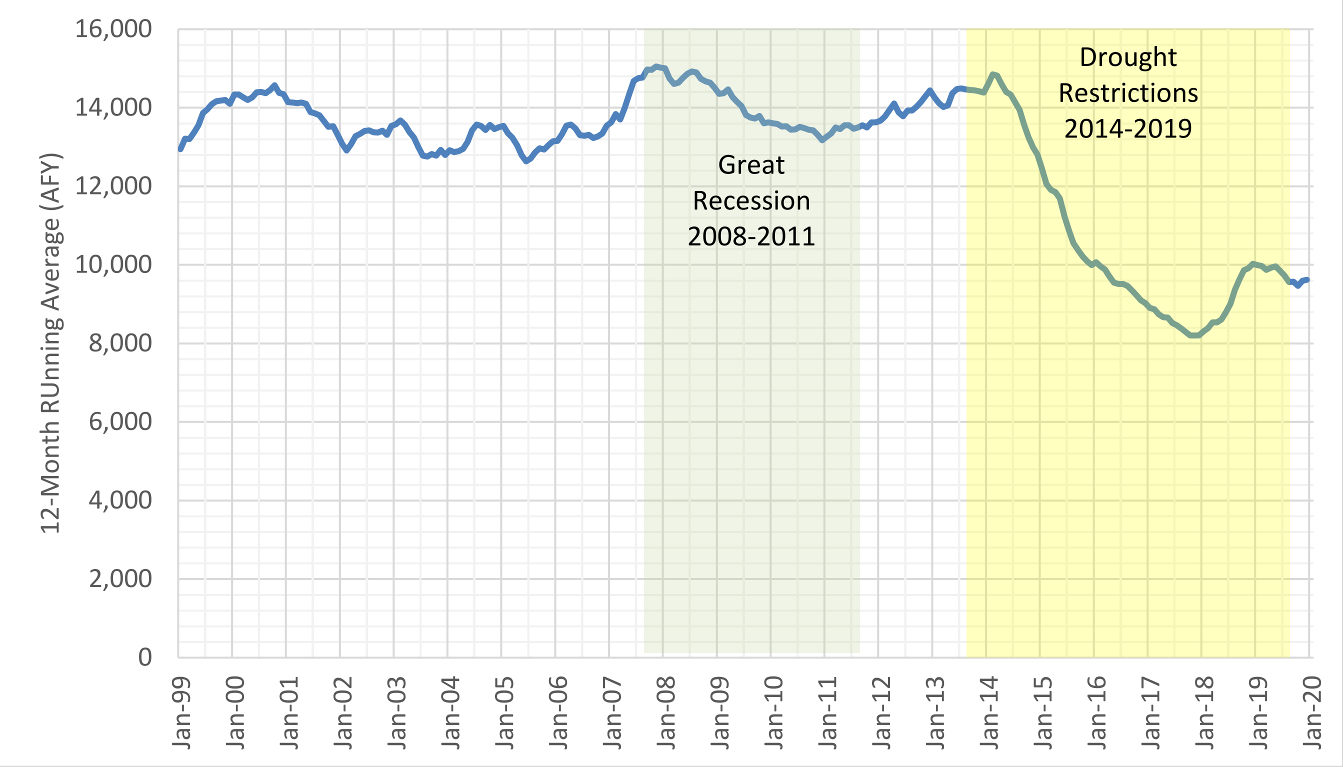
2.1. Background

The City's 2015 UWMP reflected the analyses completed for the 2011 Plan Santa Barbara General Plan Update, the 2011 LTWSP, the 2010 UWMP, and a conservation program developed in 2010 from Maddaus Water Management's Least Cost Planning Decision Support System Model. As noted previously, the LTWSP guides the City's water resources policy and needs to be updated because:

1. The City is emerging from an unprecedented drought (in duration and severity) that exceeded the "design drought" considered in the 2011 LTWSP.
2. There are imminent impacts of new State water use efficiency requirements, which stem from the recent drought.

As shown in **Figure 1**, the City's water use decreased over the last ten years due to impacts of the unprecedented combination of the 2008-2011 recession and the historic multi-year drought that followed which affected the City from 2012-2019.

Figure 1. City of Santa Barbara Historical Production – 12-Month Running Average



Considering the unprecedented drought, the California Legislature established a framework centered on "Making Water Conservation a California Way of Life" to help the State better prepare for droughts and climate change by establishing statewide water efficiency standards and incentivizing recycled water. The resulting legislation of Senate Bill (SB) 606 and Assembly Bill (AB) 1668 (signed on May 31, 2018), along with future regulations, will have impacts on water providers over the coming years, requiring compliance with indoor, outdoor, and commercial industrial and institutional (CII) water use targets, water loss standards, annual water budgets, and documented preparation for long-term water shortages.

2.2. 2020 Water Conservation Strategic Plan

The City developed a future baseline demand estimate and conservation programs considering the aforementioned factors as part of the Water Conservation Strategic Plan (Conservation Plan) prepared in August 2020 by Maddaus Water Management (1). The Conservation Plan was prepared to accomplish the following:

1. Incorporate updated historical and projected population and commercial growth rates
2. Evaluate current and future conservation measures using a set of applicable criteria
3. Quantify the costs and water savings of the conservation measures
4. Combine the measures into increasingly aggressive programs that could be evaluated as a group

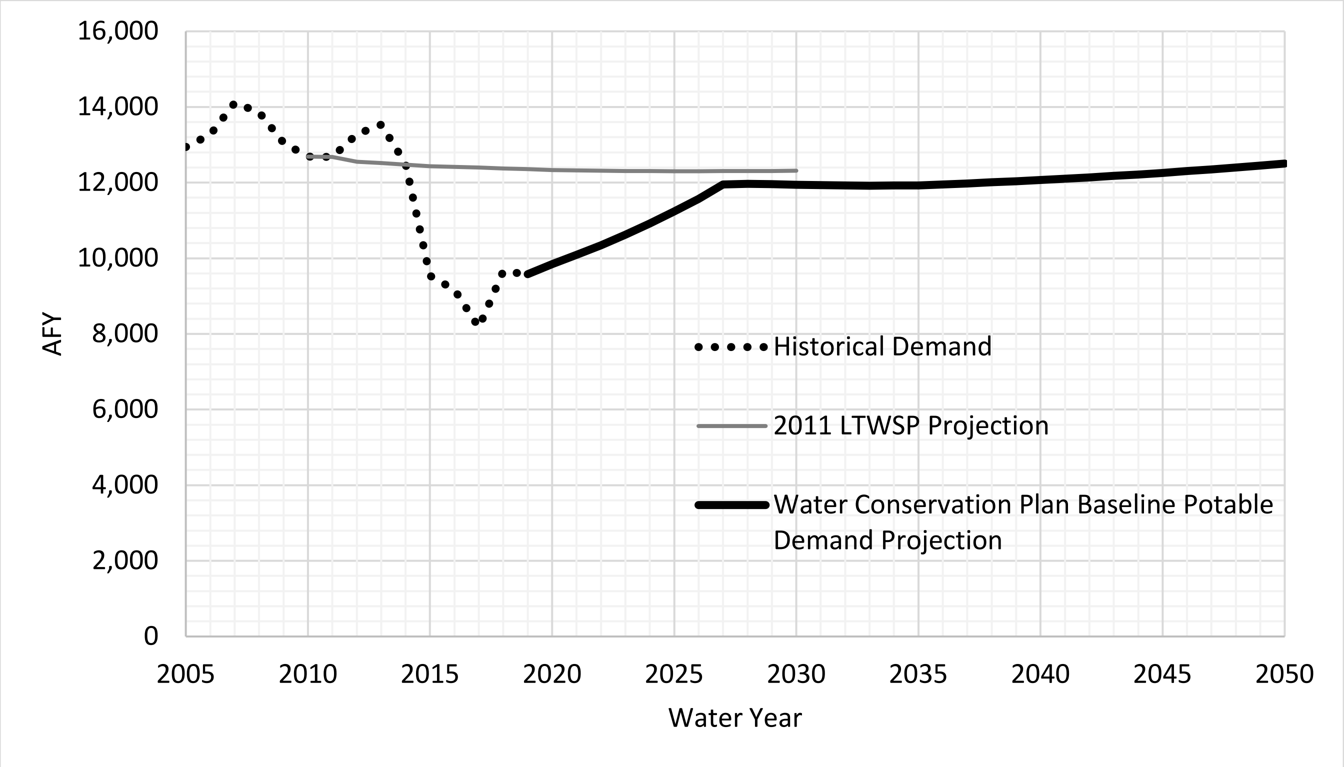
The Conservation Plan is intended to serve as a guide for the City regarding future water use efficiency and conservation investments and activities. A functional implementation plan is included to establish and administer cost-effective conservation measures. The Conservation Plan documents the City meeting and exceeding 20% reduction goals required by SB X7-7 legislation and will start the City on a path for compliance with SB 606 and AB 1668 by documenting a description of water demand management measures.

The Conservation Plan estimates of future water demand include assumptions that account for multiple variables. The most significant assumptions for factors impacting future demands include the following:

1. Population growth projections from the Regional Growth Forecast 2050 Santa Barbara County (2).
2. Employment projections from California Employment Development Department (EDD) for the Santa Maria-Santa Barbara Metropolitan Statistical Area.
3. Post-drought demands will rebound to 90% of 2008-2013 average demands. The rebound is assumed to take 7 years.
4. Includes estimated water savings from the plumbing code.
5. Incorporates the City's existing water conservation program with some additional measures.

Figure 2 shows the Conservation Plan's water demand estimates. The demand projection with the recommended savings program (referred to as Program B in the Conservation Plan) will be used as the baseline demand projection for Water Vision Santa Barbara. Program B includes a reduction from the baseline demand in 2050 by 11% due to plumbing codes and an additional 7% due to Program B's water use efficiency measures.

Figure 2. Potable Water Baseline Demand Projections (1)



The following is a summary of the water conservation analysis findings from the Conservation Plan (1):

- Conservation is the least expensive means of meeting future water supply needs for the area. The implementation of these conservation measures should reduce per capita water use and have the potential to defer the need for further infrastructure expansion. While the conservation actions identified can have a significant cost, the cost of not doing conservation and having to address increased demands through engineering solutions are even higher. Furthermore, with climate change, long-term drought, and environmental restrictions on the delivery of imported water, additional water supplies may not be available to meet future increases in demands without conservation.

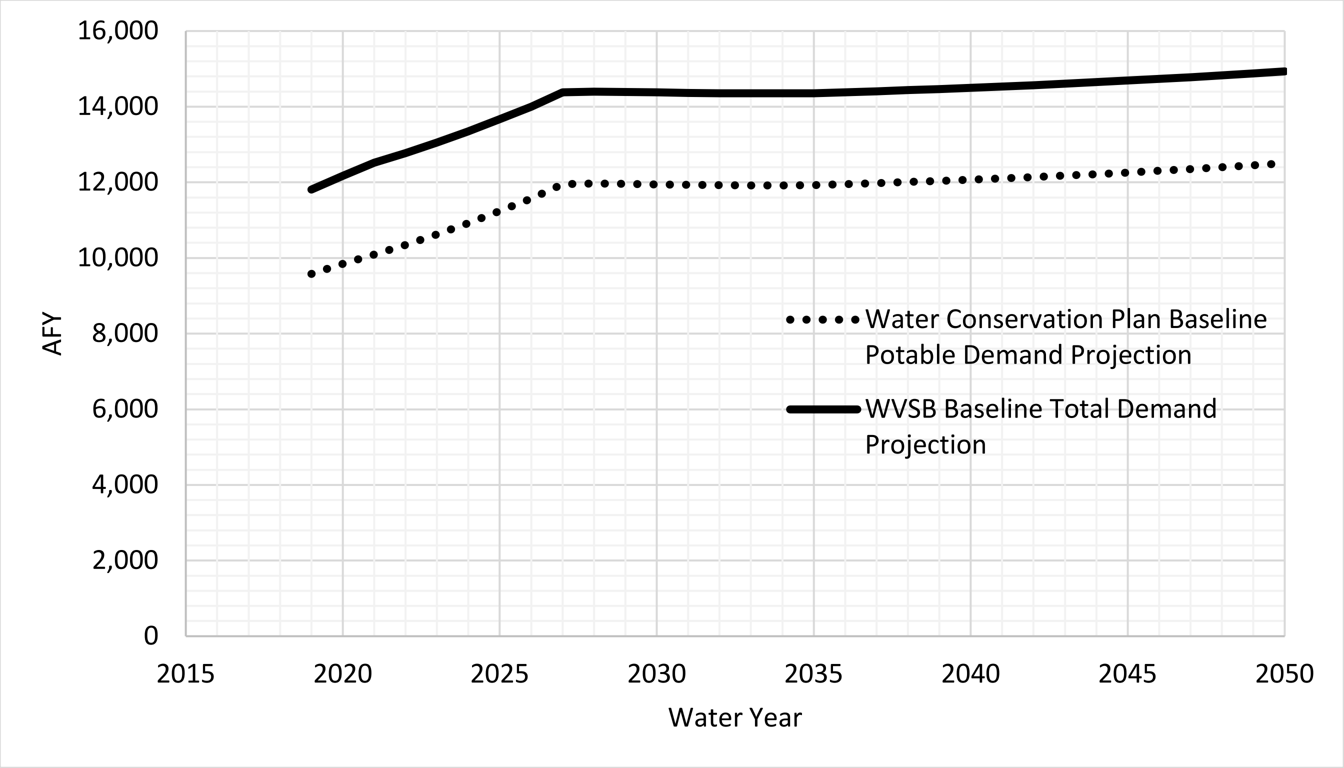
- The Governor signed SB 606 and AB 1668 into state law to create a more permanent conservation standard as part of implementing "Making Water Conservation a California Way of Life" legislation. The City should track development of the DWR framework into new state mandates for what is planned for 2021 and beyond and update this Plan as necessary to comply with those new mandates.
- Through the Decision Support System Model analysis, the City identified fixture costs, applicable customer classes, time period of implementation, measure life, administrative costs, end uses, end-use savings per replacement, and a target number or percentage of accounts per program year. This thorough analysis is planned to be used in the 2020 City of Santa Barbara Urban Water Management Plan and additional Santa Barbara planning documents.
- Creating expanded water conservation efforts appears to be a feasible and cost-effective means of:
  - Meeting 20x2020 (SB X7-7) conservation/water use reduction targets
  - Being more sustainable within existing water supplies
  - Meeting the water use objectives outlined in SB 606 and AB 1668
  - Maintaining a program in line with the former California Urban Water Conservation Council's Best Management Practices
  - Measuring, tracking, and reducing Non-Revenue Water Losses as outlined in SB 555
  - Addressing reduction in water use as previously required by the statewide drought emergency declaration recently lifted
  - Implementing the mandated statewide prohibitions in the Governor's Executive Orders going forward (e.g., only serving water upon request, no watering for 48 hours after a rain event, etc.).
- Based on the analysis, the City has selected to implement Program B, with 17 measures that provide 878 AFY of conservation savings by 2050, a utility benefit-cost ratio of 1.08, and a cost of water saved of $821 per acre-foot (AF) versus the estimated avoided cost of water of $865 per AF.

2.3. WVSB Baseline Demand Projections

The baseline demand projections for Water Vision Santa Barbara, shown in **Figure 3**, also include two components that were not included in the Conservation Plan baseline demand estimate:

- Non-potable reuse met with recycled water and blend of approximately 1,000 AFY
- City's Water Supply Agreement with Montecito Water District for 1,430 AFY

Figure 3. Water Vision Santa Bara Baseline Demand Projection (2019-2050)



3. WVSB Demand Envelope

3.1. Demand Projection Risks and Uncertainties

The following items are risks or uncertainties to the baseline demand projections that are proposed to be incorporated into a demand projection "envelope", which captures a range of potential demand scenarios that account for uncertainties with the largest potential impact to the projections:

- **Population Projections / General Plan Updates:** The residential component of the baseline projection is based on population projections from the Regional Growth Forecast 2050 Santa Barbara County (2). The forecast project 5,760 new housing units between 2017-2050 for an average of approximately 175 units per year. Based on the historic trends and available sites within the City, the following unit mix was assumed:
    - 8 single family units/year (based on average single-family development in city between 2010-2019)
    - 109 multi-family units/year (65% of residential units that are not single family)
    - 58 accessory dwelling units/year (35% of residential units that are not single family)

  Land uses and growth are not expected to vary substantially since the growth rate is relatively low and there is limited space remaining for substantial growth within the City's service area.

  The State has proposed to update its long-term housing goals, known as Regional Housing Needs Allocation. Through this effort, California Department of Housing and Community Development will establish new, higher short-term statewide housing goals for jurisdictions, including the City. The City is currently evaluating the potential impacts of these requirements on land use and population projections. The City will not be completed with this analysis before demand projections are set for Water Vision Santa

Barbara. Therefore, we have assumed a growth rate 30% higher than the baseline, equivalent to 227 unit/year and the following unit mix:

  - 8 single family units/year
  - 142 multi-family units/year
  - 77 accessory dwelling units/year

- **Employment Projections:** The non-residential component of the baseline projection is based on employment projections from the California Employment Development Department[1]. Job growth that is slower or faster than the baseline projections would reduce or increase demand projections, respectively. To account for the uncertainty in the employment projections, a range of +20% and -20% growth compared with the baseline is proposed.

- **Drought Rebound:** The baseline projection assumes that demand will return (or "rebound") to 90% of levels prior to drought restrictions (2008-2013 average) by 2027 based on reviews of several demand scenarios with City staff and considering City's customers response to previous droughts. After accounting for population and employment growth combined with savings from conservation measures implemented since 2013, planned conservation measures (City's conservation program), and passive conservation (plumbing code enforcement), the rebound is equivalent to approximately 83% of levels prior to drought restrictions (2008-2013 average).

  There are two variables to consider for the drought rebound – the target value and the timing:

  - Target Value: Permanent conservation measures, such as turf removal, may result in a lower rebound than experienced after previous droughts. Therefore, the baseline projection could be lower, but empirical data is not available to estimate this potential impact at this time. The "envelope" could consider that demand will return to 80% of levels prior to drought restrictions rather than 90%.
  - Timing: The timing of the rebound could be slower due to the developing COVID-19 recession, since economic activity has slowed, and the recovery period is uncertain. Delaying the projected year for rebound would reduce near-term demands but would have minimal impact on long-term demands (in 2050). Therefore, rebound timing is not included in the demand envelope.

The following item is a risk to the baseline demand projections that is expected to have *temporary* impacts the demand projection. Therefore, it is not included in the demand "envelope":

- **Economic Recession:** The reduced demands from an economic recession are assumed to be temporary and are not considered as part of the baseline projection for long-term supply planning purposes.

The following items are risks or uncertainties to the baseline demand projections that are not expected to substantially impact the demand projection and, therefore, are not included in an "envelope":

- **Response to Rate Changes / Rate Sensitivity:** The City has volumetric tiered rates and water budgets for irrigation accounts. While there is a known demand response elasticity to increased rates, it is assumed that the City's historical and projected rate structure will result in a stable response to standard rate changes over time as needed to accommodate the City's costs for treatment and distribution.

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[1] EDD April 2019 report for 2016 – 2016 jobs growth of 12.5% (1.2% annual growth) for the Santa Maria-Santa Barbara Metropolitan Statistical Area applied to demand projections starting in 2019.

- **New State Water Use Efficiency Requirements:** The Conservation Plan accounts for existing requirements set by SB X7-7 and sets up the City to comply with SB 606 and AB 1668 as described in Section 2. SB 606 and AB 1668 water use efficiency standards and compliance are not fully developed at this time and will be reviewed in the 2024 UWMP Supplement and 2025 UWMP.

3.2. Demand Projection Envelope Variables

Multiple demand projections were developed (**Figure 4**) by adjusting the key variables described in the previous section. These projections were combined to form a demand envelope (**Figure 5**) for portfolio evaluation:

- **Population (Residential Growth) Projections:** Assumes population growth at a 30% higher rate than current regional growth projections
- **Employment (Commercial, Industrial, and Institutional) Projections:** Assumes employment projections are 20% higher and 20% lower than the baseline projection
- **Lower Drought Rebound:** Assume a rebound to 80% of pre-drought demand rather than the baseline assumption of 90% of pre-drought demand
- **Climate Change:** Applies changes in temperature and precipitation from Cal Adapt[2], which is based on analysis in California's Fourth Climate Change Assessment. Estimates were for the grid overlaying the City of Santa Barbara and based on specific years (2020-2050), an average of 10 climate models, and representative concentration pathways (RCP) 8.5, which assumes "business as usual." Under this scenario, emissions continue to rise strongly through 2050 and plateau around 2100. This results in a projected maximum temperature increase from 70.1 degrees F (historical average) to 72.8 degrees F in 2050 and an increase in precipitation from average historical of 17.3 inches per year to 19.1 inches per year.
- **Upper Bound Projection:** Combines Higher Residential Growth combined with Higher Job Growth
- **Lower Bound Projection:** Lower Drought Rebound, slower drought rebound (10-year recovery period instead of the baseline 7-year recovery period) combined with Slower Job Growth

Population (residential growth) projections have minimal impact on demand in 2050, employment (commercial, industrial, and institutional) projections have moderate impact, and drought rebound assumptions have a large impact. The low impact from population growth assumptions is because most new residents are assumed to be housed in multi-family units or accessory dwelling units, which have a relatively low per capita water use. Employment projections have a moderate impact (roughly 6% change to baseline) since they translate to increased commercial and industrial activity, such as at hotels and restaurants, and its associated water use. The variable with the largest demand projection impact (roughly 13% decrease) is the water use of existing customers and the extent to which their use increases as the area emerges from recent drought conditions as a result of the strong conservation messaging from media, peers, and others subsides. The assumption represents a difference of roughly 1,700 AFY by 2030 and 1,900 AFY by 2050. Note that a slower rebound would result in a slightly lower demand in the near-term but has little impact in the long-term.

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[2] https://cal-adapt.org/tools/annual-averages/

Figure 4. Water Vision Santa Barbara Demand Projection Scenarios

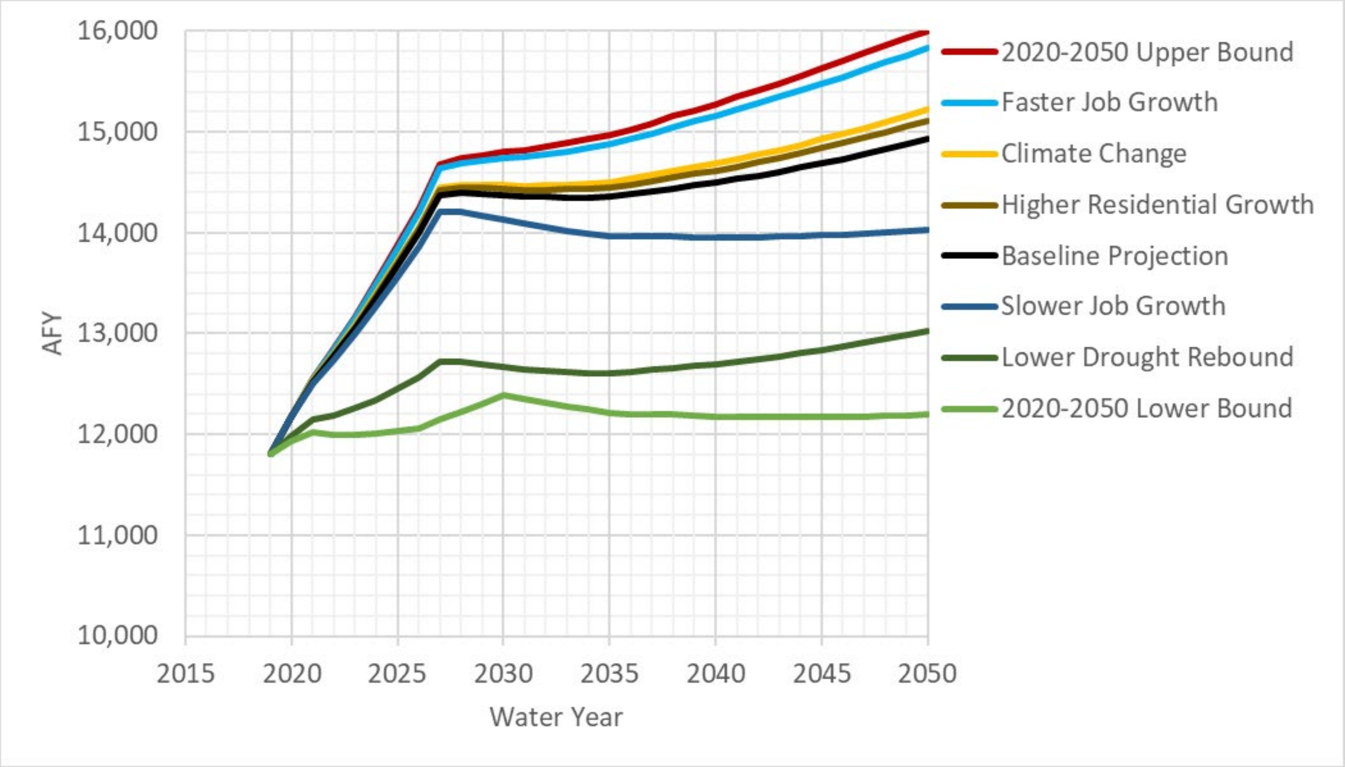
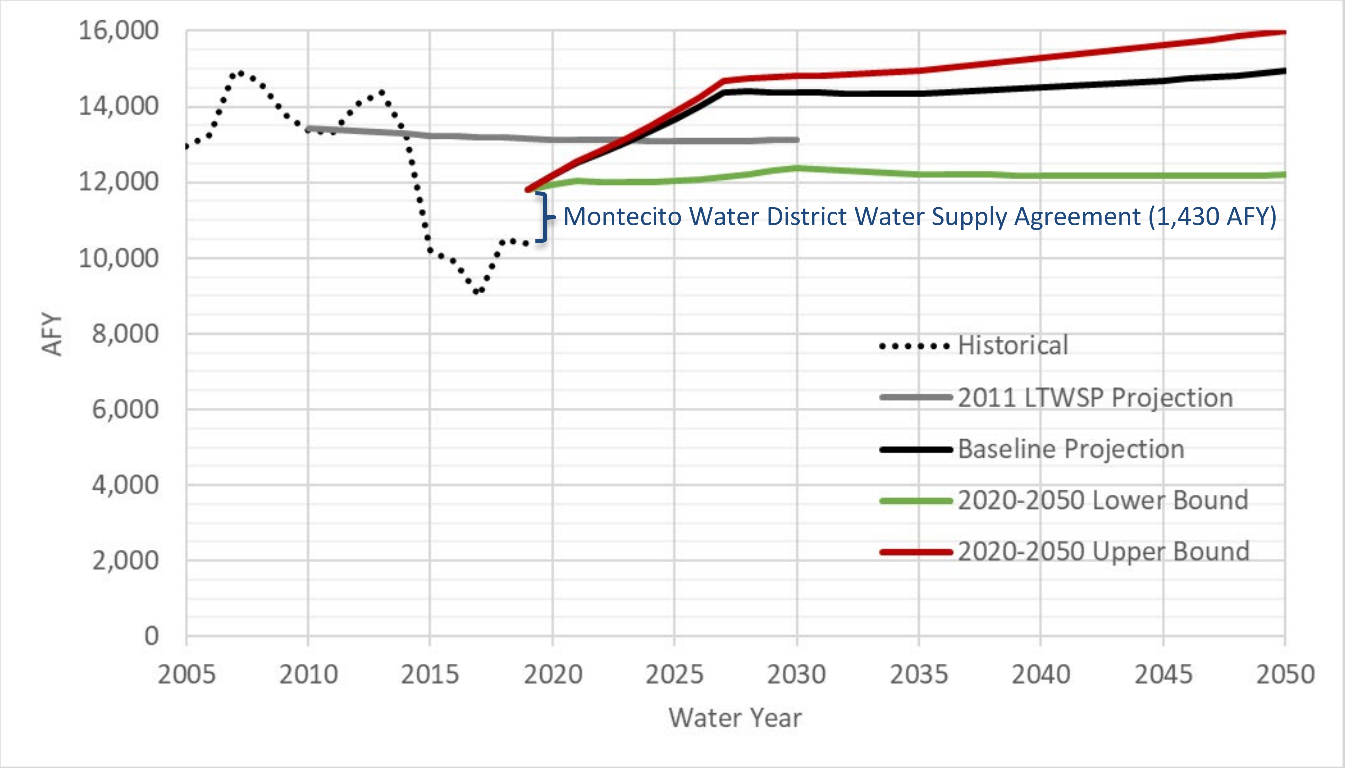


Figure 5. Water Vision Santa Bara Demand Projection Envelope



Based on the clear impact of the drought rebound variable, the City plans to continue to proactively track customer water use and WVSB recommendations will ultimately include an adaptive management strategy that will adjust based on the extent of the demand rebound.

4. References

1. **Maddaus Water Management.** *City of Santa Barbara Water Conservation Strategic Plan.* August 26, 2020.

2. **Santa Barbara Couny Association of Governments.** *Regional Growth Forecast 2050 Santa Barbara County.* 2019.

Attachment C – WVSB Groundwater Management Recommendations TM

Water Vision
SANTA BARBARA

DRAFT Technical Memorandum

DATE:	11/2/2020
TO:	Dakota Corey City of Santa Barbara
CC:	Joshua Haggmark, PE, Cathy Taylor, PE, Dana Hoffenberg
PREPARED BY:	Michael Cruikshank, PG, CHG
REVIEWED BY:	Rob Morrow, PE and Jeffery Szytel, PE
PROJECT:	Water Vision Santa Barbara
SUBJECT:	**GROUNDWATER MANAGEMENT RECOMMENDATIONS**

---

1. Introduction

The purpose of this technical memorandum (TM) is to develop groundwater operational assumptions for the Water Vision Santa Barbara water supply portfolio analysis and provide recommendations on how the City of Santa Barbara (City) could improve groundwater management and reporting.

2. Background

The City currently operates the groundwater basin in three modes – Normal, Drought, Recovery – where:

- “Normal” operation is pumping the “sustainable yield”, which maximizes groundwater production without impacting groundwater in storage for a drought.
- "Drought” operation is pumping up to the maximum well capacity and drawing down groundwater in storage.
- “Recovery” operations entails minimal pumping to maintain wells while allowing the groundwater in storage to recover

For example, the City pumped 500 AFY to 1,000 AFY during “normal” operations from 2005 to 2014 and increased pumping to 2,700 AFY during “drought” operations from 2015 to 2017. The City has pumped less than 500 AFY since 2018 during “recovery” operations.

These modes are used in Water Vision Santa Barbara portfolio simulations and the discussions below.

3. Water Supply Management Report

A groundwater balance is reported in the Water Supply Management Report on an annual basis. The Water Supply Management Report includes estimates of the groundwater yield available to the City based on groundwater modeling work performed by the United States Geological Survey (USGS) and historical perennial yield estimations. The following is an excerpt from the Groundwater Balance section of the City’s 2018-2019 Water Supply Management Report for reference.

"Project conditions of the State Water Project (SWP) require the City to use SWP water to offset any demonstrated groundwater basin overdraft. Under the LTWSP, the City uses groundwater conjunctively with surface supplies, such that significant groundwater use only occurs when surface supplies are reduced. In response to the unprecedented drought, groundwater pumping increased in Water Years 2015 through 2018, providing a critical water supply. In Water Year 2019 the City pumped two groundwater wells to help meet peak summer demand from May through August, producing 318 AF. Because the above average rainfall in winter of 2019 significantly improved water supply conditions, the City does not anticipate using groundwater in WY 2020. The wells have been turned off to rest the basins and allow them time to recover after experiencing heavy pumping during the height of the drought.

The estimated groundwater yield available to the City over a 5-year drought period, assuming no seawater intrusion, was originally based on numerical groundwater modeling performed by the United States Geological Survey (USGS) in 1998. In 2018 USGS updated their modeling efforts of the Santa Barbara (Storage Unit I) and Foothill Basins using a 10- year drought period and assuming some level of acceptable seawater intrusion. Groundwater yield estimates in this report have been updated based on that recent effort. As summarized in Table A-1, the estimated 10-year yield for City use is 16,090 AF in Storage Unit I and 8,130 AF in the Foothill Basin. In the City's planning, the current drought cycle began when Cachuma last spilled in 2011. Therefore, the City's pumping over the last 8 years is shown for comparison. In addition, any significant City pumping from storage that occurred prior to the drought is shown. In normal conditions, the City limits pumping of Storage Unit I and the Foothill Basin to be equal to or less than the City's share of the perennial yield of the basins (assumed to be 800 AFY and 450 AFY, respectively). However, in 2005- 2011, some additional pumping from Foothill Basin storage reserves was necessary in order to meet drinking water quality regulations prior to completion of the Cater Ozone project. To estimate the remaining groundwater storage available, the City's actual pumping over the last 8 years was accounted for, as well as previous City pumping from storage (or pumping that exceeded its estimated share of the perennial yield). Based on the remaining yield, the City's primary groundwater basins are in long-term balance with no overdraft projected in the next year. However, it is anticipated the basin storage will remain at low levels should the drought condition continue. The City has factored this into its water supply planning such that the City does not plan to use groundwater beyond the estimated remaining storage yield in order to prevent overdraft conditions. Due to improved water supply conditions, the City does not plan on using any groundwater in 2020. However, groundwater remains a critical backup supply should surface water sources become interrupted.

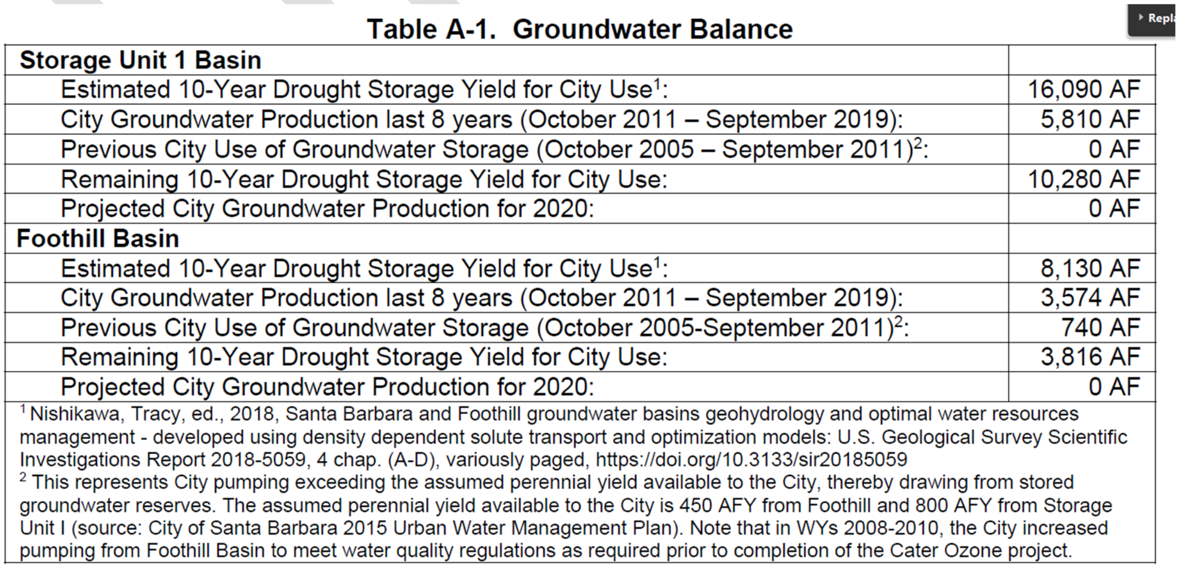


Table A-1. Groundwater Balance

Storage Unit 1 Basin	
Estimated 10-Year Drought Storage Yield for City Use[1]:	16,090 AF
City Groundwater Production last 8 years (October 2011 – September 2019):	5,810 AF
Previous City Use of Groundwater Storage (October 2005 – September 2011)[2]:	0 AF
Remaining 10-Year Drought Storage Yield for City Use:	10,280 AF
Projected City Groundwater Production for 2020:	0 AF
Foothill Basin	
Estimated 10-Year Drought Storage Yield for City Use[1]:	8,130 AF
City Groundwater Production last 8 years (October 2011 – September 2019):	3,574 AF
Previous City Use of Groundwater Storage (October 2005-September 2011)[2]:	740 AF
Remaining 10-Year Drought Storage Yield for City Use:	3,816 AF
Projected City Groundwater Production for 2020:	0 AF

[1] Nishikawa, Tracy, ed., 2018, Santa Barbara and Foothill groundwater basins geohydrology and optimal water resources management - developed using density dependent solute transport and optimization models: U.S. Geological Survey Scientific Investigations Report 2018-5059, 4 chap. (A-D), variously paged, https://doi.org/10.3133/sir20185059

[2] This represents City pumping exceeding the assumed perennial yield available to the City, thereby drawing from stored groundwater reserves. The assumed perennial yield available to the City is 450 AFY from Foothill and 800 AFY from Storage Unit I (source: City of Santa Barbara 2015 Urban Water Management Plan). Note that in WYs 2008-2010, the City increased pumping from Foothill Basin to meet water quality regulations as required prior to completion of the Cater Ozone project.

Footnote 2 in Table A-1 - Groundwater Balance references perennial yield estimates and the 2015 Urban Water Management (UWMP). The 2015 UWMP references *USGS Report 89-4017: Geohydrology of the Foothill Groundwater Basin Near Santa Barbara* (1) and *USGS Report 86-4103: Groundwater Monitoring at Santa Barbara, CA: Phase 3 - Development of a Three Dimensional Digital Groundwater Flow Model for Storage Unit 1 of the Santa Barbara Groundwater Basin* (2) for the perennial yield estimates for the Foothill Basin and Storage Unit 1 Basin, respectively. The following subsections describe the references to the perennial yield estimates in the source documents.

Foothill Basin

The USGS developed a three-dimensional finite-difference model for the Foothill Basin in 1989 (1). The calibrated model estimated recharge was determined to be 905 acre-feet per year (AFY) (438 AFY from stream recharge and 367 AFY aerial recharge). The production from other pumpers in the basin was approximately 450 AFY, leaving about 450 AFY for the City. Hence the 450 AFY perennial yield estimate used in the City's Water Supply Management Report that is referenced the 2015 UWMP. It is important to note that the 1989 USGS study does not define "perennial yield" and that the use of the term "perennial yield" was interpreted as the model estimated recharge to the Foothill Basin in the 2015 UWMP. The 1989 study noted significant limitations to the finite difference model, including imprecise conceptualization of the natural system, lack of precise data on pumping, recharge water levels, and aquifer hydraulic characteristics.

Storage Unit 1

The 2015 UWMP references *USGS Report 86-4103: Groundwater Monitoring at Santa Barbara, CA: Phase 3 - Development of a Three Dimensional Digital Groundwater Flow Model for Storage Unit 1 of the Santa Barbara Groundwater Basin* (2) for an average perennial yield of 800 AFY. A review of the document did not include a calculated estimate of perennial yield for Storage Unit 1. The document did reference *USGS Water-Supply Paper 1859-A: Ground-water reconnaissance of the Santa Barbara-Montecito area, Santa Barbara County, California* (3) that estimated the perennial yield of the basin to be between 1,700 and 2,000 AFY.

4. 2018 USGS Groundwater Model

The USGS has since improved the understanding of the Santa Barbara and Foothill basins and developed a calibrated three-dimensional density-dependent groundwater flow-and solute transport model that was documented in *USGS Scientific Investigations Report 2018-5059: Santa Barbara and Foothill groundwater basins Geohydrology and optimal water resources management—Developed using density dependent solute transport and optimization models* (4). In the 2018 report, USGS defined sustainable yield as the volume of groundwater that can be pumped from storage without causing water-level drawdowns and the associated increases in seawater intrusion (as indicated by increases in measured chloride concentrations) at selected wells. However, the USGS does not identify a sustainable yield for the Foothill and Santa Barbara Basins and does not delineate sustainable yield estimates from the Santa Barbara or Foothill Basins.

As part of the 2018 study, the USGS developed a multi-objective simulation- optimization model to derive optimal management strategies and estimate the maximum pumping rates. For the purposes of the Water Supply Management Report, Scenario 2 Schedule 2D was used as the estimated 10-year drought storage yield of 8,130 AF and 16,090 AF for the Foothill Basin and Storage Unit 1 Basin, respectively, for a total drought storage yield of 24,220. Scenario 2 identified optimal pumping schedules assuming relatively high initial groundwater levels followed by 10 years of drought. Schedule 2D identified the maximum drawdown (from which storage was estimated) while meeting a maximum chloride level (caused by seawater intrusion). However, the chloride limits used by USGS are much higher than what the City used for groundwater management during the recent drought due to the degree of seawater intrusion experienced and the associated recovery time. For example, Schedule 2D shows chloride levels of roughly 1,500 mg/L on the inland side of Highway 101 (in Chapter D, Figure 14) and over 4,000 mg/L at monitoring well (MW) 23E5 (see Chapter D, Figure 15). During the most recent drought, chloride concentrations at MW 23E5 rose to roughly 1,400 mg/L (as of September 2019). The City has chosen to rest their wells and avoid further seawater intrusion after approximately 5,800 AF of pumping in Storage Unit 1 compared with the USGS model estimated drought storage of 16,090 AF. In total, the City pumped approximately 10,500 AF from drought storage during the recent drought period.

For WVSB planning purposes, WSC proposes to use 10,500 AF as the drought storage estimate based on the volume of pumping that occurred during the most recent drought and the associated level of "acceptable" seawater intrusion that occurred.

5. Recommendations

Based on the discussion above, the groundwater operational assumptions for Water Vision Santa Barbara summarized in **Table 1** are recommended.

Table 1. Groundwater Assumptions (AFY)

Criteria	Operating Mode	Foothill Basin	Storage Unit #1	Total	WVSB Assumption(1)
Sustainable Yield(2)	Normal	450 AFY	800 AFY	**1,250 AFY**	**1,250 AFY**
Drought Storage(3)	Drought	8,100 AF	16,100 AF	**24,200 AF**	**10,500 AF**
Max Production Capacity(4)	Drought	900 AFY	2,600 AFY	**3,500 AFY**	**3,500 AFY**

Notes:

1. Revised Total is the value recommended for use in the portfolio analysis. See Section 4 for the rationale for adjusting drought storage value.
2. See Section 3.
3. See Section 4.
4. Based on 90% of current well pumping capacity estimates.

The following are recommendations to improve the analysis included in the Water Supply Management Reports:

- Update nomenclature from perennial yield to "sustainable yield"
- Utilize the USGS model to develop sustainable yield estimates
- Utilize the USGS model to update drought storage estimates with acceptable seawater intrusion
- Prepare an Annual Groundwater Report

Updated Nomenclature

Perennial Yield is an older term often used synonymously with the term "sustainable yield". The classic definition of "perennial yield" as defined by Todd (1959) (5) is as the "rate at which water can be withdrawn perennially under specified operating conditions without producing an undesired result". Undesirable results are defined as:

- Progressive reduction of the water resource.
- Development of uneconomic pumping conditions.
- Degradation of groundwater quality.
- Interference with water rights.
- Land subsidence caused by lowered groundwater levels.

More recently, with the passage of the Sustainable Groundwater Management Act (SGMA), the term "sustainable yield" was used by DWR to refer to this concept and should be adopted by the City moving forward. The City should clarify that the "perennial yield" estimates in the annual Water Supply Management Report are outdated and need to be updated to represent the current understanding of sustainable yield.

Updated Sustainable Yield Estimates

The City should work with the USGS to develop an estimate of sustainable yield and future planning scenarios to help the City sustainably produce groundwater from the Foothill and Storage Unit 1 Basins. A sustainable yield estimate would allow the City to operate the basin suitably during a representative hydrologic cycle which includes extended droughts and wet periods. The current estimates of perennial yield should not be used for the reasons described in the previous section. The model can be used to evaluate specific groundwater supply scenarios.

Updated Drought Storage Estimates

As discussed in the previous section, the 2018 USGS model scenario used to estimate drought storage (24,200 AF) appears to cause undesirable groundwater quality degradation from seawater intrusion. The City should work with USGS to update the model scenarios with acceptable seawater intrusion constraints. In the interim, WSC recommends using 10,500 AF based on pumping during the previous drought.

Annual Groundwater Report

The City should consider preparing a short report on an annual basis that describes the current conditions in the basin through a series of maps, charts, and tables. The figures would include but not be limited to groundwater production, groundwater elevations, groundwater in storage, change in groundwater storage maps, charts that show precipitation, ground water elevations, groundwater quality, and production over time by basin. Elements of the annual groundwater report could be incorporated and used to illustrate elements of the Water Supply Management Report.

After completing its first annual groundwater report, the City should consider whether to prepare a Groundwater Sustainability Plan (GSP) in compliance with the Sustainable Groundwater Management Act (SGMA) or an equivalent GSP that meets the City's needs but is outside of SGMA compliance and reporting.

6. References

1. **Freckleton.** *United States Geological Survey Report 89-4017, Geohydrology of the Foothill Groundwater Basin Near Santa Barbara.* Prepared in cooperation with the City of Santa Barbara, Pre 1989. : s.n., 1989.

2. **Martin and Berenbrok.** *United States Geological Survey Report 86-4103. Groundwater Monitoring at Santa Barbara, CA: Phase 3 - Development of a Three Dimensional Digital Groundwater Flow Model for Strorage Unit 1 of the Santa Barbara Groundwater Basin.* Prepared in cooperation with the City of Santa Barbara : s.n., 1986.

3. **Muir, K.S.** *Ground-water reconnaissance of the Santa Barbara-Montecito area, Santa Barbara County, California: U.S. Geological Survey Water-Supply Paper 1859-A, 28 p.* 1968.

4. **Nishikawa, T.** *Santa Barbara and Foothill groundwater basins Geohydrology and optimal water resources management—Developed using density dependent solute transport and optimization models, U.S. Geological Survey, Scientific Investigations Report 2018-5059.* 2018.

5. **Todd, D.K.** *Groundwater hydrology.* New York : John Wiley & Sons, Inc., 1959.

Attachment D – WVSB Water Supply and Climate Change Analysis for Lake Cachuma and Gibraltar Reservoir TM

TECHNICAL MEMORANDUM

TO: Rob Morrow, WSC

CC: Joshua Haggmark, Dakota Corey and Catherine Taylor, Santa Barbara

PREPARED BY: Warren Greco and Emily Honn, Woodard & Curran

REVIEWED BY: Brian Van Lienden, Woodard & Curran

DATE: October 30, 2020

RE: Santa Barbara Surface Water Supply Analysis

1. INTRODUCTION

The purpose of this technical memorandum is to focus on the City of Santa Barbara's (City) surface water supplies from Gibraltar Reservoir and Lake Cachuma and to identify their performance against future constraints, risks, and uncertainties, including climate change. Hydrologic analyses were performed using the RiverWare Model of the Santa Ynez River (RiverWare Model) to determine impacts to water supply to the City under a series of scenarios. The City's surface water supplies are summarized on an average annual basis and for a critical drought period.

This analysis includes three operational scenarios for Lake Cachuma and Gibraltar Reservoir, described below:

- **Scenario 1 – Existing Conditions:** This scenario simulates Lake Cachuma and Gibraltar Reservoir under the existing operational scenarios and storage capacities.
- **Scenario 2 – Pass Through Operations:** This scenario simulates Gibraltar Reservoir under future operations based on the implementation of Pass Through Operations, and the existing storage capacities.
- **Scenario 3 – Gibraltar Sedimentation:** This scenario simulates Gibraltar Reservoir under future operations based on the implementation of Pass Through Operations and future storage capacity based on continued sedimentation of Gibraltar Reservoir.

This analysis also includes the following two additional scenarios of future hydrology under climate change. Both climate change scenarios are applied to Scenario 2 and Scenario 3. The two climate change scenarios, both considered equally likely to occur for the purposes of this analysis, are described below:

- **2050 Central Tendency:** This scenario simulates modified projections of streamflow, precipitation, and evaporation based on projected climate change impacts for the year 2050 that approximate the median projections from an ensemble of climate models and emissions scenarios.
- **2070 Hot and Dry:** This scenario simulates modified projections of streamflow, precipitation, and evaporation based on climate change impacts for the year 2070 based on a single climate model selected to represent drier and hotter conditions as compared to the median climate projections.

2. MODEL DESCRIPTION

Hydrologic modeling of the Santa Ynez River was conducted using the RiverWare Model. The model simulates the operations of Jameson, Gibraltar, and Cachuma reservoirs, and includes operational logic for fishery releases, contractual deliveries to the Cachuma Member Units (City of Santa Barbara, Goleta Water District, Montecito Water District, and Carpinteria Valley Water District), and water rights releases to downstream users in accordance with State Water Resources Control Board (SWRCB) Water Rights Order 89-18. The model also simulates coordinated operations of the City's water supplies in Gibraltar Reservoir and Lake Cachuma under the 1989 Upper Santa Ynez River Operations Agreement (USYROA), also known as the Pass Through Agreement. The City's RiverWare Model runs on a daily time step, with a simulation period from 1942 through 2017 (76 years) on a water year (WY) basis (October to September). The RiverWare Model does not currently include carryover water from the previous water year held in Lake Cachuma by the Cachuma Member Units or State Water Project water delivered by the Central Coast Water Authority to Lake Cachuma for delivery to the Member Units.

3. OPERATIONAL SCENARIOS

3.1 Gibraltar Reservoir Pass Through Operations

The USYROA is a settlement agreement developed in response to the continual sedimentation of Gibraltar Reservoir. The City agreed not to move forward with plans to expand Gibraltar Reservoir in exchange for an operations agreement that uses Lake Cachuma facilities to store water to replace some of the Gibraltar yield that has been lost due to sedimentation, while addressing the effects of these operations on the Cachuma Project and other downstream interests. The USYROA describes two modes of operation: 1) a "Mitigation Mode" whereby the City relinquishes a defined portion of its Cachuma Project entitlement in response to increased diversions at Gibraltar Reservoir through Mission Tunnel, and 2) a "Pass Through Operations" mode whereby the City will receive a portion of its Gibraltar entitlements through the Cachuma Project.

Under "Mitigation Mode" of Pass Through Operations, the USYROA provides for operations under which the City could continue to approximate historical levels of Gibraltar diversions through Mission Tunnel. When diversions through Mission Tunnel increase beyond 4,550 acre-feet per year (AFY), the City is required to relinquish the Cachuma Project contractual entitlement to mitigate the water impacts to the Cachuma Project. As the sedimentation of Gibraltar Reservoir has continued, the ability for the City to approximate the historical levels of Gibraltar diversion has become impractical, and the City has historically diverted an amount that does not result in a mitigation requirement from the City's Cachuma Project entitlement.

Under Pass Through Operations[1], the City receives a portion of its Gibraltar entitlements through a Pass Through Account (PTA) created in Cachuma Reservoir. The PTA accrues credits when the actual amount of water spilled at Gibraltar Dam exceeds the amount of water that would have spilled under historical operations, referred to as the 1988 Base Operations (based on a capacity of 8,567 acre-feet and at surface elevation 1,400 feet). The USYROA includes accounting for conveyance loss, and evaporation and spills in Lake Cachuma, with the PTA being the first water to spill from Lake Cachuma. The USYROA also includes relinquishments of Cachuma Project contractual entitlement to ensure that the City does not receive water in excess of what would have been diverted under the 1988 Base Operations.

The Cachuma Member Units approved the USYROA, and the City has been working toward securing a Warren Act contract with United States Bureau of Reclamation (USBR) for the creation of a new storage account in Lake Cachuma to implement Pass Through Operations in Lake Cachuma under the USYROA. In 2013, Stetson Engineers prepared *Hydrologic Analysis of the Pass Through Operations at Gibraltar Reservoir* (2013 Pass Through Report) based on

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[1] The USYROA includes two methods of Pass Through Operations. This analysis is based on "Method A." Implementing "Method B" is not currently considered a viable option for the City.

hydrologic modeling completed using the RiverWare Model of the Santa Ynez River. This analysis was used to support a draft Environmental Assessment (EA) in 2016. As of 2020, no Warren Act contract has been put in place.

Scenario 1 is based on the current operations of Gibraltar Reservoir under Mitigation Mode, while Scenario 2 and Scenario 3 are based on the future operations under Pass Through Operations. The operational scenarios for Gibraltar Reservoir are summarized in Table 3-1. One constant is a planned maximum diversion of 4,550 acre-feet per year from Gibraltar Reservoir through Mission Tunnel. This figure is based on the amount of water that the City is entitled to divert without relinquishing a portion of its Cachuma Project entitlement under Mitigation Mode from the USYROA.

Table 3-1. Gibraltar Reservoir Operational Scenarios

Scenario	Gibraltar Reservoir Operating Mode	Maximum Mission Tunnel Diversions (AFY)
Scenario 1	Mitigation Mode	4,550
Scenario 2	Pass Through Operations	4,550
Scenario 3	Pass Through Operations	4,550

3.2 Reservoir Capacity

The capacity of Lake Cachuma in all scenarios is based on the most recent bathymetric survey from 2013, with a storage capacity of 184,121 acre-feet at surface elevation 750 feet. The capacity of Gibraltar Reservoir for each scenario is shown in Table 3-2. The capacity of Gibraltar Reservoir for Scenario 1 and Scenario 2 is the recent capacity of 4,583 acre-feet of storage at surface elevation 1,400 feet based on the 2019 bathymetric survey. For Scenario 3, the storage capacity in Gibraltar Reservoir is based on a Substantial Sedimentation scenario developed as part of the 2013 Pass Through Report. This scenario has an assumed capacity of 2,000 acre-feet at surface elevation 750 feet based on a hypothetical scenario of continued sedimentation. This scenario is consistent with historical sedimentation trends, which are dependent on several factors, including future wildfires. Under all scenarios, there is an assumed minimum pool in Gibraltar of 500 acre-feet.

Table 3-2. Gibraltar Reservoir Capacity Scenarios

Scenario	Gibraltar Reservoir Storage Capacity (AF)	Gibraltar Reservoir Minimum Pool (AF)
Scenario 1	4,583	500
Scenario 2	4,583	500
Scenario 3	2,000	500

3.3 Cachuma Project Operational Yield

All scenarios assume that the 1996 Master Contract between the Santa Barbara County Water Agency and Reclamation remain in place, limiting the full operational yield of the Cachuma Project to 25,714 acre-feet per year. The City's share of the annual yield is 32.19 percent or 8,277 acre-feet per year in normal years.

3.4 State Water Resources Control Board Water Rights Order

All scenarios include the future implementation of the SWRCB Water Rights Order (WR 2019-0148), issued in September 2019, for the Cachuma Project for water rights permits held by the USBR. The SWRCB Water Rights Order provides for additional fish flows in Wet and Above Normal water years, based on the Santa Ynez River hydrological classification, shown in Table 3-3. Until the cumulative inflow threshold of 33,707 acre-feet of inflow is reached within a water year the operating criteria for fish water releases is the same as under the 2000 National Marine Fisheries Service Biological Opinion (2000 Biological Opinion).

Table 3-3. Cachuma Reservoir Inflow Index for Water Year Classification

Water Year Classification	Cachuma Reservoir Inflow (acre-feet)
Wet	> 117,842
Above Normal	≤ 117,842 > 33,707
Below Normal	≤ 33,707 > 15,366
Dry	≤ 15,366 > 4,550
Critical	≤ 4,550

The instream flow requirements in the SWRCB Water Rights Order are based on steelhead lifecycle and habitat, as shown in Table 3-4. During Wet and Above Normal water years, additional instream flow requirements are set at the San Lucas Bridge (Highway 154), located 3.2 miles below Bradbury Dam, and Alisal Road, located 10.5 miles below Bradbury Dam. To meet the higher minimum flow requirements, particularly in the summer season for rearing and residential fish maintenance, additional releases from Lake Cachuma's Bradbury Dam would be required to account for groundwater percolation and riparian consumption in the 10.5 miles between Bradbury Dam and Alisal Road. These additional releases have been estimated and accounted for in the water supply analysis. The SWRCB Water Rights Order is currently in the early stages of the implementation process. Once final release tables are developed, these release assumptions will need to be updated.

Table 3-4. Minimum Release Requirements Under SWRCB Water Rights Order

Alisal and San Lucas Bridge Requirement	Period of Release	Purpose of Release
48 cfs	02/15 to 04/14	Spawning
20 cfs	04/15 to 06/01	Incubation and Rearing
25 cfs	06/02 to 06/09	Emigration
Ramp to 10 cfs by 06/30		
10 cfs	06/30 to 10/01	Rearing and Resident Fish Maintenance
5 cfs	10/01 to 02/15	Resident Fish

The instream flow requirements in the 2000 Biological Opinion depend on the amount of total storage in Cachuma Reservoir and whether the reservoir has spilled, as shown in Table 3-5. During spill years when steelhead are able to migrate up the mainstem, more water is provided for rearing. In drier years, flows are required to support fish holding over from previous years. During extremely dry periods when there is less than 30,000 acre-feet of storage in the reservoir, periodic releases of 30 acre-feet per month are used to refresh the Stilling Basin and Long Pool directly downstream of the dam to support steelhead rearing in these areas.

Table 3-5. Minimum Release Requirements Under Alternative 3C

Reservoir Spill (acre-feet)	Lake Storage (acre-feet)	Highway 154 Requirement	Alisal Road Requirement	Stilling Basin & Long Pool
≥ 20,000	NA	10 cfs	1.5 cfs	-
< 20,000	≥ 120,000	5 cfs	1.5 cfs	-
	≥ 30,000 and < 120,000	2.5 cfs	1.5 cfs	-
	< 30,000	-	-	30 af/mo

4. CLIMATE CHANGE SCENARIOS

Climate change analysis is an area of continued evolution in terms of methods, tools, forecasted datasets, and the predictions of greenhouse gas concentrations in the atmosphere. While continued warming can be expected, the extent to which climate change will impact other hydroclimatic elements such as runoff is uncertain. Precipitation patterns are spatially and temporally more complex than warming patterns, and there is more uncertainty among these predictions, with some models showing the state becoming wetter and others showing the state becoming drier. Notably, a scenario with increased precipitation could result in more volatile precipitation patterns in which drought frequency and duration increases. Warming temperatures also increase evaporation from reservoirs and moisture loss from soils, resulting in reductions in water supply.

A common approach to forecast the new water resources balance under climate change conditions in the future is the use of global circulation model (GCM) outputs, downscaled to local geographic scales. There are more than 30 GCMs, each with different ways of representing aspects of the climate system. Global climate projections are available through the World Climate Research Program's Coupled Model Intercomparison Project Phase 5 (CMIP5). Among these, DWR's Climate Change Technical Advisory Group (CCTAG) has identified the most applicable and appropriate GCMs for water resource planning and analysis in California. The list of CCTAG climate models used in this analysis is provided in Table 4-1.

Table 4-1. Selected Climate Models

Model	Institution
ACCESS 1.0	Center for Australian Weather and Climate Research, Australia
CMCC-CMS	Euro-Mediterranean Center, Italy
CESM1_BGC	National Center for Atmospheric Research, USA
CCM4	National Center for Atmospheric Research, USA
CNRM-CM5	National Center for Meteorological Research, France
MIROC5	Center for Climate System Research, Japan
GFDL-CM3	GFDL, USA
HadGEM2-ES	Hadley Center, UK
HadGEM2-CC H	Hadley Center, UK
CANESM2	Canadian Center for Climate Modelling and Analysis, Canada

A critical input to the GCMs is the concentration of greenhouse gases in the atmosphere, which is a highly uncertain variable since it is related to the global society's response to the climate change threat to deviate from historical levels of use of fossil fuels. GCMs use scenarios of future greenhouse gas concentrations, measured as Representative Concentration Pathways (RCPs). RCPs portray updated values of radiative forcing (the difference between the incoming energy from sunlight and radiation back to space). The RCPs selected by DWR from the CMIP5 database are provided in Table 4-2**.** For water resource planning and analysis in California, DWR has selected two emission scenarios, a "middle" scenario (RCP 4.5) with emissions peaking around 2040 and a "business as usual" scenario with emission peaking around 2080 (RCP 8.5). Many climate policy experts believe the RCP 8.5 scenario is more reflective of where the future will be, at least through 2050, based on recent trends.

Table 4-2. Selected Representative Concentration Pathways

RCP	Description
RCP 4.5	Annual GHG emissions peak near 2040 then decline
RCP 8.5	Annual GHG emissions continue to rise strongly through 2050 and plateau around 2100.

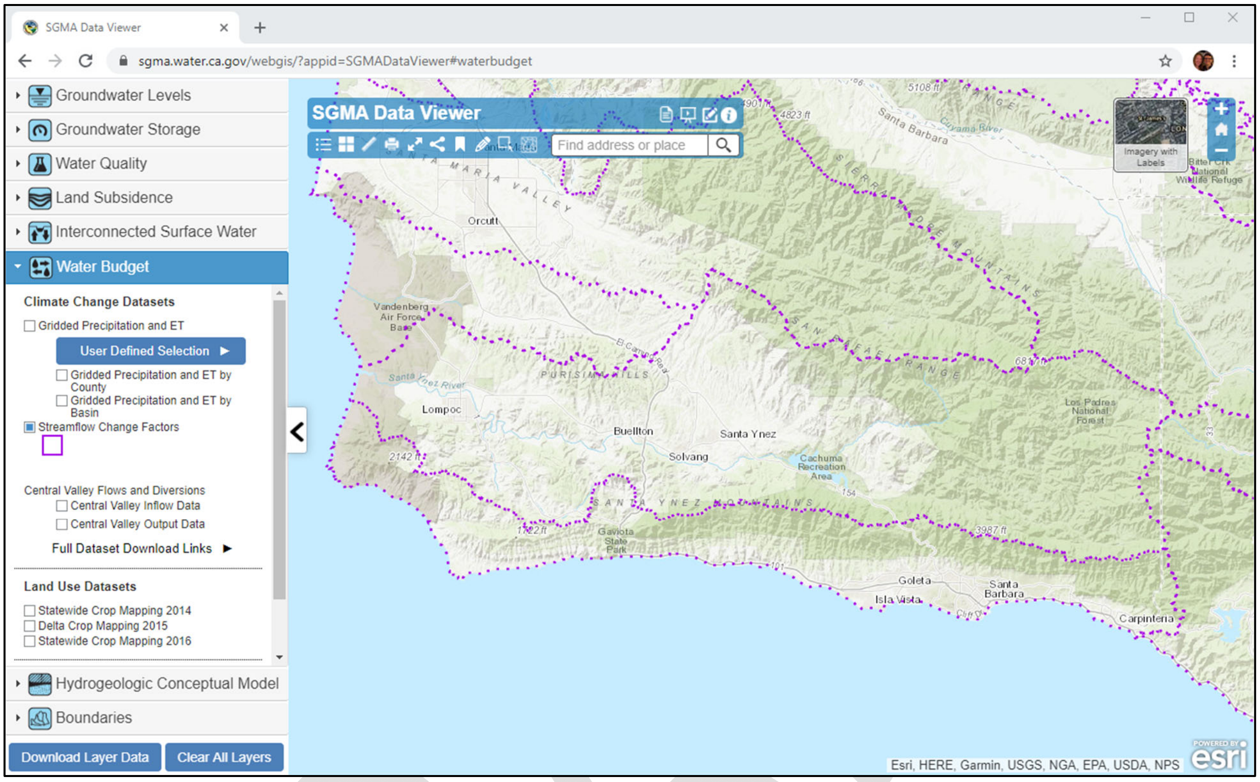
The climate change analysis is built on the methodology in DWR's guidance document (DWR, 2018) for applications under the Sustainable Groundwater Management Act (SGMA). While these methods and tools were developed to assist Groundwater Sustainability Agencies (GSA) with their projected water budget calculations, they provide a vetted, documented, and standard approach to simulating the impacts of climate change on the City's water supplies. This climate change analysis includes two separate scenarios. The first represents the "central tendency" scenario for 2050 and the second is a "hot and dry" scenario for 2070. DWR combined all 10 GCMs and both RCPs (RCP 4.5 and RCP 8.5) to generate a central tendency scenario in the datasets used for this analysis. Data from DWR are provided for projected climate conditions centered around 2030 and 2070. These two change factor time series were averaged to produce what is referred to in this analysis as a "2050 Central Tendency" scenario. For the hot and dry scenario, this analysis uses the GCM DWR selected that represents dry weather and extreme warming (HadGEM2-ES) along with the higher emissions scenario (RCP 8.5). This approach allowed climate change impacts to be analyzed for both mid-century central tendency impacts and late-century extreme impacts.

Note that the climate change factors used in this analysis can simulate deeper drought periods, but they do not account for the possibility of significantly longer drought periods than those that occurred in the hydrologic record. Recent research suggests that extended drought occurrence ("mega-drought") could become more pervasive in future decades. California's Fourth Climate Change Assessment included two 20-year extended drought scenarios, one in the early 21st century, and one in the last 21st century. These scenarios were developed by the Scripps Institution of Oceanography and UC San Diego using the HadGEM2-ES RCP 8.5 simulation. The outputs, which include temperature, precipitation, runoff, baseflow, among other variables, are available on the Cal-Adapt website (https://cal-adapt.org/tools/extended-drought/). These scenarios were not incorporated as part of this analysis but have been used elsewhere as part of the City's Enhanced Urban Water Management Plan.

4.1.1 Streamflow under Climate Change

Hydrological forecasts for streamflow under climate change are simulated using the Variable Infiltration Capacity (VIC) model, a fully mechanistic hydrologic model used to derive hydrographs under baseline and climate change conditions. The VIC model combines runoff and baseflow to generate change factors for watersheds in California. Change factors for Santa Ynez River watershed (HUC 8 18060010) were downloaded from the SGMA Data Viewer website (https://sgma.water.ca.gov/webgis/?appid=SGMADataViewer) and shown in Figure 4-1. Santa Ynez River Watershed in SGMA Data Viewer. These change factors are available on a monthly basis from 1915 to 2011 for the Santa Ynez River watershed. The 2050 Central Tendency and 2070 Hot and Dry monthly change factors for the Santa Ynez River watershed were applied to the historical hydrologic inflow (excluding spills and releases from upstream reservoirs) to Gibraltar Reservoir and Lake Cachuma.

Figure 4-1. Santa Ynez River Watershed in SGMA Data Viewer



Error! Reference source not found. shows the time series of monthly change factors by water year type for the 2050 Central Tendency scenario, and Figure 4-2 shows the time series of monthly change factors by water year type for the 2070 Dry with Extreme Warming scenario. Generally, change factors under the 2050 Central Tendency scenario have a seasonal pattern with wetter conditions in the winter months, and drier during the spring and fall months when compared to historical conditions. The 2070 Dry with Extreme Warming scenario has more variability, with wetter weather during wet years, and drier weather overall in other water year types when compared to historical conditions. This pattern can also be seen in Figure 4-4 and Figure 4-5.

Figure 4-2: Monthly Change Factors for 2050 Central Tendency Scenario

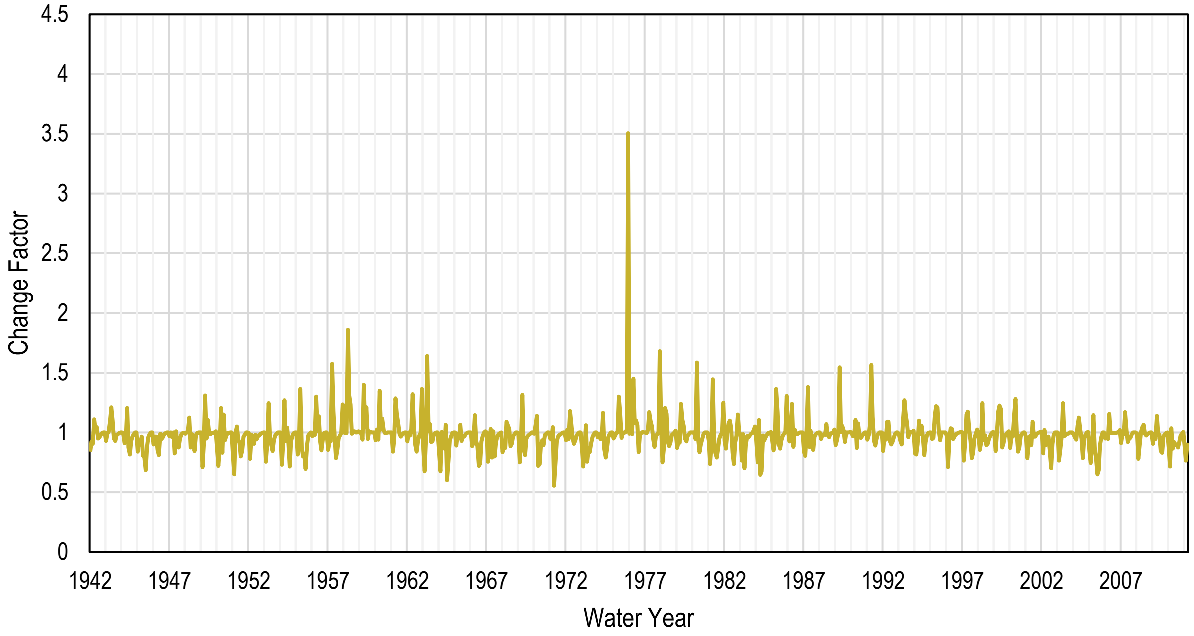
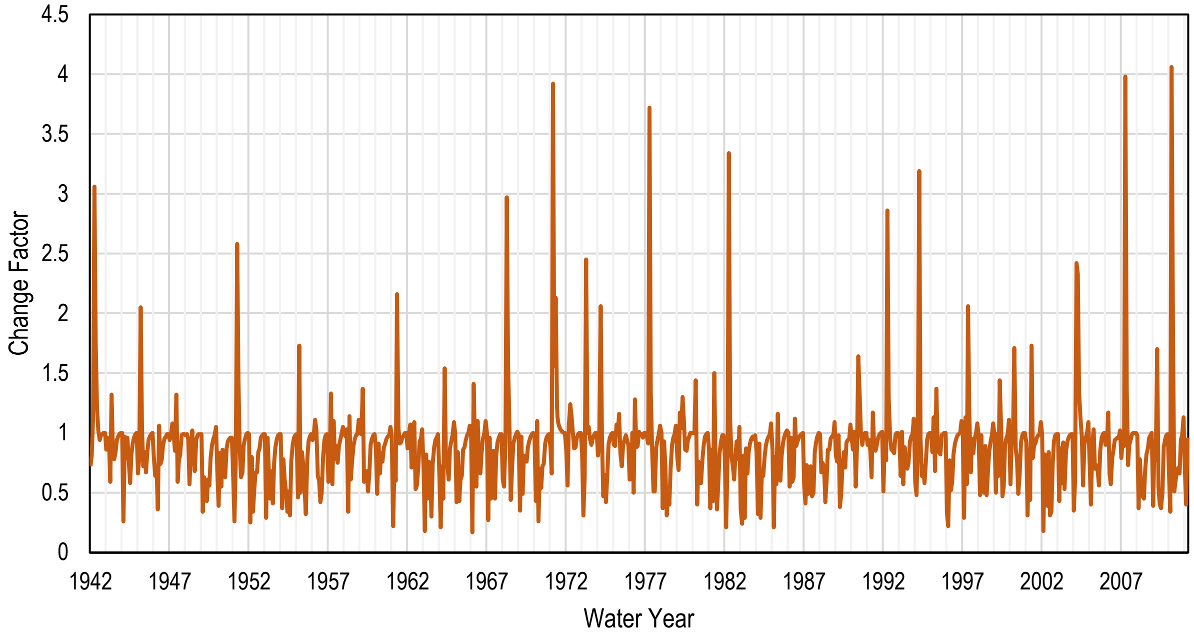


Figure 4-3: Monthly Change Factors for 2070 Hot and Dry Scenario



Change factors are available from 1915 through 2011. However, the RiverWare model period runs from 1941 through 2017. Flows for the remaining five years between 2012 and 2017 were synthesized using the average change by water year type across the dataset. Water Year types are designated for each year using the Santa Ynez River hydrological classification in Table 3-3. These years represent the recent historic drought period used as the "critical drought period" in the water supply analysis.
Table 4-3 shows the year type designations used to synthesize the remaining years. These years represent the recent historic drought period used as the "critical drought period" in the water supply analysis.

Table 4-3: Cachuma Reservoir Water Year Designations

Water Year	Year Type
2012	Dry
2013	Critical
2014	Critical
2015	Critical
2016	Dry
2017	Above Normal

Figure 4-4 presents the annual exceedance probability curves for Gibraltar Reservoir, and Figure 4-5 presents the annual exceedance probability curves for Lake Cachuma. For the 2050 Central Tendency scenario, the projections were very similar to the streamflow results for the historical period when compared on a water year basis. For the 2070 Hot and Dry scenario, there was decrease in median and dry year streamflow. In wet water years there were some extreme weather events, but changes to flood control operations was not included as part of this analysis.

Figure 4-4. Gibraltar Reservoir Hydrologic Inflow by Water Year

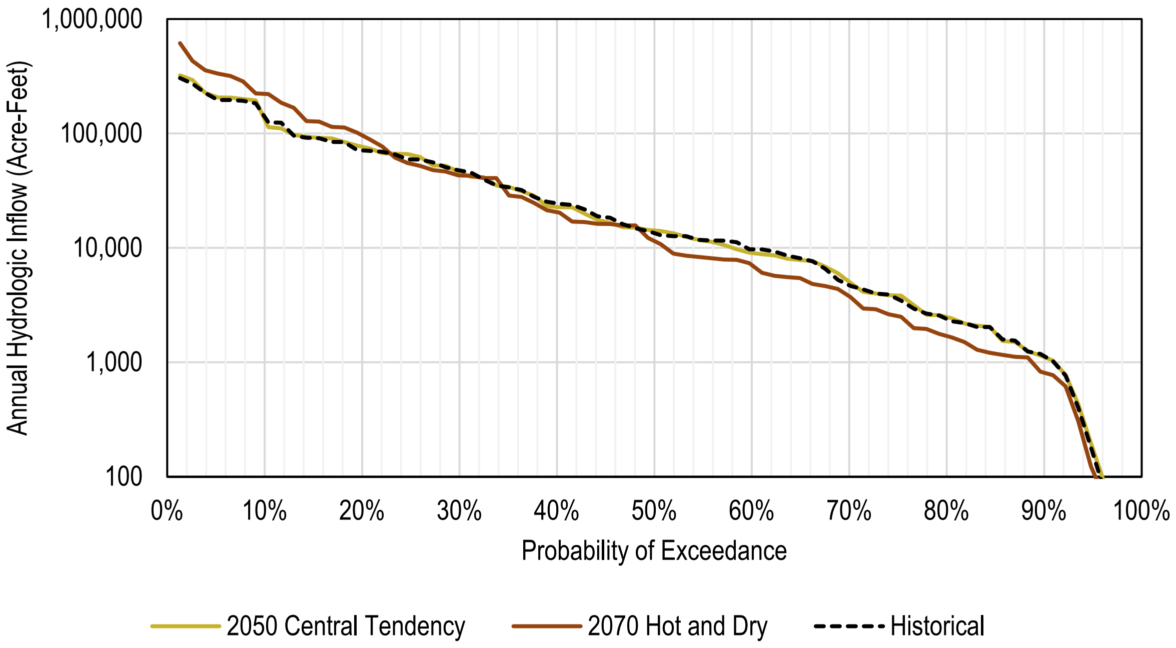
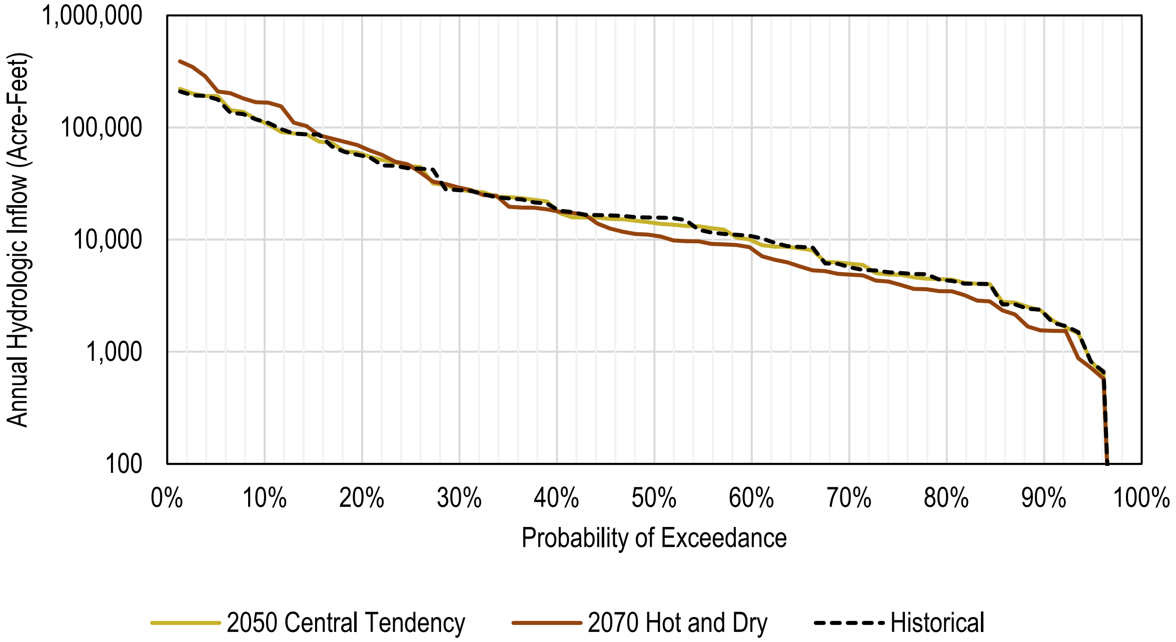


Figure 4-5. Lake Cachuma Hydrologic Inflow by Water Year



4.1.2 Precipitation and Evaporation under Climate Change

To estimate future scenarios of precipitation and evaporation on the reservoir surface for Lake Cachuma and Gibraltar Reservoir under climate change, results were retrieved from the Cal-Adapt website (http://cal-adapt.org), developed by the California Energy Commission Public Interest Energy Research Program (PIER). The grid cells in most global climate models are very large, and the data in Cal-Adapt is downscaled to about 12-kilometer resolution using a bias correction and constructed analogues (BCCA) approach. Datasets were downloaded for the grid calls containing Lake Cachuma (34.59375, -119.96875) and Gibraltar Reservoir (34.53125, -119.65625). Cal-Adapt provides a historical period from 1950 to 2005 and projected period from 2006 to 2099.

To remain consistent with the streamflow analysis, all 10 GCMs for both RCPs (RCP 4.5 and RCP 8.5) were downloaded for the 2050 Central Tendency scenario, and the dry with extreme warming model (HadGEM2-ES) along with the higher emissions scenario (RCP 8.5) were used for the 2070 Hot and Dry scenario. An approach that is consistent with DWR methodology was used to control for “natural” year-to-year variability, while also capturing the long term climate trends. An example of this annual variability is shown in Figure 4-6 for the historical and projected average annual maximum temperature for Lake Cachuma, and in Figure 4-7 for the historical and projected annual precipitation for Lake Cachuma. The 2050 Central Tendency scenario is an ensemble of 20 separate projections, so there is less year to year variability, while the 2070 Hot and Dry scenario is a single projection with more annual variability. The projected annual temperature shows an increasing trend under both scenarios. The projected annual precipitation does not show a clear trend under either scenario.

Figure 4-6. Lake Cachuma Projected Annual Average Maximum Temperature

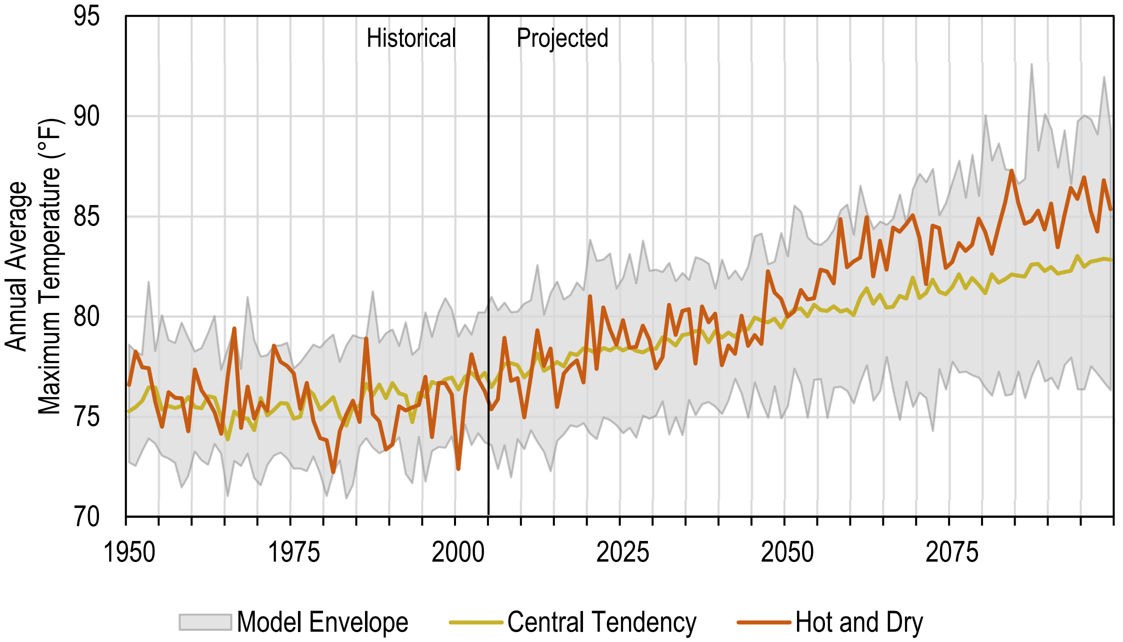
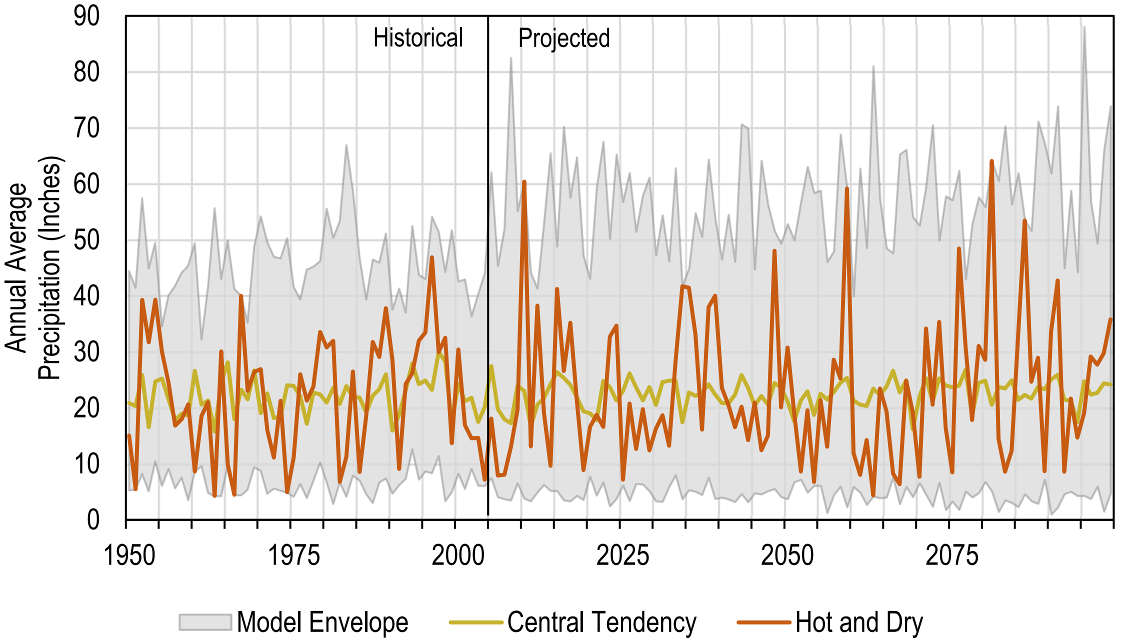


Figure 4-7. Lake Cachuma Projected Annual Average Precipitation



The change factors for temperature and precipitation are provided for 2050 Central Tendency scenario in Table 4-4 and for the 2070 Hot and Dry scenario in Table 4-5. Average annual temperatures for Gibraltar Reservoir are projected to increase by 3.3 degrees F in the 2050 Central Tendency scenario and 6.6 degrees F in the 2070 Hot and Dry

Scenario. Average annual temperatures (average of high and lows temperatures) for Lake Cachuma are projected to increase by 3.9 degrees F in the 2050 Central Tendency scenario and 6.1 degrees F in the 2070 Hot and Dry Scenario. The changes in precipitation are minor on average in the 2050 Central Tendency scenario. The 2070 Hot and Dry scenario has an average annual increase of 0.3 inches of precipitation for Lake Cachuma and a reduction of 0.6 inches of precipitation for Gibraltar Reservoir. This appears to be the result of noise in the annual variability in the HadGEM2-ES projections rather than an indication of a long term trend.

Table 4-4. Projected Changes in Precipitation and Temperature (2050 Central Tendency)

Reservoir	Parameter	Historical	Modeled Historical	Modeled Projections	Percent Change
Gibraltar Reservoir	Precipitation (inches)	28.7	28.9	28.6	-1%
	High Temperature (°F)	65.9	65.9	69.4	+5%
	Low Temperature (°F)	43.3	43.3	46.5	+7%
Lake Cachuma	Precipitation (inches)	22.0	22.1	22.2	0%
	High Temperature (°F)	75.8	75.8	80.0	+5%
	Low Temperature (°F)	44.9	44.9	48.5	+8%

Table 4-5. Projected Changes in Precipitation and Temperature (2070 Hot and Dry)

Reservoir	Parameter	Historical	Modeled Historical	Modeled Projections	Percent Change
Gibraltar Reservoir	Precipitation (inches)	22.0	22.0	22.6	+3%
	High Temperature	75.8	75.8	82.1	+8%
	Low Temperature (°F)	44.9	44.9	50.7	+13%
Lake Cachuma	Precipitation (inches)	28.7	29.0	28.7	-1%
	High Temperature (°F)	65.9	65.9	72.6	+10%
	Low Temperature (°F)	43.3	43.3	49.8	+15%

For open reservoir evaporation, changes in evaporation rates are based on *West-Wide Climate Risk Assessments: Irrigation Demand and Reservoir Evaporation Projections* prepared by the USBR for the reservoirs in the eight major Reclamation river basins. Evaporation from open water is a function of net radiation, air temperature, water surface temperature, humidity, windspeed, stability of the atmosphere, temperature and quantities of water flowing in and out of the water body, and heat storage of the water body of interest. There are several uncertainties in estimated reservoir evaporation related to volume, depth, geometry, clarity, and surrounding environment of the water body.

Lake Cachuma and Gibraltar Reservoir were not included in the USBR study, so the change in evaporation are based on the simulated relationships between projected increases in temperature and increases in reservoir evaporation in other reservoirs. For the Central Tendency 2050 scenario, this estimate is based on the average across the USBR study. For the Hot and Dry 2070 scenario, a higher relationship is assumed based on the reservoirs in the Central Valley, which have higher average rates of evaporation relative to temperature.

The change factors with average and adjusted average values for lake evaporation are provided in Table 4-6. Average annual evaporation in Gibraltar Reservoir is anticipated to increase by 2 inches per year in the 2050 Central Tendency Scenario and 5 inches per year in the 2070 Hot and Dry Scenario. At capacity (surface elevation 1,400 feet) that equates to an additional annual evaporative loss of 38 and 95 acre-feet, respectively. The average annual evaporation in Lake Cachuma is anticipated to increase by 2.4 inches per year in the 2050 Central Tendency Scenario and 4.5

inches per year in the 2070 Hot and Dry Scenario. At capacity (surface elevation 750 feet) that equates to an annual evaporative loss of 578 and 1,108 acre-feet for Lake Cachuma, respectively.

Table 4-6: Projected Changes in Lake Evaporation (Inches)

Reservoir	Scenario	Historical Average	Projected Average	Percent Change
Gibraltar Reservoir	Central Tendency 2050	54.1	56.3	+4%
	Hot and Dry 2070	54.1	59.5	+10%
Lake Cachuma	Central Tendency 2050	55.4	57.7	+4%
	Hot and Dry 2070	55.4	59.9	+8%

5. WATER SUPPLY RESULTS

5.1 Operational Scenarios

The average annual surface water supplies for each of the three operational scenarios are shown for the full simulation period (WY 1942 – WY 2017) in Figure 4-8. The three operational scenarios are provided below:

- Scenario 1 – Existing Conditions
- Scenario 2 – Pass Through Operations
- Scenario 3 – Gibraltar Sedimentation

These scenarios do not include impacts from future climate change. Under Scenario 2, with Pass Through Operations implemented under the USYROA, there is an average increase in total supplies of 816 acre-feet per year (7%) when compared to Scenario 1. Under Scenario 3, there is an average increase in total supplies of 399 acre-feet per year (5%) when compared to Scenario 1, and a decrease of 471 AFY (-3%) when compared to Scenario 2. These results indicate that implementation of Pass Through Operations through a Warren Act Contract with USBR would provide an average increase in water supplies to the City. With the future sedimentation of Gibraltar Reservoir, the Pass Through Account would offset the loss of storage, with some reductions due to the accounting for spills, evaporation, and relinquishments.

The average annual surface supplies for each of the three operational scenarios is shown for the critical drought period (WY 2012 – WY 2017) in **Error! Reference source not found.**. Under Scenario 2, there is average increase in total supplies of 487 acre-feet per year (5%) when compared to Scenario 1. Under Scenario 3, there is an increase in average supplies of 519 acre-feet per year (6%) when compared to Scenario 1, and an increase of 32 AFY (0.3%) when compared to Scenario 2. During this critical drought simulation, the Pass Through Account only had supplies during WY 2017, which was an Above Average supply year, because spills from Gibraltar are significantly reduced during drought periods.

Figure 4-8. Average Supplies for Operational Scenarios (WY 1942 – WY 2017)

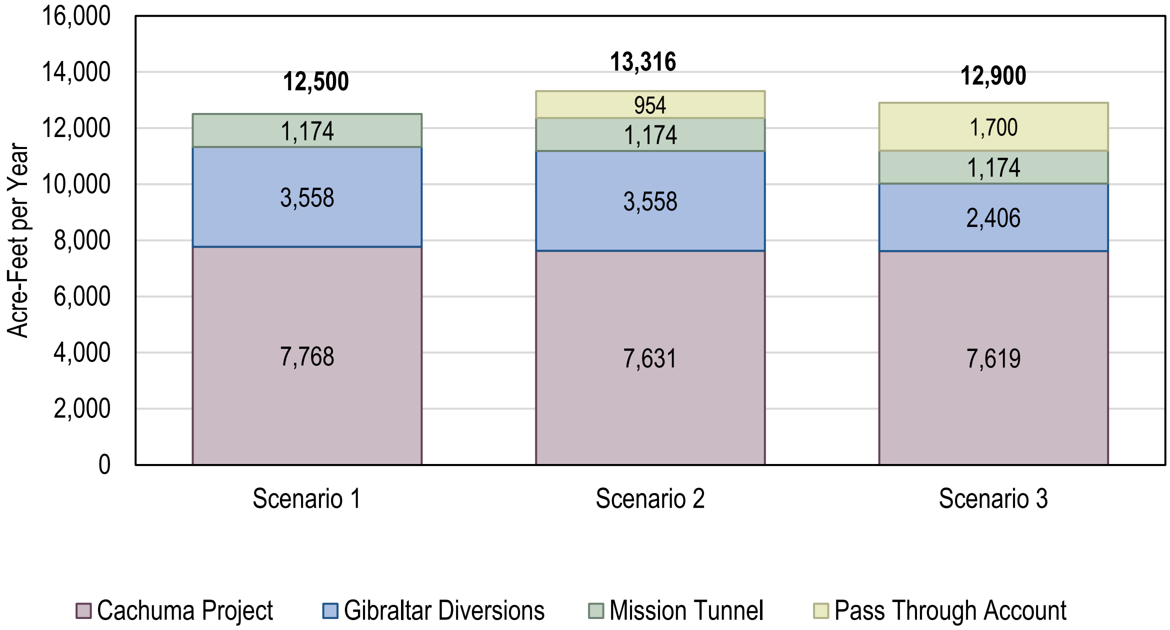
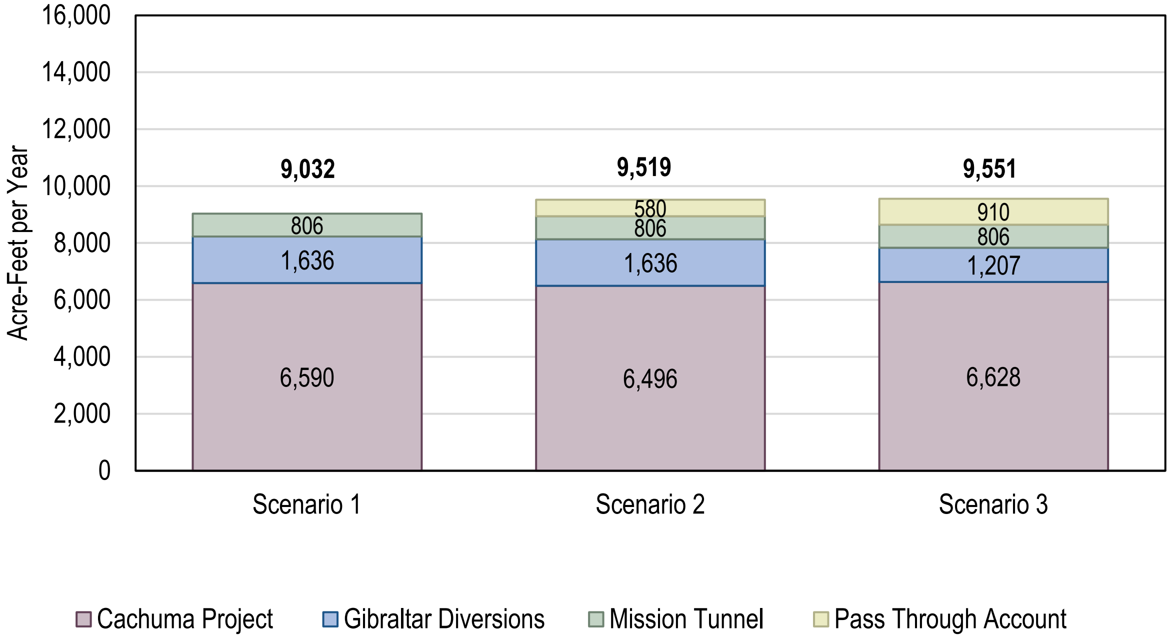


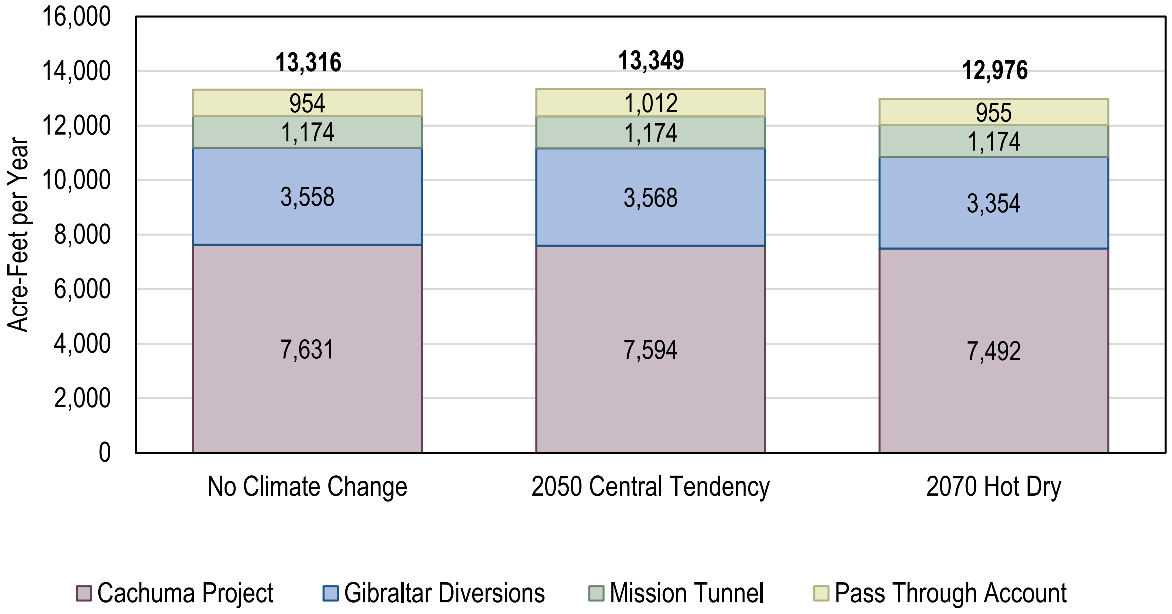
Figure 4-9. Critical Drought Supplies for Operational Scenarios (WY 2012 – WY 2017)



5.2 Scenario 2 (Pass Through Operations) with Climate Change Scenarios

The average annual surface supplies for Scenario 2 and the climate change scenarios are shown for the full simulation period in Figure 4-10. These results include the simulated impacts of streamflow as well as precipitation and evaporation on the reservoirs. Under the 2050 Central Tendency scenario there is a slight increase in average supplies of 32 acre-feet per year (0.2%) when compared to Scenario 2 without climate change. Under the 2070 Hot and Dry scenario, there is a decrease in average supplies of 341 acre-feet per year (-2.6%) when compared to Scenario 2 without climate change.

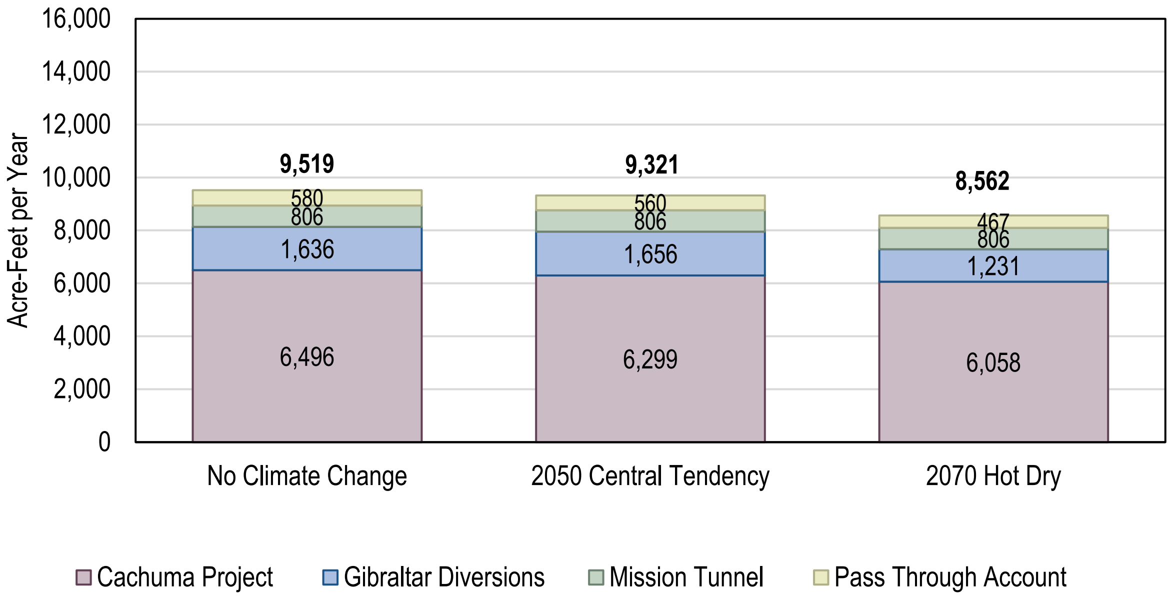
Figure 4-10. Average Supplies for Scenario 2 with Climate Change (WY 1942 – WY 2017)



The average annual surface supplies for Scenario 2 and the climate change scenarios are shown for the critical drought period in Under the 2050 Central Tendency scenario there is a decrease in average supplies of 198 acre-feet per year (-2%) when compared to Scenario 2 without climate change. Under the 2070 Hot and Dry scenario, there is a decrease in average supplies of 957 acre-feet per year (-10%) when compared to Scenario 2 without climate change. Under both climate change scenarios, the water supply is more stressed in the critical drought period than under average conditions.

Figure 4-11. Under the 2050 Central Tendency scenario there is a decrease in average supplies of 198 acre-feet per year (-2%) when compared to Scenario 2 without climate change. Under the 2070 Hot and Dry scenario, there is a decrease in average supplies of 957 acre-feet per year (-10%) when compared to Scenario 2 without climate change. Under both climate change scenarios, the water supply is more stressed in the critical drought period than under average conditions.

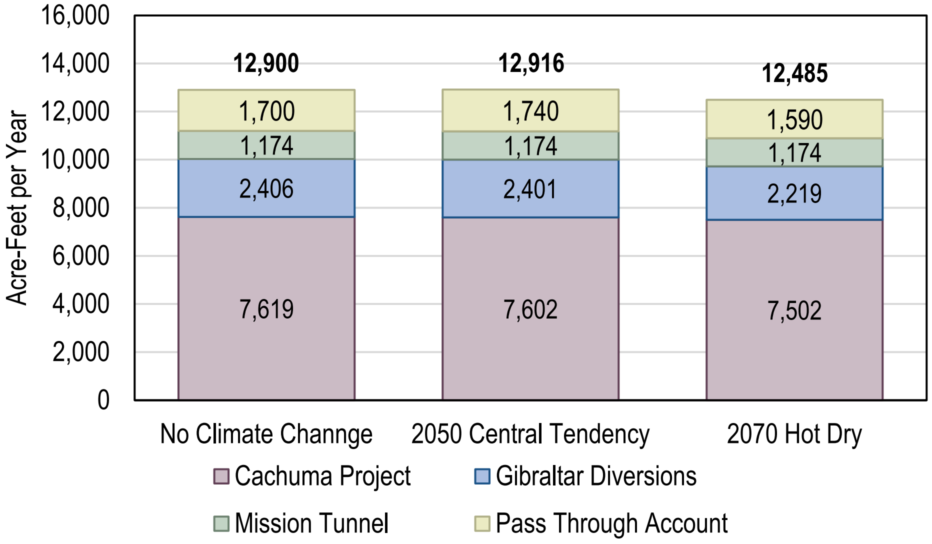
Figure 4-11. Critical Drought Supplies for Scenario 2 with Climate Change (WY 2012 – WY 2017)



5.3 Scenario 3 (Gibraltar Sedimentation) with Climate Change Scenarios

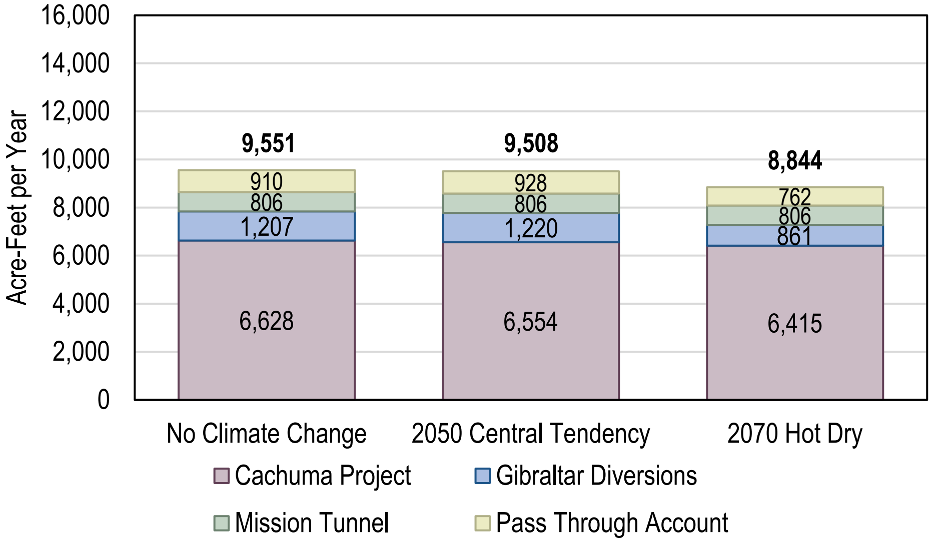
The average annual surface supplies for Scenario 3 and the climate change scenarios are shown for the full simulation period in Figure 4-12. Under the 2050 Central Tendency scenario there is a slight increase in average supplies of 17 acre-feet per year (0.1%) when compared to Scenario 3 without climate change. Under the 2070 Hot and Dry scenario, there is a decrease in average supplies of 414 acre-feet per year (-3%) when compared to Scenario 3 without climate change.

Figure 4-12. Average Supplies for Scenario 3 with Climate Change



The average annual surface supplies for Scenario 3 and the climate change scenarios are shown for the critical drought period in Figure 4-13. Under the 2050 Central Tendency scenario there is a decrease in average supplies of 43 acre-feet per year (-0.4%) when compared to Scenario 2 without climate change. Under the 2070 Hot and Dry scenario, there is a decrease in average supplies of 707 acre-feet per year (-7%) when compared to Scenario 3 without climate change. Under both climate change scenarios, the water supply is more stressed in dry years than under average conditions.

Figure 4-13. Critical Drought Supplies for Scenario 3 with Climate Change (WY 2012 – WY 2017)



6. CONCLUSIONS

This technical memorandum provides an analysis of operational and climate change impacts on the City's water supply from Lake Cachuma and Gibraltar Reservoir. The results indicate that implementation of Pass Through Operations under the USYROA with a Warren Act contract would provide an increase in water supplies to the City. The implementation of Pass Through Operations also partially offsets the projected reduction in supplies from the future sedimentation of Gibraltar Reservoir under Scenario 3, with some reductions due to the accounting for spills, evaporation, and relinquishments.

For the 2050 Central Tendency climate change scenario, the simulated water supplies are similar to the historical period. This result does not necessarily indicate that the projected impact from climate change will be mild, but rather there is an approximately equal likelihood that, on average, future conditions will be more or less dry. The 2070 Hot and Dry scenario results in lower average supplies – a roughly 3% decrease on average and as high as a 10% reduction during a critical drought period. More severe outcomes may result from additional analysis on extended drought scenarios or "mega-drought' scenarios. Although it is not possible to predict future hydrology, the models, data, and tools used in this analysis are considered the best available science and can provide a reasonable point of reference for future planning.

7. REFERENCES

DWR. "Guidance for Climate Change Data Use During Groundwater Sustainability Plan Development." 2018. <https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Groundwater-Management/Sustainable-Groundwater-Management/Best-Management-Practices-and-Guidance-Documents/Files/Climate-Change-Guidance_Final_ay_19.pdf>.

Attachment E – WVSB Cost Basis TM

DRAFT Technical Memorandum

DATE: 11/2/2020

TO: Dakota Corey
City of Santa Barbara

CC: Joshua Haggmark, PE, Cathy Taylor, PE, Dana Hoffenberg

PREPARED BY: Rob Morrow, PE, Heather Freed, PE

REVIEWED BY: Jeff Szytel, PE

PROJECT: Water Vision Santa Barbara

SUBJECT: **WATER PORTFOLIO COMPARATIVE COST BASIS**

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1. Introduction

The purpose of this Technical Memorandum (TM) is to present the cost basis for the water supplies included in the City of Santa Barbara's (City) future water portfolio analysis over the 30-year planning window (2020 to 2050). This TM is organized into the following sections:

1. Introduction
2. Present Value Analysis Assumptions
3. Existing Water Supply Costs
4. Future Water Supply Costs
5. Energy Consumption Assumptions

Note that the cost analysis is intended to be a comparative analysis, so all water system costs are not included and only costs that may differentiate portfolios are examined.

2. Comparative Cost Analysis Assumptions

Preliminary comparative cost estimates were prepared or compiled based on the design criteria and information presented in earlier studies. The estimates are consistent with Class 5 estimates as defined by the Association for the Advancement of Cost Engineering, International (AACEI) in their publication 56R-08 (-30% to +50% expected accuracy range). The period of analysis is from 2020 to 2050. For consistent comparison across projects, all costs presented in this memo are in 2020 dollars unless noted otherwise. When needed, costs were escalated to 2020 dollars using Engineering News Report (ENR) Construction Cost Index (CCI) 20-Cities Average (1), which is 11455. The following assumptions were made for the present value calculations:

- Inflation Rate: 3%; based on 30-year annual average growth rate for ENR CCI 20-Cities Average.
- Discount Rate: 3%; set to the inflation rate because use of supplies is dependent on when the next drought occurs and the analysis assumes the next extended drought occurs in the latter portion of a 30 year period.
- Financing:
    - Rate: 2.1% based on average of 2000 to 2020 interest loan rates from the State Revolving Fund.
    - Term: 20 years for desalination and 30 years for potable reuse.

3. Existing Water Supply Costs

Debt, fixed, and variable costs for the City's existing supplies are summarized in **Table 1.** Since these costs are intended for comparing water supply portfolios, only costs that affect the future portfolio analysis are included.

Table 1. Existing Water Supply Costs(1)

Supply(1)	Debt Service ($M/yr) (Year Debt is Retired)(1)	Annual Fixed Cost ($M/yr)(1)	Variable Cost ($/AF)(1)	Additional Variable Cost in Drought ($/AF)(1,2)
Cater WTP	$1.1 (2025)	$5.6	--(4)	
Gibraltar Reservoir(4)	--	$0.5	$100	
Lake Cachuma(4)	--	$2.8	$100	$50
Mission Tunnel(4)	--		$100	
Groundwater, Foothill Basin(5)	--		$200	
Groundwater, Storage Unit #1(5)	$1.7 (2036)	$0.1	$400	
State Water Project(6)	$1.4 (2023)	$2.8	$420	$90
Recycled Water (Non-Potable)(7)	--	$0.8	$230	
Desalination(8)	$4.2 (2038)			
Standby Cost		$1.6		
Production Operating Cost		$1.0	$550	
Total Operating Cost	*$4.2*	*$2.6*	*$550*	

Notes:

1. **The cost analysis is intended to be a comparative analysis, so only water system costs that may differentiate portfolios are examined.** Fixed annual and variable costs will be escalated at 3% per year.
2. Added costs during a drought are for additional pumping with low levels in Lake Cachuma ($50/AF) and increased State Water Project (SWP) costs ($90/AF) when no exchange water is available.
3. Cater WTP costs are from an average of City FY17/18 and FY18/19 budgets (from City's Avoided Cost Summary). Cater WTP costs apply to each supply treated there – Gibraltar, Cachuma, Mission Tunnel, and SWP.
4. The only variable costs for Gibraltar, Cachuma, and Mission Tunnel are for Cater WTP, therefore Cater WTP variable costs are include in the variable cost for each supply.
5. Groundwater costs are from an average of City FY17/18 and FY18/19 budgets (from City's Avoided Cost Summary). Debt service is for improvements at Ortega Groundwater Treatment Plant. Variable costs for Foothill Basin are for pumping and wellhead disinfection. Variable costs for Storage Unit #1 are pumping and treatment at Ortega WTP.
6. SWP costs are from CCWA FY 20/21 Budget. City annual fixed cost is the amount after debt is retired in FY 21/22. Variable cost is a weighted average of the variable cost to deliver SWP deliveries to Lake Cachuma ($360/AF) and for exchange deliveries ($200/AF) plus $100/AF for Cater WTP. Variable costs for SWP deliveries to Lake Cachuma ($360/AF) include $100/AF (CCWA), $200/AF (DWR), and $58/AF (Warren Act Charge). Additional costs during a drought are for additional pumping with low levels in Lake Cachuma ($50/AF) and increased SWP costs ($40/AF; for $320/AF (weighted average) to $360/AF) when no exchange water is available.
7. Recycled water (non-potable) cost estimates are averaged from actual costs from FY 17/18 to FY 19/20 and budgets for FY20/21 and FY21/22.
8. Desalination costs are from Desalination Plant Operating Scenarios Evaluation (2). For this analysis, the facility has two modes: 1) Operating: Facility is producing desalinated water; or 2) Standby: Facility is not producing desalinated water and is able to restart production within 6 months. As shown, there is a fixed cost for Standby mode but no variable cost.

4. New Water Supply Costs

New water supplies considered in the WVSB portfolio analysis include:

- Desalination Expansion
- Potable Reuse
- Non-Potable Reuse
- Supplemental Water

4.1. Desalination Expansion

Expanding the Charles Meyer Desalination Plant from 3,125 AFY of production (assumes 93.6% of 3,339 AFY nameplate capacity) to 5,000 AFY has a total capital cost of approximately $27.6 million in 2020 dollars for treatment and pumping capacity expansion, soil remediation, and the Yanonali Parallel Pipeline. The annual fixed cost would increase to $3.1M/yr when operating or $2.3M/yr when in standby. The capital cost and annual fixed costs are based on cost proposals from IDE in May 2019 (3) and April 2018 (4). Variable costs increase slightly (by $40/AF) compared to the existing plant to enable pumping desalinated water to the upper pressure zones. These costs are summarized in **Table 2**.

Table 2. Summary of Desalination Costs

	Existing Capacity (3,125 AFY)(1)	Expansion (+1,875 AFY)(1)	Expanded Capacity (5,000 AFY)(1)
Debt Payments	$4.2 M/yr(2)	+ $1.7 M/yr(3)	$5.9 M/yr
Annual Fixed Cost			
Standby Mode	$1.6 M/yr	+ $0.7 M/yr	$2.3 M/yr
Additional Operating Cost	$1.0 M/yr	-$0.2 M/yr	$0.8 M/yr
Total Fixed Operating Cost	*$2.6 M/yr*	*+ $0.5 M/yr*	*$3.1 M/yr*
Variable Cost	$550/AF	$590/AF	$590/AF
Total Unit Cost at Capacity	$2,700/AF	$1,800/AF	$2,400/AF

Notes:

1. Fixed annual and variable costs are escalated at 3% per year.
2. Based on $72 M financed over 20 years at 1.6% interest rate. Debt payment excludes $10 million grant from California Department of Water Resources.
3. Assumes 2.1% interest rate over 20 years.

4.2. Potable Reuse

The City completed a Potable Reuse Feasibility Study (5) that evaluated three types of potable reuse:

- Groundwater augmentation, which entails injecting advanced treated water into local groundwater basins. For the City, injection into the Foothill Basin and Storage Unit #1 was evaluated.
- Raw water augmentation, which entails delivering advanced treated water into the raw surface water supply upstream of a drinking water treatment facility. For the City, delivery to Lauro Reservoir for blending with surface water prior to treatment at Cater WTP was evaluated.
- Treated drinking water augmentation, which entails producing finished drinking water from an advanced water treatment facility that is permitted as a drinking water treatment facility and directly supply the water into a potable water supply distribution system. For the City, treating advanced treated water at a

new WTP located at the existing desalination facility and delivering to the distribution system was evaluated.

For Water Vision Santa Barbara, raw water augmentation was selected for incorporation into water portfolios because groundwater augmentation capacity was limited due the City's groundwater basin size, and developing treatment and monitoring assumptions that protect public health for treated drinking water augmentation is too speculative at this time without a more developed regulatory framework. Raw water augmentation also does not have regulations in place, but the smaller range of assumptions within the proposed regulatory framework allows for confident planning at this time. The raw water augmentation alternative included several assumptions used to define the necessary facilities:

- For the purposes of the Potable Reuse Study, the basis of design assumed 14/12/12 log reduction of virus/Giardia/Cryptosporidium with multiple treatment barriers and 3 hours of engineered storage before distribution of the treated water.[1] The treatment train consisted of microfiltration (MF), ultraviolet (UV) light disinfection, reverse osmosis (RO), and UV / advanced oxidation process (AOP) system.
- Treatment facilities are assumed to be located at the City's Corporation Yard.
- Use of existing recycled water (non-potable) system from El Estero WRF to the Golf Course.[2] Use of the non-potable system would require meeting roughly 700 AFY of the existing 1,000 AFY of recycled water demand with advanced treated water or potable water.
- New pipeline from the Corporation Yard to the existing recycled water system, parallel pipeline for a portion of the distribution system, repurpose existing Golf Course Recycled Water Pump Station, and new pipeline from the pump station to Lauro Reservoir.

The Potable Reuse Study looked at maximizing potable reuse production and estimated roughly 7,000 AFY of yield from an average flow of 7.7 MGD. For Water Vision Santa Barbara, potable reuse sizing was set to be similar to expanded desalination capacity – 5,000 AFY – or the incremental expansion capacity – 1,875 AFY – to enable comparison of different desalination and potable reuse combinations. Raw water augmentation will require the use of most of the non-potable recycled water distribution system. Therefore, the existing 1,000 AFY of recycled water use must be replaced with potable reuse such that the total target production for potable reuse is 6,000 AFY for "high" potable reuse and 2,900 AFY for "moderate" potable reuse. Assuming 80% RO recovery and 95% operational time, potable reuse facility influent (secondary effluent from El Estero WRF) must be at least 7.0 MGD and 3.4 MGD, respectively. MF reject would be recirculated to the raw wastewater influent so that this flow would not be lost.

Average dry weather (May to October) flows for 2017 to 2019 were approximately 6.2 MGD, so there is sufficient flows to produce for moderate potable reuse. Meeting the high potable reuse yield target would require an increase in flows of at least 10 percent. This is a reasonable assumption since large-scale potable reuse would only likely be needed if water demands increase by at least 20 percent.

The Potable Reuse Study estimated 1.5 MG of storage to equalize average daily flow of 7.7 MGD. The high potable reuse project would require this secondary effluent storage to equalize the diurnal influent flow variations while

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[1] Per Title 22, full advanced treatment (FAT) entails RO followed by advanced oxidation. RO is preceded by membrane filtration, assumed to be ultrafiltration. Title 22 requires the FAT train to reduce enteric virus, Giardia and Cryptosporidium by 12 log, 10 log, and 10 log, respectively, (12/10/10) using at least 3 treatment processes. DDW is currently developing regulations for raw water augmentation and treated drinking water augmentation. DDW may require additional treatment barrier for trace pollutants, such as granular activated carbon, ozone, or biologically activated carbon, and an engineered storage buffer, which holds water sufficiently long to allow each key process to be monitored and quality verified prior to distribution.

[2] The assumption to convert existing non-potable pipelines to convey purified water for potable reuse must be confirmed by the State Water Resources Control Board Division of Drinking Water.

equalization storage is assumed to not be needed to achieve 3.4 MGD of consistent flows for the moderate potable reuse project.

A rough cost estimate for the moderate and high potable reuse projects are summarized in **Table 3**. Detailed cost estimates along with facility sizing are included in **Attachment A**. The cost estimates were prepared from multiple sources: 1) Equivalency of Advanced Treatment Trains for Potable Reuse (WRRF 11-02-03) (6); 2) Fit for Purpose Water: The Cost of Overtreating Reclaimed Water (WRRF-10-01) (7); and 3) Pure Water Monterey bid results (8). The estimates were developed applying the following assumptions:

- Costs were escalated to 2020 dollars using ENR CCI 20-Cities Average values.
- Construction contingency of 40% was applied based on the preliminary nature of project definition and requirements uncertainty from lack of existing regulations.
- Implementation costs factor of 40% was applied based on the higher level of effort expected to gain approval of a new type of project.

Table 3. Potable Reuse Alternatives Cost Estimates

Cost Items (1)	Moderate (2,900 AFY) Potable Reuse	High (6,000 AFY) Potable Reuse
Capital Cost	$86.2 M	$157.2 M
Debt Service (2)	$3.9 M/yr	$7.1 M
O&M	$3.6 M/yr	$7.3 M
Total Annual Cost	**$7.5 M/yr**	**$14.4 M**
Yield	2,900 AFY	6,000 AFY
Unit Cost	**$2,580/AF**	**$2,400/AF**

Notes:
1. Refer to Attachment A for detailed cost estimate and facility sizing summary.
2. Debt service assumes loan at 2.1% over 30 years.

4.3. Supplemental Water

Supplemental water was evaluated in the State Water Project Exchange and Storage Options Memo (9) (Sierra Water, 2020). The City has a range of options to optimize SWP water use. Two primary options are included in portfolios:

- Spot Market Transactions
- Groundwater Bank

4.3.1. Spot Market Transactions

Sierra Water developed purchase cost estimates for SWP water that are dependent on the SWP hydrologic year, which is defined by the annual Table A allocation. **Table 4** summarizes the estimated cost of spot market purchase. The City could purchase SWP Table A water (or other non-project water) for the purchase cost shown in the table plus the conveyance cost to deliver the water to the City. The City could also sell their surplus Table A water for the purchase cost.

Table 4. Spot Market Water Cost Estimates

Table A Allocation	Estimated Purchase Cost(1)	Estimated Conveyance Cost(2)	Estimated Treatment Cost(3)	Total Estimated Unit Cost
Up to 15%	\$1,130/AF	\$510/AF	\$100/AF	**\$1,740/AF**
15% - 30%	\$810/AF	\$510/AF	\$100/AF	**\$1,420/AF**
30% - 45%	\$540/AF	\$460/AF	\$100/AF	**\$1,100/AF**
45% - 70%	\$350/AF	\$460/AF	\$100/AF	**\$910/AF**
Greater than 70%	\$200/AF	\$460/AF	\$100/AF	**\$760/AF**

Notes:

1. Refer to WVSB State Water Project Exchange and Storage Options Memo (Sierra Water, 2020) (Attachment B) for Purchase Cost basis. Estimated purchase and conveyance costs are escalated at 3% per year for the purposes of this analysis. **Actual purchase costs in the future are subject to future market conditions and have the potential to vary substantially.**
2. Conveyance cost includes the variable cost to deliver SWP to Lake Cachuma (\$360/AF) and plus \$100/AF for Cater WTP. When Table A allocation is less than 30%, an added \$50/AF for additional pumping with low levels in Lake Cachuma is included.
3. For Cater WTP per Table 1.

For comparison, the City purchased roughly 15,100 AF of supplemental water during the recent drought (from 2014 to 2018) at an average purchase cost of \$760/AF (including \$250/AF for future transportation costs for purchases that included water debt). These purchases incurred roughly 7,500 AF of water debt that is being repaid and does not reflect the opportunity cost of this water.

Note the purchase cost estimates are based on prior transactions. Actual purchase costs in the future are subject to future market conditions and have the potential to vary substantially. The future water transfer market is expected to undergo notable changes due to proposed changes to the SWP contract Water Management Amendments that would broaden potential transactions and increased demand for supplemental water to support SGMA compliance across the State and help backfill water.

4.3.2. Groundwater Bank

Costs for a common groundwater bank - Semitropic Water Storage District Stored Water Recovery Unit – were used for comparison with spot market purchases. The bank consists of shares where 1 share is 1 AFY of recharge capacity, 1 AFY of recovery capacity, and 3 AF of storage capacity. For example, 1,000 shares would allow for recharge up to 1,000 AFY, up to 1,000 AFY of recovery, and 3,000 AF of stored water. Based on the desire to maximize supplemental water supply in drought conditions, 2,500 shares were assumed so that up to 2,500 AF can be supplied in a drought (in addition to Table A allocation). A preliminary analysis showed that the City would want to call on banked water in less than 40% Table A allocation years and could bank water in other years. Although, the bank would reach capacity (7,500 AF) after several average and wet hydrologic years and would be depleted in an extended drought.

Fees were estimated using a 2014 term sheet escalated to 2020 dollars using a 3% annual rate:

- Priority 1 Buy-In: \$2,020/share
- Annual Management + Maintenance Fee: \$17/share per year
- Recharge Fee: \$25/AF

- Recovery Fee: $207/AF
- 10% of recharged water is dedicated to storage losses such that 8,250 AF would be recharged to be able to recover 7,500 AF

Note that these values are just for the purchase cost. The DWR and CCWA conveyance costs must be added on top of this estimate.

4.4. Non-Potable Reuse

The City currently reuses roughly 1,000 AFY of recycled water for non-potable uses. Of this, roughly 230 AFY is used within the EEWRC and the balance (770 AFY) is distributed to roughly 90 customers across the City. The City's Water Supply Planning Study (Carollo, 2009) included a detailed evaluation of recycled water (non-potable) system expansion. Over 400 AFY of potential demand at 56 potential customer sites was identified using water use records from 2006 to 2008. Nine projects were identified that could deliver up to 320 AFY to roughly 43 customers for irrigation, car washing, toilet flushing, and commercial laundries processes. Of this, the City has begun service to 7 identified customers with estimated demands of 102 AFY, leaving roughly 220 AFY of potential recycled water demand.

Project 1 targeted expanded irrigation reuse at existing customers and Project 2 targeted customers located adjacent to the existing system. **Table 5** provides an updated list of Project 1 and Project 2 potential customers after removing the customers from the original 2009 list that are now being served by the existing recycled water system. The remaining seven projects to serve up to 166 AFY, summarized in **Table 6**, required pipeline extensions.

Table 5. 2009 Water Supply Planning Study, Remaining Project 1 and Project 2 Potential Customers

Customer	Billing Category	Average Annual Demand (AFY)
Project 1 – Potential Increased Usage at Current Customers		
Shoreline Park	Irrigation, Recreation	0.4
Elings Park	Irrigation, Recreation	1.9
Cabrillo Field	Irrigation, Recreation	0.4
La Mesa Park	Irrigation, Recreation	0.1
Project 1 Total		**2.8**
Project 2 – Potential Usage at Customers Adjacent to Existing System		
Harbor View Inn	Irrigation, Commercial	2.3
Elise Court Owners	Irrigation, Residential Association	5.0
Mission Linen Supply	Industrial	42.7
The Armory	Irrigation, Commercial	2.0
Mission Terrace	Irrigation, Residential Association	3.3
Project 2 Total		**55.3**

Note: The City identified potential customers from the 2009 Water Supply Planning Study listed in Table 4.20 (for Project 1) and Table 4.21 (for Project 2) that are now being served by the existing recycled water system. The potential customers that are not being served are listed in this table.

Table 6. Non-Potable System Expansion Cost Estimates Updated from 2009 Water Supply Planning Study

Project #	3	4	5	6	7	8	9
Demand (AFY)	71	26	30	15	10	12	2
Capital Cost	$683,200	$516,900	$680,900	$482,500	$337,400	$526,400	$155,300
Capital Payments ($/yr)	$14,300	$10,900	$14,300	$10,100	$7,100	$11,100	$3,300
Capital Payments ($/AF)	$200	$420	$480	$670	$710	$930	$1,650
O&M ($/AF)	$210	$330	$330	$210	$330	$330	$210
Unit Cost ($/AF)	**$410**	**$750**	**$810**	**$880**	**$1,040**	**$1,260**	**$1,860**

Notes:

1. Capital costs for new pipelines from the 2009 Water Supply Planning Study were escalated from 2009 to 2020 dollars using ENR CCI.
2. Financing assumes 2.1% rate over 30 years.
3. O&M costs from 2009 Water Supply Planning Study include treatment and distribution and were escalated from 2009 to 2020 dollars using ENR CCI. Two distribution O&M costs were used depending on the elevation of the zone of the project location.

5. Energy Consumption

Energy consumption is a Triple Bottom Line (TBL) evaluation criterion and a component of annual O&M costs. To support the TBL analysis, energy consumption in kilowatt-hours per acre-foot (kW-hr/AF) for each supply is summarized in **Table 7**.

Table 7. Existing Water Supply Energy Consumption (kW-hr/AF)

Supply	Transport or Production	Treatment	Distribution	Total
Surface Water (Gibraltar, Cachuma, Mission Tunnel)(1)	--	140	310	**450**
Groundwater(1)	1,300	--(2)	310	**1,610**
State Water Project(1)	2,520	140	310	**2,970**
Recycled Water (Non-Potable)(1)	--	--	260	**260**
Desalination(1,3)	5,310	--(3)	--(3)	**5,310**
Desalination Expansion(4)	5,570	--(4)	--(4)	**5,570**
Potable Reuse(5)	1,090	1,390	310	**2,790**

Notes:

1. Estimates are the average of electrical consumption data from 2017 and 2018.
2. Treatment component for groundwater is included in the production estimate.
3. Energy for production, treatment, and distribution is combined because they are measured through a single meter.
4. Based on estimates provided by the City and include additional distribution energy to pump desalinated water to the upper pressure zones. For consistency, the estimate is provided as a single value.
5. Transport value is for pumping from the potable reuse treatment facility to Cater WTP, Treatment value is for the potable reuse treatment facility (1,250 kW-hr/AF) and Cater WTP (140 kW-hr/AF). Potable reuse treatment and transport estimates are included in the detailed cost estimate in Attachment A. Cater WTP and distribution estimates are the average of electrical consumption data from 2017 and 2018.

6. References

1. **ENR Construction Cost Index.** ***www.enr.com/economics/historical_indices/construction_cost_index_history.*** **[Online]**

2. Carollo. ***Desalination Plant Operating Scenarios Evaluation.*** **s.l. : City of Santa Barbara, 2020.**

3. IDE Technologies. ***Final Proposal - Change Order for Capital Improvement; Charles Meyer Desalination Plant - Project #3752.*** **May 2019.**

4. —. ***Budget Pricing Request - Change Order for Expansion of Charles Meyer Desalination Plant - Project #3752.*** **April 2018.**

5. Carollo. ***City of Santa Barbara Potable Reuse Feasibility Study.*** **s.l. : City of Santa Barbara, 2017.**

6. Trussell Technologies. ***Equivalency of Advanced Treatment Trains for Potable Reuse (WRRF 11-02-03).*** **s.l. : The Water Research Foundation, 2015.**

7. Jacobs. ***Fit for Purpose Water: The Cost of Overtreating Reclaimed Water (WRRF-10-01).*** **s.l. : The Water Research Foundation, 2014.**

8. California State Water Resources Control Board. ***Monterey One Water, Pure Water Monterey Groundwater Replenishment Project, CALSTARS Agreement No. D16-01033.*** **2017.**

9. Sierra Water. ***City of Santa Barbara, State Water Project Exchange and Storage Options Memo.*** **2020.**

10. Central Coast Water Authority. ***FY 2020/2021 Budget.*** **2020.**

Attachment A – Potable Reuse Cost Estimates

Attachment F – WVSB State Water Project Exchange and Storage Options TM

October 5, 2020

CITY OF SANTA BARBARA

Enhanced Urban Water Management Plan

Task 2.8 – SWP Exchange and Storage Options

The following memorandum is a summary of the consulting work completed by Sierra Water Group, Inc. ("Sierra Water") for the City of Santa Barbara ("City"). Sierra Water conducted a review of water bank and supplemental water options for the City. The review is part of the 2020 Enhanced Urban Water Management Plan ("Plan") being developed by Water Systems Consulting, Inc. ("WSC").

Scope of Work

Sierra Water was hired to complete Task 2.8 of the Scope of Work ("Scope") by WSC. The task includes an analysis of the following: 1) existing State Water Project ("SWP") supplies; 2) exchange and storage options; and, 3) supplemental SWP/non-project supplies. The Scope also included a discussion of criteria used to manage the Scope items.

1) Existing SWP Supplies

The City has a contract with the Central Coast Water Authority ("CCWA") for the annual delivery of 3,300 acre-feet ("AF") of SWP Table A water. The costs include the fixed and variable costs charged by both the California Department of Water Resources ("DWR") and CCWA. For Fiscal Year ("FY") 2019-20, the estimated budget for the City's SWP contract is $6,524,101. The budget is broken down in CCWA's Annual Budget as follows:

- CCWA Bond Payments - $1.5 million/year (payments end in FY21/22);
- CCWA Fixed Costs - $700,000/year with 3% annual escalation;
- DWR Fixed Costs - Roughly $3.3 million/year with 3% annual escalation; and,
- CCWA and DWR Variables Costs – Projected at $286.00/AF with 5% annual escalation.

Based on estimated deliveries of 2,705 AF (CCWA 2019-20 Budget), this equates to $2,412 per AF for SWP water. The SWP contract is approximately 9.1% of the City's water department budget of $71,562,277 (City FY 2020 Budget).

According to the City, the primary objective with the SWP contract is to regulate the delivery of water in dry and wet years. As a result, the City has done the following: 1) acquire dry-year supplemental water; 2) enter into water exchanges; and, 3) evaluate participation in San Joaquin Valley water banks.

Challenges. This section deals with the current challenges with the City's SWP water supplies.

- ***Water Supply Reliability***. Based on DWR's "Draft State Water Project Delivery Capability Report of 2019" issued in December 2019, the long-term reliability of the SWP is 58.8% of the SWP Table A. For the City, this is an average of 1,940 AF of SWP water on an annual basis. The Report provides a range of 6.5% (minimum) to 98.2% (maximum) for annual delivery of SWP water. This equates to a 215 AF to 3,241 AF (a large range for long-term planning).

- ***Dry-Year Water Supply***. On average, when the SWP allocation is below 30.0%, the City has to consider supplemental water options. This also applies when local surface water supplies are below normal. In a dry-year, the City can purchase supplemental water or recover stored water from a banking program. A summary of City supplemental water purchases during the recent drought is summarized in the tables below. In addition, the City can impose voluntary or mandatory water conservation. All the dry-year options have additional costs for the City. This is due to the requirement that the City pay its SWP fixed costs and incur supplemental water costs.

Table 1 - Supplemental Water Purchases

(AF Purchased by Fiscal Year)

Seller Agency	FY14	FY15	FY16	FY17	FY18	Total	Debt(1)
Antelope Valley-East Kern WA	-	4,219(2)	4,000(3)	-	-	**8,219**	6,219
Mojave Water Agency - 2014	535(4)	-	-	-	-	**535**	869
Mojave Water Agency - 2018	-	-	-	-	1,500	**1,500**	375
SWC Dry-Year Program	-	85	-	-	-	**85**	-
Biggs-West Gridley WD	-	1,600	-	-	-	**1,600**	-
Vandenberg Air Force Base	-	1,148	-	-	-	**1,148**	-
City of Santa Maria	-	-	-	2,000	-	**2,000**	-
Total	**535**	**7,052**	**4,000**	**2,000**	**1,500**	**15,087**	**7,463**

__Notes__:
1) Some water debt has been repaid.
2) 1:1 exchange.
3) 2:1 exchange.
4) 1:1 exchange for 268 AF at $400.00/AF or 1:2.25 exchange for 268 (no fee); no initial cost/pay variable costs upon return (unless returned when SWP Table A allocation is less than 30.0% - then no return cost).

Table 2 - Supplemental Water Purchases

(Unit Cost in $ by Fiscal Year)

Seller Agency	FY14	FY15	FY16	FY17	FY18	Total
Antelope Valley-East Kern WA	-	$750.00	$378.00	-	-	$909.00(1)
Mojave Water Agency - 2014	$450.00(2)	-	-	-	-	$606.00(1)
Mojave Water Agency - 2018	-	-	-	-	$320.00	$383.00(1)
SWC Dry-Year Program	-	$700.00	-	-	-	$700.00
Biggs-West Gridley WD	-	$828.00	-	-	-	$828.00
Vandenberg Air Force Base	-	$1,070.00	-	-	-	$1,070.00
City of Santa Maria	-	-	-	$225.00	-	$225.00
Weighted Based on Yield	**-**	**-**	**-**	**-**	**-**	**$758.00**

Notes:
1) Includes $250.00/AF to be paid in future for transportation costs for water debt.
2) 1:1 exchange for 268 AF at $400.00/AF or 1:2.25 exchange for 268 (no fee); no initial cost/pay variable costs upon return (unless returned when SWP Table A allocation is less than 30.0% - then no return costs).

- ***Groundwater Storage***. The City does not have a groundwater storage program for its SWP water. The City can create an account within or outside of the CCWA service area. If the City wants to use the surplus water on an operational basis, then the water should be stored along Central Coast SWP facilities for ease of access. For long-term storage, the surplus water should be stored in the San Joaquin Valley for later recovery and transfer (to minimize carrying costs since it does not include power to transport over coastal mountains). It is assumed that the power and land costs to store water will be lower in the San Joaquin Valley. Groundwater storage typically can add $350.00 to $400.00 per AF to the delivered cost of stored water (does not include the cost of the water).

- ***SWP Allocation***. The cost to acquire additional SWP Table A water in dry and critical years may be prohibitive. As the SWP allocation goes down, the cost per AF goes up. The City could acquire a non-project water supply in dry and critical water years with a high level of reliability/deliverability to complement its SWP contract and convey the non-project water with the City's SWP conveyance capacity (SWP Contract Article 55(a)).

- ***High Fixed Costs***. CCWA has the highest fixed costs in the SWP system. For FY 2019-20, the CCWA fixed costs are approximately 87.5% of the City's annual payments (CCWA 2019-20 Budget). This equates to $5.7 million in fixed costs (to CCWA and DWR). The City has to pay these costs regardless of the delivery of any SWP water. The City will not be able to fully recover these costs in the current water market through remarketing efforts.

2) Storage Options

Groundwater storage is an option for the City to regulate its surplus SWP Table A. Storing the water in the San Joaquin Valley has the lowest long-term storage costs in the SWP system. The City will not be able to recover the storage costs until the water is recovered and sold to its customers. This may be an extended period of time (5 to 10 years). This is the primary challenge to overcome in identifying water bank options for the City.

Water Bank Criteria. Given the "Challenges" above, the water bank criteria provide target objectives for the City. To pursue water banking as a management option, the City will have to evaluate the following criteria prior to implementing a program.

- ***Structure***. It is important to determine the purpose of the water bank. Many irrigation districts operate a water bank to better utilize surface and groundwater within their service areas. The local groundwater banks were started with funding from the banking partners that stored water at the bank. This model was designed for long-term storage of surplus water at low cost. These water banks are integrated into existing farming operations.

  The current approach is to develop a public-private model for the banking host to "make money" from water banking. This includes the sale of shares to banking partners and annual banking fees to generate investment returns. These water banks are typically stand-alone operations.

- ***Capital Investment***. Every water bank requires a capital investment. The capital investment can include land, retention basins, wells, pipes and interconnections. This is the majority of the water bank costs for banking partners. Most irrigation districts will issue some form of taxable municipal financing to extend repayment of the capital over a long period (i.e. 30-year term) to reduce annual principal and interest payments.

- ***Banking Fees***. The banking fees are designed to reimburse the water bank for actual costs and a "profit." It includes recharge, storage, management, maintenance, recovery and power costs. In addition, the water banks typically have to dedicate a portion of the delivered water (e.g., 10.0%) to the groundwater basin to alleviate impacts.

- ***Exchange Capacity***. This category deals with the mechanism to recover and return stored water. The operators of a water bank have supplemental water from a state or federal water supply contract. Instead of physically recovering the stored water, the water bank leaves its surface water in the system (i.e. California Aqueduct) and delivers the water to the banking partner by exchange. This reduces the cost to recover and deliver the stored water.

- ***Pump-Back Capacity***. Some water banks are built on the basis of physical recovery of stored water. This requires pump-back capacity that is connected to a conveyance system (i.e. California Aqueduct). DWR allows SWP Contractors to store water outside of their service area. DWR refers to these agreements as "pump-in" since they include putting SWP water back into the California Aqueduct. In 2016 (last year reported by DWR), there were 31 agreements between DWR and SWP Contractors for recovery of stored water.

- ***Cycling Ratio***. The cycling ratio refers to the period of time that elapses between the delivery date and the recovery date of the stored water. If the cycling ratio is 3 to 5 years, then the stored water is utilized for operational storage and ongoing water demand. If the cycling ratio is greater than 7 years, then the stored water is considered long-term storage. Since the cost of stored water increases over time, a lower cycling ratio produces lower cost water when delivered.

Existing Banking Programs. There are multiple water banking programs in the San Joaquin Valley. Most of the programs are limited to landowners within a specified region or irrigation district. The most popular banking partner for SWP Contractors is the Semitropic Water Storage District ("SWSD"). Between the original banking program and the Stored Water Recovery Unit ("SWRU"), SWSD has substantial operating experience with operating a water bank.

The City can participate in a water banking program in the San Joaquin Valley that allows the City to store its own surplus SWP water. Sierra Water prepared a financial summary of the SWSD SWRU program in Appendix A. It requires that the City acquire shares upfront in the SWRU program and pay banking fees to use the water bank. Assuming that the water bank has sufficient exchange or pump-back capacity, the City can recover the SWP water when it is needed. If not, the City may have to incur additional costs ("wheeling fee") or delay delivery of the SWP water.

Appendix A presents the projected allocation of the SWP and resulting "put" and "take" of water for a possible SWRU banking program. The model assumes the City will deposit all surplus SWP Table A in allocations over 40% and recover the maximum quantity of stored water when allocations are under 40%. Over a 30-year period, the City recovers 27,112 AF from the SWRU but still has to acquire approximately 6,300 AF of supplemental water to avoid extraordinary conservation in an extended drought.

It is projected that the SWRU program will add $367 per AF in banking costs to enable delivery of stored SWP Table A water in dry years. The projection is based on the upfront investment of $5.6 million by the City and the total costs $9.9 million based on a 30-year program with a discount rate of 4.5%.

3) Supplemental SWP/Non-Project Supplies

Without long-term storage of SWP supplies, the City must acquire water during drought periods. It is difficult and costly to acquire supplement SWP Table A in dry or critical water years because, as the SWP allocation and resulting supply are reduced, the demand and costs are increased. In dry or critical water years, acquiring SWP Table A supplies can be uneconomical so the City could acquire non-SWP supplemental water supplies instead.

Supplemental Water Criteria. The City knows that its SWP Table A contract is not sufficient to meet its water demands in all years. The following criteria can guide the City in pursuing a supplemental water program.

- ***Avoid Dry-Year Water Purchases (for the Long-Term)***. Dry-year water purchases from the spot market can be costly and difficult to complete. Dry-year water purchases are typically the result of a lack of long-term planning. Given the management tools available in the water industry, a water department can acquire supplemental water in the long-term water market and/or storage assets to avoid dry-year water purchases. On the other hand, dry-year water purchases (on a short-term basis) can be an important tool while developing a long-term water marketing program.

- ***Conveyance Capacity***. The City has access to the California Aqueduct through its SWP contract with CCWA. This provides an opportunity to transfer non-project water supplies. Article 55(a) of the SWP Contract allows access to the SWP to convey non-project water. In addition, Article 55(b) allows CCWA (by assignment from the Santa Barbara Flood Control and Water Conservation District) to transfer the non-project water at project costs (primarily power costs).

- ***Limit Extraordinary Conservation***. During water shortages, the City sometimes has to raise water rates to cover revenue shortfalls from extraordinary conservation measures because of the City's fixed water costs. Supplemental water purchases can reduce the need for extraordinary conservation. The City is only limited by their capacity in CCWA conveyance infrastructure of roughly 3,300 AFY.

4) Supplemental Water Management Options

The City has multiple options to regulate its SWP contract and associated water demand. The management options include the sale, lease, acquisition, banking, and exchange of supplemental water supplies. The City has already participated in a number of these management options on a short-term basis.

Acquire Water Rights/Long-Term Leases. The goal is to diversify the City's water supply. This category includes consideration of water rights and/or long-term water leases. To complement the SWP Table A, the City could acquire and/or lease highly reliable water rights. Most of the senior water rights available in the Sacramento Valley pre-date the SWP. Even in years in which SWP allocation are low, senior water rights can provide a full contract water supply. This water could be transported in SWP infrastructure.

Sale of SWP Table A (Permanent). In 1994, the Monterey Agreement between DWR and the SWP Contractors allowed Kern County Water Agency ("KCWA") to permanently sell a portion of its SWP Table A contract. KCWA and its subcontractors sold 170,670 AF of SWP Table A over a fifteen-year period from 1995 through 2010. In general, the sellers within KCWA were required to revert to a "pre-project" level of service. Although this does not apply to the City, it is a good operating guideline.

A sale of SWP Table A by the City would result in a similar outcome. The City could retire a portion or all of its SWP Table A. This will reduce the availability of future SWP Table A deliveries and the capacity to deliver supplemental water (project and non-project water supplies). Since the City's SWP contract is expensive relative to other SWP service areas, the likely buyer will be in Santa Barbara County. This will provide the best opportunity for full cost recovery of the City's SWP investment. Unless the City can find a reliable replacement for the 3,300 AF of SWP Table A, Sierra Water does not recommend the permanent sale of SWP Table A.

Sale of SWP Table A (Lease). The leasing of SWP Table A has developed over the last ten years as a viable alternative to DWR's Turnback Pool. It includes short-term and long-term leasing of SWP Table A or SWP water yield (quantity adjusted for actual SWP allocation) depending upon needs of the buyer. Also, the prices are set by negotiation between sellers and buyers, not DWR. The City can consider selling its surplus SWP Table A or buying supplemental water in one of the following three markets:

- ***Dry-Year Program***. The SWP Contractors have a well-developed water transfer program referred to as the "Dry-Year Program" (operating in years with SWP allocation is below 30.0%). The City can buy and sell into the Dry-Year Program with its SWP Table A. The City has experience with the program through CCWA participation.

- ***Irrigation Season Program***. There are new buyers in the San Joaquin Valley market looking for water for direct use and water banking in years with SWP allocation of 30.0% to 55.0%. The buyers are still active when the Dry-Year Program is inactive. The Sustainable Groundwater Management Act of 2014 is driving most of the demand for replacement water. San Joaquin Valley groundwater banks are capturing most of the water from this program.

- ***Fall Banking Program***. There is demand for water banking in fall months (October and November). The City can consider selling its surplus water into this developing water market. To qualify for the fall banking program, the water has to be retained in surface water reservoirs (Oroville or San Luis) and released on call. Typically, the transfer water is surplus to summer peak irrigation demands. There is substantial Delta conveyance capacity in both the federal and state pumping plants during this period.

The short-term leases can be priced off of the spot market index (described below). For long-term leases, it can be difficult to price the transaction. Typically, an index has to be developed to price the long-term lease. The index is agreed upon at the beginning of the lease and resets the water price each year during the term.

Pricing of SWP Table A (Spot Market). Sierra Water has indexed the short-term water transfer market for transactions that include the Sacramento-San Joaquin Delta. The typical water transfer originates in the Sacramento Valley from a seller that fallows rice acreage. The federal and state water agencies want to acquire dry-year water when SWP allocation is less than 30.0%. In recent years, irrigation districts in the San Joaquin Valley were seeking short-term water for groundwater banking (SWP allocation of 30.0% to 55.0%).

The following table shows the current spot market index for short-term water prices:

Table 3 – Spot Market Prices

SWP Allocation	"SR" Index	"NOD" $/AF	Carriage Losses	"SOD" $/AF	CCWA & DWR Variable $/AF	Delivered to Cachuma $/AF
Above 70.0%	Wet	$150.00	25.0%	$200.00	$286.00	$486.00
46.0% - 70.0%	Above Normal	$250.00	28.0%	$347.22	$286.00	$633.22
31.0% - 45.0%	Below Normal	$375.00	30.0%	$535.71	$286.00	$821.71
16.0% - 30.0%	Dry	$525.00	35.0%	$807.69	$286.00	$1,093.69
0.0% - 15.0%	Critical	$700.00	38.0%	$1,129.03	$286.00	$1,415.03

Notes:
1) "SR" refers to Sacramento River;
2) "NOD" refers to North of Delta (Sacramento Valley);
3) Carriage Losses refer to a percentage of transfer water dedicated to Delta water quality (reduces yield to buyer);
4) "SOD" refers to adjusted cost of NOD water delivered to South of Delta (San Joaquin Valley); and,
5) the $286.00/AF is the FY 2019-20 DWR/CCWA estimate for power costs to deliver SWP water to the City.

Supplemental Water. Broadly defined, supplemental water can include SWP water and non-SWP water. Non-SWP water can include senior water rights, contract water supplies and federal contract water. The City needs supplemental water in dry years. Historically, the City has acquired dry and critical year water through CCWA (participating in the Dry-Year Program). The City can access the water market to acquire short-term, long-term, and permanent supplemental water supplies.

Appendix B shows the potential water marketing revenues and costs for the City assuming that the City buys supplemental water to maximize deliveries to 3,300 AF in years with Table A allocations below 40% and sells all surplus SWP water in years above 40% allocation. The analysis estimates 33,415 AF purchased over 30 years at an NPV of $18.8 million (or $563/AF) and 30,197 AF sold over 30 years at an NPV of $8.3 million (or $274/AF). The net NPV of $10.5 million is equivalent to $315 per AF of water purchased.

Water Exchanges. The City has participated in "unbalanced" water exchanges with two SWP Contractors. The water exchanges were completed with Antelope Valley-East Kern Water Agency ("AVEK") and Mojave Water Agency ("PWD"). Both AVEK and PWD have access to groundwater storage and surplus SWP water. This provides the basis for a good exchange partner.

The water exchanges allowed the City to acquire supplemental water from another SWP Contractor. The City will pay back the SWP Contractor with surplus SWP Table A or purchase substitute water supplies for delivery. As discussed above, the City can pursue management options that provide similar benefits without a water exchange.

Water exchanges require that the receiving party have sufficient SWP Table A to "pay" back the water debt in dry or critical water years. This is typically accomplished with a combination of additional water and cash from the City. The City still has an outstanding balance (water due) to

AVEK and PWD. Sierra Water projects that these types of water exchanges will "dry up" as the market for leasing SWP Table A fully develops.

Options Summary. Of the different options described above, Sierra Water recommends combining the sale of SWP Table A during wet years (lease) with the acquisition of supplemental water in dry years (spot market/long-term leases). Water Exchanges are not expected to be as prevalent in the future but, even if they are, purchase of spot market and supplemental water is preferred to avoid complication and costs of payback component of exchanges. Also, sale of SWP Table A (permanent) is not recommended.

5) Conclusions

This memo is an initial look at potential options to increase the reliability of SWP deliveries in dry years while potentially providing revenue to the City in wet years. No recommendations are made now because CCWA is currently conducting a broader study that will better define the City's options. The City should work with CCWA to identify the preferred method for increasing certainty of SWP or supplemental water availability during extended drought conditions – whether via groundwater banking or long-term purchase agreements. This effort could also identify the potential to sell SWP supplies on an annual basis when they are not needed for City use in that year or for providing drought year supplies.

Appendix D: Consistency with the Delta Plan

Technical Memorandum

Date: 6/30/2021

To: Dakota Cory, City of Santa Barbara

CC: Cathy Taylor, City of Santa Barbara

Prepared by: Rob Morrow, P.E.

Project: 2020 Enhanced UWMP

SUBJECT: QUANTIFYING REGIONAL SELF-RELIANCE AND REDUCED RELIANCE ON WATER SUPPLIES FROM THE DELTA WATERSHED

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1 Background

Under the Sacramento-San Joaquin Delta Reform Act of 2009, state and local public agencies proposing a covered action in the Delta, prior to initiating the implementation of that action, must prepare a written certification of consistency with detailed findings as to whether the covered action is consistent with applicable Delta Plan policies and submit that certification to the Delta Stewardship Council. Anyone may appeal a certification of consistency, and if the Delta Stewardship Council grants the appeal, the covered action may not be implemented until the agency proposing the covered action submits a revised certification of consistency, and either no appeal is filed, or the Delta Stewardship Council denies the subsequent appeal.

An urban water supplier that anticipates participating in or receiving water from a proposed covered action such as a multi-year water transfer, conveyance facility, or new diversion that involves transferring water through, exporting water from, or using water in the Delta should provide information in their 2015 and 2020 Urban Water Management Plans (UWMPs) that can then be used in the covered action process to demonstrate consistency with Delta Plan Policy WR P1, Reduce Reliance on the Delta Through Improved Regional Water Self-Reliance (WR P1).

WR P1 details what is needed for a covered action to demonstrate consistency with reduced reliance on the Delta and improved regional self-reliance. WR P1 subsection (a) states that:

> *(a) Water shall not be exported from, transferred through, or used in the Delta if all of the following apply:*
>
> > *(1) One or more water suppliers that would receive water as a result of the export, transfer, or use have failed to adequately contribute to reduced reliance on the Delta and improved regional self-reliance consistent with all of the requirements listed in paragraph (1) of subsection (c);*
> >
> > *(2) That failure has significantly caused the need for the export, transfer, or use; and*
> >
> > *(3) The export, transfer, or use would have a significant adverse environmental impact in the Delta.*

WR P1 subsection (c)(1) further defines what adequately contributing to reduced reliance on the Delta means in terms of (a)(1) above.

> *(c)(1) Water suppliers that have done all the following are contributing to reduced reliance on the Delta and improved regional self-reliance and are therefore consistent with this policy:*
>
> > *(A) Completed a current Urban or Agricultural Water Management Plan (Plan) which has been reviewed by the California Department of Water Resources for compliance with the applicable requirements of Water Code Division 6, Parts 2.55, 2.6, and 2.8;*
> >
> > *(B) Identified, evaluated, and commenced implementation, consistent with the implementation schedule set forth in the Plan, of all programs and projects included in the Plan that are locally cost effective and technically feasible which reduce reliance on the Delta; and*
> >
> > *(C) Included in the Plan, commencing in 2015, the expected outcome for measurable reduction in Delta reliance and improvement in regional self-reliance. The expected outcome for measurable reduction in Delta reliance and improvement in regional self- reliance shall be reported in the Plan as the reduction in the amount of water used, or in the percentage of water used, from the Delta watershed. For the purposes of reporting, water efficiency is considered a new source of water supply, consistent with Water Code section 1011(a).*

The analysis and documentation provided below include all the elements described in WR P1(c)(1) that need to be included in a water supplier's UWMP to support a certification of consistency for a future covered action.

2 Methodology

As stated in WR P1(c)(1)(C), the policy requires that, commencing in 2015, UWMPs include expected outcomes for improved regional self-reliance and measurable reduction in Delta reliance. WR P1 further states that those outcomes shall be reported in the UWMP as the reduction in the amount of water used, or in the percentage of water used, from the Delta. The expected outcomes for City of Santa Barbara's (City's) regional self-reliance and reduced Delta reliance were developed using the approach and guidance described in Appendix C of DWR's Urban Water Management Plan Guidebook 2020 issued in March 2020 (Guidebook Appendix C).

The methodology used to determine City's improved regional self-reliance and reduced Delta reliance is consistent with the approach detailed in DWR's UWMP Guidebook Appendix C, including the use of narrative justifications for the accounting of supplies and the documentation of specific data sources. Some of the key assumptions include:

- All data were obtained from the current 2020 UWMP or previously adopted UWMPs and represent average or normal water year conditions.
- All analyses were conducted at the service area level, and all data reflect the total contributions of City and its customers as well as their customers.

To calculate the expected outcomes for improved regional self-reliance and reduced Delta reliance, a baseline is needed to compare against. This analysis uses a normal water year representation of 2010 as the baseline, which is consistent with the approach described in the Guidebook Appendix C. Data for the 2010 baseline were taken from City's 2005 UWMP as the UWMPs generally do not provide normal water year data for the year that they are adopted (i.e., 2005 UWMP forecasts begin in 2010, 2010 UWMP forecasts begin in 2015, and so on).

Consistent with the 2010 baseline data approach, the expected outcomes for improved regional self-reliance and reduced Delta reliance for 2015 and 2020 were taken from City's 2010 and 2015 UWMPs, respectively. Expected outcomes for 2025-2045 are from the current 2020 UWMP. Documentation of the specific data sources and assumptions are included in the discussions below.

3 Demonstration of Regional Self-Reliance

Service Area Demands without Water Use Efficiency

In alignment with the Guidebook Appendix C, this analysis uses normal water year demands, rather than normal water year supplies to calculate expected outcomes in terms of the percentage of water used. Using normal water year demands serves as a proxy for the amount of supplies that would be used in a normal water year, which helps alleviate issues associated with how supply capability is presented to fulfill requirements of the UWMP Act versus how supplies might be accounted for to demonstrate consistency with WR P1.

Because WR P1 considers water use efficiency savings a source of water supply, water suppliers such as City that do not explicitly quantify water use efficiency savings in their UWMPs can calculate their embedded water use efficiency savings based on changes in forecasted per capita water use since the baseline.

Agencies that explicitly calculate and report water use efficiency savings in their UWMP will need to make an adjustment to properly reflect normal water year demands in the calculation of reduced reliance. As explained in the Guidebook Appendix C, water use efficiency savings must be added back to the normal year demands to represent demands without water use efficiency savings accounted for; otherwise the effect of water use efficiency savings on regional self-reliance would be overestimated. Table 1 shows the results of this adjustment for City. Supporting narratives and documentation for all the data shown in Table 1 are provided below.

Service Area Demands with Water Use Efficiency

The service area demands shown in Table 1 represent the total water demands for City's service area. The demand data shown in Table 1 were collected from the following sources:

- Baseline (2010): City 2005 UWMP, Figure 9
- 2015: City 2010 UWMP, Table 6
- 2020: City 2015 UWMP, 3
- 2025-2045: City 2020 UWMP, Table 5

Service Area Population

The population data shown in Table 1 were collected from the following sources:

- Baseline (2010): City 2015 UWMP, Table 2
- 2015: City 2015 UWMP, Table 2
- 2020-2045: City 2020 UWMP, Table 3

Estimated Water Use Efficiency Since Baseline

Calculated using “Potable Service Area Demands with Water Use Efficiency” divided by “Service Area Population” and then calculating Estimated Water Use Efficiency Since Baseline by comparing with 2010 Per Capita Water Use.

Service Area Water Demands without Water Use Efficiency

Add “Service Area Demands with Water Use Efficiency” to “Estimated Water Use Efficiency Since Baseline.”

Supplies Contributing to Regional Self-Reliance

For a covered action to demonstrate consistency with the Delta Plan, WR P1 subsection (c)(1)(C) states that water suppliers must report the expected outcomes for measurable improvement in regional self-reliance. Table 2 shows expected outcomes for supplies contributing to regional self-reliance both in amount and as a percentage. The numbers shown in Table 2 represent efforts to improve regional self-reliance for City’s entire service area. Supporting narratives and documentation for all of the data shown in Table 2 are provided below.

Water Use Efficiency

The water use efficiency information shown in Table 2 is taken directly from Table 1.

Advanced Water Technologies

The advanced water technologies data shown in Table 2 represent projected normal year supply of desalination. Prior to the 2020 UWMP, use of desalination was only planned on for extended drought or emergency conditions. As of the 2020 UWMP, desalination is now considered part of the City’s water supply portfolio to support drought preparedness, response, and recovery. Based on this information, desalination data was estimated from the following sources:

- Baseline (2010): City 2005 UWMP, Page 15
- 2015: City 2010 UWMP, Page 27
- 2020: City 2015 UWMP, Page 48
- 2025-2045: City 2020 UWMP, Table 12

Local and Regional Water Supply and Storage Programs

The local and regional water supply and storage programs data shown in Table 2 represent average annual supply projections by the City for the Cachuma Project, Gibraltar Reservoir, Mission Tunnel, and Devil’s Creek. Based on this information, groundwater pumping data was estimated from the following sources:

- Baseline (2010): City 2005 UWMP, Pages 7 to 10
- 2015: City 2010 UWMP, Table 12
- 2020: City 2015 UWMP, Table 15
- 2025-2045: City 2020 UWMP, Table 12

Other Programs and Projects the Contribute to Regional Self-Reliance

The Other Programs and Projects the Contribute to Regional Self-Reliance data shown in Table 2 represent groundwater pumping perennial yield estimates by the City. Based on this information, groundwater pumping data was estimated from the following sources:

- Baseline (2010): City 2005 UWMP, Page 11
- 2015: City 2010 UWMP, Table 12
- 2020: City 2015 UWMP, Table 15
- 2025-2045: City 2020 UWMP, Table 12

Conclusions

The results shown in Table 2 demonstrate that City's service area is measurably improving its regional self-reliance, both as an amount of water used and as a percentage of water used. The following provides a summary of the near-term (2025) and long-term (2045) expected outcomes for City's Delta reliance on supplies from the Delta watershed:

- Near-term (2025): Normal water year regional self-reliance increased by 5,500 AF from the 2010 baseline, this represents an increase of 22 percent of 2025 normal water year demands without water use efficiency (Table 2).
- Long-term (2045): Normal water year regional self-reliance increased by 5,700 AF from the 2010 baseline, this represents an increase of 13 percent of 2045 normal water year demands without water use efficiency (Table 2).

4 Demonstration of Reduced Reliance on the Delta

City's service area reduces reliance on the Delta through investments in non-Delta water supplies, local water supplies, and regional and local demand management measures. For reduced reliance on supplies from the Delta Watershed, the data used in this analysis represent the total regional efforts of City.

Calculation of Reliance on Water Supplies from the Delta Watershed

The calculation of reliance on water supplies from the Delta watershed, shown in Table 3, is based on the following assumptions. City water supplies from the Delta watershed include:

- CVP/SWP Contract Supplies

CVP/SWP Contract Supplies

The supply data shown in Table 3 is for City's SWP Table A allocation and were collected from the following sources:

- Baseline (2010): City 2005 UWMP, Page 14
- 2015: City 2010 UWMP, Page 25
- 2020: City 2015 UWMP, Table 15
- 2025-2045: City 2020 UWMP, Table 12

Change in Supplies from the Delta Watershed

Adds “CVP/SWP Contract Supplies” and “Other Water Supplies from the Delta Watershed” to get total Water Supplies from the Delta Watershed and calculates changes from the 2010 baseline.

Percent Change in Supplies from the Delta Watershed

Divides “Water Supplies from the Delta Watershed” by “Service Area Demands without Water Use Efficiency” and calculates changes from the 2010 baseline.

Conclusions

The results shown in Table 3 show that the City is measurably reducing reliance on the Delta, both as an amount of water used and as a percentage of water used. The following provides a summary of the near-term (2025) and long-term (2045) expected outcomes for City’s Delta reliance on supplies from the Delta watershed:

- Near-term (2025): Normal water year reliance on supplies from the Delta watershed decreased by 700 AF from the 2010 baseline, this represents a decrease of 6 percent of 2025 normal water year demands without water use efficiency (Table 3).
- Long-term (2045): Normal water year reliance on supplies from the Delta watershed decreased by 850 AF from the 2010 baseline, this represents a decrease of 8 percent of 2045 normal water year demands without water use efficiency (Table 3).

5 UWMP Implementation

In addition to the analysis and documentation described above, WR P1 subsection (c)(1)(B) requires that all programs and projects included in the UWMP that are locally cost-effective and technically feasible, which reduce reliance on the Delta, are identified, evaluated, and implemented consistent with the implementation schedule. WR P1 (c)(1)(B) states that:

> *(B) Identified, evaluated, and commenced implementation, consistent with the implementation schedule set forth in the Plan, of all programs and projects included in the Plan that are locally cost effective and technically feasible which reduce reliance on the Delta[.]*

In accordance with Water Code Section 10631(f), water suppliers must already include in their UWMP a detailed description of expected future projects and programs that they may implement to increase the amount of water supply available to them in normal and single-dry water years and for a period of drought lasting five consecutive years. The UWMP description must also identify specific projects, include a description of the increase in water supply that is expected to be available from each project, and include an estimate regarding the implementation timeline for each project or program.

Chapter 6 of City’s 2020 UWMP summarizes the implementation plan and continued progress in developing a diversified water portfolio to meet the region’s water needs.

6 2015 UWMP Appendix O

The information contained in this appendix is also intended to be a new Appendix O attached to City's 2015 UWMP consistent with WR P1 subsection (c)(1)(C) (Cal. Code Regs. tit. 23, § 5003). City provided notice of the availability of the draft 2020 UWMP, new draft Appendix O to the 2015 UWMP, and the public hearing to consider adoption of the documents in accordance with CWC Sections 10621(b) and 10642, and Government Code Section 6066, and Chapter 17.5 (starting with Section 7290) of Division 7 of Title 1 of the Government Code. The public review drafts of the 2020 UWMP and Appendix O to the 2015 UWMP were posted on City's website, www.SantaBarbaraCA.gov/WaterVision, on May 3, 2021, more than two weeks in advance of the public hearing on May 25, 2021. The notice of availability of the documents was sent to cities and counties in City's service area on March 23, 2021. A public notice of the May 25, 2021 public hearing was published in the Montecito Journal on May 12, 2021 and May 19, 2020. Copies of the notification letter sent to cities and counties in City's service area and the public notice published in the Montecito Journal are included in the City's 2020 UWMP Appendix E. Thus, this Appendix D to City's 2020 UWMP, which was adopted with City's 2020 UWMP, will also be recognized and treated as Appendix O to City's 2015 UWMP.

City held the public hearing for the draft 2020 UWMP and draft Appendix O to the 2015 UWMP on May 25, 2021, at a regular City Council meeting, held online due to COVID-19 concerns. On June 29, 2021, the City Council determined that the 2020 UWMP and the 2021 WSCP accurately represent the water resources plan for the City's service area. In addition, the City Council determined that Appendix O to both the 2015 UWMP and this appendix to the 2020 UWMP includes the elements described in Delta Plan Policy WR P1, Reduce Reliance on the Delta Through Improved Regional Water Self-Reliance (Cal. Code Regs. tit. 23, § 5003), which need to be included in a water supplier's UWMP to support a certification of consistency for a future covered action. The City Council adopted the 2020 UWMP and Appendix O to the 2015 UWMP and authorized their submittal to the State of California. Copies of the resolutions are included in the 2020 UWMP Appendix E.

Table 1. Calculation of Service Area Water Demands without Water Use Efficiency (UWMP Table C-1 and Table C-2)

Table C-1: Optional Calculation of Water Use Efficiency -To be completed if Water Supplier does not specifically estimate Water Use Efficiency as a supply

Service Area Water Use Efficiency Demands (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045 (Optional)
Service Area Water Demands with Water Use Efficiency Accounted For	14,200	13,310	13,176	12,460	13,170	13,290	13,150	13,480
Non-Potable Water Demands	800	875	950	1,221	1,221	1,221	1,221	1,221
Potable Service Area Demands with Water Use Efficiency Accounted For	13,400	12,435	12,226	11,239	11,949	12,069	11,929	12,259

Total Service Area Population	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045 (Optional)
Service Area Population	91,114	93,532	96,027	99,775	102,033	104,063	106,094	108,124

Water Use Efficiency Since Baseline (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045 (Optional)
Per Capita Water Use (GPCD)	131	119	114	101	105	104	100	101
Change in Per Capita Water Use from Baseline (GPCD)		(13)	(18)	(31)	(27)	(28)	(31)	(30)
Estimated Water Use Efficiency Since Baseline		1,321	1,897	3,435	3,057	3,235	3,674	3,643

Table C-2: Calculation of Service Area Water Demands Without Water Use Efficiency

Total Service Area Water Demands (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045 (Optional)
Service Area Water Demands with Water Use Efficiency Accounted For	14,200	13,310	13,176	12,460	13,170	13,290	13,150	13,480
Reported Water Use Efficiency or Estimated Water Use Efficiency Since Baseline	-	1,321	1,897	3,435	3,057	3,235	3,674	3,643
Service Area Water Demands without Water Use Efficiency Accounted For	14,200	14,631	15,073	15,895	16,227	16,525	16,824	17,123

Table 2. Calculation of Supplies Contributing to Regional Self-Reliance (UWMP Table C-3)

Table C-3: Calculation of Supplies Contributing to Regional Self-Reliance

Water Supplies Contributing to Regional Self-Reliance (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045 (Optional)
Water Use Efficiency	-	1,321	1,897	3,435	3,057	3,235	3,674	3,643
Water Recycling	800	875	950	1,221	1,221	1,221	1,221	1,221
Stormwater Capture and Use								
Advanced Water Technologies	-	-	-	3,125	3,125	3,125	3,125	3,125
Conjunctive Use Projects								
Local and Regional Water Supply and Storage Projects	14,345	12,503	12,503	12,997	12,997	12,997	12,997	12,997
Other Programs and Projects the Contribute to Regional Self-Reliance	1,400	1,083	1,083	1,250	1,250	1,250	1,250	1,250
Water Supplies Contributing to Regional Self-Reliance	16,545	15,782	16,433	22,028	21,650	21,828	22,267	22,236

Service Area Water Demands without Water Use Efficiency (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045 (Optional)
Service Area Water Demands without Water Use Efficiency Accounted For	14,200	14,631	15,073	15,895	16,227	16,525	16,824	17,123

Change in Regional Self Reliance (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045 (Optional)
Water Supplies Contributing to Regional Self-Reliance	16,545	15,782	16,433	22,028	21,650	21,828	22,267	22,236
Change in Water Supplies Contributing to Regional Self-Reliance		(763)	(112)	5,483	5,105	5,283	5,722	5,691

Percent Change in Regional Self Reliance (As Percent of Demand w/out WUE)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045 (Optional)
Percent of Water Supplies Contributing to Regional Self-Reliance	116.5%	107.9%	109.0%	138.6%	133.4%	132.1%	132.4%	129.9%
Change in Percent of Water Supplies Contributing to Regional Self-Reliance		-8.6%	-7.5%	22.1%	16.9%	15.6%	15.8%	13.3%

Table 3. Reliance on Water Supplies from the Delta Watershed (UWMP Table C-4)

Table C-4: Calculation of Reliance on Water Supplies from the Delta Watershed

Water Supplies from the Delta Watershed (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045 (Optional)
CVP/SWP Contract Supplies	2,566	1,980	2,001	1,865	1,815	1,766	1,716	1,716
Delta/Delta Tributary Diversions								
Transfers and Exchanges of Supplies from the Delta Watershed								
Other Water Supplies from the Delta Watershed								
Total Water Supplies from the Delta Watershed	2,566	1,980	2,001	1,865	1,815	1,766	1,716	1,716

Service Area Water Demands without Water Use Efficiency (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045 (Optional)
Service Area Water Demands without Water Use Efficiency Accounted For	14,200	14,631	15,073	15,895	16,227	16,525	16,824	17,123

Change in Supplies from the Delta Watershed (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045 (Optional)
Water Supplies from the Delta Watershed	2,566	1,980	2,001	1,865	1,815	1,766	1,716	1,716
Change in Water Supplies from the Delta Watershed		(586)	(565)	(701)	(751)	(800)	(850)	(850)

Percent Change in Supplies from the Delta Watershed (As a Percent of Demand w/out WUE)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045 (Optional)
Percent of Water Supplies from the Delta Watershed	18.1%	13.5%	13.3%	11.7%	11.2%	10.7%	10.2%	10.0%
Change in Percent of Water Supplies from the Delta Watershed		-4.5%	-4.8%	-6.3%	-6.9%	-7.4%	-7.9%	-8.0%

Appendix E: Documentation of Public Noticing, Coordination, and Adoption

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March 23, 2021

Ray Stokes
Central Coast Water Authority
255 Industrial Way
Buellton, CA 93427

Subject: Notice of Public Hearing on the City of Santa Barbara Draft 2020 Urban Water Management Plan, Draft 2021 Water Shortage Contingency Plan, and Draft Appendix O to the 2015 UWMP

Dear Mr. Stokes,

The City of Santa Barbara (City), as required every five years, is preparing its 2020 Urban Water Management Plan (UWMP) in compliance with the Urban Water Management Planning Act and the Water Conservation Act of 2009, commonly referred to as SBX7-7. The City's 2020 UWMP, titled the Enhanced Urban Water Management Plan, will include results of the City's recently updated long range water supply planning efforts, and reflect the growth that has occurred since the adoption of the 2015 UWMP; forecasted growth within its service area; the City's plan to reliably meet the water needs within its service area; and compliance with the SB X7-7.

The City is also updating and re-adopting its Water Shortage Contingency Plan (WSCP), which will be included as part of the 2020 UWMP. This document will describe how the City will respond to foreseeable and unforeseeable water shortages. In addition, City is preparing an appendix to both the 2015 UWMP and 2020 UWMP to demonstrate consistency with the Delta Plan Policy WR P1, Reduced Reliance on the Delta Through Improved Regional Water Self-Reliance (California Code Reg., tit.23, §5003). The 2015 UWMP is being amended only to report reduced reliance on the Delta and this action is separate from adoption of the 2020 UWMP and adoption of the 2021 WSCP.

The City is required to notify cities and counties within its service area that it is preparing its 2020 UWMP, 2021 WSCP, and Appendix O of the 2015 UWMP at least 60 days prior to holding a public hearing. This letter serves as City's official public hearing notice and intent to adopt the 2020 UWMP, 2021 WSCP, and Appendix O of the 2015 UWMP before the July 1, 2021 deadline.

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If you have any questions, comments, or input, please contact Dakota Corey, Water Supply Analyst, via email at Dcorey@SantaBarbaraCA.gov or by phone at (805) 564-5369.

Sincerely,

Catherine Taylor
Water Supply and Service Manager

City of Santa Barbara
Public Works Department
SantaBarbaraCA.gov

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Santa Barbara, CA
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March 23, 2021

Janet Gingras
Cachuma Operations and Maintenance Board
3301 Laurel Canyon Road
Santa Barbara, CA 93105

Subject: Notice of Public Hearing on the City of Santa Barbara Draft 2020 Urban Water Management Plan, Draft 2021 Water Shortage Contingency Plan, and Draft Appendix O to the 2015 UWMP

Dear Ms. Gingras,

The City of Santa Barbara (City), as required every five years, is preparing its 2020 Urban Water Management Plan (UWMP) in compliance with the Urban Water Management Planning Act and the Water Conservation Act of 2009, commonly referred to as SBX7-7. The City's 2020 UWMP, titled the Enhanced Urban Water Management Plan, will include results of the City's recently updated long range water supply planning efforts, and reflect the growth that has occurred since the adoption of the 2015 UWMP; forecasted growth within its service area; the City's plan to reliably meet the water needs within its service area; and compliance with the SB X7-7.

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March 23, 2021

Matt Young
Santa Barbara County Water Agency
130 E. Victoria Street, Suite 200
Santa Barbara, CA 93101

Subject: Notice of Public Hearing on the City of Santa Barbara Draft 2020 Urban Water Management Plan, Draft 2021 Water Shortage Contingency Plan, and Draft Appendix O to the 2015 UWMP

Dear Mr. Young,

The City of Santa Barbara (City), as required every five years, is preparing its 2020 Urban Water Management Plan (UWMP) in compliance with the Urban Water Management Planning Act and the Water Conservation Act of 2009, commonly referred to as SBX7-7. The City's 2020 UWMP, titled the Enhanced Urban Water Management Plan, will include results of the City's recently updated long range water supply planning efforts, and reflect the growth that has occurred since the adoption of the 2015 UWMP; forecasted growth within its service area; the City's plan to reliably meet the water needs within its service area; and compliance with the SB X7-7.

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March 23, 2021

Robert McDonald
Carpinteria Valley Water District
1301 Santa Ynez Avenue
Carpinteria, CA 93013

Subject: Notice of Public Hearing on the City of Santa Barbara Draft 2020 Urban Water Management Plan, Draft 2021 Water Shortage Contingency Plan, and Draft Appendix O to the 2015 UWMP

Dear Mr. McDonald,

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March 23, 2021

John McInnes
Goleta Water District
4699 Hollister Avenue
Goleta, CA 93110

Subject: Notice of Public Hearing on the City of Santa Barbara Draft 2020 Urban Water Management Plan, Draft 2021 Water Shortage Contingency Plan, and Draft Appendix O to the 2015 UWMP

Dear Mr. McInnes,

The City of Santa Barbara (City), as required every five years, is preparing its 2020 Urban Water Management Plan (UWMP) in compliance with the Urban Water Management Planning Act and the Water Conservation Act of 2009, commonly referred to as SBX7-7. The City's 2020 UWMP, titled the Enhanced Urban Water Management Plan, will include results of the City's recently updated long range water supply planning efforts, and reflect the growth that has occurred since the adoption of the 2015 UWMP; forecasted growth within its service area; the City's plan to reliably meet the water needs within its service area; and compliance with the SB X7-7.

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Water Supply and Service Manager

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March 23, 2021

Paeter Garcia
Santa Ynez River Water Conservation District Improvement District No. 1
PO Box 157
Santa Ynez, CA 93460

Subject: Notice of Public Hearing on the City of Santa Barbara Draft 2020 Urban Water Management Plan, Draft 2021 Water Shortage Contingency Plan, and Draft Appendix O to the 2015 UWMP

Dear Mr. Garcia,

The City of Santa Barbara (City), as required every five years, is preparing its 2020 Urban Water Management Plan (UWMP) in compliance with the Urban Water Management Planning Act and the Water Conservation Act of 2009, commonly referred to as SBX7-7. The City's 2020 UWMP, titled the Enhanced Urban Water Management Plan, will include results of the City's recently updated long range water supply planning efforts, and reflect the growth that has occurred since the adoption of the 2015 UWMP; forecasted growth within its service area; the City's plan to reliably meet the water needs within its service area; and compliance with the SB X7-7.

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Sincerely,

Catherine Taylor
Water Supply and Service Manager

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Public Works Department
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Water Resources
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March 23, 2021

Nick Turner
Montecito Water District
583 San Ysidro Road
Montecito, CA 93108

Subject: Notice of Public Hearing on the City of Santa Barbara Draft 2020 Urban Water Management Plan, Draft 2021 Water Shortage Contingency Plan, and Draft Appendix O to the 2015 UWMP

Dear Mr. Turner,

The City of Santa Barbara (City), as required every five years, is preparing its 2020 Urban Water Management Plan (UWMP) in compliance with the Urban Water Management Planning Act and the Water Conservation Act of 2009, commonly referred to as SBX7-7. The City's 2020 UWMP, titled the Enhanced Urban Water Management Plan, will include results of the City's recently updated long range water supply planning efforts, and reflect the growth that has occurred since the adoption of the 2015 UWMP; forecasted growth within its service area; the City's plan to reliably meet the water needs within its service area; and compliance with the SB X7-7.

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Sincerely,

Catherine Taylor
Water Supply and Service Manager

From: Dakota Corey
To: Bob McDonald; Nicholas Turner; John McInnes; Ryan Drake; Paeter Garcia; Ray Stokes; John L. Brady; Janet Gingras; pcantle@ccrb-board.org; mjackson@usbr.gov
Cc: Rob Morrow; Catherine Taylor
Subject: Notice of Public Hearing (Pursuant to California Water Code, Section 10642)
Date: Monday, May 3, 2021 4:20:36 PM

NOTICE IS HEREBY GIVEN that the City Council of the City of Santa Barbara will conduct a Public Hearing on Tuesday, May 25, 2021, during the afternoon session of the meeting, which begins at 2:00 p.m. The meeting will be conducted electronically. On Thursday, May, 20, 2021 an Agenda with all items to be heard on Tuesday, May 25, 2021 will be available online at www.SantaBarbaraCA.gov/CAP. The Agenda includes instructions for participation in the meeting. If you wish to participate in the public hearing, please follow the instructions on the posted Agenda.

The hearing is to consider the adoption of the City of Santa Barbara 2020 Enhanced Urban Water Management Plan, addendum to the 2015 Urban Water Management Plan, and 2021 Water Shortage Contingency Plan, according to the requirements of California Water Code Division 6, Part 2.6, Chapter 3, commencing with § 10620. A copy of the proposed Enhanced Urban Water Management Plan is available for public review online at www.SantaBarbaraCA.gov/WaterVision. The preparation and adoption of the Enhanced Urban Water Management Plan is exempt from the California Environmental Quality Act under California Water Code § 10652.

You are invited to attend this public hearing and address your verbal comments to the City Council. Written comments are also welcome up to the time of the hearing, and should be addressed to the City Council via the City Clerk's Office by sending them electronically to Clerk@SantaBarbaraCA.gov. In order to promote social distancing and prioritize the public's health and well-being, the City Council currently holds all meetings electronically. As a public health and safety precaution, the council chambers will not be open to the general public. Councilmembers and the public may participate electronically.

Please feel free to direct any questions to me.

Best,

Dakota Corey
Administrative Analyst II
CITY OF SANTA BARBARA, Public Works
(805) 564-5369 | dcorey@SantaBarbaraCA.gov
SantaBarbaraCA.gov

From: Dakota Corey
To: tfayram@cosbpw.net; Young, Matt
Cc: Rob Morrow; Catherine Taylor
Subject: Notice of Public Hearing (Pursuant to California Water Code, Section 10642)
Date: Monday, May 3, 2021 4:12:57 PM

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PUBLIC NOTICE
City of Santa Barbara

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(SEAL)

____
Sarah Gorman, MMC
City Clerk Services Manager
5/12/2021

Published May 12 and May 19, 2021
Montecito Journal

CITY OF SANTA BARBARA
CITY COUNCIL

Cathy Murillo
Mayor

Oscar Gutierrez
Mayor Pro Tempore

Mike Jordan
Ordinance Committee Chair

Eric Friedman
Finance Committee Chair

Alejandra Gutierrez
Meagan Harmon
Kristen Sneddon

Paul Casey
City Administrator

Ariel Pierre Calonne
City Attorney

City Hall
735 Anacapa Street
http://www.SantaBarbaraCA.gov

MAY 25, 2021, 2:00 PM
AGENDA

IN ORDER TO PROMOTE SOCIAL DISTANCING AND PRIORITIZE THE PUBLIC'S HEALTH AND WELL-BEING, THE GOVERNOR OF THE STATE OF CALIFORNIA ISSUED EXECUTIVE ORDER N-29-20, WHICH ALLOWS THE CITY COUNCIL TO HOLD MEETINGS VIA TELECONFERENCES OR OTHER ELECTRONIC MEETING FORMAT WHILE STILL MEETING THE STATE'S OPEN AND PUBLIC MEETING REQUIREMENTS. AS A PUBLIC HEALTH AND SAFETY PRECAUTION, THE COUNCIL CHAMBERS WILL NOT BE OPEN TO THE GENERAL PUBLIC. COUNCILMEMBERS MAY PARTICIPATE ELECTRONICALLY. THE CITY OF SANTA BARBARA STRONGLY ENCOURAGES AND WELCOMES PUBLIC PARTICIPATION DURING THIS TIME. PUBLIC PARTICIPATION IS AVAILABLE THROUGH THE FOLLOWING OPTIONS:

TELEVISION COVERAGE: Each regular City Council meeting is broadcast live in English and Spanish on City TV Channel 18 and rebroadcast in English on Wednesdays and Thursdays at 7:00 p.m. and Saturdays at 9:00 a.m., and in Spanish on Sundays at 4:00 p.m. Each televised Council meeting is closed captioned for the hearing impaired. Check the City TV program guide at www.santabarbaraca.gov/citytv for rebroadcasts of Finance and Ordinance Committee meetings, and for any changes to the replay schedule.

ONLINE STREAMING: Council meetings are streamed live at www.SantaBarbaraCA.gov/CAP

ELECTRONIC PARTICIPATION: Register to Join Meeting Electronically at:
https://attendee.gotowebinar.com/register/2144419723879283726

WEBINAR ID: 585-713-555

To register, please use the Chrome, Firefox, or Safari browsers for the meeting. The Internet Explorer browser is not supported by the software.

After registering, you will receive a confirmation email containing information about joining the webinar. You will be connected to audio using your computer's microphone and speakers (VoIP). A headset is recommended. You can also select the option to use your telephone, but you must use the Go To Webinar software to interact with the meeting. Select "Use Telephone" after joining the webinar in order to use your telephone.

Oral comments during a meeting may be made by electronic participation only.

If you have technical questions about the webinar, please go to: https://support.goto.com/webinar, or call the **Technical Support Phone Number (805) 617-7080.** To see what **Accessibility Features** are available in GoToWebinar, please visit https://support.goto.com/webinar/help/what-accessbility-features-are-available-in-gotowebinar.

WRITTEN PUBLIC COMMENT: Public comments may also be submitted via email to Clerk@SantaBarbaraCA.gov prior to the beginning of the Council Meeting. All public comments submitted via email will be provided to City Council and will become part of the public record.

CONTINUED ON THE NEXT PAGE

PUBLIC COMMENT: Public comment on matters not listed on the agenda will occur at the beginning of the meeting. Members of the public wishing to speak must “raise their hand” in the GoToWebinar platform by selecting the virtual hand icon during the presentation of that item. When persons are called on to speak, their microphone will be activated by City staff and the speaker will be notified that they can now unmute themselves in order to begin speaking. The speaker will then need to unmute themselves by selecting the ‘mute/unmute’ icon or pressing Ctrl+Alt+A on their keyboard.

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MAY 25, 2021 AGENDA

ORDER OF BUSINESS

12:30 p.m. - Ordinance Committee Meeting, Council Chamber

ELECTRONIC PARTICIPATION: Register to Join Meeting Electronically at:
https://attendee.gotowebinar.com/register/7524369701155483917

WEBINAR ID: 269-631-219

2:00 p.m. - City Council Meeting

ELECTRONIC PARTICIPATION: Register to Join Meeting Electronically at:
https://attendee.gotowebinar.com/register/2144419723879283726

WEBINAR ID: 585-713-555

4:00 p.m. - Advisory Group Interviews
(estimated time)

ORDINANCE COMMITTEE MEETING - 12:30 P.M. IN THE COUNCIL CHAMBER (120.03)

Subject: Proposed Ordinance Enacting A Prohibition Of Natural Gas Infrastructure In New Construction (630.02)

Recommendation: That Ordinance Committee forward to Council for introduction an Ordinance of the Council of the City of Santa Barbara Amending the Santa Barbara Municipal Code by Adding Chapter 22.100 Prohibiting Natural Gas Infrastructure in New Buildings, along with a Recommendation to Adopt.

REGULAR CITY COUNCIL MEETING – 2:00 P.M.

CALL TO ORDER

PLEDGE OF ALLEGIANCE

ROLL CALL

CHANGES TO THE AGENDA

PUBLIC COMMENT

CONSENT CALENDAR

1. **Subject: Adoption Of Ordinance Amendments Related To The Architectural Board Of Review, Single Family Design Board, And Sign Committee Consistent With Revised Historic Resources Ordinance Amendments (630.02)**

   Recommendation: That Council:

   A. Adopt, by reading of title only, an Ordinance of the Council of the City of Santa Barbara Amending Sections 22.68.045 and 22.68.100 of the Santa Barbara Municipal Code Pertaining to the Architectural Board of Review Project Compatibility Analysis and Appeal to Council – Notice and Hearing and Finding the Project to Be Exempt from CEQA Pursuant to CEQA Guideline 15061(B)(3);

   B. Adopt, by reading of title only, an Ordinance of the Council of the City of Santa Barbara Amending Section 22.69.080 of the Santa Barbara Municipal Code Pertaining to the Single Family Design Board Appeal to Council – Notice and Hearing and Finding the Project to Be Exempt from CEQA Pursuant to CEQA Guideline 15061(B)(3); and

   C. Adopt, by reading of title only, an Ordinance of the Council of the City of Santa Barbara Amending Section 22.70.050 of the Santa Barbara Municipal Code Pertaining to Sign Permits and Finding the Project to Be Exempt from CEQA Pursuant to CEQA Guideline 15061(B)(3).

2. **Subject: Adoption Of Amendments To The Santa Barbara Municipal Code And Zoning Map Related To The Historic Resources Ordinance And The Historic Resource Design Guidelines (640.06)**

   Recommendation: That Council adopt, by reading of title only, an Ordinance of the Council of the City of Santa Barbara Amending the Santa Barbara Municipal Code by Adding Chapters 30.57, 30.157, and 30.237; Adding Sections 30.200.080, 30.220.020, 30.220.030, 30.220.040; and 30.300.080 Subsection H to Establish Procedures for Protecting Historic Resources.

3. Subject: Adoption Of A Resolution Approving Santa Barbara Clean Energy Administrative Policies (630.02)

Recommendation: That Council adopt, by reading of title only, a Resolution of the Council of the City of Santa Barbara Approving Santa Barbara Clean Energy Administrative Policies Related to Customer Privacy, Cost Confidentiality and Collections.

4. Subject: April 2021 Investment Report (260.02)

Recommendation: That Council accept the April 2021 Investment Report.

5. Subject: Parking And Business Improvement Area Annual Assessment Report For Fiscal Year 2022 – Intention To Levy (550.1)

Recommendation: That Council:

A. Approve the Parking And Business Improvement Area Annual Assessment Report 2022; and

B. Adopt, by reading of title only, a Resolution of the Council of the City of Santa Barbara Declaring Council’s Intention to Levy Parking and Business Improvement Area Assessment Rates for Fiscal Year 2022, at a Public Hearing to be Held on June 8, 2021, at 2:00 p.m.

6. Subject: Amendment To Settlement Agreement Of Design, Build, Operate Contract With IDE Americas, Inc. For The Charles E. Meyer Desalination Plant (540.1)

Recommendation: That Council:

A. That Council authorize the Acting Public Works Director to execute the First Amendment to Settlement Agreement with IDE Americas, Inc. related to construction of repairs to the raw water intake pipeline serving the Charles E. Meyer Desalination Plan; and

B. Approve an increase in estimated revenue and appropriations in the Water Capital Fund in the amount of $2,404,779, funded from monies paid to the City of Santa Barbara from IDE Americas, Inc. as a term of the Amendment to the Settlement Agreement.

7. **Subject: Authorization To Execute $1.5 Million Grant Funding Agreement For The Desalination Product Water Pump Station Upgrades Project (540.1)**

   Recommendation: That Council adopt, by reading of title only, a Resolution of the Council of the City of Santa Barbara Authorizing the Public Works Director to Negotiate and Execute a Grant Funding Agreement with the Federal Bureau of Reclamation for the Charles E. Meyer Desalination Plant Product Water Pump Station Upgrades Project.

8. **Subject: Increase Grant Funding And Authorize Additional Work For The Cabrillo Boulevard And Union Pacific Railroad Bridge Project And The Los Patos Undercrossing Replacement Project (530.04)**

   Recommendation: That Council:

   A. Authorize the City Administrator to sign Amendment No. 5 to the Memorandum of Understanding with the Santa Barbara County Association of Governments to increase the funding from the Santa Barbara County Association of Governments by $103,862, from $4,121,000 to $4,224,862, for work to complete 30 percent design of the Los Patos Undercrossing Replacement Project, and separate the Cabrillo Boulevard and Union Pacific Railroad Bridge Project into two separate construction projects;
   B. Authorize the Public Works Director to execute Amendment No. 3 to the City Professional Services Agreement No. 26,031 with T.Y. Lin International in the amount of $942,113 for design services, and authorize the Public Works Director to approve expenditures of up to $94,212 for extra services of T.Y. Lin International that may result from necessary changes in the scope of work; and
   C. Approve an increase in appropriations and estimated revenues in the Streets Grant Capital Fund in the amount of $103,862, funded by grant funds from the Santa Barbara County Association of Governments, for the Cabrillo Boulevard and Union Pacific Railroad Bridge Project and the Los Patos Undercrossing Replacement Project.

9. Subject: Reallocation Of Community Development Block Grant Funds From Housing Rehabilitation Loan Program To Other Eligible Uses (610.05)

Recommendation: That Council:

A. Approve reallocation of $361,715.53 in Community Development Block Grant (CDBG) funds from Program Year 2014; and

B. Authorize the Interim Community Development Director to execute, subject to approval as to form by the City Attorney, an Amendment to Agreement No. 26,710 with the Parks and Recreation Department increasing the CDBG grant by $95,100; and

C. Authorize the Interim Community Development Director to execute, subject to approval as to form by the City Attorney, an Amendment to Agreement No. 26,711 with the Parks and Recreation Department increasing the CDBG grant by $50,000; and

D. Authorize the Interim Community Development Director to execute, subject to approval as to form by the City Attorney, an Amendment to Agreement No. 26,709 with the Parks and Recreation Department increasing the CDBG grant by $90,373; and

E. Authorize the Interim Community Development Director to execute, subject to approval as to form by the City Attorney, an Amendment to Agreement No. 26,450 with the Parks and Recreation Department increasing the CDBG grant by $22,442.53; and

F. Authorize the Interim Community Development Director to execute, subject to approval as to form by the City Attorney, an Amendment to Agreement No. 26,452 with Cliff Drive Care Center increasing the CDBG grant by $103,800.

10. Subject: Homeless Emergency Aid Program (HEAP) Grant Agreement Amendments (660.04)

Recommendation: That Council:

A. Authorize the Interim Community Development Director to execute, subject to approval as to form by the City Attorney, an Amendment to Agreement No. 26,456A between the City and Santa Barbara Cottage Hospital decreasing the contract by $113,000 for the SB Connect Home Program; and

B. Authorize the Interim Community Development Director to execute, subject to approval as to form by the City Attorney, an Amendment to Agreement No. 26,394A between the City and City Net increasing the contract by $113,000 for the SB Connect Home Program.

11. Subject: Bequest From The Trust Of Dorothy Holland-Kaupp To The City Of Santa Barbara Public Library (570.04)

Recommendation: That Council adopt, by reading of title only, a Resolution of the Council of the City of Santa Barbara Accepting a Donation from the Trust of Dorothy Holland-Kaupp in the Sum of or Around $100,000 for the Exclusive Use and Benefit of the Santa Barbara Public Library.

SUCCESSOR AGENCY

12. Subject: Transfer And Appropriation Of Funds And Approval Of A Professional Services Agreement With RRM Design Group For The Chase Palm Park Arbor Project (570.05)

Recommendation: That the Successor Agency:
Approve a conveyance to the City of Santa Barbara's General Capital Outlay Fund in the amount of $835,000 from the Successor Agency Capital Fund, funded from existing appropriations for the Chase Palm Park Arbor Project.
That the City Council:
1. Receive a conveyance of $835,000 from the Successor Agency Capital Fund, increase the estimated revenues and appropriate the full $835,000 in the General Capital Outlay Fund for the Chase Palm Park Arbor Project; and
2. Authorize the Parks and Recreation Director to execute a professional services agreement with RRM Design Group in the amount of $101,419 for architectural and engineering design services for the Chase Palm Park Arbor Project to be paid for from the General Capital Outlay Fund.

CONSENT PUBLIC HEARING

13. Subject: Enhanced Urban Water Management Plan And Water Shortage Contingency Public Hearing (540.08)

Recommendation: That Council:

A. Hold a Public Hearing to review the Public Draft of the City's 2020 Enhanced Urban Water Management Plan;
B. Hold a Public Hearing to review the Public Draft of the City's 2021 Water Shortage Contingency Plan;
C. Hold a Public Hearing to review the Public Draft addendum to the City's 2015 Urban Water Management Plan; and
D. Confirm the City's adoption of and compliance with a 2020 water use target of 117 gallons per capita per day, per legislative requirements of the Water Conservation Act of 2009 (SBX7-7), determined in Section 5 of the Urban Water Management Plan.

This concludes the Consent Calendar.

REPORT FROM THE ORDINANCE COMMITTEE

MAYOR AND COUNCIL REPORTS

14. Subject: Councilmember Sneddon And Mayor Pro Tempore Oscar Gutierrez Requesting A Presentation From Healing Justice And Local Black Organizations On Benefits Of A Black/African-American Cultural Resource Center (120.02)

Recommendation: That Council consider the request from Councilmember Sneddon and Mayor Pro Tempore Oscar Gutierrez requesting a presentation from Healing Justice Santa Barbara and a collective of local Black organizations and leaders on the multiple benefits of a Black/African American Cultural Resource Center.

CITY ADMINISTRATOR

15. Subject: Santa Barbara's Economic Development Plan (650.11)

Recommendation: That Council review and adopt a three year Economic Development Plan.

MAYOR AND COUNCIL REPORTS

16. Subject: Semi-Annual Interviews For City Advisory Groups (Not Including State Street Advisory Committee) (Est. time: 4:00 p.m.) (140.05)

Recommendation: That Council:

A. Hold interviews of applicants to various City Advisory Groups; and

B. Continue interviews of applicants to June 8, and June 15, 2021. (Est. time 4:00 p.m.)

CLOSED SESSIONS

17. Subject: Conference With City Attorney -- Anticipated Litigation -- Gov. Code § 54956.9(d)(4): Initiation Of Litigation On One Matter (160.03)

Recommendation: That Council hold a closed session to consider initiating litigation pursuant to subsection (d)(4) of Section 54956.9 of the Government Code and take appropriate action as needed. (one potential case).

Scheduling: Duration, 30 minutes; anytime
Report: None anticipate

18. **Subject: Conference With City Attorney -- Anticipated Litigation -- Gov. Code § 54956.9(d)(2) & (e)(3) (160.03)**

Recommendation: That Council hold a closed session to consider significant exposure to litigation (one potential case) pursuant to Government Code Section 54956.9(d)(2) & (e)(3) and take appropriate action as needed.

The anticipated litigation is based upon significant exposure arising out of the May 13, 2021 litigation threat from the Santa Barbara Rental Property Association though the law firm of Fisher Broyles.

Scheduling: Duration: 15 minutes; anytime
Report: None anticipated

19. **Subject: Conference With City Attorney -- Existing Litigation -- Gov. Code § 54956.9(d)(1) and -- Anticipated Litigation -- Gov. Code § 54956.9(d)(4): Initiation Of Litigation On One Matter (160.03)**

Recommendation: That Council hold a closed session to consider pending litigation pursuant to subsection (d)(1) of section 54956.9 of the Government Code and take appropriate action as needed.

The pending litigation is Theodore P. Kracke v. City of Santa Barbara, COA Case No. B300528; VSC Case No. 56-2016-00490376-CU-WM-VTA.

That Council hold a closed session to consider initiating litigation pursuant to subsection (d)(4) of Section 54956.9 of the Government Code and take appropriate action as needed. (one potential case).

Scheduling: Duration, 15 minutes; anytime
Report: None anticipated

ADJOURNMENT

CITY OF SANTA BARBARA
CITY COUNCIL

Cathy Murillo
Mayor

Oscar Gutierrez
Mayor Pro Tempore

Mike Jordan
Ordinance Committee Chair

Eric Friedman
Finance Committee Chair

Alejandra Gutierrez
Meagan Harmon
Kristen Sneddon

Paul Casey
City Administrator

Ariel Pierre Calonne
City Attorney

City Hall
735 Anacapa Street
http://www.SantaBarbaraCA.gov

JUNE 29, 2021, 2:00 PM
AGENDA

IN ORDER TO PROMOTE SOCIAL DISTANCING AND PRIORITIZE THE PUBLIC'S HEALTH AND WELL-BEING, THE GOVERNOR OF THE STATE OF CALIFORNIA ISSUED EXECUTIVE ORDER N-29-20, WHICH ALLOWS THE CITY COUNCIL TO HOLD MEETINGS VIA TELECONFERENCES OR OTHER ELECTRONIC MEETING FORMAT WHILE STILL MEETING THE STATE'S OPEN AND PUBLIC MEETING REQUIREMENTS. AS A PUBLIC HEALTH AND SAFETY PRECAUTION, THE COUNCIL CHAMBERS WILL NOT BE OPEN TO THE GENERAL PUBLIC. COUNCILMEMBERS MAY PARTICIPATE ELECTRONICALLY. THE CITY OF SANTA BARBARA STRONGLY ENCOURAGES AND WELCOMES PUBLIC PARTICIPATION DURING THIS TIME. PUBLIC PARTICIPATION IS AVAILABLE THROUGH THE FOLLOWING OPTIONS:

TELEVISION COVERAGE: Each regular City Council meeting is broadcast live in English and Spanish on City TV Channel 18 and rebroadcast in English on Wednesdays and Thursdays at 7:00 p.m. and Saturdays at 9:00 a.m., and in Spanish on Sundays at 4:00 p.m. Each televised Council meeting is closed captioned for the hearing impaired. Check the City TV program guide at www.santabarbaraca.gov/citytv for rebroadcasts of Finance and Ordinance Committee meetings, and for any changes to the replay schedule.

ONLINE STREAMING: Council meetings are streamed live at www.SantaBarbaraCA.gov/CAP

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https://attendee.gotowebinar.com/register/7663639341670490124

WEBINAR ID: 949-641-523

To register, please use the Chrome, Firefox, or Safari browsers for the meeting. The Internet Explorer browser is not supported by the software.

After registering, you will receive a confirmation email containing information about joining the webinar. You will be connected to audio using your computer's microphone and speakers (VoIP). A headset is recommended. You can also select the option to use your telephone, but you must use the Go To Webinar software to interact with the meeting. Select "Use Telephone" after joining the webinar in order to use your telephone.

Oral comments during a meeting may be made by electronic participation only.

If you have technical questions about the webinar, please go to: https://support.goto.com/webinar, or call the **Technical Support Phone Number (805) 617-7080.** To see what **Accessibility Features** are available in GoToWebinar, please visit https://support.goto.com/webinar/help/what-accessbility-features-are-available-in-gotowebinar.

WRITTEN PUBLIC COMMENT: Public comments may also be submitted via email to Clerk@SantaBarbaraCA.gov prior to the beginning of the Council Meeting. All public comments submitted via email will be provided to City Council and will become part of the public record.

CONTINUED ON THE NEXT PAGE

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JUNE 29, 2021 AGENDA

ORDER OF BUSINESS

2:00 p.m. - City Council Meeting

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WEBINAR ID: 949-641-523

6:00 p.m. - State Street Advisory Committee Applicant Interviews
(Time Certain)

REGULAR CITY COUNCIL MEETING – 2:00 P.M.

CALL TO ORDER

PLEDGE OF ALLEGIANCE

ROLL CALL

CHANGES TO THE AGENDA

PUBLIC COMMENT

CONSENT CALENDAR

1. **Subject: An Ordinance Repealing Chapter 22.22 Of The Santa Barbara Municipal Code Pertaining To Historic Structures And Amending Santa Barbara Municipal Code Sections 22.68.015 And 22.69.015 To Include The Definition Of Project Design Approval (640.06)**

   Recommendation: That Council, introduce and subsequently adopt, by reading of title only, an Ordinance of the Council of the City of Santa Barbara Repealing Chapter 22.22 of the Santa Barbara Municipal Code Pertaining to Historic Structures and Amending Santa Barbara Municipal Code Sections 22.68.015 and 22.69.015 to Include the Definition of Project Design Approval.

2. **Subject: Authorize A Contract With BAE Urban Economics For An Economic Feasibility Study And Introduce Amendments To SBMC Chapter 30.150 To Extend The Duration Of The Average Unit-Size Density Incentive Program (660.06)**

   Recommendation: That Council:
   A. Make the California Environmental Quality Act findings contained in this Council Agenda Report;
   B. Introduce and subsequently adopt, by reading of title only, an Ordinance of the Council of the City of Santa Barbara Amending Santa Barbara Municipal Code Section 30.150.010 of the City's Average Unit-Size Density Incentive Program to Extend the Program from August 31, 2021 to February 28, 2022;
   C. Authorize the Community Development Director to execute a Professional Services Agreement contract with BAE Urban Economics in the amount not-to-exceed $70,000 for an economic feasibility study of proposed multi-unit housing standards and related affordable housing requirements; and
   D. Increase appropriations and estimated revenues in the Fiscal Year 2022 Community Development Miscellaneous Grants Fund in the amount of $70,000, funded by the Regional Early Action Planning Grant.

3. **Subject: Introduction Of Ordinance For Average Unit-Size Density Incentive Program Ordinance Amendments Related To Clarifying Rental Inclusionary Rates And Mobilehome Parks (640.09)**

   Recommendation: That Council introduce and subsequently adopt, by reading of title only, an Ordinance of the Council of the City of Santa Barbara Amending Santa Barbara Municipal Code Section 30.150.090 and 30.150.110 of the City's Average Unit-Size Density Incentive Program to Exclude Mobilehome Parks from Development Under the Program and Clarify That Rental Units Must Be Rented at Moderate Income Levels.

4. **Subject: Adoption Of The Fee Schedule For Fiscal Year 2022 (210.01)**

   Recommendation: That Council adopt, by reading of title only, a Resolution of the Council of the City of Santa Barbara Amending the City of Santa Barbara Schedule of Penalties, Fees, Rates and Service Charges.

5. **Subject: Updated Sales Or Transactions And Use Tax Records Disclosure Designations For The Finance Director To Review Tax Records And Authorize Muniservices, LLC To Review Tax Records On Behalf Of The City (210.01)**

   Recommendation: That Council:
   A. Adopt, by reading of title only, a Resolution of the Council of the City of Santa Barbara Authorizing Examination of Sales or Transactions and Use Tax Records; and
   B. Approve the Second Amendment and Novation Agreement for Sales and Use Tax Services, Assigning the Agreement with Municipal Resource Consultant to Muniservices.

6. **Subject: May 2021 Investment Report (260.02)**

   Recommendation: That Council accept the May 2021 Investment Report.

7. **Subject: Allocation Of Awarded California Department Of Resources Recycling And Recovery Grant Funds Reimbursement For Household Hazardous Waste Collection And Education (630.12)**

   Recommendation: That Council approve the allocation of $10,000 in Fiscal Year 2022 of the City’s California Department of Resources Recycling and Recovery Grant to fund staff costs related to grant administration and implementation of Household Hazardous Waste Collection and Education.

8. Subject: Best Interest Waiver For The Purchase Of A New Wastewater Collection Video Inspection Vehicle And Hardware System (540.13)

Recommendation: That Council:

A. Find it in the City's best interest to waive the formal bid process as authorized by Municipal Code Section 4.52.070(L) and authorize the General Services Manager to issue a purchase order to Haaker Equipment Company in the amount of $298,274 for the purchase, assembly, and delivery of one custom Wastewater Collection Video Inspection Vehicle and Hardware System;

B. Authorize the General Services Manager to approve expenditures up to $15,000 to cover any cost increases that may result from contract change orders for extra work or from necessary changes in the scope, for a total expenditure authority of $313,274; and

C. Approve the transfer of available appropriations in the Sanitary Sewer Overflow Compliance Project in the amount of $244,328 from the Wastewater Capital Fund to the Fleet Replacement Fund, and approve an increase in appropriations and estimated revenue in the Fleet Replacement Fund in the amount of $244,328 in Fiscal Year 2021, funded by the transfer, for the purchase of the Wastewater Collection Video Inspection Vehicle and Hardware System.

9. Subject: Authorization To Amend Agreement With Best Best & Krieger LLP For Special Appellate Counsel Support (160.01)

Recommendation: That Council:

A. Authorize the City Attorney to execute an amendment to the legal services agreement with Best Best & Krieger, LLP, for special appellate support in Theodore P. Kracke v. City of Santa Barbara Ventura County Superior Court 56-2016-00490376-CU-WM-VTA, increasing the contract amount by $25,000; and

B. Increase appropriations in the Fiscal Year 2022 City Attorney's Office budget from the General Fund Reserve for Contingencies in the amount of $25,000.

10. Subject: Amendment Of Professional Services Agreement With Hiltachk Marketing Group (560.09)

Recommendation: That Council:

A. Authorize the Airport Director to amend Professional Services Agreement No. 25,939 with Hiltachk Marketing Group for one additional year of services, and increase the contract amount by $100,000.

B. Approve an increase in FY 2021 appropriations in the Airport Operating Fund in the amount of $100,000, funded from reserves, for the services of Hiltachk Marketing Group.

11. **Subject: Contract For Airport Poly- And Per-Fluoroalkyl Substance (PFAS) Investigation Efforts (560.01)**

Recommendation: That Council:

A. Authorize the Airport Director to execute a Professional Services Agreement with GSI Environmental, Inc., in the amount of $204,100 for site investigation work necessary to implement the Poly-and Per-Fluororalkyl Substance Supplemental Work Plan approved by the Regional Water Quality Control Board; and

B. Approve an increase in FY 2022 appropriations in the Airport Operating Fund in the amount of $204,100, funded from reserves, for Airport Poly- and Per-Fluororalkyl Substance (PFAS) investigation efforts.

12. **Subject: Grant Agreement With South Coast Community Media Access Center, dba TV Santa Barbara (230.02)**

Recommendation: That Council authorize the Finance Director to execute a one year grant agreement with the South Coast Community Media Access Center for management of the public, and educational access television channels in an amount of $297,445 plus an amount for public, educational and government access (PEG) capital expenditures equal to 50% of the actual PEG fees received by the City for Fiscal Year 2022.

13. **Subject: Potential Acquisition Of A Conservation And Access Easement At 1235 Veronica Springs Road (APN 047-010-039) For A Creek Restoration And Water Quality Improvement Project (540.14)**

Recommendation: That Council receive a report and authorize negotiations on the potential acquisition of a conservation and access easement at 1235 Veronica Springs Road for a future creek restoration and water quality improvement project.

This concludes the Consent Calendar.

CITY COUNCIL ADMINISTRATIVE AND ATTORNEY REPORTS

PUBLIC WORKS DEPARTMENT

14. Subject: Water Supply Update And Adoption Of 2020 Enhanced Urban Water Management Plan, 2021 Water Shortage Contingency Plan, And Related Documents (540.01)

Recommendation: That Council:

A. Receive a water supply update; and

B. Adopt and authorize the Public Works Director to transmit the City's 2020 Enhanced Urban Water Management Plan to the California Department of Water Resources, such adoption to include modifications as may be approved by the Public Works Director to ensure compliance with State UWMP requirements; and

C. Adopt and authorize the Public Works Director to transmit the City's 2021 WSCP to the California Department of Water Resources, such adoption to include modifications as may be approved by the Public Works Director to ensure compliance with State WSCP requirements; and

D. Adopt and authorize the Public Works Director to transmit an addendum to the City's 2015 UWMP to the California Department of Water Resources.

SUSTAINABILITY AND RESILIENCE

15. Subject: Temporary Safe Shelter For Fire Prone Encampments Update (660.04)

Recommendation: That Council:

A. Approve staff's recommendation of a hotel to provide temporary safe shelter and begin clean-up operations at fire-prone encampments;

B. Direct staff on use of funding for a temporary safe shelter agreement; and

C. Direct staff to execute a first amendment to Agreement No. 26,897 between the City of Santa Barbara and Kingdom Causes, Inc., DBA City Net to provide temporary bridge housing services.

MAYOR AND COUNCIL REPORTS

16. Subject: Appointments To City Advisory Groups, Not Including State Street Advisory Committee (140.05)

Recommendation: That Council make appointments to the City's Advisory Groups, not including the State Street Advisory Committee.

CLOSED SESSIONS

17. Subject: Conference With Real Property Negotiators (330.03)

Recommendation: That Council hold a closed session pursuant to Government Code Section 54956.8 to consider price and terms of payment for the potential acquisition of a conservation and access easement.

Real Property: Conservation and Access Easements on property at 1235 Veronica Springs Road (APN 047-010-039)

City Negotiators: Jill Zachary, Parks and Recreation Director; Cameron Benson, Creeks Restoration/Clean Water Manager; Dan Hentschke, Acting City Attorney

Negotiating Party: Hillside House

Under Negotiation: Price and terms of acquisition of easements

Scheduling: Duration, 15 min; anytime
Report: None anticipated

18. Subject: Conference With City Attorney – Existing Litigation – Gov. Code §54956.9(d)(1) (160.03)

Recommendation: That Council hold a closed session to consider pending litigation pursuant to subsection (d)(1) of section 54956.9 of the Government Code and take appropriate action as needed.

The pending litigation is George Martinez v. COSB, et al. SBSC Case No. 20CV02839.

Scheduling: Duration, 15 min.; anytime
Report: None anticipated

MAYOR AND COUNCIL REPORTS (Time Certain 6:00 pm)

19. Subject: State Street Advisory Committee Applicant Interviews (140.05)

Recommendation: That Council interview applicants to the State Street Advisory Committee (Time Certain 6:00 pm).

COUNCIL AND STAFF COMMUNICATIONS

COUNCILMEMBER COMMITTEE ASSIGNMENT REPORTS

PUBLIC COMMENT (IF NECESSARY)

ADJOURNMENT

CITY OF SANTA BARBARA
CITY COUNCIL

MINUTE ORDER

DATE

June 29, 2021

ROLL CALL

Mayor Cathy Murillo; Councilmembers Eric Friedman, Alejandra Gutierrez, Oscar Gutierrez, Meagan Harmon, Mike Jordan, Kristen Sneddon.

ITEM

No. 14

Subject: Water Supply Update And Adoption Of 2020 Enhanced Urban Water Management Plan, 2021 Water Shortage Contingency Plan, And Related Documents (540.01)

RECOMMENDATION

That Council:

A. Receive a water supply update; and

B. Adopt and authorize the Public Works Director to transmit the City's 2020 Enhanced Urban Water Management Plan to the California Department of Water Resources, such adoption to include modifications as may be approved by the Public Works Director to ensure compliance with State UWMP requirements; and

C. Adopt and authorize the Public Works Director to transmit the City's 2021 WSCP to the California Department of Water Resources, such adoption to include modifications as may be approved by the Public Works Director to ensure compliance with State WSCP requirements; and

D. Adopt and authorize the Public Works Director to transmit an addendum to the City's 2015 UWMP to the California Department of Water Resources.

ACTION

Motion:

Councilmembers Sneddon/Friedman to approve the recommended action.

Vote:

Unanimous roll call vote.

STATE OF CALIFORNIA)
)
COUNTY OF SANTA BARBARA) ss.
)
CITY OF SANTA BARBARA)

I, Robert Stough, Deputy City Clerk in and for the City of Santa Barbara, California, DO HEREBY CERTIFY that attached is a full, true and correct copy of a City of Santa Barbara City Council Minute Order pertaining to the Council's action for the adoption of 2020 Enhanced Urban Water Management Plan, 2021 Water Shortage Contingency Plan, and related documents (Item No. 14 of its June 29, 2021, meeting agenda).

IN WITNESS WHEREOF, I have hereunto set my hand and caused the official seal of said City to be affixed this 30th day of June, 2021.

(SEAL)

Robert Stough
Deputy City Clerk

Appendix F: WVSB Communications and Engagement Summary

Water Vision
SANTA BARBARA

Technical Memorandum

DATE:	4/30/2021
TO:	Dakota Corey City of Santa Barbara
CC:	Joshua Haggmark, PE, Cathy Taylor, PE, Dana Hoffenberg
PREPARED BY:	Tiffany Meyer
REVIEWED BY:	Rob Morrow, PE and Jeffery Szytel, PE
PROJECT:	Water Vision Santa Barbara
SUBJECT:	**STAKEHOLDER ENGAGEMENT APPROACH AND RESULTS**

Introduction

The purpose of this technical memorandum (TM) is to summarize the activities employed by the City of Santa Barbara (City) to understand and represent the values and needs of the community within Water Vision Santa Barbara (WVSB) as well as summarize the outcomes of the engagement efforts.

Background

For over 25 years, the City's primary water supply management tool has been its Long-Term Water Supply Plan (LTWSP). The City has relied on its LTWSP, last updated in 2011, to evaluate and prioritize water resource decisions and ultimately set City water resources policy with a 30-year planning horizon. WVSB updates the 2011 LTWSP by reassessing the adequacy, reliability, resiliency, and sustainability of the City's water resources portfolio, including evaluation of both available supply and anticipated demand. This effort considers cost and reliability, as well as economic, environmental, and social measures, and evaluates risks and uncertainties. Water Vision Santa Barbara includes an open and transparent process for stakeholder involvement and education. The project culminates in a preferred long-term water supply portfolio for the City and recommends an implementation plan to City Council.

The water supply evaluation is incorporated into the City's 2020 Urban Water Management Plan (UWMP) update. The UWMP meets State reporting requirements and incorporates updated water resources evaluations. The combined document — an **Enhanced UWMP** — becomes the City's consolidated water supply planning reference going forward.

While the City has engaged stakeholders in past water supply planning efforts, within this project it aimed to take a more deliberate and inclusive approach that aligned with the City's One Water[1] approach to water management. In this manner, the City aimed to engage a more diverse representation of the uses and users of water within the community, as well as those who would be most affected by the City's water decisions.

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[1] One Water is an integrated planning and implementation approach to managing finite water resources for long-term resilience and reliability, meeting both community and ecosystem needs. (https://www.waterrf.org/research/projects/blueprint-one-water)

UWMP Requirements

California Water Code (Water Code) requires the City to prepare an UWMP every five years. The Water Code specifies several requirements for preparing a UWMP, including public notification and engagement. The primary public engagement requirements are:

- Make the UWMP available for public inspection and conduct a public hearing to gather community input
- Issue UWMP public hearing notification to the public at least 14 days prior to public hearing
- Submit the UWMP to the California State Library and all cities and counties within which the City provides water no later than 30 days after adoption by City Council

The City Council meeting on May 25, 2021 will serve as the public hearing for the UWMP. However, the City's stakeholder engagement efforts far surpass the minimum Water Code requirements and has allowed the stakeholder input to inform development of the UWMP in a transparent fashion.

Stakeholder Engagement and Outreach Approach

The following engagement and outreach goals were identified by the City and drove the Project Team's approach:

- Conduct a transparent, inclusive and equitable engagement process with diverse representation considering the variety of issues, challenges, needs, uses and users of water within the City.
- Engender public trust and inform decision-makers to achieve the desired result of an equitable, cost-effective, reliable, and environmentally responsible plan that aligns with the community's values and provides water supply through the 2050 planning horizon.
- Build public awareness on the value of diverse supply sources, and the unique challenges and opportunities for water supply in Santa Barbara.
- Build public trust in the City staff as passionate, capable and prepared to effectively manage water on behalf of the community.
- Communicate "early and often," and actively identify and eliminate barriers to stakeholder representation and participation.
- Align the storylines of Water Vision Santa Barbara and the One Water Strategic Plan effort.

To achieve these goals, the City grouped all project stakeholders into four segments. The approach and level of engagement with each segment depended on its role in the process, as outlined in **Table 1**.

Table 1. Engagement Strategy by Stakeholder Segment

Segment	Segment Description	Engagement Role	Approach
WVSB Stakeholder Group	Appointed group of community leaders representing the diverse issues, challenges, needs, uses and users of water within the City.	• Learn/Build Awareness • Share Perception/Opinion • Advocate	• One-on-One Interviews • Five Interactive Workshops • Public Meetings
General Public	City Water Customers not otherwise serving on the Stakeholder Group.	• Learn/Build Awareness • Share Perception/Opinion • Advocate	• Water Vision Month with virtual educational activities and community board • Public Meetings
City Water Commission	Appointed Water Commissioners, serving as Advisors to City Council on water policy decisions in manner that reflects the community's values/ needs and the project goals.	• Learn/Build Awareness • Share Perception/Opinion • Advise/Recommend	• One-on-One Interviews • Five Designated Public Meetings
City Council	Elected Santa Barbara City Council members and mayor, responsible for making water policy decisions that reflect the community's values/needs and the project goals.	• Learn/Build Awareness • Share Perception/Opinion • Decide	• Four Designated Public Meetings

Schedule of Engagement and Outreach Activities

The Project Team designed a robust set of activities to engage and/or inform each stakeholder segment at key decision points in the project. **Figure 1** shows the project process across five steps, noting said activities.

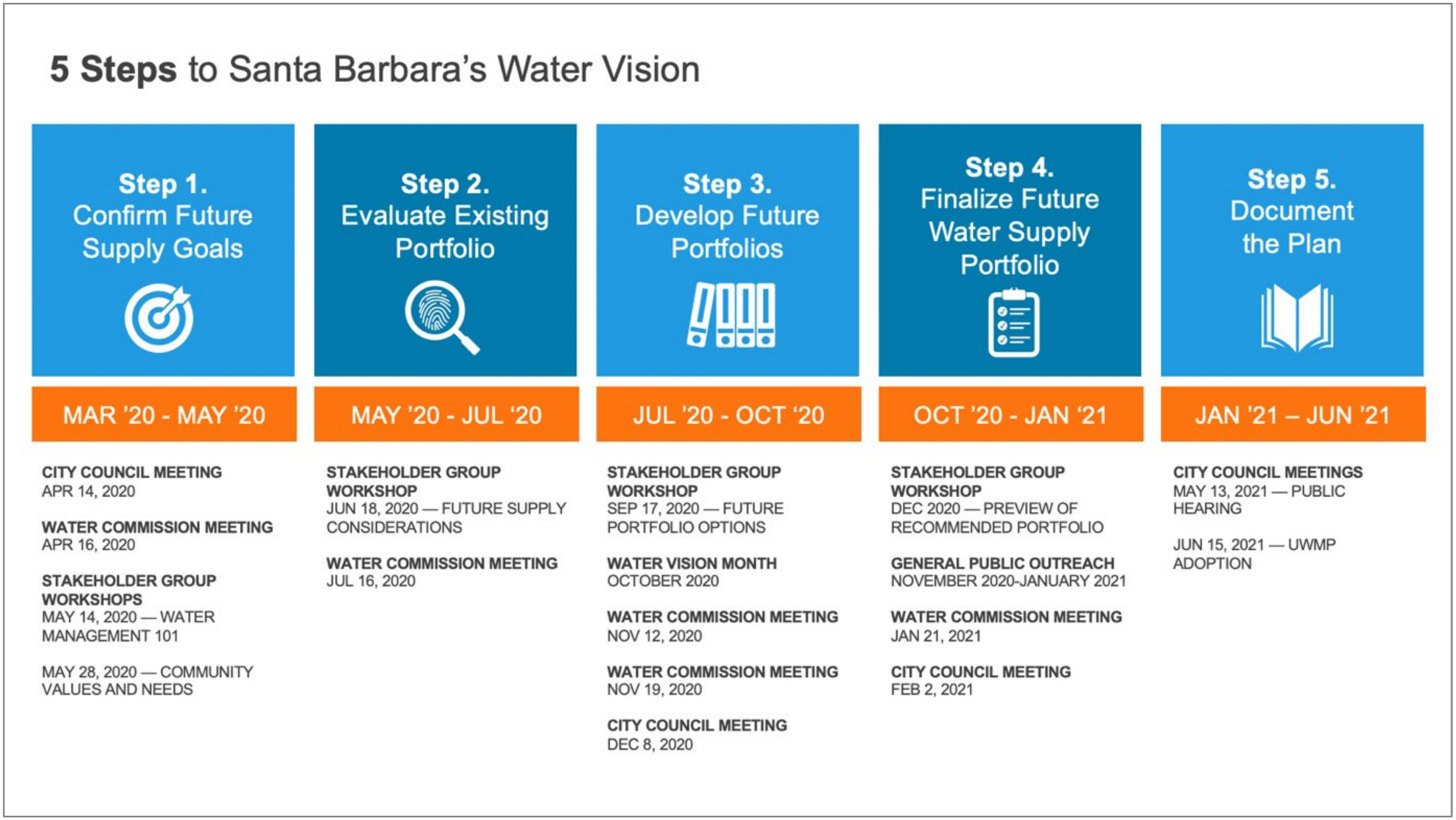
Water Vision Stakeholder Group Characterization

The California Department of Water Resources offers a framework for agencies creating groundwater management plans to identify the beneficial uses and users of groundwater within their basin — this framework is currently being used by agencies throughout California to create groundwater sustainability plans that are compliant with the Sustainable Groundwater Management Act.

The City used this framework to help map the stakeholder segments that best represent the beneficial uses and users of water within the Santa Barbara city limits, as well as those populations who may be most affected by the City's water supply planning decisions. In doing so, the City identified and invited 27 organizations representing 9 segments to participate in the WVSB Stakeholder Group. Where possible, delegates were asked to also be City water customers. The group's role was to share their perspective and opinions of themselves and their constituency within five interactive workshops scheduled at key decision points in the plan development; their input was used to directly inform the Water Vision. Further, we asked them to help disseminate educational content to their staff and constituents through the duration of the project.

Figure 2 shows the final makeup of the WVSB Stakeholder Group. Note that some organizations naturally can represent multiple segments but they are listed based on the primary segment they represent. Also, some organizations were on the front lines of the COVID pandemic, and therefore could not actively participate in the live workshops but were kept informed via workshop summaries and opportunities to comment following each workshop.

Figure 1. Project Timeline and Schedule of Engagement and Outreach Activities



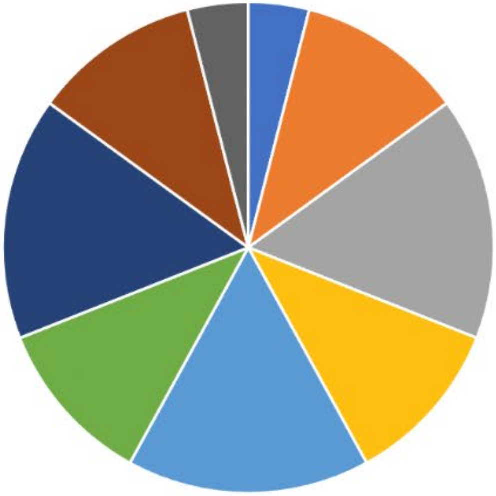
5 Steps to Santa Barbara's Water Vision

Step 1. Confirm Future Supply Goals	**Step 2.** Evaluate Existing Portfolio	**Step 3.** Develop Future Portfolios	**Step 4.** Finalize Future Water Supply Portfolio	**Step 5.** Document the Plan
MAR '20 - MAY '20	MAY '20 - JUL '20	JUL '20 - OCT '20	OCT '20 - JAN '21	JAN '21 – JUN '21
CITY COUNCIL MEETING APR 14, 2020 **WATER COMMISSION MEETING** APR 16, 2020 **STAKEHOLDER GROUP WORKSHOPS** MAY 14, 2020 — WATER MANAGEMENT 101 MAY 28, 2020 — COMMUNITY VALUES AND NEEDS	**STAKEHOLDER GROUP WORKSHOP** JUN 18, 2020 — FUTURE SUPPLY CONSIDERATIONS **WATER COMMISSION MEETING** JUL 16, 2020	**STAKEHOLDER GROUP WORKSHOP** SEP 17, 2020 — FUTURE PORTFOLIO OPTIONS **WATER VISION MONTH** OCTOBER 2020 **WATER COMMISSION MEETING** NOV 12, 2020 **WATER COMMISSION MEETING** NOV 19, 2020 **CITY COUNCIL MEETING** DEC 8, 2020	**STAKEHOLDER GROUP WORKSHOP** DEC 2020 — PREVIEW OF RECOMMENDED PORTFOLIO **GENERAL PUBLIC OUTREACH** NOVEMBER 2020-JANUARY 2021 **WATER COMMISSION MEETING** JAN 21, 2021 **CITY COUNCIL MEETING** FEB 2, 2021	**CITY COUNCIL MEETINGS** MAY 13, 2021 — PUBLIC HEARING JUN 15, 2021 — UWMP ADOPTION

Figure 2. Stakeholder Group Segments and Roster

WATER VISION STAKEHOLDER GROUP

27 organizations representing 9 segments that reflect the diverse issues, challenges, needs, uses and users of City water. Group is purposefully small/manageable to optimize experience.



* Some organizations naturally can represent multiple segments. They are listed here based on the primary segment they represent.

** Some organizations were on the front lines of the COVID pandemic, and therefore could not actively participate in the live workshops but were kept informed via workshop summaries and opportunities to comment following each workshop.

🟦 **4% — Agricultural Water Users**
**Santa Barbara County Farm Bureau

🟧 **11% — Citizen Groups / Community Leaders**
Allied Neighborhoods Association, Mission Canyon Neighborhood Association, Neighborhood Advisory Council

⬜ **16% — Economic Development and Tourism**
Greater Santa Barbara Hispanic Chamber of Commerce, Santa Barbara Chamber of Commerce, **Visit Santa Barbara, Santa Barbara Rental Property Association

🟨 **16% — Economic Development and Tourism**
Greater Santa Barbara Hispanic Chamber of Commerce, Santa Barbara Chamber of Commerce, Visit Santa Barbara, Santa Barbara Rental Property Association

🟦 **16% — Human Rights to Water**
La Casa de la Raza, **Santa Barbara Rescue Mission, CAUSE Santa Barbara, Food and Water Watch

🟩 **11% — Land Use**
City of Santa Barbara Parks and Recreation Commission, City of Santa Barbara Planning Commission, Citizen's Planning Association of Santa Barbara County , **Santa Barbara Association of Realtors

🟦 **16% — Large Water Users**
**Cottage Health, Santa Barbara City College, **Santa Barbara Unified School District , **Santa Barbara Zoo

🟫 **11% — Perspective on Issues/Challenges**
American Institute of Architects (AIA), Santa Barbara, American Society of Landscape Architects (SLA) SoCal, Santa Barbara Contractors Association

⬛ **4% — Tribes**
**Barbareno Band of Chumash Indians

Project-Wide Communications

A project website[2] centralized all project communication, including a project overview and timeline; how to get involved; stakeholder group roster; and stakeholder group workshop recordings and summaries. On the project website, community members could subscribe to the email group to receive updates any time new information was posted to the project website. **Figure 3** shows a screen shot of the project website homepage.

Figure 3: Water Vision Santa Barbara Website Homepage

Setting the vision for Santa Barbara's water future

WVSB Stakeholder Group Activities

The WVSB Stakeholder Group activities included interviews, workshops, e-mail outreach, and workshop summaries.

Interviews

At the project start, WSC held one-on-one interviews with most stakeholder group members to build trust, answer questions about the process, and to connect to the values, needs and priorities of the delegate and their constituency in advance of the workshops. From the interviews, WSC created snapshots of the stakeholder segments for the Project Team; this tool helped the full team ensure that all voices and perspectives were given equal voice within

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[2] https://SantaBarbaraCA.gov/WaterVision

the workshop experiences. This step also helped the team adapt workshop content to the educational needs of participants.

Email Outreach

The Project Team managed ongoing pre- and post-workshop email communications with the stakeholder group to keep them informed and actively participating throughout the process. This communication also helped the Project Team stay connected to the evolving needs of the group (including COVID-19, wildfires, and social justice protests occurring in the City).

Workshops

Five virtual workshops were held via Zoom from April through December 2020. All workshops were recorded and recordings were published to the project website following the live session. Below is a summary of the workshops held:

1. Water Supply Planning 101

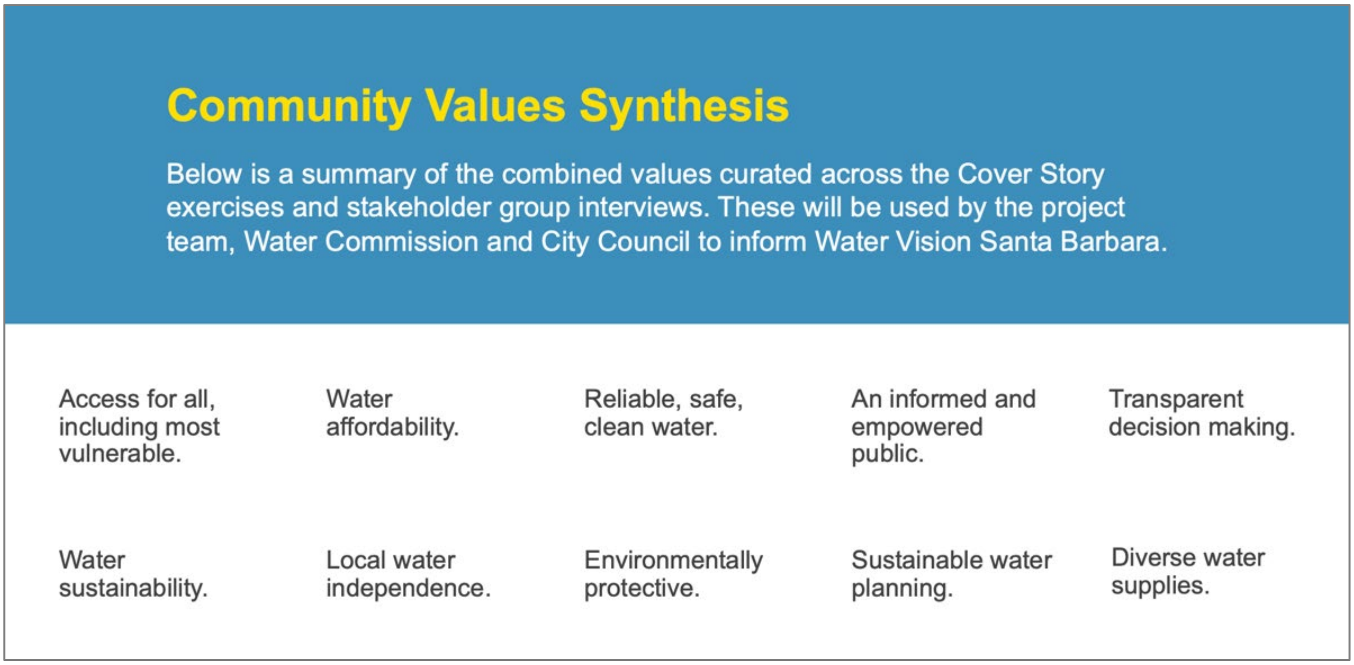
In this first, educational session, the Project Team presented an overview of key ideas to help ground the group and set a foundation for our future interactive work together, including:

- The water sources and conservation measures that contribute to Santa Barbara's current water supply
- Details about the unique challenges, opportunities, costs and benefits of each water source
- The evolving water supply challenges the City faces
- An overview of the five-step process the City will use to recommend a future supply that reflects the needs and values of our community
- An overview of the role the Stakeholder Group will play to inform the Water Vision

2. Community Values and Needs

In this workshop, the primary goal was to document the Stakeholder Group's perceptions of the top issues, concerns, challenges and values as they pertain to things like water security, affordability, quality, environmental health and resilience, among other topics. To set the stage for this discussion, the Project Team shared the project's purpose, objectives, how the City will evaluate success and the future supply options the City is considering, including an opportunity for stakeholders to provide their perspective on the impact and/or benefits of each supply. The Project Team and Stakeholder Group then broke out into small groups to help codify the values and outcomes most important to Stakeholder Group. The information gathered was used to develop a set of Community Values (**Figure 4**) and the Five Pillars (**Figure 5**) that informed all aspects of the portfolio development.

Figure 4. Synthesis of Community Values

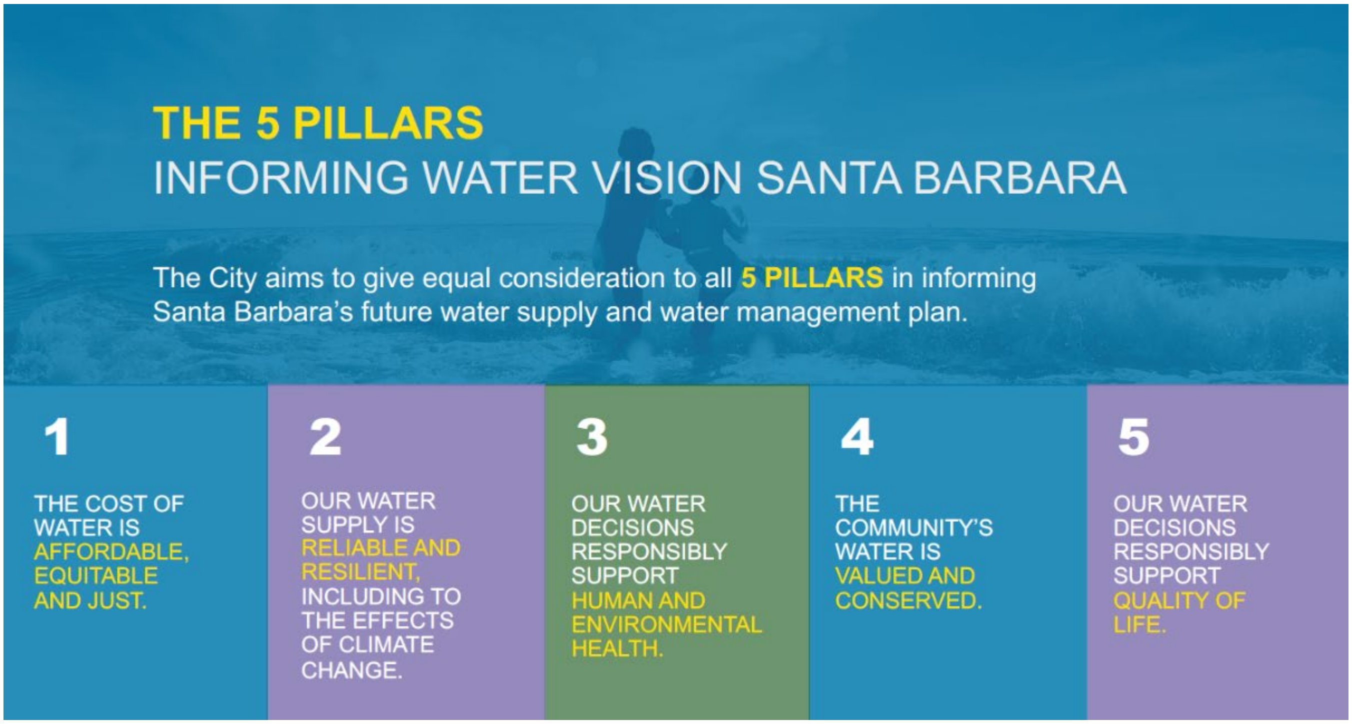


Community Values Synthesis

Below is a summary of the combined values curated across the Cover Story exercises and stakeholder group interviews. These will be used by the project team, Water Commission and City Council to inform Water Vision Santa Barbara.

- Access for all, including most vulnerable.
- Water affordability.
- Reliable, safe, clean water.
- An informed and empowered public.
- Transparent decision making.
- Water sustainability.
- Local water independence.
- Environmentally protective.
- Sustainable water planning.
- Diverse water supplies.

Figure 5. The 5 Pillars Informing Water Vision Santa Barbara.



THE 5 PILLARS
INFORMING WATER VISION SANTA BARBARA

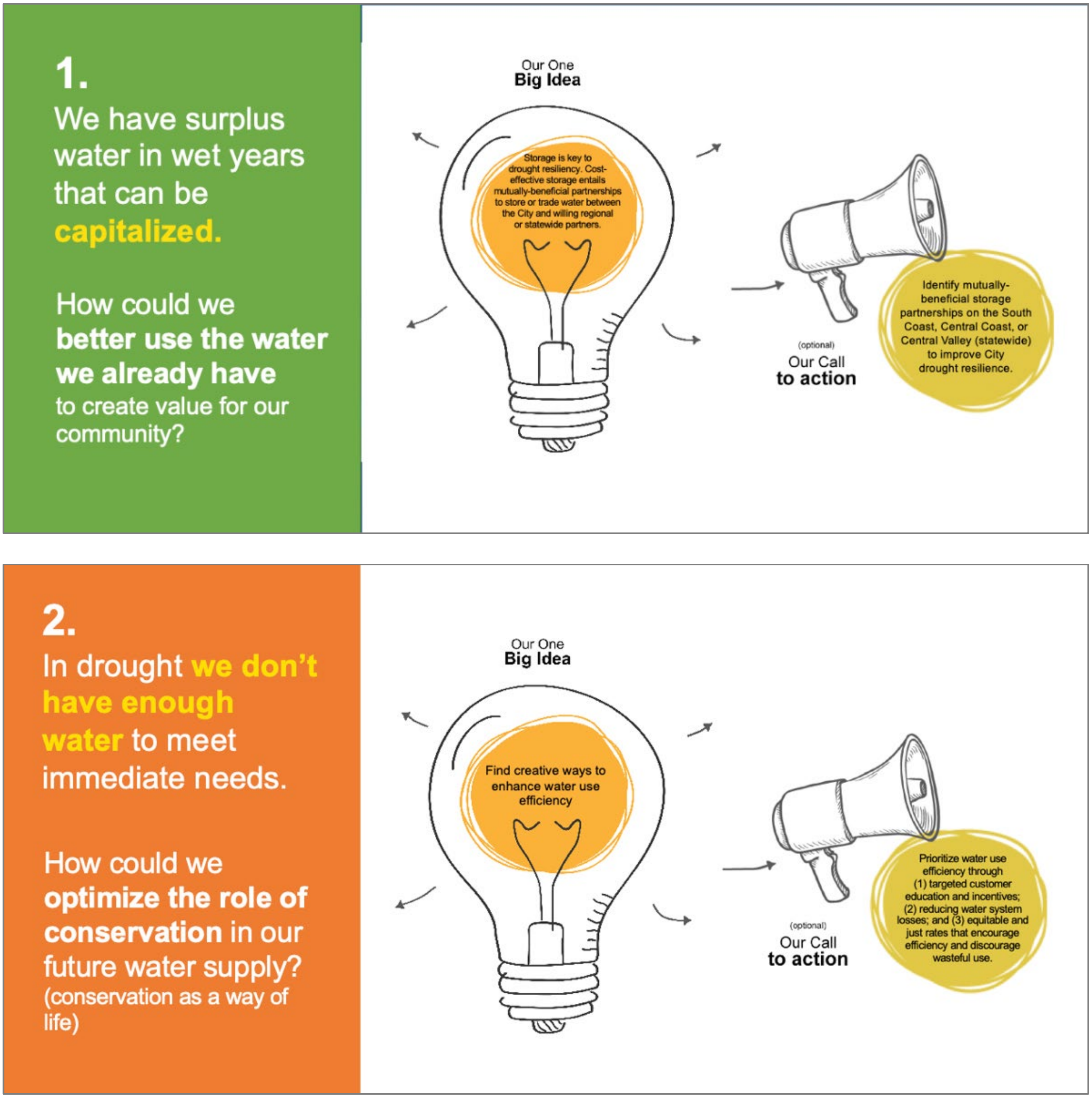
The City aims to give equal consideration to all **5 PILLARS** in informing Santa Barbara's future water supply and water management plan.

1. THE COST OF WATER IS AFFORDABLE, EQUITABLE AND JUST.
2. OUR WATER SUPPLY IS RELIABLE AND RESILIENT, INCLUDING TO THE EFFECTS OF CLIMATE CHANGE.
3. OUR WATER DECISIONS RESPONSIBLY SUPPORT HUMAN AND ENVIRONMENTAL HEALTH.
4. THE COMMUNITY'S WATER IS VALUED AND CONSERVED.
5. OUR WATER DECISIONS RESPONSIBLY SUPPORT QUALITY OF LIFE.

3. Future Supply Considerations

In this workshop, the Project Team summarized their technical evaluation of the City's existing water portfolio, giving a full picture of the risks, costs, benefits and gaps between the City's current water portfolio and its future water demand. Next, they shared some of the options the City is considering mitigating the known gaps between supply and future demand. From here, they used an interactive exercise to explore three key questions that aligned the top water supply risks to Stakeholder Group concerns. From these discussions the group developed one key takeaway and Calls to Action for City Council (**Figure 6**).

Figure 6. Calls to Action for City Council



1.
We have surplus water in wet years that can be **capitalized.**

How could we **better use the water we already have** to create value for our community?

Our One **Big Idea**

Storage is key to drought resiliency. Cost-effective storage entails mutually-beneficial partnerships to store or trade water between the City and willing regional or statewide partners.

(optional) Our Call **to action**

Identify mutually-beneficial storage partnerships on the South Coast, Central Coast, or Central Valley (statewide) to improve City drought resilience.

2.
In drought **we don't have enough water** to meet immediate needs.

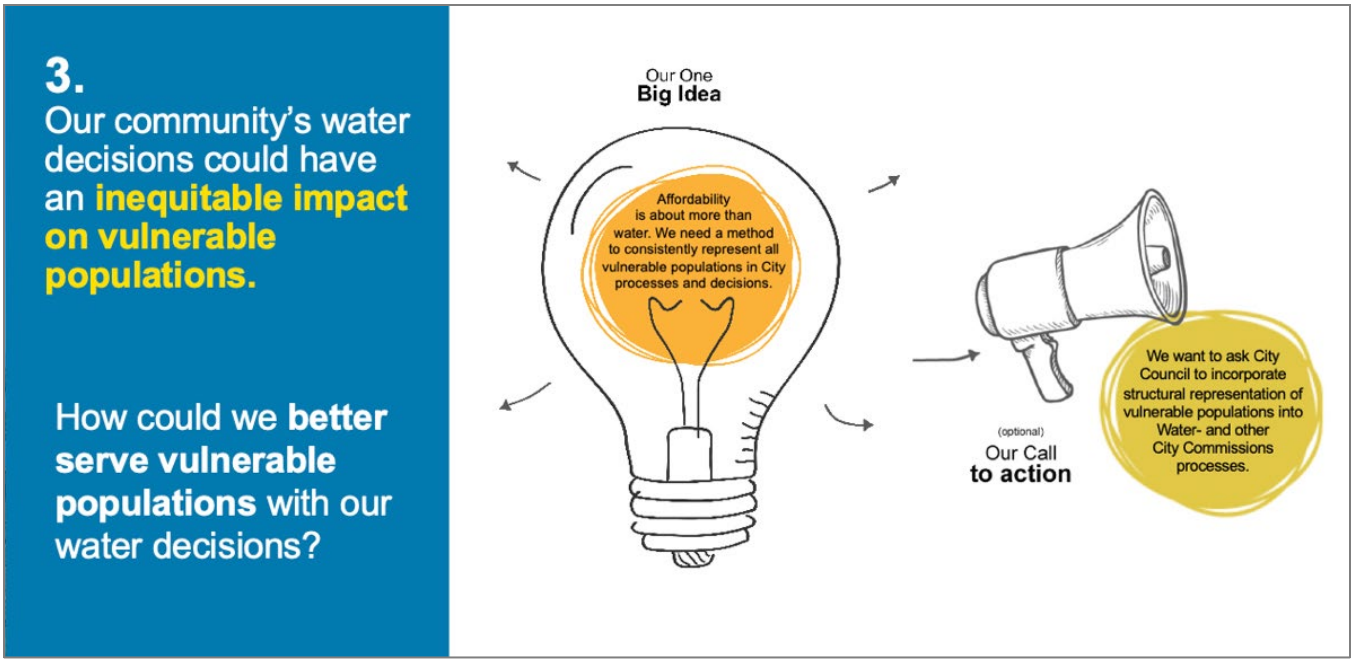
How could we **optimize the role of conservation** in our future water supply? (conservation as a way of life)

Our One **Big Idea**

Find creative ways to enhance water use efficiency

(optional) Our Call **to action**

Prioritize water use efficiency through (1) targeted customer education and incentives; (2) reducing water system losses; and (3) equitable and just rates that encourage efficiency and discourage wasteful use.



3.
Our community's water decisions could have an **inequitable impact on vulnerable populations.**

How could we **better serve vulnerable populations** with our water decisions?

Our One
Big Idea

Affordability is about more than water. We need a method to consistently represent all vulnerable populations in City processes and decisions.

(optional)
Our Call
to action

We want to ask City Council to incorporate structural representation of vulnerable populations into Water- and other City Commissions processes.

4. Future Portfolio Options

In this workshop, the Project Team described the process they used to develop several options for the City's future water portfolio, including use of the Five Pillars developed in partnership with the Stakeholder Group in the earlier workshop. The Project Team demonstrated the rigorous sensitivity and scenario testing used to land their resulting nine portfolio options. The remaining portion of the workshop was used to address questions and concerns. Additionally, the Project Team previewed the Water Vision Month, which offered several self-paced and virtual activities for the Santa Barbara community to learn about and inform Santa Barbara's Water Vision.

5. Preview of Recommended Portfolio

In the final workshop, the Project Team presented the recommended future portfolio and the City's adaptive management plan—their roadmap for keeping the portfolio adaptable to the community's evolving needs. The Project Team looked at a variety of future scenarios and stressors (such as climate change, extended drought, population growth, natural disaster, etc.) to show how the recommended portfolio will perform. Next, they facilitated an open conversation to give voice to any remaining questions or concerns among the Stakeholder Group members regarding the recommended portfolio. This information was summarized and shared with Water Commission and City Council.

Stakeholder Group Feedback Loop

The Project Team and City recognized the importance of using a transparent feedback loop to communicate what was heard from the Stakeholder Group, and how that information was used to inform decisions within the scope of this project. Where input or comments fell outside of the scope of the project, the City wanted to offer transparency about how or where that input would be addressed. Following each Stakeholder Group Workshop a summary was produced and distributed to the Group with an opportunity for members to comment on the summary. Summaries were then published to the project website along with the workshop recordings and slides.

Additionally, the City compiled all comments submitted by the Stakeholder Group across all activities into a Public Comments Summary, noting how each comment would be addressed by the City; this summary is included in **Attachment 1** and has been published to the website.

General Public Activities

The Project Team offered several opportunities for the general public water customers to learn about and inform WVSB, including project email alerts, virtual engagement and education, and invitations to attend public meetings where WVSB was on the agenda.

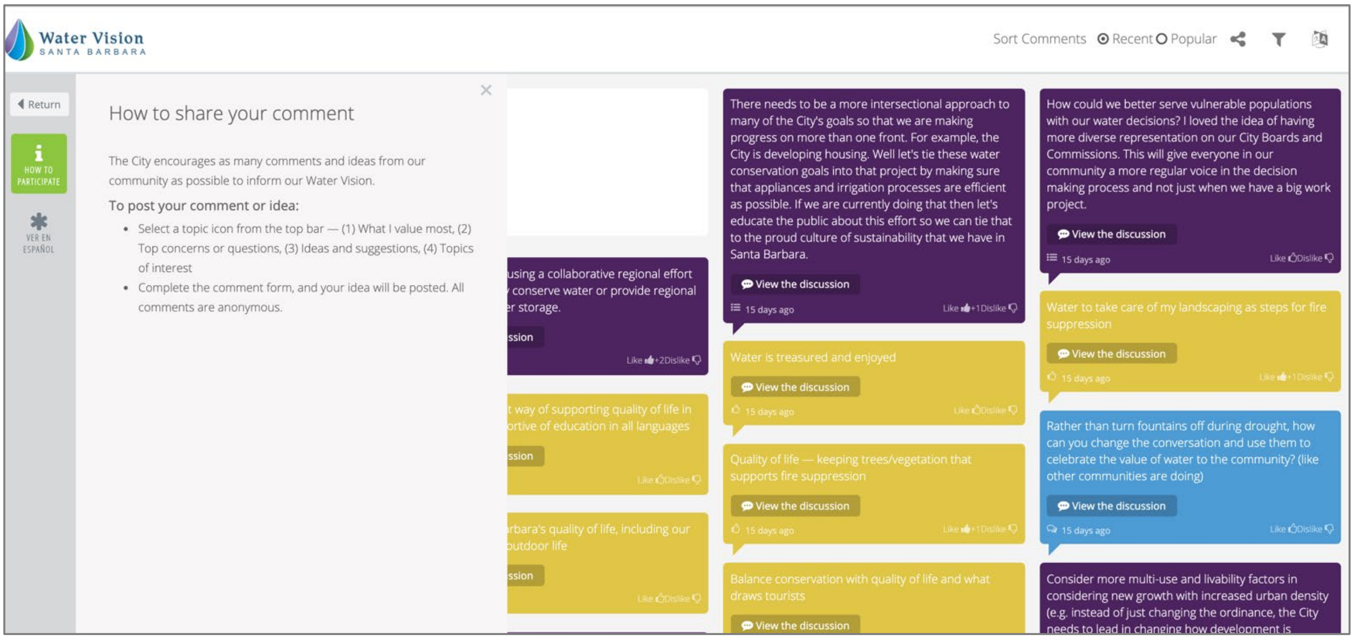
Project Email Alerts

Similar to other City led initiatives, the general public could subscribe to receive email alerts any time new information was posted to the WVSB project website at www.SantaBarbaraCA.gov/WaterVision.

Virtual Engagement and Education — Water Vision Month, October 2020

Throughout the month of October 2020, the City hosted several virtual engagement and outreach activities to give the public the opportunity to learn about and inform Santa Barbara's Water Vision. Included were self-paced educational videos on a range of water planning and supply topics (videos are being made available in Spanish); a virtual "ideas wall" (**Figure 7**) where community members could share comments, feedback, questions and concerns in an anonymous format (offered in English and Spanish); and five Lunch and Learns presented by City staff, offered with live Spanish translation (recordings were also translated into Spanish).[3]

Figure 7. Screenshot of Water Vision Month Ideas Wall



How to share your comment

The City encourages as many comments and ideas from our community as possible to inform our Water Vision.

To post your comment or idea:

- Select a topic icon from the top bar — (1) What I value most, (2) Top concerns or questions, (3) Ideas and suggestions, (4) Topics of interest
- Complete the comment form, and your idea will be posted. All comments are anonymous.

using a collaborative regional effort
conserve water or provide regional
r storage.

t way of supporting quality of life in
ortive of education in all languages

rbara's quality of life, including our
outdoor life

There needs to be a more intersectional approach to many of the City's goals so that we are making progress on more than one front. For example, the City is developing housing. Well let's tie these water conservation goals into that project by making sure that appliances and irrigation processes are efficient as possible. If we are currently doing that then let's educate the public about this effort so we can tie that to the proud culture of sustainability that we have in Santa Barbara.

Water is treasured and enjoyed

Quality of life — keeping trees/vegetation that supports fire suppression

Balance conservation with quality of life and what draws tourists

How could we better serve vulnerable populations with our water decisions? I loved the idea of having more diverse representation on our City Boards and Commissions. This will give everyone in our community a more regular voice in the decision making process and not just when we have a big work project.

Water to take care of my landscaping as steps for fire suppression

Rather than turn fountains off during drought, how can you change the conversation and use them to celebrate the value of water to the community? (like other communities are doing)

Consider more multi-use and livability factors in considering new growth with increased urban density (e.g. instead of just changing the ordinance, the City needs to lead in changing how development is

Public Meetings

The public was also invited to attend any of five designated Water Commission and four City Council meetings (listed in Figure 2) to learn about the project, ask questions, and/or to share project comments or concerns. City staff and members of the Project Team were available to answer any questions.

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[3] www.SantaBarbaraCA.gov/WaterVisionMonth

Water Commission Activities

Water Commission engagement activities included interviews and presentations at five Water Commission meetings.

One-on-One Interviews

At the project start, the Project Team held one-on-one interviews with Water Commissioners to build trust, answer questions about the stakeholder engagement approach, and to connect to the values, needs and priorities of each Commissioner as it pertained to the Water Vision and plan. This step helped the team adapt public meeting content to the educational needs of the Commissioners and their familiarity with the content.

Public Meeting Presentations

The Project Team presented at five public Water Commission meetings (listed in Figure 1) at key decision points in the project. Presentations kept Water Commission informed and supported their role as an advisor to City Council.

City Council Activities

Public Meeting Presentations

The Project Team presented at four City Council meetings (listed in Figure 1) at key decision points in the project. Presentations kept City Council informed and supported their role as the final decision authority on approving the resulting EUWMP.

Engagement and Outreach Results

Stakeholder Group Engagement Results

Among the 27 organizations recruited to the Group, about 20 were consistent, active participants across the five workshops, despite significant stresses from COVID, social justice protests, etc. Participation and engagement in the workshop activities was consistently high, and several members expressed interest in parallel water and/or conservation efforts and/or to form a more permanent public commission to support decision making.

Specifically, the Stakeholder Group activities resulted in four deliverables that informed the Water Vision: guiding documents: A synthesis of Community Values (Figure 5); the 5 Pillars Informing Water Vision Santa Barbara (Figure 6); Calls to Action for City Council (Figure 7); and Public Comments Summary. The Five Pillars informed several aspects of the plan, including the future portfolio themes, as well as the evaluation criteria for the future portfolios. Additionally, the activities helped forge new relationships with key constituencies that have been underrepresented in earlier planning efforts, including: Persons of Color, Disadvantaged Communities, and Human Rights to Water. The Project Team explored three key topics with the stakeholder group. Each discussion landed one high-level takeaway and a call to action that the group wanted to share with City Council.

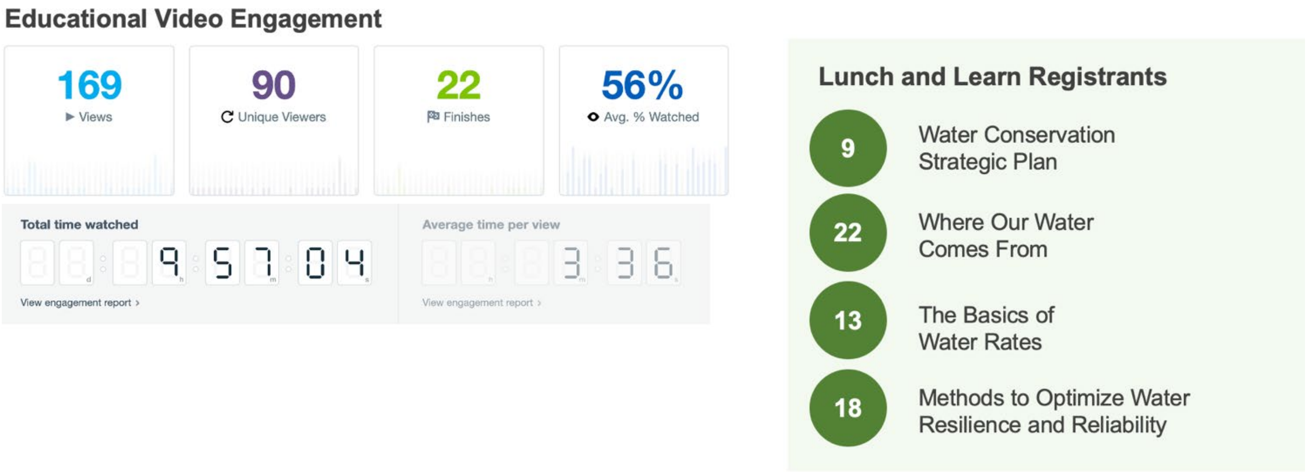
General Public Engagement and Outreach Results

The City offered a series of public education and engagement activities to inform the UWMP throughout the month of October 2020, including virtual lunch and learns (offered in English and Spanish), pre-recorded videos, and a multi-lingual web-based engagement platform called Social Pinpoint. Water Vision Month was promoted across multiple channels and platforms as shown in **Figure 8**. The results of the engagement activities, including participation and input received is shown in **Figure 9**.

Figure 8. Water Vision Month Promotion

TACTIC	TIMEFRAME	REACH
City News in Brief" email newsletter	9/21, 9/28, 10/5, 10/12, 10/19, 10/26	31,000 residents / Avg open rate: 35%
Water Resources e-newsletter	9/18 and 10/2	20,000 residents / Avg open rate: 31%
Library e-newsletter:		41,000 residents / Avg open rate 18%
Facebook ads	Throughout October	6,229 views, 89 likes, 66 clicks
Bill insert	October bills	23,000 customers
Media release and pickups: KEYT Ed Hat Spanish radio El Latino newspaper	Throughout October	Undetermined
Social media posts:		
City of Santa Barbara Facebook	Throughout October	1,500 followers
Creeks Division Facebook	Throughout October	867 followers
Sustainability and Resiliency Dept Facebook	Throughout October	3,300 followers
Stakeholder group promotion	Throughout October	Undetermined

Figure 9. Water Vision Month Content Engagement



Educational Video Engagement

169 ▶ Views

90 Unique Viewers

22 Finishes

56% Avg. % Watched

Total time watched
9 h 57 m 04 s
View engagement report ›

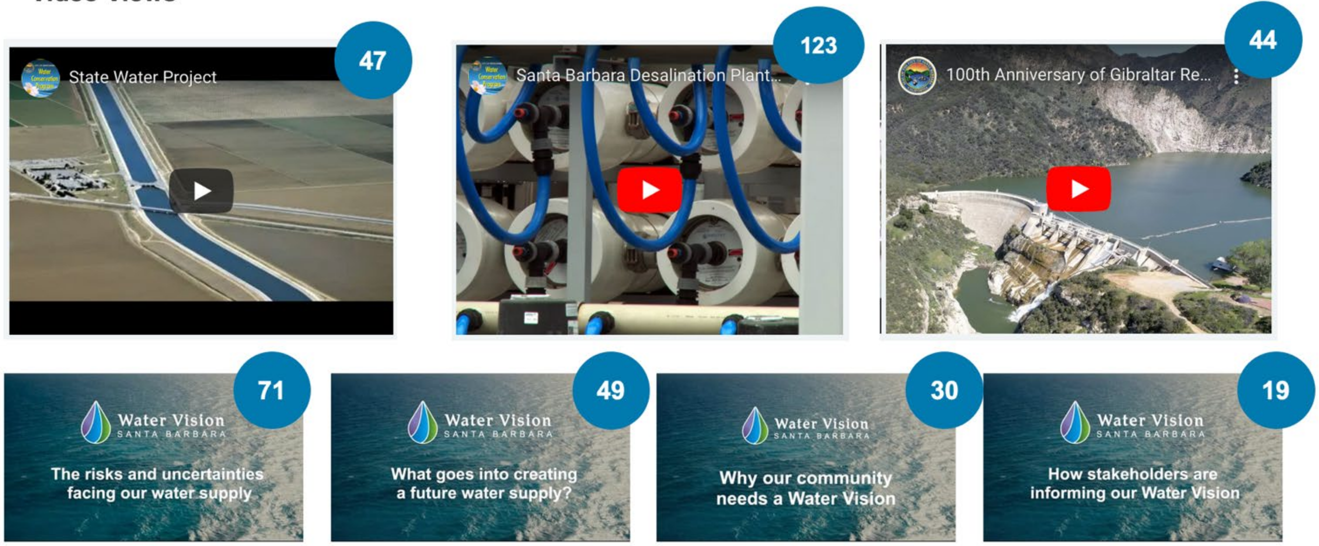
Average time per view
3 m 36 s
View engagement report ›

Lunch and Learn Registrants

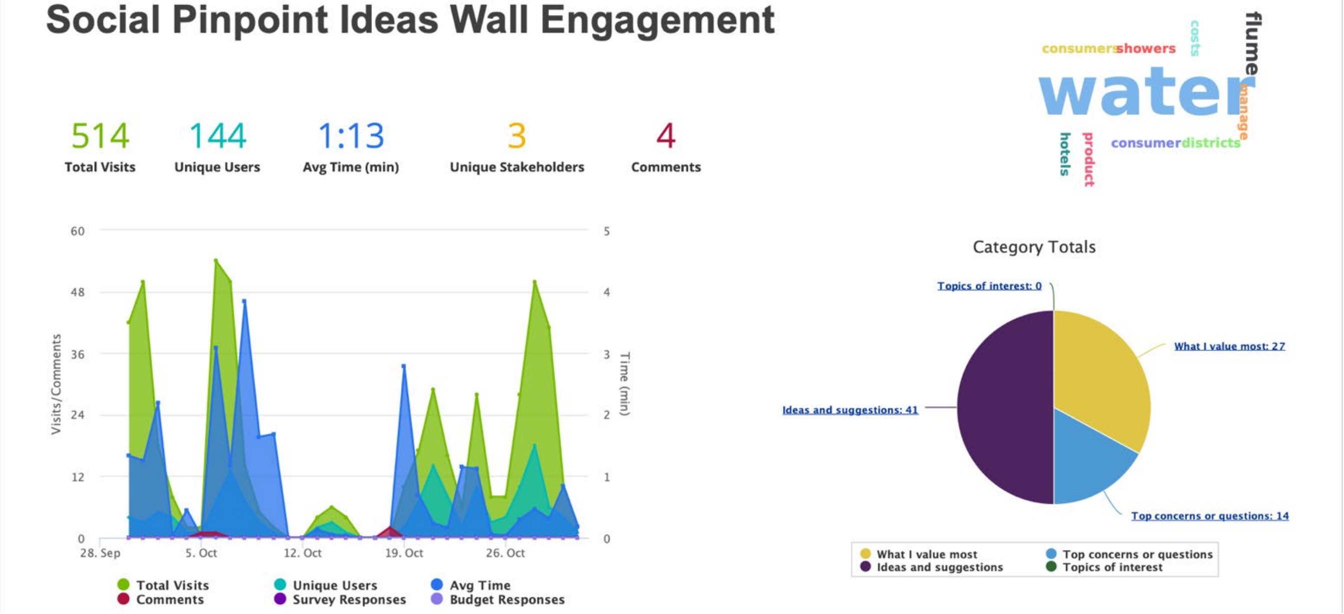
9	Water Conservation Strategic Plan
22	Where Our Water Comes From
13	The Basics of Water Rates
18	Methods to Optimize Water Resilience and Reliability

Figure 9. Water Vision Month Content Engagement, continued

Video Views



Social Pinpoint Ideas Wall Engagement



Attachment 1: Responses to Stakeholder Comments

Comment #	**Pillar #**	**Stakeholder Comment**	**Within WVSB?**	**City's Response**
1	All	Plan is aligned to the City's One Water Vision	Yes	The Plan exemplifies the City's One Water Vision.
2	1	"Cost" of water reflects both the financial and environmental cost of water	Partial	Water Vision Santa Barbara (WVSB) triple bottom line analysis considers financial, social, and environmental "costs" of supply portfolios. City water rates are developed according all applicable laws and regulations, including Proposition 218. Prop. 218 includes the requirement that rates may not exceed the estimated cost of providing the service (i.e., cost-based) to each customer class and tier, and must be reasonable, equitable, and proportional. Prop. 218 makes it difficult to internalize environmental costs because the water utility can only set rates based on the actual cost of providing water service. We do incorporate the environmental costs of water service that are known now and included in the operating and capital budgets, such as an allocated cost paid to the Energy Division that works on sustainability measures. In 2022, the City will be transitioning to 100% renewable electricity sources to power its water resources facilitates. The increased electrical costs will be factored into upcoming water rates.
3	1	Consider grants to offset cost of water to ratepayers	No	The City actively pursues grant opportunities to offset costs and maintains a list of grant opportunities and coordinates staff efforts to apply for grants. The City has successfully obtained several grants over the past year. The total value of grants received over the last 10 years totals approximately $15 Million.

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Comment #	**Pillar #**	**Stakeholder Comment**	**Within WVSB?**	**City's Response**
4	1	Cost by household isn't equitable, consider a change	No	The City Council has adopted a policy that allocates the least-expensive water sources to the highest priority uses (Tier 1), with the intent of providing the most affordable water service for the basic health and sanitation needs of all our residential customers. The Tier 1 rate applies to the first 4 units of water used each month, per residence. All residences (of the same meter size) have the same fixed monthly charge. Some agencies have implemented budget-based rates, which set a monthly water budget for basic needs and efficient water use based on characteristics of each individual household or property. These types of programs require considerable resources to implement and administer, leading to increases in operating costs and ultimately rates. Primarily, though, budget-based rates are implemented by communities seeking to achieve moderate to high levels of conservation. The City, on the other hand, has seen extraordinary conservation for several years, which is evidence that the current rate structure is effective in supporting the City's conservation goals. The City's analysis indicates that a budget-based rate would be higher than the current Tier 1 rate. Under this approach, households with minimal water use and already high levels of conservation would likely see their bills increase.
5	1	Empower ratepayers with information on their water use and water and money saving opportunities	No	Detailed rate information is provided on the City's website. (Full web address provided under this table.)

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		(separate out bill, more education, notify when they are about to into next tier, etc.)		Water Conservation staff maintain the water conservation hotline (805.564.5460), and, along with the hotline operated by Utility Billing staff (805.844.0038), answer questions about customer bills daily. Water Conservation staff help customers identify leaks and other over-usage of water and can schedule checkups at the customers' homes to investigate high water use further. Checkups are provided at no cost and are available to all customers. The City also offers rebates for all customers to help them reduce their water use and water bills. Once the automated metering infrastructure (AMI) project or "smart water meters" is implemented (currently underway), customers will have access real-time data on their water use and the City will be able to notify customers of unusually high usage and potential leaks.
6	1	Fairness in pricing so that the charge for the water reflects primarily the cost of water.	No	See Response to Comment #2
7	1	How is the cost of water playing into the idea of "affordability" for SB?	No	See Response to Comment #4
8	1	Identify additional sources of revenue to help offset water cost for ratepayers	No	See Response to Comment #3 and Comment #2
9	1	Improve water education to water users (where it comes from, cost, importance of conservation, and their own use), including renters and businesses	No	See Response to Comment #5

Comment #	**Pillar #**	**Stakeholder Comment**	**Within WVSB?**	**City's Response**
10	1	It's tough to support economic vitality in the area when cost of water is so high. Water cost is considered when businesses are trying to sell their business, or homeowners trying to sell their home	No	The City's water rates are comparable to neighboring water agencies. Residential low water users experience some of the lowest water bills among our three neighboring water agencies. High water using customers in the City do pay more for their excessive water use. The water rate tiers are designed to encourage conservation. Note the City is also dedicated to empowering customers to control their water bill by limiting the amount of revenue collected through fixed charges. The City's rates are structured so that only 30% of revenues come from fixed charges, although the fixed expenses to operate the water system account for approximately 80% of overall costs.
11	1	Rates should reward conservation/lowest water users	No	See Response to Comment #4
12	1	Tiered pricing model based on use doesn't work for renters — because the price is distributed across all renters in a building	No	The City requires new multi-family buildings to install individual meters so each renter receives their own water bill, including all educational materials sent to water customers. The City is supportive of private sub-metering for older multi-family residential units that do not currently have separate water meters and can provide resources to property owners looking to privately sub-meter their complexes.
13	1	Tourism is big part of local economy; cost of water is passed on to tourism customers which may affect industry	No	The City's rate structure for commercial customers does not consider the type of commercial activity. All commercial customers have the same rate structure, including businesses

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				related to tourism. State law (Proposition 218) does not allow residential customers to subsidize water to commercial users.
14	1	Transparency in water decisions	Yes	WVSB is intended to be a transparent process. In addition, the Water Commission is a great option for public participation in water decisions. Items going to City Council for decision are first taken to the Water Commission, with controversial items often going to the Water Commission multiple times. Water Rates, for example, go to the Water Commission at least twice followed by the Finance Committee and then finally City Council. All of these meetings are open to the public and the agenda is advertised a week in advance. Public engagement is highly encouraged.
15	1	Water decisions support environmental and social justice outcomes	No	See Response to Comment #2
16	1	Water needs to be affordable for all (and utilities as a whole); build fair rates based on usage and means	No	See Response to Comment #4
17	1 & 4	Better education on options for water meters in high fire areas — e.g., Rates are calculated based on size of water meter, education to more residents could result in better conservation or water use efficiency	No	No potable water system is designed to fight wildfires. The size of the pipes and reservoirs that would be needed would be cost prohibitive and lead to water quality degradation. This results in regulatory compliance issues related to water quality. Potable water systems are designed to fight individual structure fires but not dozens of structures at once. Residents should consider constructing defensible spaces and using low ignition landscaping and building materials. Depending on the amount of water used to maintain landscaping in fire-

Comment #	Pillar #	Stakeholder Comment	Within WVSB?	City's Response
				susceptible areas, customers may consider a separate dedicated landscape irrigation meter, which is billed based on a landscape irrigation budget, for the irrigation needs. Some customers have found this option to be more cost effective than watering their landscape with their single-family residential meter.
18	2	Adequate water pressure — ensure infrastructure can accommodate new sprinkler regulations in new building construction, particularly in wildfire	No	The City's water distribution system is designed to meet fire flows to address individual structure fires and to support current plumbing codes. The system is not designed to respond to wildfires, as such a system would be cost prohibitive, requiring a significant increase in the size of pipelines and water storage capacity. Treated drinking water degrades quickly and the storage of treated water for long periods of time will compromise drinking water quality and increases the risk of developing federally regulated disinfection byproducts in the drinking water.
19	2	Encourage City to think about having a neighborhood-scale infiltration approach vs. building by building	No	The City's landscape design standards (full web address provided under this table) encourage conservation and infiltration. Infiltration provides stormwater management and water quality benefits to our creeks and ocean. Unfortunately, infiltration has a limited benefit to our groundwater supply as a result of local geology. Infiltration on properties located above Oak Park have the greatest benefits to our groundwater basins. The biggest benefit to Water Supply from rain water infiltration comes from the water that is able to infiltrate individual landscapes and be stored in the soil for trees and shrubs to access in the spring and early summer, offsetting the need for potable water.

Comment #	Pillar #	Stakeholder Comment	Within WVSB?	City's Response
20	2	Expand and incentivize gray water use options for homeowners so they can use it on landscaping	No	The City's water conservation group offers streamlined permitting for simple "laundry to landscape" greywater systems, along with workshops on how to install a simple laundry to landscape system. (Full web address provided under this table). Greywater is considered in the Water Conservation Strategic Plan.
21	2	Expand appropriate use of potable supplies	Yes	Noted
22	2	Expand the use of recycled water, including for irrigation, fire suppression, industrial use, street cleaning	Yes	WVSB will consider incremental expansion of recycled water for non-potable uses in the portfolio analysis.
23	2	Individuals and public resources will all have sufficient access to water (for example, irrigation levels in parks can improve if water is more plentiful and therefore more affordable)	Yes	Addressed in supply/demand and level of service analyses included with Water Vision Santa Barbara. The "level of service" establishes minimum demands that all portfolios must meet to be evaluated and recommended.
24	2	Look at the district-scale planning like a "Downtown area district" so solutions for things like stormwater looks at the right scale	No	City Community Development and Planning handle redevelopment. Although, no District-scale redevelopment is proposed at this point. Also, refer to response to Comment #19.
25	2	More flexible conservation and water use efficiency policy for the reality of homeowners. EX: rather than a policy that forces a homeowner to upgrade to use gray water, can we have more options with the same incentives?	No	The City's water conservation program and Water Conservation Strategic Plan include an array of cost-effective conservation measures that homeowners can choose from.
26	2	More transparency from City about anticipated population growth and anticipated water demand	Yes	WVSB demand projections include regional population projections provided by the City's Community Development

Comment #	Pillar #	Stakeholder Comment	Within WVSB?	City's Response
				Department. The data sources will be cited in the WVSB report/Enhanced Urban Water Management Plan. City Council approves the General Plan, and the Housing Element is currently being updated. Estimated water demand from new development is included within WVSB demand projections, and WVSB has developed a "demand envelope" to capture a range of potential future water demands based upon various assumptions about population growth, job growth, and climate change. This will allow the City to adaptively manage its water supplies as water demand changes in the future. Periodically, the Community Development Dept. in partnership with the Public Works Dept. update Water Commission and Council on the effects of new development/growth on water demands projected in the City's General Plan. To date, the actual increase in water demand has been much lower than projected in the General Plan. A link to the latest staff report on this topic can be found in the links below this document. As an interesting fact, water use today is the same as it was in the 1950's when the population of Santa Barbara was half of what it is today.
27	2	Optimize flexibility of water supply — some might be more expensive now but are more reliable long-term	Yes	This will be considered in the triple bottom line analysis, which evaluates the social, environmental, and economic costs and benefits of various water supply portfolios, performed in the analysis of potential future water supply portfolios for the Enhanced Urban Water Management Plan.

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28	2	The future of growth is increasing urban density (maybe double the density in some areas) — is the City's water infrastructure ready for that?	No	Addressed with Water Distribution Infrastructure Master Plan
29	2	Ensure adequate, reliable water pressure for fire suppression to protect homes, especially in high fire risk areas	No	See Response to Comment #17
30	2	Ensure reliable water access for all, to meet all basic human needs	Yes	See Response to Comment #4
31	2	Consider the climate-change related impacts on future demand	Yes	Considered in demand analysis
32	2	Consider the greenhouse gas emissions associated with our water decisions	Yes	This will be considered in the triple bottom line analysis, which evaluates the social, environmental, and economic costs and benefits of various water supply portfolios, performed in the analysis of potential future water supply portfolios for the Enhanced Urban Water Management Plan.
33	2 & 3	Reliability via diverse water sources — Have multiple water supplies so we don't have to rely on just one, leads to an even use of water and less depletion so we would survive a drought	Yes	This will be considered in the triple bottom line analysis, which evaluates the social, environmental, and economic costs and benefits of various water supply portfolios, performed in the analysis of potential future water supply portfolios for the Enhanced Urban Water Management Plan.
34	2 & 4	Resilient to drought and natural disasters; get ahead of that for the future	Yes	This will be considered in the triple bottom line analysis, which evaluates the social, environmental, and economic costs and benefits of various water supply portfolios, performed in the

Comment #	Pillar #	Stakeholder Comment	Within WVSB?	City's Response
				analysis of potential future water supply portfolios for the Enhanced Urban Water Management Plan.
35	3	Clean drinking water; no pathogens in the water supply	No	The City is required to provide safe drinking water and drinking water quality is documented in annual Consumer Confidence Reports. (Refer to web site provided under the table).
36	3	Consider recycled water irrigation for water, plants - trees.	Yes	See Response to Comment #22
37	3	Don't harm marine environment	Yes	This will be considered in the triple bottom line analysis, which evaluates the social, environmental, and economic costs and benefits of various water supply portfolios, performed in the analysis of potential future water supply portfolios for the Enhanced Urban Water Management Plan.
38	3	Exhaust all other alternatives first before turning to desal; then use desal to fulfill remaining shortfall with best technology	Yes	This will be considered in the triple bottom line analysis, which evaluates the social, environmental, and economic costs and benefits of various water supply portfolios, performed in the analysis of potential future water supply portfolios for the Enhanced Urban Water Management Plan.
39	3	Manage sedimentation in an environmentally-sustainable way	No	The City recognizes removal of sediment from Gibraltar Reservoir would not be environmentally-sustainable because of the volume of sediment to be removed, the number of truck trips that would be required, and the need for an environmentally responsible place to put the sediment once it was removed. For this reason, the City continues to pursue a Warren Act Contract with the USBR to store water that would have been stored in Gibraltar in Lake

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				Cachuma instead. The City may also consider the feasibility of other projects in the future that could reclaim water supply benefits from Gibraltar, while not removing the sediment, such as slant-wells. For example, removal of sediment generated from the Zaca Fire in 2007 was estimated to cost well over $100M and that was just for the removal and trucking costs; it did not include disposal.
40	3	Maximize and incentivize conservation and water use efficiency	No	Cost effective water conservation measures are addressed in the Water Conservation Strategic Plan. A Minimize Environmental Impact portfolio, which includes maximized water conservation, is considered in the future portfolio analysis.
41	3	Maximize/prioritize reuse (recycled water, stormwater capture)	Yes	This will be considered in the triple bottom line analysis, which evaluates the social, environmental, and economic costs and benefits of various water supply portfolios, performed in the analysis of potential future water supply portfolios for the Enhanced Urban Water Management Plan.
42	3	Minimize energy intensity / reduce greenhouse gas emissions associated with water sources	Yes	This will be considered in the triple bottom line analysis, which evaluates the social, environmental, and economic costs and benefits of various water supply portfolios, performed in the analysis of potential future water supply portfolios for the Enhanced Urban Water Management Plan.
43	3	Optimize diversity of water resources so we are not over depleting one.	Yes	This will be considered in the triple bottom line analysis, which evaluates the social, environmental, and economic costs and benefits of various water supply portfolios, performed in the

Comment #	Pillar #	Stakeholder Comment	Within WVSB?	City's Response
				analysis of potential future water supply portfolios for the Enhanced Urban Water Management Plan.
44	3	Preserve local flora and fauna	No	This is beyond the scope of City water resources planning.
45	3	Protect and enhance soil health	No	This is beyond the scope of City water resources planning. Although, the City does offer a free mulch program to promote soil health and water retention. (Refer to web site provided under the table).
46	3	Protect depletable resources and maximize use of renewable resources	Yes	This will be considered in the triple bottom line analysis, which evaluates the social, environmental, and economic costs and benefits of various water supply portfolios, performed in the analysis of potential future water supply portfolios for the Enhanced Urban Water Management Plan.
47	3	Protect freshwater resources, creeks, marine life, ocean health	Yes	This will be considered in the triple bottom line analysis, which evaluates the social, environmental, and economic costs and benefits of various water supply portfolios, performed in the analysis of potential future water supply portfolios for the Enhanced Urban Water Management Plan.
48	3	Protect groundwater basins from sea level rise and overdraft	Yes	This will be considered in the triple bottom line analysis, which evaluates the social, environmental, and economic costs and benefits of various water supply portfolios, performed in the analysis of potential future water supply portfolios for the Enhanced Urban Water Management Plan.

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49	3	Reclaimed water in purple pipe irrigation has too high concentration of salts	Yes	Recycled water quality is considered when evaluating potential new customers. Salt tolerance is different between different turfgrass species.
50	3	Reduce the environmental impact of desalination, namely brine-waste discharge	Yes	This will be considered in the triple bottom line analysis, which evaluates the social, environmental, and economic costs and benefits of various water supply portfolios, performed in the analysis of potential future water supply portfolios for the Enhanced Urban Water Management Plan.
51	3	Support sustainable local agriculture	No	The City has very few agriculture accounts because most agriculture is outside City limits. The City does have a lower rate for agricultural customers for those that can prove they operate an agricultural business. (Refer to City web site provided under the table).
52	3	Use current and sound environmental impact data to make decisions on water sources or infrastructure	Yes	This will be considered in the triple bottom line analysis, which evaluates the social, environmental, and economic costs and benefits of various water supply portfolios, performed in the analysis of potential future water supply portfolios for the Enhanced Urban Water Management Plan.
53	4	Can City be less reactive and support "extreme conservation" as a way of life	No	See Response to Comment #40
54	4	Can City implement an ongoing water conservation task force vs. one that forms every 15 years?	No	Water conservation oversight is a primary role of the Water Commission, which is a 5-person committee appointed by the City Council to advise on all things Water. The City has also had limited term stakeholder groups focused on water conservation

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				in the past. The 2010 Water Conservation Plan was informed by a stakeholder group, and, pre-drought, the City participated in a Partners in Water Conservation Group that was a quarterly meeting designed to foster coordination between South Coast water agencies and landscape industry partners. The City would be open to another stakeholder group focused on water conservation. We want to discuss the goals of a water conservation group with the WVSB stakeholder group, such as customer messaging, regulations, or measures. Note that the various incentives and programs offered to support water conservation in the City are analyzed in the 2020 Water Conservation Strategic Plan, and were selected based on their potential for water savings, ability to meet the needs of each of the City's customer classifications, and cost-effectiveness.
55	4	Educate and/or incentive tourists/visitors on importance/value of conservation	No	The City participates in Water Wise Santa Barbara County's Restaurant and Lodging Water Conservation Program (See link provided below this table). This program provides restaurant table placards and hotel towel/linen cards to help businesses convey the importance of conservation to visitors in our community.
56	4	Encourage property owners supporting renters to save/conserve water	No	Water Conservation staff often receive calls from renters on the water conservation hotline. Staff empowers renters with information they can use to discuss with their landlords.

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				Ultimately, if the landlord is the water account holder, they make final decisions regarding water use on the property. In addition, City municipal code requires that all new multi-family residential housing units are separately metered so each renter receives their own water bill, including all educational materials sent to water customers. The City is supportive of private sub-metering for older multi-family residential units that do not currently have separate water meters and can provide resources to property owners looking to privately sub-meter their complexes.
57	4	Encourage/create more industry-specific opportunities for water efficiency and conservation? (e.g., tourism businesses, tourists/travelers service industry, etc.)	No	The Water Conservation Strategic Plan considers a range of options across different types of uses. Also, see the answer to #55 above.
58	4	Expand public education to make conservation and water efficiency a part of life and running a business in SB, vs. just a reaction to drought	No	The City has ongoing water conservation programs targeting its commercial/industrial/institutional (CII) customers, regardless of the region's drought status. See link below this table. In addition, the City offers water conservation programs and incentives to each of its customer classifications regardless of the region's drought status. See link below this table.
59	4	Further incentivize conservation without having the jump through a lot of hoops; such as loosen grey water regulations	No	See Response to Comment #20. Conservation incentives are also evaluated in the Water Conservation Strategic Plan.

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60	4	In future, expand to education businesses on water use and water efficiency, conservation to save money	No	See Response to Comment #58
61	4	Incentivize and reward water conservation vs. simply charging more	No	See Response to Comment #40
62	4	Prioritize environmentally sensitive and water-sustainable urban planning	No	The City has water efficient landscape standards that encourage conservation and follows green building codes. This would be addressed by Community Development.
63	4 & 5	Encourage conservation "without sacrifice"	No	See Response to Comment #40
64	4 & 5	Maintain a constant way of educating and advising people to not waste water & saving costs	No	See Response to Comment #58.
65	5	Balance conservation with quality of life and what draws tourists	No	See Response to Comment #40
66	5	Consider more multi-use and livability factors in considering new growth with increased urban density (e.g. instead of just changing the ordinance, the City needs to lead in changing how development is approached)	No	This is a General Plan/Community Development/City Council issue. The Water Division does not set policy around land development. We will share this comment with the Planning Commission and Community Development. We encourage stakeholders to participate in future public events (not yet scheduled) related to updates to the General Plan.
67	5	Limit impact of cost of water to cost of living	No	See Response to Comment #10
68	5	Maintain Santa Barbara's quality of life, including our trees, landscape, outdoor life	No	This is a priority of the City. The City's Water Shortage Contingency Plan allowed the City to prioritize maintaining street

Comment #	Pillar #	Stakeholder Comment	Within WVSB?	City's Response
				trees during the recent drought. The WVSB level of service goals, which are tied to City water shortage stages, prioritizes maintaining street trees during drought conditions.
69	5	Preserve the aesthetic of Santa Barbara	No	See Response to Comment #68
70	5	Quality of life — keeping trees/vegetation that supports fire suppression	No	See Response to Comment #68
71	5	Rather than turn fountains off during drought, how can you change the conversation and use them to celebrate the value of water to the community? (like other communities are doing)	No	The intent of the City's fountain regulation during the most recent drought was to reduce the amount of water lost to evaporation from large fountains (over 25 sq. ft. of water surface area). At the time the regulation was adopted, City Council decided it was an important optic to shut off fountains while the community was in a severe drought. The City's Water Shortage Contingency Plan gives Council many options for different regulations to reduce water use during a severe drought. In future droughts, Council may make different choices. The public is always welcome to participate in Water Commission and City Council meetings when decisions about water use regulations are being discussed.
72	5	Water is the truest way of supporting quality of life in community/ supportive of education in all languages	N/A	Noted
73	5	Water is treasured and enjoyed	N/A	Noted
74	5	Water to take care of my landscaping as steps for fire suppression	No	The City's Fire Prevention Bureau provides both High Fire Area Defensible Space and High Fire Area Landscape Requirements.

Comment #	Pillar #	Stakeholder Comment	Within WVSB?	City's Response
				While "zone 1" defensible space requirements including low growing, irrigated plants, there are many drought tolerant varieties available that meet the requirements. Please see links at the bottom of this table for more information, including a link to the County's Water Wise Gardening website that allows you to search for plants that are both drought tolerant and fire-wise. Regarding water used for landscape, there are no restrictions on the amount of water a homeowner can use on his/her property. To encourage conservation, water rates do increase with increased usage. If a customer has high landscape water usage at their property, they may want to evaluate whether or not they can save money on their water bill with a dedicated landscape irrigation meter. The dedicated landscape irrigation meter is billed based on a water budget that considers the individual needs of a particular landscape using real-time climate data. Some customers find it to be cost effective to have both a single-family residential meter and a landscape irrigation meter for their property. City staff can help evaluate whether or not a dedicated irrigation meter makes sense for your property.
75		I liked the idea of using a collaborative regional effort to more efficiently conserve water or provide regional solutions like water storage.	Yes	This will be considered in the triple bottom line analysis, which evaluates the social, environmental, and economic costs and benefits of various water supply portfolios, performed in the analysis of potential future water supply portfolios for the Enhanced Urban Water Management Plan.

The 5 Pillars Informing Water Vision Santa Barbara (WVSB):
1. The Cost of Water is Equitable, Affordable and Just
2. Access to Water is Reliable and Resilient, including the Effects of Climate Change
3. Our Water Decisions Responsibly Support Human and Environmental Health
4. The Community's Water is Valued and Conserved
5. Our Water Decisions Responsibly Support Quality of Life

Comment #	Pillar #	Stakeholder Comment	Within WVSB?	City's Response
76	4	We need to get water conservation education to renters. The majority of our city are renters and many of them never see a water bill. We need an educational effort that goes beyond the message of "save money on your water bill" because that will not resonate with many renters.	No	See Response to Comment #56
77		How could we better serve vulnerable populations with our water decisions? I loved the idea of having more diverse representation on our City Boards and Commissions. This will give everyone in our community a more regular voice in the decision making process and not just when we have a big work project.	No	We will share this input with Water Commission and City Council.
78		There needs to be a more intersectional approach to many of the City's goals so that we are making progress on more than one front. For example, the City is developing housing. Well let's tie these water conservation goals into that project by making sure that appliances and irrigation processes are efficient as possible. If we are currently doing that then let's educate the public about this effort so we can tie that to the proud culture of sustainability that we have in Santa Barbara.	No	The City's One Water goals include increased intersectionality, both within the Water Resources Division and the Public Works Dept., and across City departments as related to water and wastewater decisions. In addition, the City's Water Supply group and Community Development Dept. work together closely on issues related to City growth and water demand and project design requirements related to water use. For example, the Water Supply group oversees the City's Landscape Design Standards, which were designed to require more water efficient landscapes on new and substantial re-development projects. For indoor water use, the

Comment #	Pillar #	Stakeholder Comment	Within WVSB?	City's Response
				City follows the Plumbing Code and the CALGreen green building standards code, over seen by Building and Safety. More could always be done to educate the public on what we are doing.

The 5 Pillars Informing Water Vision Santa Barbara (WVSB):

1. The Cost of Water is Equitable, Affordable and Just
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5. Our Water Decisions Responsibly Support Quality of Life

City Websites by Comment Number

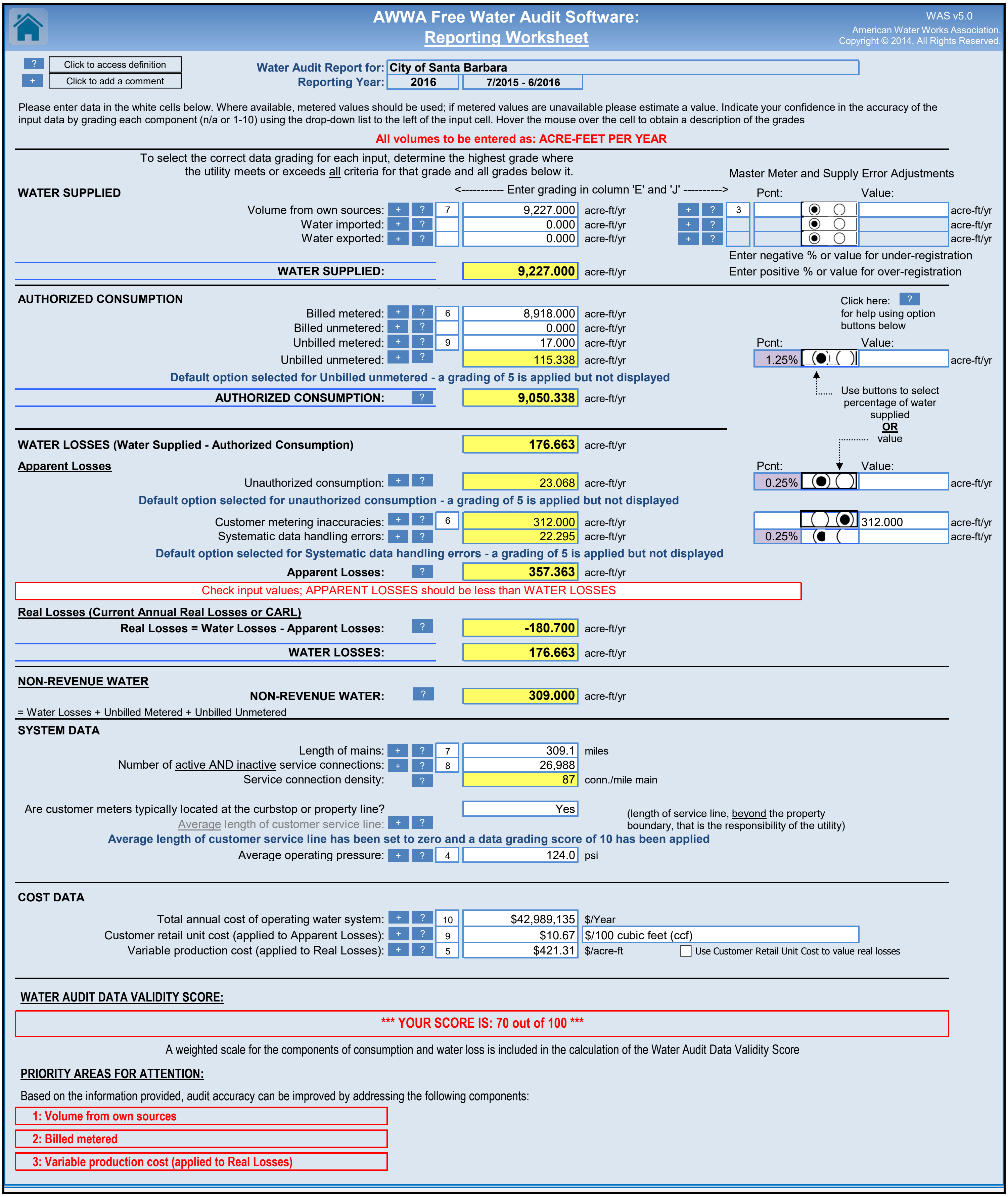
Comment #	Topic	Website
5	City's Web Page on Water Rates	www.santabarbaraca.gov/gov/depts/pw/resources/rates/wtrsewer/default.asp
19, 74	City's landscape design standards to encourage conservation	www.santabarbaraca.gov/gov/depts/pw/resources/conservation/landscaping/designstandards/default.asp
19	City's Stormwater Program (which is led by City Creeks Division)	www.santabarbaraca.gov/gov/depts/parksrec/creeks/quality/storm.asp
20	City's graywater information	www.santabarbaraca.gov/gov/depts/pw/resources/conservation/landscaping/graywater.asp
26	Water demand and population growth	https://civicaweb.santabarbaraca.gov/civicax/filebank/blobdload.aspx?BlobID=215753
35	City's Consumer Confidence Report (potable water quality)	www.santabarbaraca.gov/civicax/filebank/blobdload.aspx?BlobID=228122
35	City's Water Resources Laboratory (water quality - potable water, wastewater, creeks, ocean)	www.santabarbaraca.gov/gov/depts/pw/resources/system/lab.asp
45	City's free mulch program	www.santabarbaraca.gov/services/recycling/collect/mulch.asp
51	City's Agricultural Rate Application	www.santabarbaraca.gov/civicax/filebank/blobdload.aspx?BlobID=17604
55	Water Wise Santa Barbara Restaurant/Hotel Program	waterwisesb.org/restaurant.wwsb
58	City's CII Water Conservation Program	www.santabarbaraca.gov/gov/depts/pw/resources/conservation/business/default.asp
58	City's Water Conservation Program	www.santabarbaraca.gov/gov/depts/pw/resources/conservation/default.asp
74	City High Fire Area Landscape Requirements	https://www.santabarbaraca.gov/civicax/filebank/blobdload.aspx?BlobID=225058

The 5 Pillars Informing Water Vision Santa Barbara (WVSB):

1. The Cost of Water is Equitable, Affordable and Just
2. Access to Water is Reliable and Resilient, including the Effects of Climate Change
3. Our Water Decisions Responsibly Support Human and Environmental Health
4. The Community's Water is Valued and Conserved
5. Our Water Decisions Responsibly Support Quality of Life

74	City High Fire Area Defensible Space Requirements	https://www.santabarbaraca.gov/civicax/filebank/blobdload.aspx?BlobID=16479
74	Water Wise Gardening in Santa Barbara County	http://waterwisegardeningsb.org/

Appendix G: FY16 to FY20 AWWA Water Audits



AWWA Free Water Audit Software:
Reporting Worksheet

WAS v5.0

? Click to access definition
\+ Click to add a comment

Water Audit Report for: City of Santa Barbara
Reporting Year: 2016 | 7/2015 - 6/2016

Please enter data in the white cells below. Where available, metered values should be used; if metered values are unavailable please estimate a value. Indicate your confidence in the accuracy of the input data by grading each component (n/a or 1-10) using the drop-down list to the left of the input cell. Hover the mouse over the cell to obtain a description of the grades

All volumes to be entered as: ACRE-FEET PER YEAR

To select the correct data grading for each input, determine the highest grade where the utility meets or exceeds all criteria for that grade and all grades below it.

<----------- Enter grading in column 'E' and 'J' ---------->

WATER SUPPLIED

Master Meter and Supply Error Adjustments

	Grade	Value		Grade	Pcnt:		Value:	
Volume from own sources:	7	9,227.000	acre-ft/yr	3		● ○		acre-ft/yr
Water imported:		0.000	acre-ft/yr			● ○		acre-ft/yr
Water exported:		0.000	acre-ft/yr			● ○		acre-ft/yr

Enter negative % or value for under-registration
Enter positive % or value for over-registration

WATER SUPPLIED: **9,227.000** acre-ft/yr

AUTHORIZED CONSUMPTION

Click here: ? for help using option buttons below

	Grade	Value		Pcnt:		Value:	
Billed metered:	6	8,918.000	acre-ft/yr				
Billed unmetered:		0.000	acre-ft/yr				
Unbilled metered:	9	17.000	acre-ft/yr				
Unbilled unmetered:		115.338	acre-ft/yr	1.25%	● ○		acre-ft/yr

Default option selected for Unbilled unmetered - a grading of 5 is applied but not displayed

Use buttons to select percentage of water supplied **OR** value

AUTHORIZED CONSUMPTION: **9,050.338** acre-ft/yr

WATER LOSSES (Water Supplied - Authorized Consumption) **176.663** acre-ft/yr

Apparent Losses

	Grade	Value		Pcnt:		Value:	
Unauthorized consumption:		23.068	acre-ft/yr	0.25%	● ○		acre-ft/yr

Default option selected for unauthorized consumption - a grading of 5 is applied but not displayed

	Grade	Value		Pcnt:		Value:	
Customer metering inaccuracies:	6	312.000	acre-ft/yr		○ ●	312.000	acre-ft/yr
Systematic data handling errors:		22.295	acre-ft/yr	0.25%	● ○		acre-ft/yr

Default option selected for Systematic data handling errors - a grading of 5 is applied but not displayed

Apparent Losses: **357.363** acre-ft/yr

Check input values; APPARENT LOSSES should be less than WATER LOSSES

Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses: **-180.700** acre-ft/yr

WATER LOSSES: **176.663** acre-ft/yr

NON-REVENUE WATER

NON-REVENUE WATER: **309.000** acre-ft/yr

= Water Losses + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

	Grade	Value	
Length of mains:	7	309.1	miles
Number of active AND inactive service connections:	8	26,988	
Service connection density:		87	conn./mile main

Are customer meters typically located at the curbstop or property line? Yes

Average length of customer service line: (length of service line, beyond the property boundary, that is the responsibility of the utility)

Average length of customer service line has been set to zero and a data grading score of 10 has been applied

	Grade	Value	
Average operating pressure:	4	124.0	psi

COST DATA

	Grade	Value	
Total annual cost of operating water system:	10	$42,989,135	$/Year
Customer retail unit cost (applied to Apparent Losses):	9	$10.67	$/100 cubic feet (ccf)
Variable production cost (applied to Real Losses):	5	$421.31	$/acre-ft

☐ Use Customer Retail Unit Cost to value real losses

WATER AUDIT DATA VALIDITY SCORE:

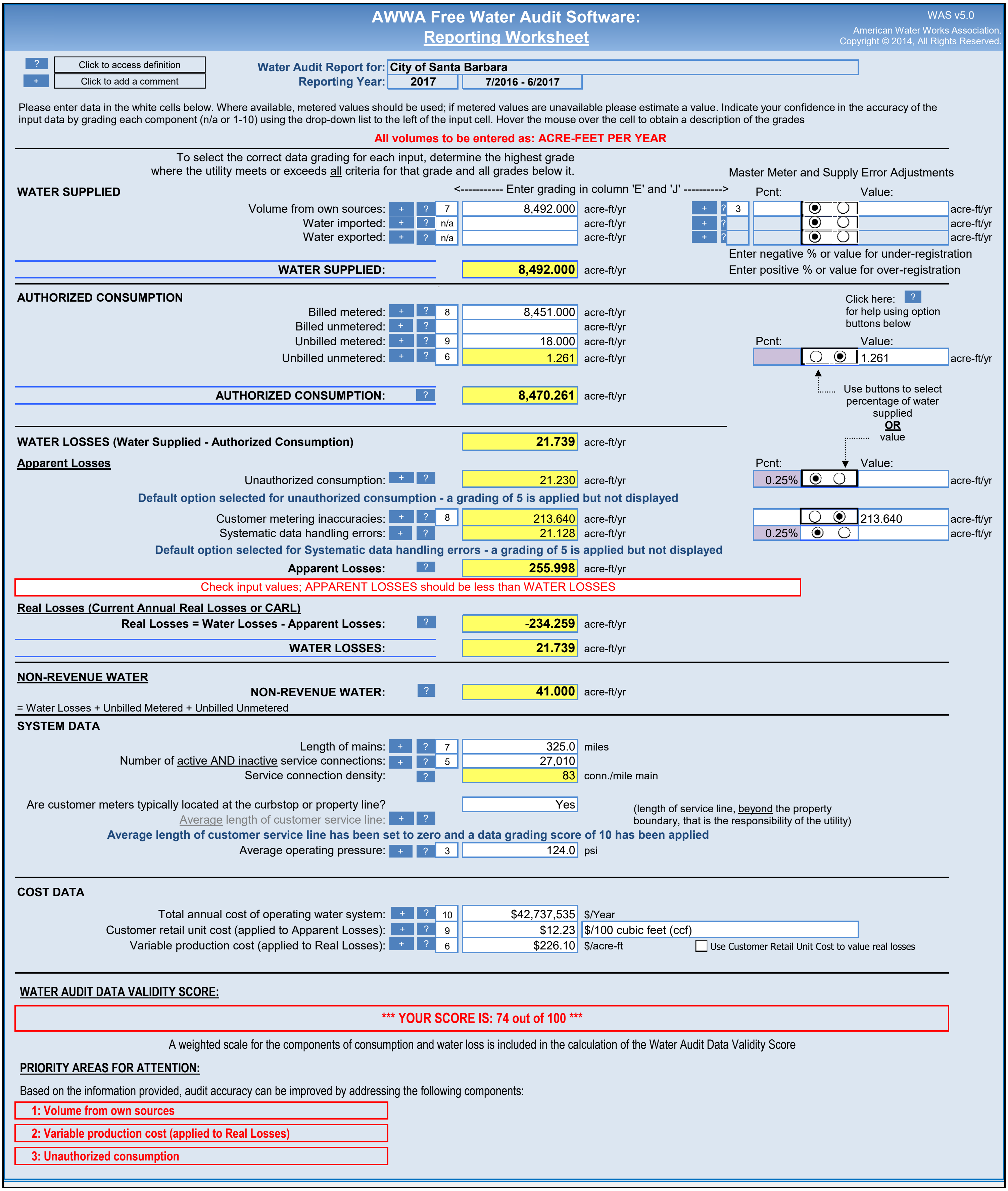
***** YOUR SCORE IS: 70 out of 100 *****

A weighted scale for the components of consumption and water loss is included in the calculation of the Water Audit Data Validity Score

PRIORITY AREAS FOR ATTENTION:

Based on the information provided, audit accuracy can be improved by addressing the following components:

1: Volume from own sources
2: Billed metered
3: Variable production cost (applied to Real Losses)



AWWA Free Water Audit Software:
Reporting Worksheet

WAS v5.0

Water Audit Report for: City of Santa Barbara
Reporting Year: 2017 7/2016 - 6/2017

Please enter data in the white cells below. Where available, metered values should be used; if metered values are unavailable please estimate a value. Indicate your confidence in the accuracy of the input data by grading each component (n/a or 1-10) using the drop-down list to the left of the input cell. Hover the mouse over the cell to obtain a description of the grades

All volumes to be entered as: ACRE-FEET PER YEAR

To select the correct data grading for each input, determine the highest grade where the utility meets or exceeds all criteria for that grade and all grades below it.

<----------- Enter grading in column 'E' and 'J' ---------->

WATER SUPPLIED

Master Meter and Supply Error Adjustments

	Grade	Value	Unit	Grade	Pcnt:		Value:	Unit
Volume from own sources:	7	8,492.000	acre-ft/yr	3		● ○		acre-ft/yr
Water imported:	n/a		acre-ft/yr			● ○		acre-ft/yr
Water exported:	n/a		acre-ft/yr			● ○		acre-ft/yr

Enter negative % or value for under-registration
Enter positive % or value for over-registration

WATER SUPPLIED: 8,492.000 acre-ft/yr

AUTHORIZED CONSUMPTION

Click here: ? for help using option buttons below

	Grade	Value	Unit	Pcnt:		Value:	Unit
Billed metered:	8	8,451.000	acre-ft/yr				
Billed unmetered:			acre-ft/yr				
Unbilled metered:	9	18.000	acre-ft/yr				
Unbilled unmetered:	6	1.261	acre-ft/yr		○ ●	1.261	acre-ft/yr

Use buttons to select percentage of water supplied
OR
value

AUTHORIZED CONSUMPTION: 8,470.261 acre-ft/yr

WATER LOSSES (Water Supplied - Authorized Consumption) 21.739 acre-ft/yr

Apparent Losses

	Grade	Value	Unit	Pcnt:		Value:	Unit
Unauthorized consumption:		21.230	acre-ft/yr	0.25%	● ○		acre-ft/yr

Default option selected for unauthorized consumption - a grading of 5 is applied but not displayed

	Grade	Value	Unit	Pcnt:		Value:	Unit
Customer metering inaccuracies:	8	213.640	acre-ft/yr		○ ●	213.640	acre-ft/yr
Systematic data handling errors:		21.128	acre-ft/yr	0.25%	● ○		acre-ft/yr

Default option selected for Systematic data handling errors - a grading of 5 is applied but not displayed

Apparent Losses: 255.998 acre-ft/yr

Check input values; APPARENT LOSSES should be less than WATER LOSSES

Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses: -234.259 acre-ft/yr

WATER LOSSES: 21.739 acre-ft/yr

NON-REVENUE WATER

NON-REVENUE WATER: 41.000 acre-ft/yr

= Water Losses + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

	Grade	Value	Unit
Length of mains:	7	325.0	miles
Number of active AND inactive service connections:	5	27,010	
Service connection density:		83	conn./mile main

Are customer meters typically located at the curbstop or property line? Yes

Average length of customer service line: (length of service line, beyond the property boundary, that is the responsibility of the utility)

Average length of customer service line has been set to zero and a data grading score of 10 has been applied

Average operating pressure: 3 124.0 psi

COST DATA

	Grade	Value	Unit
Total annual cost of operating water system:	10	$42,737,535	$/Year
Customer retail unit cost (applied to Apparent Losses):	9	$12.23	$/100 cubic feet (ccf)
Variable production cost (applied to Real Losses):	6	$226.10	$/acre-ft

☐ Use Customer Retail Unit Cost to value real losses

WATER AUDIT DATA VALIDITY SCORE:

***** YOUR SCORE IS: 74 out of 100 *****

A weighted scale for the components of consumption and water loss is included in the calculation of the Water Audit Data Validity Score

PRIORITY AREAS FOR ATTENTION:

Based on the information provided, audit accuracy can be improved by addressing the following components:

1: Volume from own sources
2: Variable production cost (applied to Real Losses)
3: Unauthorized consumption

AWWA Free Water Audit Software:
Reporting Worksheet

WAS v5.0
American Water Works Association.

? Click to access definition
\+ Click to add a comment

Water Audit Report for: City of Santa Barbara (CA4210010)
Reporting Year: 2018 7/2017 - 6/2018

Please enter data in the white cells below. Where available, metered values should be used; if metered values are unavailable please estimate a value. Indicate your confidence in the accuracy of the input data by grading each component (n/a or 1-10) using the drop-down list to the left of the input cell. Hover the mouse over the cell to obtain a description of the grades

All volumes to be entered as: ACRE-FEET PER YEAR

To select the correct data grading for each input, determine the highest grade where the utility meets or exceeds all criteria for that grade and all grades below it.

<------------ Enter grading in column 'E' and 'J' ---------->

WATER SUPPLIED

Master Meter and Supply Error Adjustments

	Grade	Value	Unit	Grade	Pcnt:		Value:	Unit
Volume from own sources:	7	9,068.430	acre-ft/yr	3		● ○		acre-ft/yr
Water imported:			acre-ft/yr			● ○		acre-ft/yr
Water exported:			acre-ft/yr			● ○		acre-ft/yr

Enter negative % or value for under-registration
Enter positive % or value for over-registration

WATER SUPPLIED: **9,068.430** acre-ft/yr

AUTHORIZED CONSUMPTION

Click here: ? for help using option buttons below

	Grade	Value	Unit	Pcnt:		Value:	Unit
Billed metered:	8	9,273.460	acre-ft/yr				
Billed unmetered:			acre-ft/yr				
Unbilled metered:	9	21.768	acre-ft/yr				
Unbilled unmetered:	8	6.920	acre-ft/yr		○ ●	6.920	acre-ft/yr

Use buttons to select percentage of water supplied **OR** value

AUTHORIZED CONSUMPTION: **9,302.148** acre-ft/yr

Check input values; WATER SUPPLIED should be greater than AUTHORIZED CONSUMPTION

WATER LOSSES (Water Supplied - Authorized Consumption) **-233.718** acre-ft/yr

Apparent Losses

	Grade	Value	Unit	Pcnt:		Value:	Unit
Unauthorized consumption:		22.671	acre-ft/yr	0.25%	● ○		acre-ft/yr

Default option selected for unauthorized consumption - a grading of 5 is applied but not displayed

	Grade	Value	Unit	Pcnt:		Value:	Unit
Customer metering inaccuracies:	7	134.450	acre-ft/yr		○ ●	134.450	acre-ft/yr
Systematic data handling errors:		23.184	acre-ft/yr	0.25%	● ○		acre-ft/yr

Default option selected for Systematic data handling errors - a grading of 5 is applied but not displayed

Apparent Losses: **180.305** acre-ft/yr

Check input values; APPARENT LOSSES should be less than WATER LOSSES

Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses: **-414.023** acre-ft/yr

WATER LOSSES: **-233.718** acre-ft/yr

NON-REVENUE WATER

NON-REVENUE WATER: **-205.030** acre-ft/yr

= Water Losses + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

	Grade	Value	Unit
Length of mains:	9	324.6	miles
Number of active AND inactive service connections:	5	27,191	
Service connection density:		84	conn./mile main

Are customer meters typically located at the curbstop or property line? Yes

Average length of customer service line: (length of service line, beyond the property boundary, that is the responsibility of the utility)

Average length of customer service line has been set to zero and a data grading score of 10 has been applied

Average operating pressure: 4 119.0 psi

COST DATA

	Grade	Value	Unit
Total annual cost of operating water system:	10	$43,777,563	$/Year
Customer retail unit cost (applied to Apparent Losses):	9	$12.81	$/100 cubic feet (ccf)
Variable production cost (applied to Real Losses):	5	$592.48	$/acre-ft

☐ Use Customer Retail Unit Cost to value real losses

WATER AUDIT DATA VALIDITY SCORE:

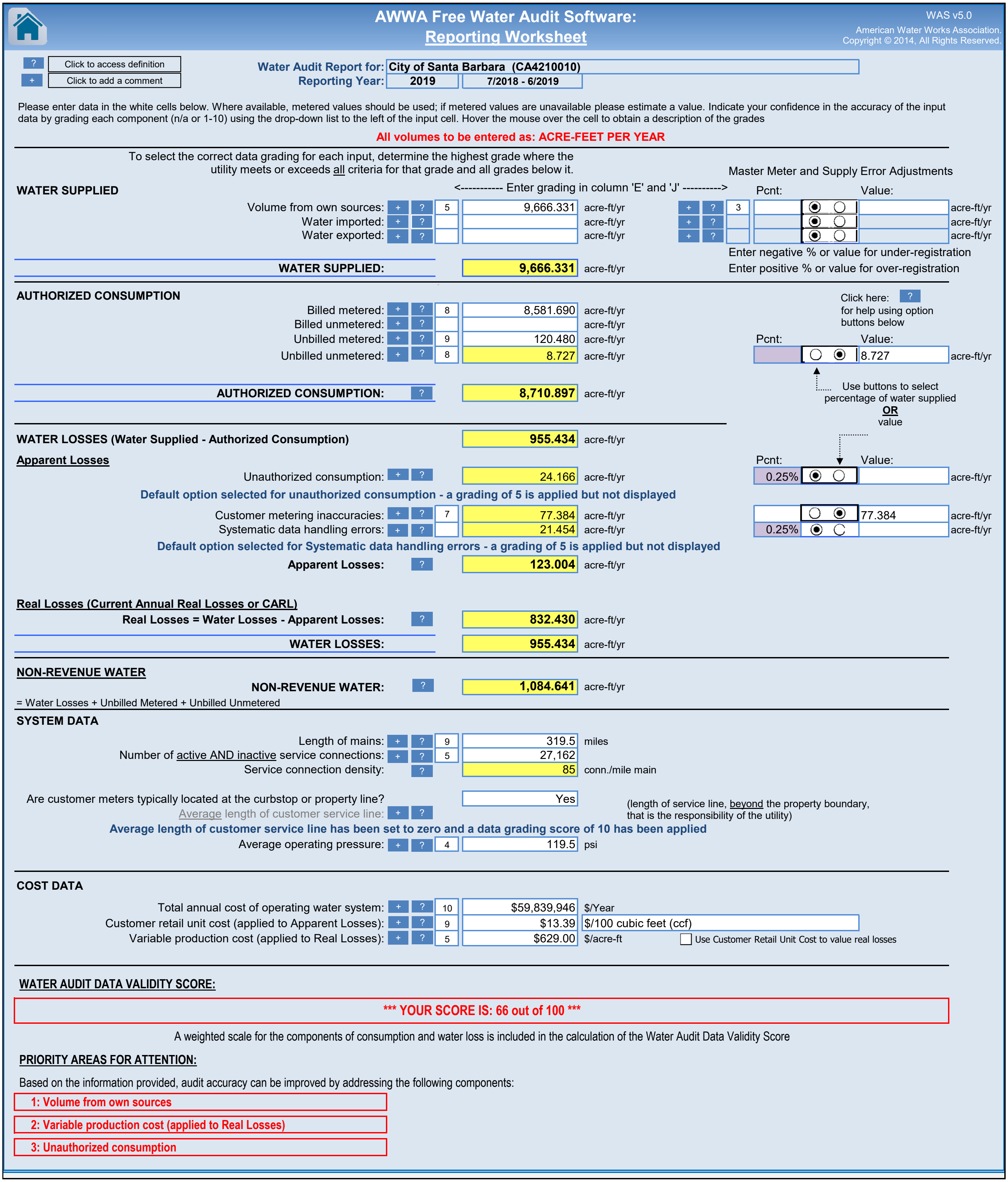
***** YOUR SCORE IS: 73 out of 100 *****

A weighted scale for the components of consumption and water loss is included in the calculation of the Water Audit Data Validity Score

PRIORITY AREAS FOR ATTENTION:

Based on the information provided, audit accuracy can be improved by addressing the following components:

1: Volume from own sources
2: Variable production cost (applied to Real Losses)
3: Unauthorized consumption



AWWA Free Water Audit Software: Reporting Worksheet

WAS v5.0
American Water Works Association.
Copyright © 2014, All Rights Reserved.

Water Audit Report for: City of Santa Barbara (CA4210010)
Reporting Year: 2019 7/2018 - 6/2019

Please enter data in the white cells below. Where available, metered values should be used; if metered values are unavailable please estimate a value. Indicate your confidence in the accuracy of the input data by grading each component (n/a or 1-10) using the drop-down list to the left of the input cell. Hover the mouse over the cell to obtain a description of the grades

All volumes to be entered as: ACRE-FEET PER YEAR

To select the correct data grading for each input, determine the highest grade where the utility meets or exceeds all criteria for that grade and all grades below it.

<----------- Enter grading in column 'E' and 'J' ---------->

WATER SUPPLIED

	Grade	Value	Unit	Master Meter and Supply Error Adjustments: Grade	Pcnt:		Value:	Unit
Volume from own sources:	5	9,666.331	acre-ft/yr	3		● ○		acre-ft/yr
Water imported:			acre-ft/yr			● ○		acre-ft/yr
Water exported:			acre-ft/yr			● ○		acre-ft/yr
WATER SUPPLIED:		**9,666.331**	acre-ft/yr					

Enter negative % or value for under-registration
Enter positive % or value for over-registration

AUTHORIZED CONSUMPTION

Click here: ? for help using option buttons below

	Grade	Value	Unit	Pcnt:		Value:	Unit
Billed metered:	8	8,581.690	acre-ft/yr				
Billed unmetered:			acre-ft/yr				
Unbilled metered:	9	120.480	acre-ft/yr				
Unbilled unmetered:	8	8.727	acre-ft/yr		○ ●	8.727	acre-ft/yr
AUTHORIZED CONSUMPTION:		**8,710.897**	acre-ft/yr				

Use buttons to select percentage of water supplied **OR** value

WATER LOSSES (Water Supplied - Authorized Consumption) **955.434** acre-ft/yr

Apparent Losses

	Grade	Value	Unit	Pcnt:		Value:	Unit
Unauthorized consumption:		24.166	acre-ft/yr	0.25%	● ○		acre-ft/yr

Default option selected for unauthorized consumption - a grading of 5 is applied but not displayed

	Grade	Value	Unit	Pcnt:		Value:	Unit
Customer metering inaccuracies:	7	77.384	acre-ft/yr		○ ●	77.384	acre-ft/yr
Systematic data handling errors:		21.454	acre-ft/yr	0.25%	● ○		acre-ft/yr

Default option selected for Systematic data handling errors - a grading of 5 is applied but not displayed

Apparent Losses: **123.004** acre-ft/yr

Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses: **832.430** acre-ft/yr

WATER LOSSES: **955.434** acre-ft/yr

NON-REVENUE WATER

NON-REVENUE WATER: **1,084.641** acre-ft/yr

= Water Losses + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

	Grade	Value	Unit
Length of mains:	9	319.5	miles
Number of active AND inactive service connections:	5	27,162	
Service connection density:		85	conn./mile main
Are customer meters typically located at the curbstop or property line?		Yes	
Average length of customer service line:			(length of service line, beyond the property boundary, that is the responsibility of the utility)

Average length of customer service line has been set to zero and a data grading score of 10 has been applied

	Grade	Value	Unit
Average operating pressure:	4	119.5	psi

COST DATA

	Grade	Value	Unit
Total annual cost of operating water system:	10	$59,839,946	$/Year
Customer retail unit cost (applied to Apparent Losses):	9	$13.39	$/100 cubic feet (ccf)
Variable production cost (applied to Real Losses):	5	$629.00	$/acre-ft

☐ Use Customer Retail Unit Cost to value real losses

WATER AUDIT DATA VALIDITY SCORE:

***** YOUR SCORE IS: 66 out of 100 *****

A weighted scale for the components of consumption and water loss is included in the calculation of the Water Audit Data Validity Score

PRIORITY AREAS FOR ATTENTION:

Based on the information provided, audit accuracy can be improved by addressing the following components:

1: Volume from own sources
2: Variable production cost (applied to Real Losses)
3: Unauthorized consumption

AWWA Free Water Audit Software:
Reporting Worksheet

? Click to access definition
\+ Click to add a comment

Water Audit Report for: City of Santa Barbara (CA4210010)
Reporting Year: 2020 7/2019 - 6/2020

Please enter data in the white cells below. Where available, metered values should be used; if metered values are unavailable please estimate a value. Indicate your confidence in the accuracy of the input data by grading each component (n/a or 1-10) using the drop-down list to the left of the input cell. Hover the mouse over the cell to obtain a description of the grades

All volumes to be entered as: ACRE-FEET PER YEAR

To select the correct data grading for each input, determine the highest grade where the utility meets or exceeds all criteria for that grade and all grades below it.

<----------- Enter grading in column 'E' and 'J' ---------->

WATER SUPPLIED

Master Meter and Supply Error Adjustments

		Grade	Value		Grade	Pcnt:		Value:	
Volume from own sources:	+ ?	7	9,997.850	acre-ft/yr	+ ? 3		● ○		acre-ft/yr
Water imported:	+ ?			acre-ft/yr	+ ?		● ○		acre-ft/yr
Water exported:	+ ?			acre-ft/yr	+ ?		● ○		acre-ft/yr

Enter negative % or value for under-registration
Enter positive % or value for over-registration

WATER SUPPLIED: **9,997.850** acre-ft/yr

AUTHORIZED CONSUMPTION

Click here: ? for help using option buttons below

		Grade	Value		Pcnt:		Value:	
Billed metered:	+ ?	5	8,817.970	acre-ft/yr				
Billed unmetered:	+ ?			acre-ft/yr				
Unbilled metered:	+ ?	9	133.390	acre-ft/yr				
Unbilled unmetered:	+ ?	8	8.270	acre-ft/yr		○ ●	8.270	acre-ft/yr

Use buttons to select percentage of water supplied
OR
value

AUTHORIZED CONSUMPTION: ? **8,959.630** acre-ft/yr

WATER LOSSES (Water Supplied - Authorized Consumption)

1,038.220 acre-ft/yr

Apparent Losses

		Grade	Value		Pcnt:		Value:	
Unauthorized consumption:	+ ?		24.995	acre-ft/yr	0.25%	● ○		acre-ft/yr

Default option selected for unauthorized consumption - a grading of 5 is applied but not displayed

		Grade	Value		Pcnt:		Value:	
Customer metering inaccuracies:	+ ?	5	111.890	acre-ft/yr		○ ●	111.890	acre-ft/yr
Systematic data handling errors:	+ ?		22.045	acre-ft/yr	0.25%	● ○		acre-ft/yr

Default option selected for Systematic data handling errors - a grading of 5 is applied but not displayed

Apparent Losses: ? **158.930** acre-ft/yr

Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses: ? **879.290** acre-ft/yr

WATER LOSSES: **1,038.220** acre-ft/yr

NON-REVENUE WATER

NON-REVENUE WATER: ? **1,179.880** acre-ft/yr

= Water Losses + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

		Grade	Value	
Length of mains:	+ ?	9	324.1	miles
Number of active AND inactive service connections:	+ ?	6	27,875	
Service connection density:	?		86	conn./mile main

Are customer meters typically located at the curbstop or property line? Yes

Average length of customer service line: + ? (length of service line, beyond the property boundary, that is the responsibility of the utility)

Average length of customer service line has been set to zero and a data grading score of 10 has been applied

Average operating pressure: + ? 4 119.5 psi

COST DATA

		Grade	Value	
Total annual cost of operating water system:	+ ?	10	$61,566,201	$/Year
Customer retail unit cost (applied to Apparent Losses):	+ ?	9	$9.19	$/100 cubic feet (ccf)
Variable production cost (applied to Real Losses):	+ ?	5	$369.00	$/acre-ft

☐ Use Customer Retail Unit Cost to value real losses

WATER AUDIT DATA VALIDITY SCORE:

***** YOUR SCORE IS: 68 out of 100 *****

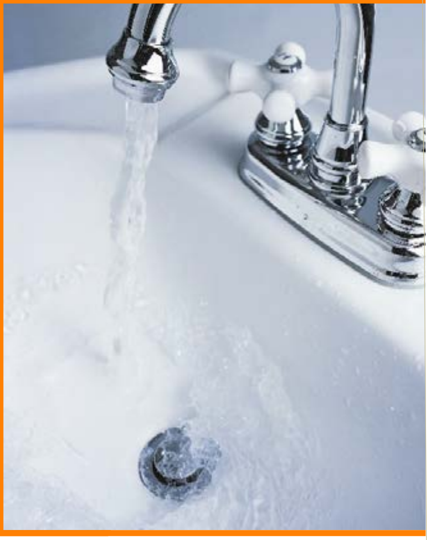
A weighted scale for the components of consumption and water loss is included in the calculation of the Water Audit Data Validity Score

PRIORITY AREAS FOR ATTENTION:

Based on the information provided, audit accuracy can be improved by addressing the following components:

1: Volume from own sources
2: Billed metered
3: Customer metering inaccuracies

Appendix H: 2020 Water Conservation Strategic Plan



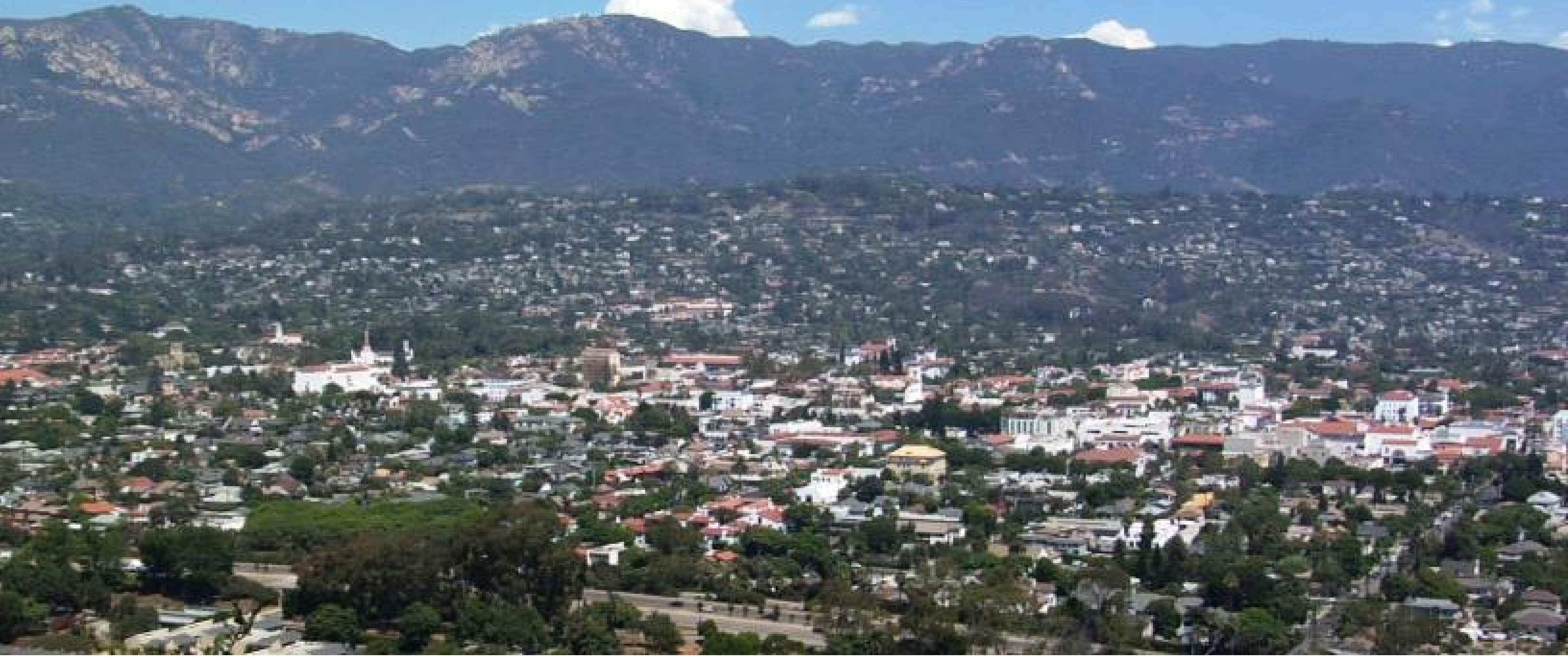
City of Santa Barbara

Water Conservation Strategic Plan

Making Conservation a Santa Barbara Way of Life

Prepared by: Maddaus Water Management Inc.

December 3, 2020



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LIST OF ABBREVIATIONS AND ACRONYMS

AB	Assembly Bill
acct	account
AF	acre-feet
AFY	acre-feet per year
AMI	Advanced Metering Infrastructure
AWWA	American Water Works Association
AWWARF	American Water Works Association Research Foundation
BMP	Best Management Practice
CalWEP	California Water Efficiency Partnership
CEC	California Energy Commission
COM	commercial
CI	Commercial Institutional
CI_IRR	Commercial Institutional Irrigation
CII	Commercial, Industrial, and Institutional
CUWCC	California Urban Water Conservation Council
DSS Model	Least Cost Planning Decision Support System Model
DWR	California Department of Water Resources
EO	Executive Order
ETo	Evapotranspiration
FY	fiscal year
GPCD	gallons per capita per day
gpd	gallons per day
gpf	gallons per flush
gpm	gallons per minute
HECW	high efficiency clothes washer
HET	high efficiency toilet
HEU	high efficiency urinal
ILI	Infrastructure Leakage Index
INS	institutional
LOD	Lodging
LOD_IRR	Lodging Irrigation
LTWSP	Long Term Water Supply Plan
MF	multifamily
MOU	Memorandum of Understanding
MUR	Multi-Unit Residential
MUR_IRR	Multi-Unit Residential Irrigation
MWELO	Model Water Efficient Landscape Ordinance
MWM	Maddaus Water Management
N/A	not applicable
NO-DES	Neutral Output Discharge Elimination System
OTH	Other
P^3	Paradise Performance Program
Plan	Water Conservation Strategic Plan
ppl	people
psi	pounds per square inch
REUWS	Residential End Uses of Water Study
RWEP	Regional Water Efficiency Program
SB	Senate Bill
SB X7-7	Water Conservation Act of 2009
SF	Single Family
SFR	Single Family Residential
SWRCB	State Water Resources Control Board
ULFT	ultra-low flush toilet
UWMP	Urban Water Management Plan
WUE	Water Use Efficiency

EXECUTIVE SUMMARY

The City of Santa Barbara (City) Water Conservation Strategic Plan (Plan) will enable the City to project long range demands, identify attainable conservation goals, develop strategies, and attempt to raise awareness through the identification and prioritization of conservation measures. The Plan includes a cost-effective suite of water conservation measures[1] that will help the City meet future water needs. By combining new initiatives with existing programs as part of a comprehensive strategy for sustainable management of water supplies, the City's conservation activities proposed within this Plan (Figure ES-1) are expected to save an estimated 2,615 acre-feet per year of water in 2050.

Beginning in 2019, a conservation technical analysis was conducted by Maddaus Water Management Inc. (MWM). The purpose of the analysis, and foundation of this Plan, was four-fold:

1. Incorporate current, historical, and projected population growth and new commercial growth rates to project future water demands.
2. Using a set of applicable criteria, evaluate current conservation measures and identify new ones that will reduce future water demand.
3. Quantify the costs and water savings of these measures.
4. Combine the measures into increasingly aggressive programs then evaluate the costs and water savings of these programs.

The planning process included analyzing conservation measures and programs using the Least Cost Planning Decision Support System Model (DSS Model), developed by Maddaus Water Management (MWM). A screening of more than 100 measures was conducted, directed at existing customers and new development. All measures are listed in Figure ES-1 and described in more detail in Appendix E.

This Plan was also developed to support the future intentions of the state of California. In response to another statewide drought that began in 2014, the California Legislature established a framework centered on "Making Water Conservation a California Way of Life" to help the state better prepare for droughts and climate change by establishing statewide water efficiency standards. This state legislation, Senate Bill (SB) 606 (Hertzberg) and Assembly Bill (AB) 1668 (Friedman), along with any future regulations currently under development, will have profound effects on water providers over the coming years.

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[1] Though "demand management measure" is not a term used in this report, it may be relevant to readers who are more familiar with the term to understand that it is essentially the same as the term "water conservation measure." In this report, "demand management" and "water conservation" are used interchangeably.

Figure ES-1. City of Santa Barbara Selected Measures for Evaluation

COMMERCIAL

- CII Water Survey Level 2 and Customized Rebate
- Ultra-High Efficiency Urinal Rebate
- Pre-Rinse Spray Nozzle Giveaway
- Dipper Well Rebate

IRRIGATION

- Rain Barrel Rebate
- Large Rainwater Catchment System Rebate
- Irrigation and Landscape Rebate
- Free Sprinkler Nozzle Program
- Mulch Program

RESIDENTIAL

- Residential Rebates for HECW
- Pressure Reduction Valve Rebate
- Leak Detection Device Rebate
- Ultra-High Efficiency Toilet Rebate
- Hot Water On Demand Pump System Rebate

COMMUNITY & EDUCATION

- Water Conserving Landscape and Irrigation Codes
- School Education
- General Public Education
- Water Checkup
- Irrigation Evaluations
- Toilet Flapper Leak Alert Giveaway
- Full AMI Implementation - Online Water Use Software and Leak Detection Customer Notification

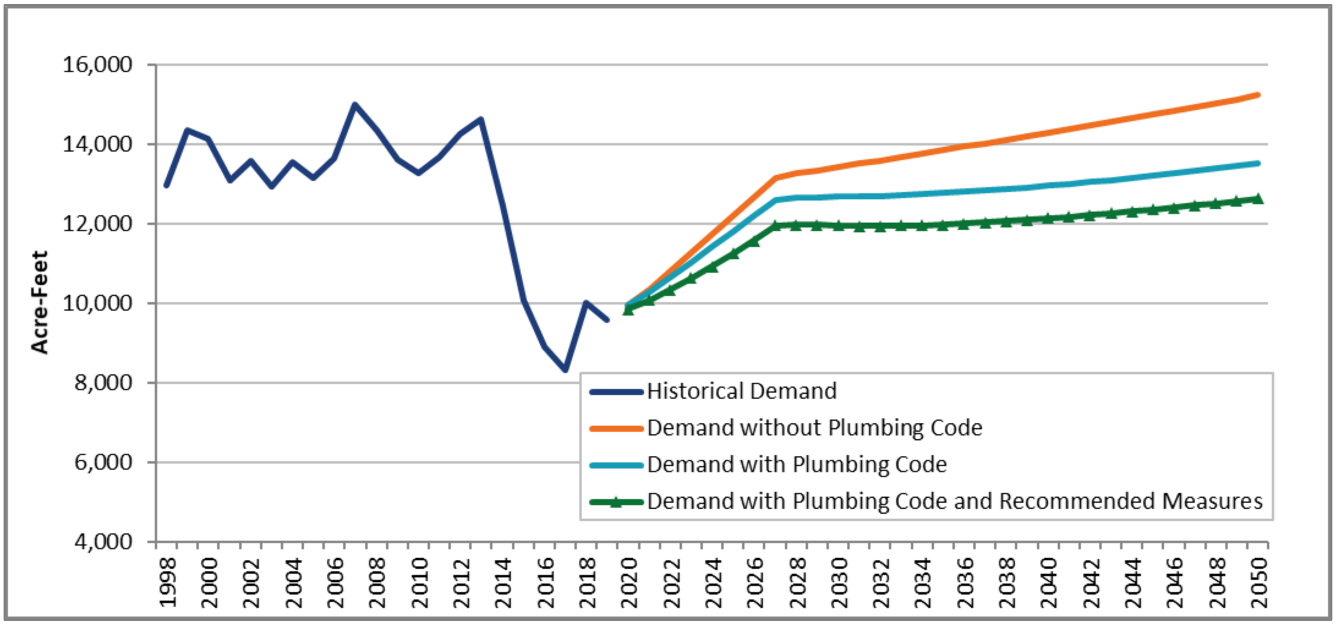
The benefits of the recommended program measures in the Plan include:

- Alignment with the City Public Works Department’s mission to provide residents with the sustainable foundation to thrive by delivering quality services and public infrastructure through efficient and fiscally responsible practices;
- Alignment with the One Water Santa Barbara guiding principle to improve local water supply reliability by diversifying our supply portfolio and using water efficiently;

- Expansion of existing efforts to meet state-mandated targets and aggregate water use objectives; and
- A long-term plan that models a cost-effective means to manage water supplies.

The following figure presents historical and projected water use for the City in acre-feet per year (AFY). Plumbing code elements include current local, state, and federal standards for retrofits of items such as toilets, showerheads, faucets, and pre-rinse spray valves. At this time, the plumbing code included in this analysis is conservative and only includes the currently adopted legislation. Based on recent history in the U.S. and California, as well as a continual movement toward more efficient devices, it is likely that more codes and efficient practices will be adopted in the future. If more standards are approved, they could yield additional water savings.

Figure ES-2. City of Santa Barbara Historical and Projected Demand with Plumbing Code and Recommended Measures

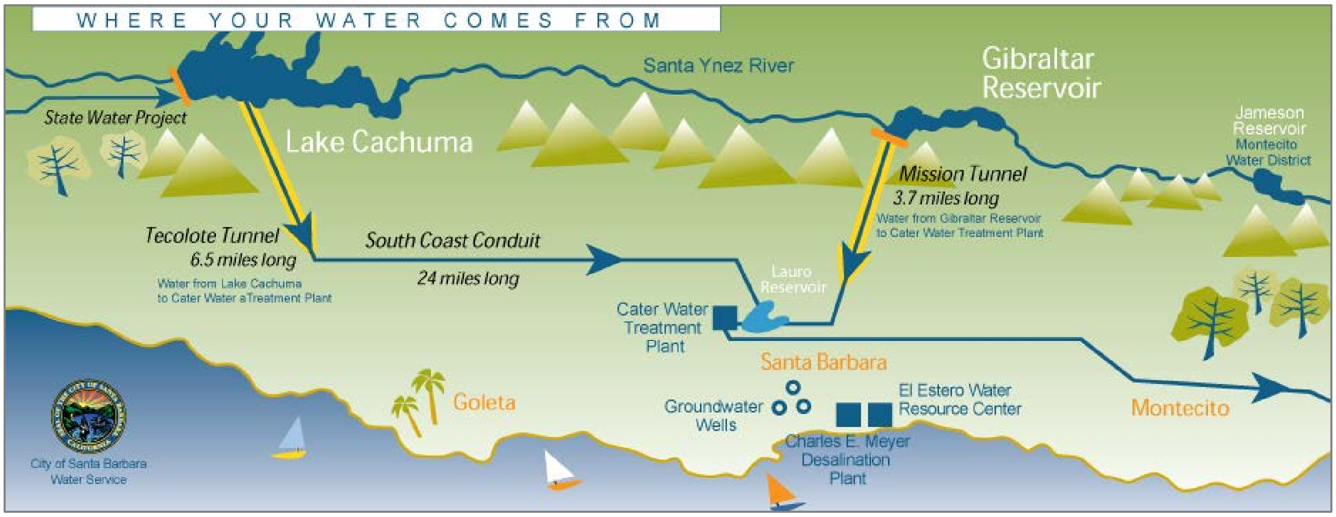


1 INTRODUCTION

1.1 Overview of City of Santa Barbara Water System

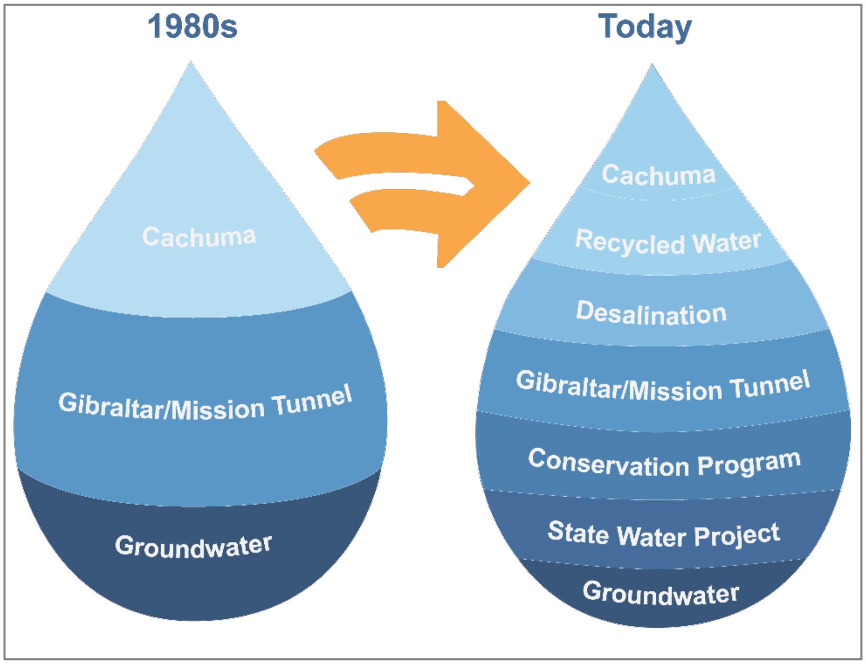
Santa Barbara has a semi-arid climate, so providing an adequate water supply requires careful management of water resources. The City has a diverse water supply including local reservoirs (Lake Cachuma and Gibraltar Reservoir), groundwater, State Water, desalinated water, infiltration water from a conveyance tunnel, and recycled water, as illustrated in the figures below.

Figure 1-1. City of Santa Barbara Water Sources



Conservation has been a long-term priority for the City and is considered a water source. A supply assessment is conducted annually by the City in which the water saved through conservation is regarded as equal to other water supply options. When the City conducts supply and demand forecasting analyses, the estimated water made available through conservation is a part of the supply portfolio.

Figure 1-2. Changes in the City's Water Sources – 1980s to Today



The City has recorded measurements of water sources and production since 1920 and has metered all service connections since 1973 (SBMC §14.08.010)[2]; as of fiscal year 2020, there are 27,677 service connections. The City uses a non-promotional water rate that provides incentive for customers to reduce water use. The City bills customers monthly based on metered use, with the units of consumption clearly indicated.

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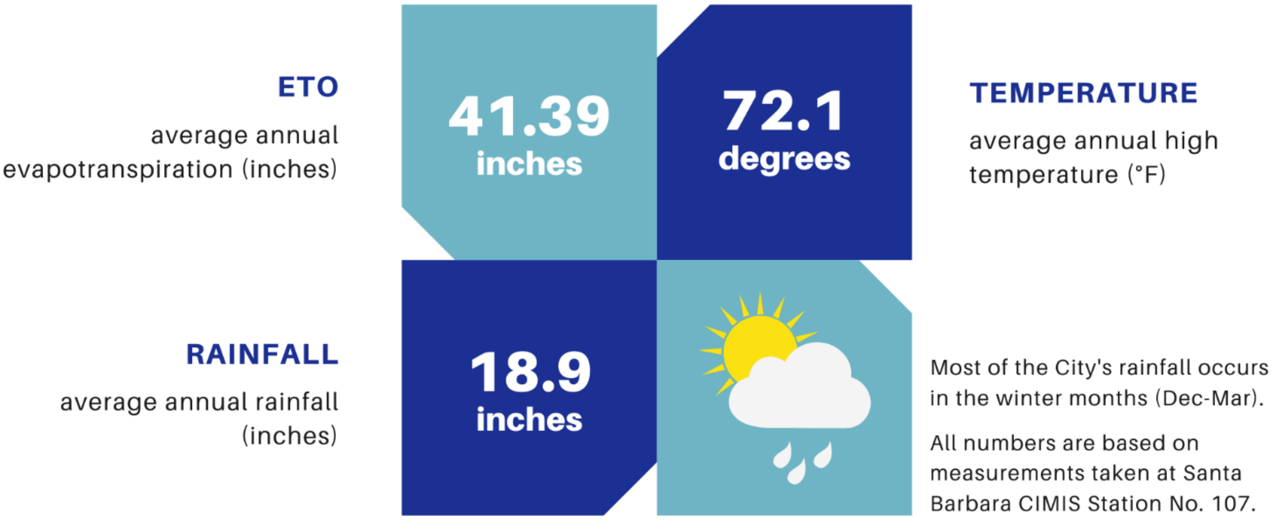
[2] City of Santa Barbara. Municipal Code, SBMC §14.08.010, accessed August 2020: http://qcode.us/codes/santabarbara/?view=desktop&topic=14-14_20-14_08_010

1.1.1 Climate

The City is located on the central coast of California between the Santa Ynez Mountains and the Pacific Ocean. It offers year-round sunshine with its temperate Mediterranean-style climate of cool, wet winters and mild, dry summers. Temperatures only rarely fall below freezing in winter. During the late summer and early fall period, hot, dry sundowner winds can create high water demands.



ETO
average annual evapotranspiration (inches)
41.39 inches

TEMPERATURE
average annual high temperature (°F)
72.1 degrees

RAINFALL
average annual rainfall (inches)
18.9 inches

Most of the City's rainfall occurs in the winter months (Dec-Mar).

All numbers are based on measurements taken at Santa Barbara CIMIS Station No. 107.

1.1.2 Demographics

Santa Barbara is the second-most populous city in the county with an estimated population of 95,279. The City proper has a population density of 2,100 people per square mile (810/square kilometer).

The City has a mix of housing types, including single family residences and multi-unit residences. The City is largely built-out, though it should be assumed that infill and redevelopment will continue at roughly the same rate as in the recent past, resulting in a small increase in population.

Santa Barbara is a popular vacation destination, and tourism is an important part of the local economy. In addition, many people commute from locations throughout the county or adjacent counties to work in Santa Barbara. It is estimated that there are more than 52,000 jobs in the service area[3]. It should be acknowledged that population from tourism and commuters is not factored into the estimated population numbers. However, water use from tourism is accounted for under the non-residential customer categories in the DSS Model.

1.2 Project Background

The City of Santa Barbara has been a long-term leader in water conservation. The City's Water Conservation Program has been successful in reducing the use of potable water supplies, achieving compliance with state and federal conservation requirements, and creating a water efficiency ethic in the Santa Barbara community. The City's commitment to water conservation has been evidenced by reductions in water demands achieved over the past 30 years. As of the writing of this Water Conservation Strategic Plan, community water use has decreased to the same level it was in the 1950s, despite population more than doubling since that time.

Water use efficiency in the City is supported by coordinating initiatives to achieve a holistic approach to providing the water system and each customer within the service area with the tools needed to conserve water. Recently, a shift in the challenges and drivers for urban water conservation has occurred due to the recent drought, statewide water supply conditions, and the need to comply with forthcoming state water

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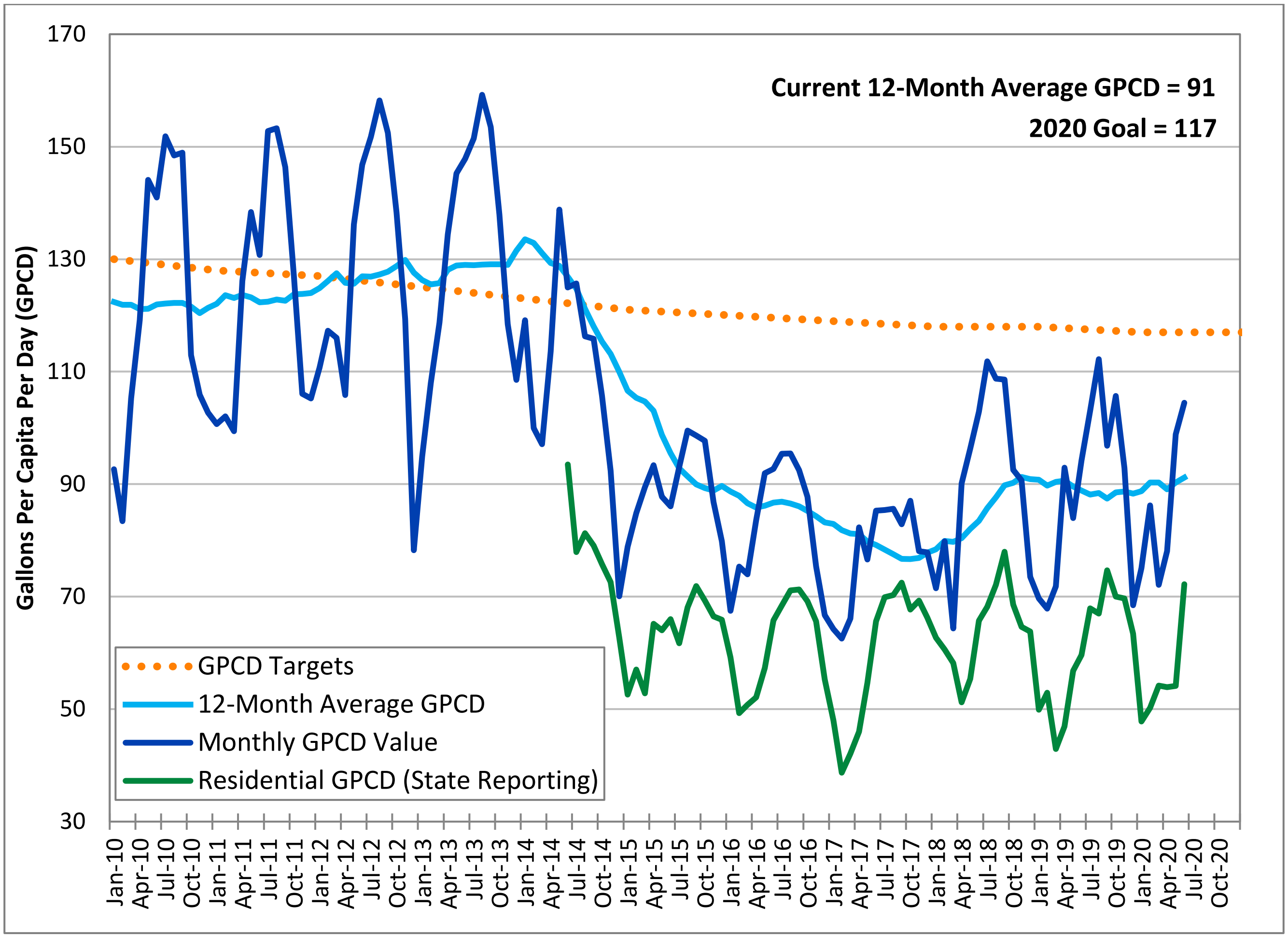
[3] Based on 2019 jobs reported in Mission Canyon and City of Santa Barbara per the Employment Development Department (EDD) web page, accessed August 2020: https://www.labormarketinfo.edd.ca.gov/data/employment-projections.html.

conservation regulations. This Plan will allow the City to implement water use conservation measures in line with current conditions and proposed future regulations regarding water sustainability and reliability. The Plan considers best management practices consistent with current regulations and best practices in the industry and has been guided by the American Water Works Association Manual of Practice *M52 – AWWA Water Conservation Programs – A Planning Manual* (AWWA, 2017).

Furthermore, this Plan supports the Water Conservation Act of 2009 (Senate Bill X7-7 or SB X7-7) requiring urban water agencies to collectively reduce statewide per capita water use by 20% before December 31, 2020. The gallons per capita per day (GPCD) target for the City was determined to be 117, as documented in the 2015 Urban Water Management Plan (UWMP). The City's compliance with SB X7-7's 20% by 2020 is illustrated in Figure 1-3, as is the City's accomplishments resulting from conservation planning efforts.

Figure 1-3. City of Santa Barbara Water Use in Gallons Per Capita Per Day – June 30, 2020



The GPCD values in the figure above exclude blend water used for recycled water production.

To forecast and plan for long-term demand management reductions and meet the SB X7-7 per capita water use reduction requirements, the City hired Maddaus Water Management in 2010. MWM analyzed the existing conservation program and used its proprietary Least Cost Planning Decision Support System Model (DSS Model) to evaluate current and potential water conservation measures. The DSS Model quantified the demand reduction effects of these measures along with the effects of plumbing codes and appliance standards. Results of the 2010 modeling effort were used in the 2011 Long Term Water Supply Plan (LTWSP) and informed water supply policies still in use by the City today.

The City uses benchmarks to assess ongoing program implementation and effectiveness as part of the City's Paradise Performance Program (P^3). The P^3 metrics are adopted by the City Council each year and must be measurable, reflect current workload, practices, and policies. Implementation of the 2011 Long Term Water Supply Plan and supporting conservation measures from the 2010 DSS Model have been assessed through various P^3 metrics over the past ten years. These include metrics on meeting the SB X7-7 20% by 2020 GPCD target annually, participation in the City's Water Education Program for youth, attendees at landscaping workshops for homeowners and professionals, landscape rebate participation, Water Checkup appointments for homes and businesses, the percentage of e-newsletters read by customers, and more. An example of the City's performance measures report can be found in Appendix G.

In 2018, California Governor Edmund G. Brown Jr. signed SB 606 and AB 1668. These bills were intended to implement "Making Water Conservation as a California Way of Life" legislation to better prepare the state for droughts and climate change through the establishment of statewide mandates for efficient water use. This included a framework for the implementation and oversight of the new standards, which must be in place by 2022. The two bills strengthen the state's water resiliency in the face of future droughts with provisions that include the following:[4]

- Establishing an indoor per person water use goal of 55 gallons per day until 2025, 52.5 gallons from 2025 to 2030, and 50 gallons beginning in 2030
- Creating a standard for outdoor residential and dedicated irrigation meter water use based on climate and landscaped area of the urban water provider (to be determined)
- Setting a water distribution system water loss standard (to be determined)
- Requiring urban water suppliers to set annual water budgets and make preparations for drought

The purpose of this Water Conservation Strategic Plan is to present an overview of the conservation evaluation process that has been completed for the City of Santa Barbara. The goal is to develop a plan that will optimize program costs and water savings and lay a foundation for compliance with forthcoming state mandates. The City has a current Water Conservation Program, which includes the measures that comprise Conservation Program A (described below) and additional qualitative measures. This Plan evaluates whether expanding existing efforts is a feasible and cost-effective way to meet future water needs in comparison to using and/or developing other sources of water supply.

1.3 Plan Development

The City worked closely with MWM to compile extensive historical data on the region, agency, conservation measures, production, consumption, weather, and various census data points. Together, these formed the foundation for MWM's DSS Model, which prepares long-range water demand and conservation water savings projections.[5] More detailed information about the DSS Model can be found in the appendices of this Plan, including a description of the assumptions, analysis, and methodology used.

Based on the analysis of current water use patterns, and taking into account characteristics of the service area, a list of more than 100 potential conservation measures was compiled and evaluated. In the previous effort

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[4] https://www.gov.ca.gov/2018/05/31/governor-brown-signs-legislation-establishing-statewide-water-efficiency-goals/

[5] The DSS Model is an "end-use" model that breaks down total water production (water demand in the service area) to specific water end uses, such as plumbing fixtures and appliance uses. It uses a bottom-up approach that allows for multiple criteria to be considered when estimating future demands, such as the effects of fixture replacements, plumbing codes, and conservation efforts. It also may use a top-down approach with a utility prepared water demand forecast.

conducted by the City in 2010, significant stakeholder input was gathered through work groups established to evaluate needs and rank measures per pre-defined and stakeholder-defined criteria. The measure screening in this current effort was an update to the 2010 endeavor. During this measure screening, 21 measures were selected for further detailed economic analysis. The evaluation included measures directed at existing accounts, as well as new development measures to make new residential and business customers more water efficient. Assumptions and results for each of the 21 individual measures and 3 programs (Program A, B, and C) are described in detail in this Plan.

Following the DSS Model completion and adoption of Program B as the Recommended Program for implementation, the Water Conservation Strategic Plan was prepared. This Plan is aligned to the new state legislation SB 606 and AB 1668 framework. However, details of the state plan have yet to be released. When the detailed guidance is available, this Plan may need to be modified to include any new or revised actions required of the City per state legislation.

1.4 Purpose and Scope of Strategic Plan

The intention of this Plan is to systematically evaluate and quantify a long-term water conservation strategy for the City's service area. Through the identification and prioritization of conservation measures, the Plan enables the City to project long-range demands, identify attainable conservation goals, develop strategies, and attempt to raise public awareness. By combining new initiatives with existing programs, this comprehensive strategy and slate of conservation activities will contribute to a more sustainable management of water supplies for the Santa Barbara community.

This Plan incorporates the City objectives as follows:

- Provide assessment, analysis, and measurement of completed and existing water conservation programs
- Identify new cost-effective water conservation opportunities
- Lay a foundation for compliance with forthcoming state mandates

In addition, the Plan is intended to serve as a guide for the City regarding future water use efficiency and conservation investments and activities. It includes a functional implementation plan to establish and administer cost-effective conservation measures.

Based on a preliminary analysis of the 21 individual measures, three programs (Programs A, B, and C) were designed by the City. Each of the three programs were evaluated to determine the net effect of running multiple measures together over the 31-year period of analysis (2020–2050).

2 HISTORICAL AND CURRENT WATER USE

2.1 Information Review and Data Collection Methods

The data from 2018–2019 was used to derive typical non-drought average water use per account per day. Based on the City's water billing system, residential water use was broken down into single family and multifamily categories. Historical data was segregated into indoor and outdoor water use by customer type using the monthly billing data. Non-residential categories of use were analyzed separately. Average daily commercial and institutional water use was expressed on a gallons-per-account basis.

Figure 2-1. Data Used in the DSS Model

General Information
- Agency Info
- Planning Documents
- Abnormal Years

Historical Data
- Customer Categories
- Production
- Consumption
- Maximum Day Demand
- Weather
- Avoided Cost of Additional Water Supplies

Demographic Data
- Population
- Jobs

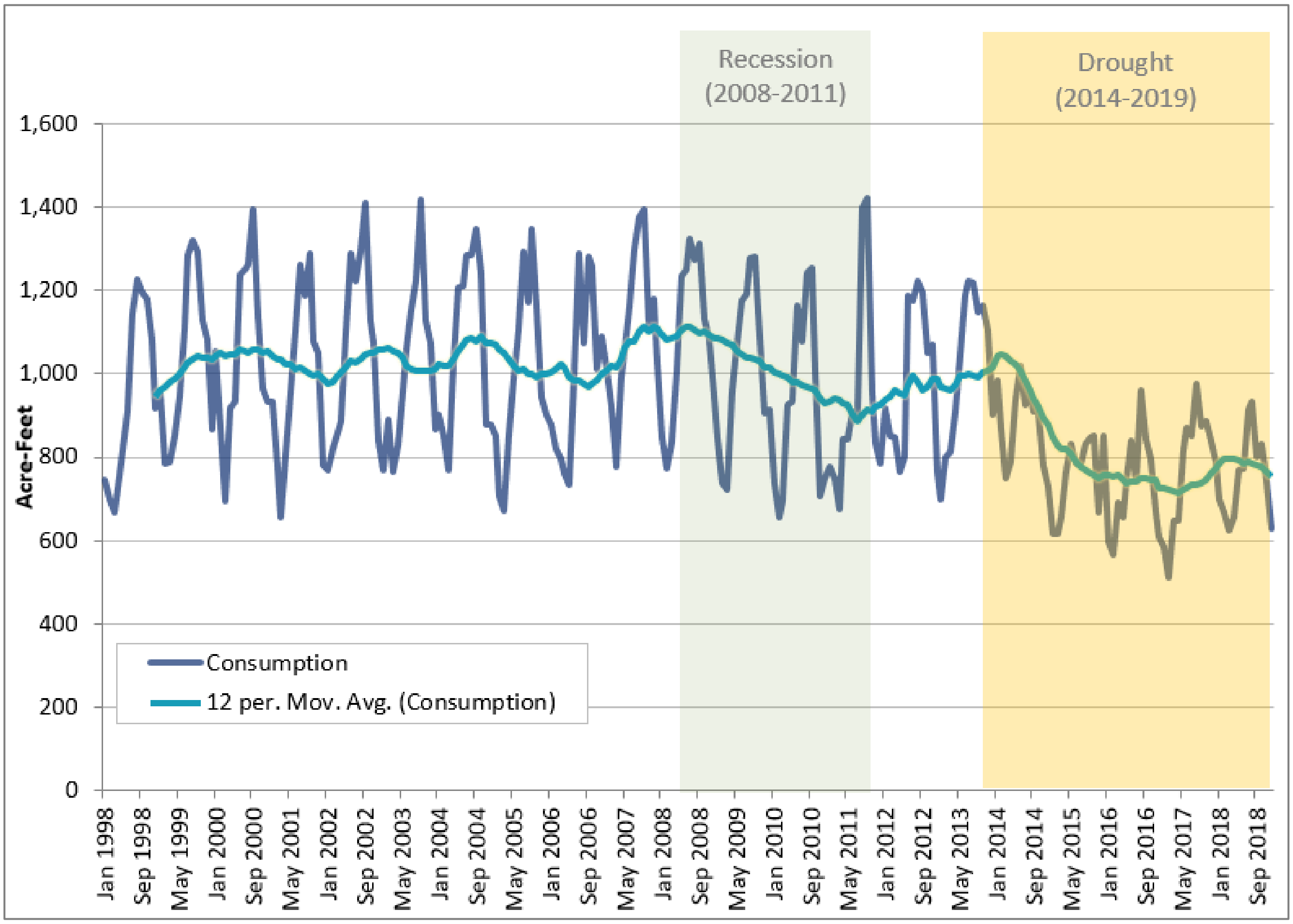
Conservation
- Conservation Targets
- Historical Conservation
- Water Loss Program
- Landscape Area Measurements
- CII Classifications

Other
- New Development Ordinances
- DWR Comments on 2015 UWMP

2.2 Consumption

Figure 2-2 illustrates historical monthly total consumption from the last 20 years. Consumption data was measured at the customer meters. The City's water use decreased with the 2008-2011 recession and the multi-year drought which affected the City from 2014-2019.

Figure 2-2. City of Santa Barbara Historical Consumption

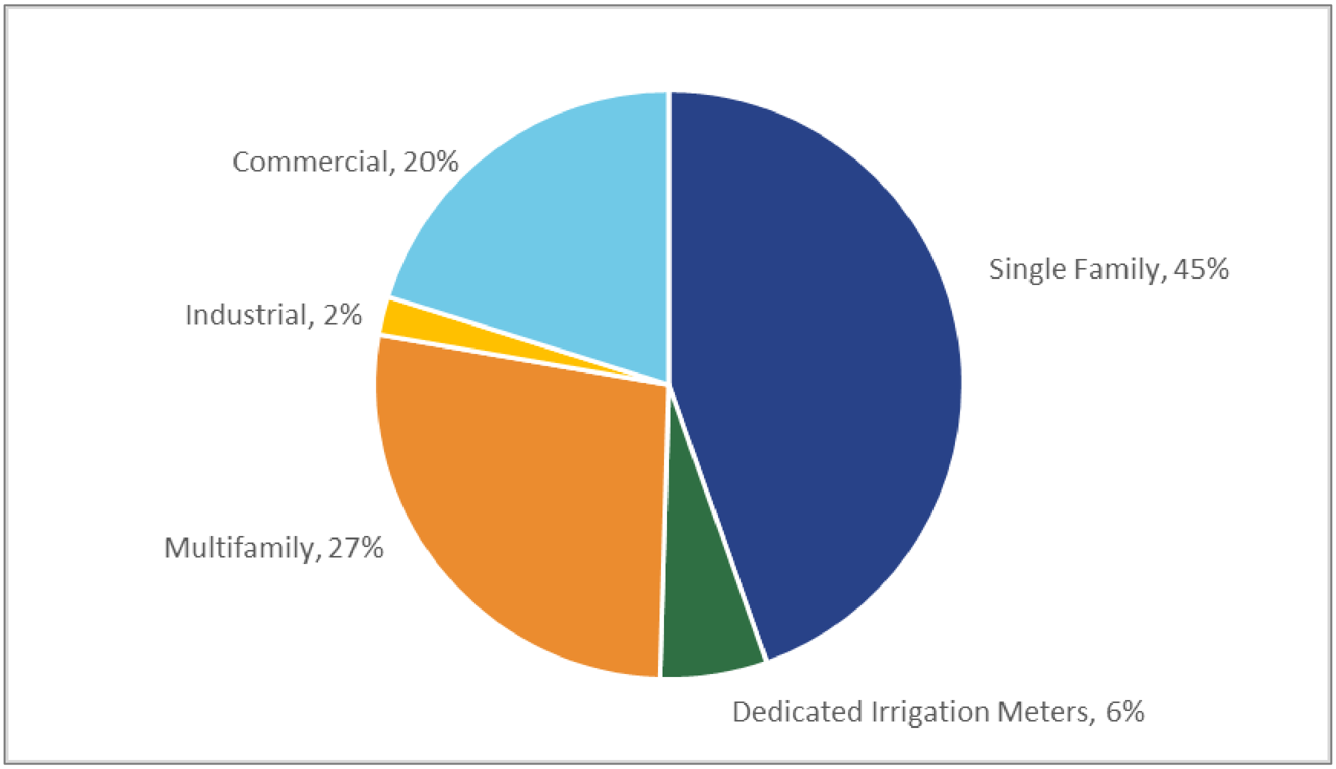


The City has several types of water users with approximately 27,627 active connections (excluding fire lines), all of which are metered. For the purpose of this analysis, current and projected potable water user categories are classified as follows:

- Single Family
- Multifamily
- Commercial
- Industrial
- Irrigation

Figure 2-3 presents the water use profile of the average annual billed metered consumption of the various user categories based on monthly water use and account data from years 2018–2019. This was used to derive average per account per day water use.

Figure 2-3. Average Consumption by User Category



In the figure above, customer category potable water use is based on 2018–2019 historical water use per account by customer category, representing post-drought conditions.

2.3 Historical and Current Conservation Program

The City's Water Conservation Program began as a response to drought in the late 1970s. In 1988, the Water Conservation Program was increased as a result of the recommendations from the City's Five-Year Water Policy Action Plan. As a result of the 1987-1991 drought, the City accelerated implementation of the Water Conservation Program. The City's 1994 Long Term Water Supply Plan identified a goal of 1,500 AFY of additional water conservation, a target that was met and exceeded.

In December 1990, the Santa Barbara County Regional Water Efficiency Program (RWEP) was established as a collaboration among the many local water purveyors and the County Water Agency of Santa Barbara. RWEP promotes the efficient use of urban and agricultural water supplies countywide and provides information and assistance to the 16 local water purveyors within the county, including the City of Santa Barbara. RWEP members coordinate cooperative water conservation efforts among purveyors, co-fund projects and programs, act as a clearinghouse for information on water efficiency, manage specific projects and programs, and monitor local, state, and national legislation related to efficient water use. RWEP provides an annual report with information on accomplishments; the FY2019-20 report can be found in Appendix H.

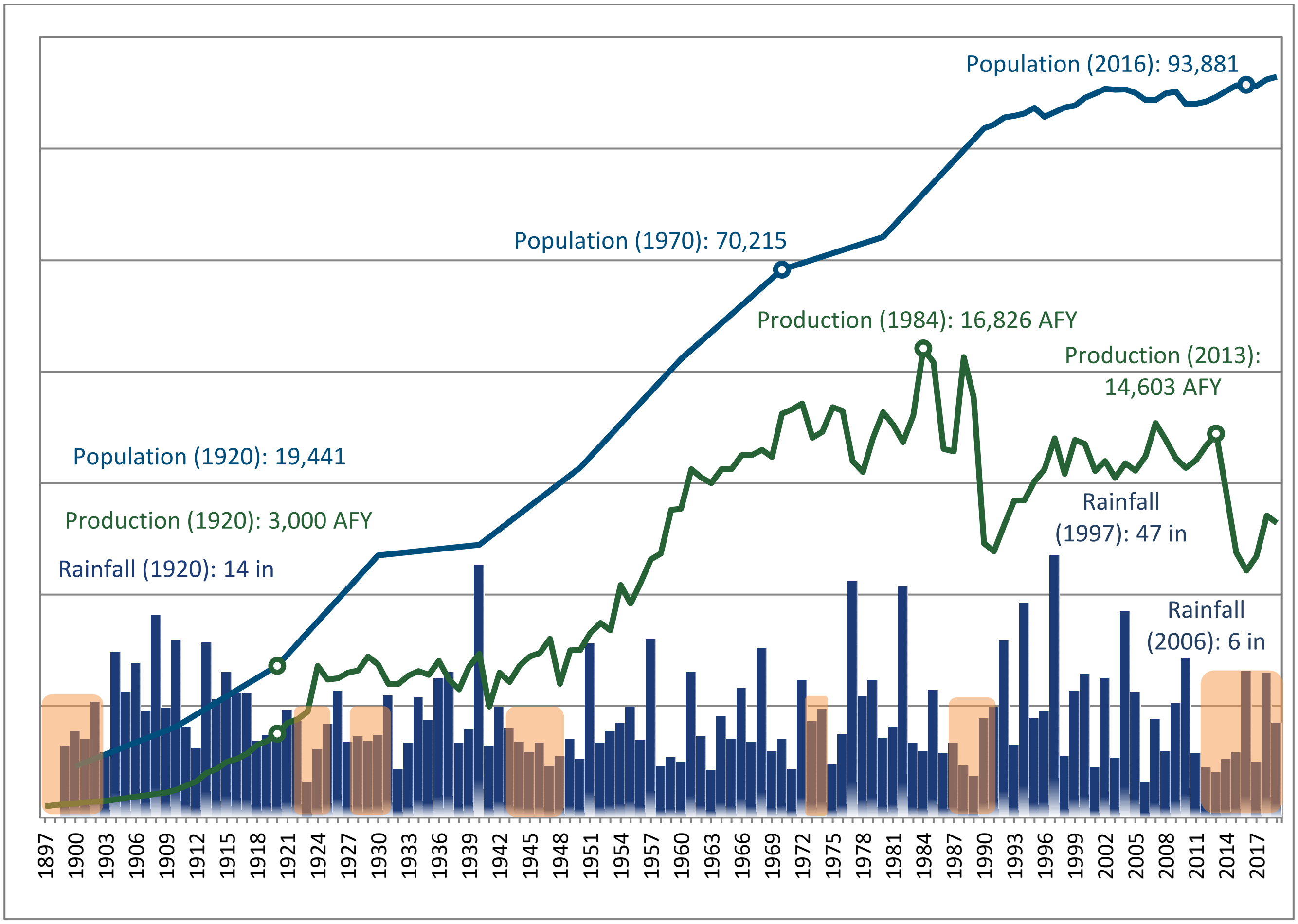
In January 1992, the City joined the California Urban Water Conservation Council (CUWCC), now the California Water Efficiency Partnership (CalWEP), by signing the Memorandum of Understanding Regarding Urban Water Conservation. Since that time, the City has been actively implementing the Best Management Practices (BMPs) as well as additional water conservation measures. Additionally, implementing the BMPs satisfies contractual requirements with the Bureau of Reclamation for the Cachuma Reservoir Project.

In accordance with the policies of the City's 2011 LTWSP, the City's Water Conservation Program is operated to minimize the use of potable water supplies, meet the requirements of the BMPs, and achieve compliance with

SB X7-7's 20% by 2020 per capita water use reduction requirements. Water conservation measures are evaluated for cost effectiveness based on the avoided cost of additional water supplies.

The City's long-term commitment to water conservation is evident in reductions in water demand achieved over the past 30 years. Total system production has dropped from a peak near 16,800 acre-feet/year (AFY) in the mid-1980s to about 14,600 AFY before the current drought and averaging approximately 9,900 AFY as of the writing of this plan (2015–2019). This water use trend (including the recycled water system production that started in 1989), along with historical annual population and rainfall in the City, is demonstrated in the following figure with historical drought periods noted.

Figure 2-4. City of Santa Barbara Population, Water Production, and Rainfall, 1897–2019



The total water production in the above graph includes the recycled water system production that came online in 1989. Orange bars indicate periods of drought.

Water use efficiency in the City is supported by a coordinated effort of the City and RWEP initiatives to create a holistic approach for providing the needed water conservation tools to both the water system and each customer within the service area. The City requires water efficiency in building codes and standards as a result of state-guided mandates as well as increasingly strict local ordinances.

2.3.1 Utility Operations Programs

These measures encompass preventing water waste, reducing water loss, and addressing water efficiency in development projects.

- **Water Waste Prevention** – City Ordinance No. 4558, adopted in February 1989, prohibits the waste of water, which is defined as any excessive, unnecessary or unwarranted use of water, including, but not limited to: 1) any use which causes significant runoff beyond the boundaries of property served by a meter; 2) failure to repair any leak or rupture in any water pipes, faucets, valves, plumbing fixtures or other water service appliances within 72 hours after notice by the City; and 3) irrigation during and for a period of 48 hours after a measurable rainfall event. The City makes educating the community on water waste practices a high priority. The City's water waste ordinance can be found in the City's municipal code SBMC §14.20.007 Prohibition Against Waste of Water.[6] Enforcement of the City's water waste ordinance is found in SBMC §14.20.226 Penalties and Charges.[7]

- **Water Loss Control** – The City has been conducting annual water audits of the water distribution system since 2010 using the approach described in the AWWA Manual *M36 – Water Audits and Loss Control Programs* (AWWA, 2016). The purpose of the audit is to quantify the City's real losses (water physically lost from the system through leaks, breaks, theft, and other means) as well as apparent losses (water lost through meter under registration and data handling errors). In addition to conducting annual water loss audits, beginning in 2016, the City has worked with a third-party validator to complete a level 1 validation of each water audit. This ensures the data used to compile the audits is as accurate as possible and helps to identify areas where data collection and quality could be improved.

  Furthermore, the City has invested in multiple capital projects to manage system losses. The City launched a comprehensive Meter Replacement Program in 2014 with goals to target and replace all 1", 3/4" and 5/8" meters with Advanced Metering Infrastructure (AMI) compatible meters, which combined totals approximately 25,500. To date, this work is essentially complete, with only a handful of these smaller meters left to replace. In addition, the remaining 2,000 meters sized 1 ½" and above are in the process of being replaced with AMI compatible meters that allow for more accuracy at lower flows. Over 2,500 meters have been bench-tested to determine meter accuracy trends. The improved accuracy of the new meters has been effective in reducing the City's apparent losses.

  In response to increased water main breaks in the late 1980s, the City Council created what became known as the Water Main Replacement Program by establishing a goal to replace 1% of the water mains annually. This goal was an integral part of the Water Capital Improvement Program for over 30 years. In June of 2018, the City Council approved an increase in the replacement goal to 2%, or approximately 6 miles, of the water mains on an annual basis. One of the primary long-term benefits of the program is reducing the City's real losses by lessening the frequency of water main breaks.

  To address water lost during annual maintenance activities, the City invested in a Neutral Output Discharge Elimination System (NO-DES) truck to flush water distribution pipelines. Before the NO-DES truck was in use, the City would have to complete this distribution system maintenance by flushing water from fire hydrants. With NO-DES technology, the City is now able to clean the distribution lines by connecting two fire hydrants to a filtration truck, flushing, circulating, and filtering the water, then returning the water back into the distribution system.

  In November 2018, the City Council approved an AMI pilot project. The robust customer consumption data AMI provides will help the City better manage apparent and real water losses. AMI will help in identifying broken or under registering meters, which will reduce apparent losses. With AMI, the City will also be able to better monitor customer consumption within specific areas of the system and compare that against water delivered to those areas. These kinds of analyses will help identify leaks in the distribution system and reduce real losses. The AMI cellular pilot project was launched in January 2019 for 200 meters, and the fixed network pilot project was launched in January 2020 for 200 meters.

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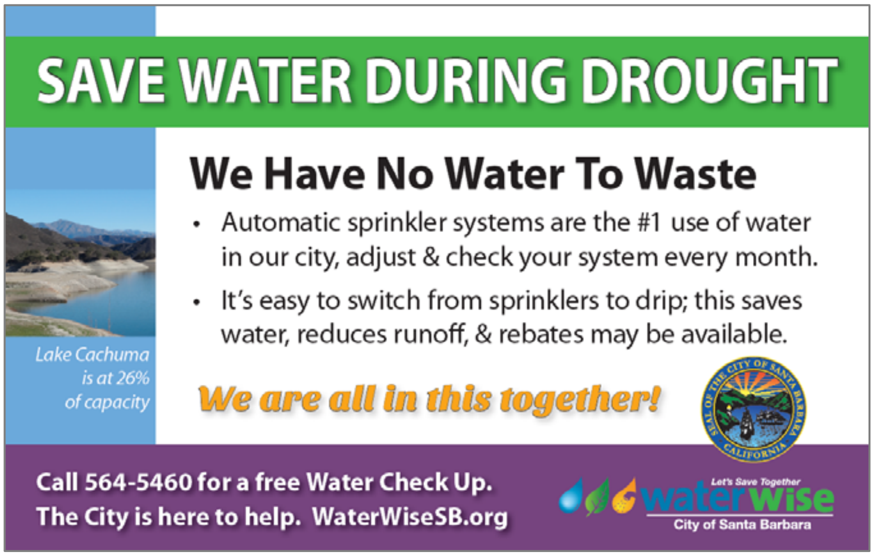
[6] City of Santa Barbara. Municipal Code, SBMC §14.20.007, accessed August 2020: http://qcode.us/codes/santabarbara/?view=desktop&topic=14-14_20-14_20_007

[7] Ibid. Municipal Code, SBMC §14.20.0226 accessed August 2020: http://qcode.us/codes/santabarbara/?view=desktop&topic=14-14_20-14_20_226

- **Landscape Design Standards** – For development projects, the City has adopted Landscape Design Standards for Water Conservation that are more stringent than California's Model Water Efficient Landscape Ordinance (MWELO), and the City has submitted an annual report to the state since December 2015. The annual report includes the total number of approved projects and square feet of new/revised landscape for that year. As of December 2019, over 300 landscape projects totaling over 2.7 million square feet have been approved. The City reviews plans and conducts inspections to ensure compliance with design standards, including water wise plant palette, efficient irrigation, proper pressure regulation, smart irrigation controllers, mulch, and more. The Landscape Design Standards were originally adopted by the City Council in 1989 and updated in 2008.

2.3.2 Public Information and Outreach

The City attempts to raise awareness among all customer types of the importance of efficient and responsible water use. The City works to foster a culture of conservation within the community and affect impactful behavioral changes. Components of the City's existing public education program include the following:



SAVE WATER DURING DROUGHT

We Have No Water To Waste

- Automatic sprinkler systems are the #1 use of water in our city, adjust & check your system every month.
- It's easy to switch from sprinklers to drip; this saves water, reduces runoff, & rebates may be available.

Lake Cachuma is at 26% of capacity

We are all in this together!

Call 564-5460 for a free Water Check Up. The City is here to help. WaterWiseSB.org

Let's Save Together water wise City of Santa Barbara

City of Santa Barbara Advertising Example.

- **Communicating the value of water** – The City regularly provides the public with images and status updates of water sources. Additionally, each May, the City celebrates May Water Awareness Month with public displays in City Hall and the libraries to communicate information on local water sources, the history of water in Santa Barbara, water efficiency, and more.
- **Providing information on methods and opportunities for reducing consumption** – The City engages customers in water efficiency through the City's website, newsletters, informational videos, social media, printed materials, public presentations, workshops, and more. The City promotes the use and maintenance of water efficient WaterSense products, practices and services. Free Water Checkup appointments are available to all customers and entail an onsite evaluation with City staff to discuss water usage and opportunities for efficiency.
- **Delivering consistent, persistent messages and media campaigns** – This is done through radio messages, television commercials, print advertising, social media messaging, digital advertising, and more, including messaging for both indoor and outdoor water use efficiency. Messages are delivered year round and are tailored to the season (i.e., "turn it down" in the fall and "sprinkler spruce up" in the spring).

Current Public Information Programs

- **Water Conservation Hotline** – The hotline handles the incoming calls for the Water Conservation Program. Staff schedule free Water Checkup appointments, educate customers on water usage, and direct customers to resources.
- **Website** – The City's Water Conservation Program website is www.SantaBarbaraCA.org/WaterWise. Additionally, the City contributes to and promotes the website for the Regional Water Efficiency Program of Santa Barbara County: www.WaterWiseSB.org/.

- **Conservation Videos** – DIY and informational videos on sustainable landscaping, leak detection, efficient irrigation, water supply, and more are on the City's Water Conservation YouTube Channel: www.YouTube.com/SaveWaterSB.
- **Media Campaign** – Spring, summer, and fall media campaigns are implemented by the City, often in conjunction with RWEP to expand reach. Advertisements are placed online, on TV, in movie theatres, in print publications, and on the radio.
- **Water Bill Messages/Bill Insert/e-Newsletter** – Monthly water conservation messages are printed directly on the water bill and are customized by customer classification. A monthly water bill insert is mailed with all water bills and available electronically for online bill pay customers. A Water Resources e-newsletter is sent out quarterly and a citywide "City News in Brief" e-newsletter is sent out weekly, with a water efficiency section included at least once a month.
- **Social Media** – Outreach on water conservation actions and events are posted on the Nextdoor website, www.Facebook.com/SaveWaterSB, and www.Twitter.com/SaveWaterSB.

"Sprinkler Spruce Up" Media Campaign.

- **Demonstration Gardens** – The Water Conservation Program has many beautiful water wise demonstration gardens to showcase sustainable landscaping: Alice Keck Park Memorial Garden in conjunction with the Parks Department; the Firescape Garden in conjunction with the Fire Department, Spencer Adams Park in conjunction with the Parks Department and via a Surfrider Foundation Whale Tail Grant, the El Estero Recycled Water Garden, the Water Wise Home Garden in conjunction with the Santa Barbara Botanic Garden, and the Santa Barbara Association of Realtors Rainwater Garden in conjunction with the Association of Realtors.
- **Public Events** – City staff set up tables and displays and engage the public in water efficiency information at local events such as Earth Day, All Around Landscape Expo, Santa Barbara Botanic Garden Fall Plant Sale, various school science nights, and neighborhood association meetings.
- **Garden Wise TV Show** – Garden Wise is a 30-minute quarterly television show about designing and maintaining sustainable landscapes. Featured segments include: Plant Rant, What Tree is That?, Crimes Against Horticulture, and Design a Water Wise Garden featuring local designers. This program is coordinated and co-funded through RWEP.
- **Water Wise Gardening for Santa Barbara County Website** – This is a robust website of gardening information tailored to the Santa Barbara climate with an extensive plant database of over 1,000 water wise plants, more than 300 photos of local gardens, and guidance on gardening design and practices: www.waterwisegardeningsb.org/. This program is coordinated and co-funded through RWEP.

City of Santa Barbara's Television Program Garden Wise TV.

Current School Education Programs

- **Classroom Presentations** – This involves fun and engaging K-6 presentations about Santa Barbara's water supply, the water cycle, water conservation, and wastewater treatment. Songs, photos, and videos are used, based on the age group. Sixth grade presentations include the Living Wise kit and curriculum – a take home kit with water and energy fixtures and activities to conduct at home. Presentations are tailored to grade or class objectives and are aligned to California content standards and the Education and the Environment Initiative Curriculum.
- **Field Trips** – Water facilities such as the El Estero Water Resource Center, Cater Water Treatment Plant, Charles E. Meyer Desalination Plant, Sheffield Reservoir, and the Firescape Garden are available for school and community group tours with City personnel to lead and educate attendees.
- **Musical Assemblies** – Musical-comedy education shows about water supplies, the value of water, groundwater, and water efficiency are part of this program, which is coordinated and co-funded through RWEP.
- **WaterWise High School Video Contest** – This is an annual countywide contest for high schools to create and submit a 30-second public service announcement for water efficiency. Winning videos are used for television and movie theatre advertising. This program is coordinated and co-funded through RWEP.
- **WaterWise Science Fair Award** – This special award is part of the larger Santa Barbara County Science Fair for junior and senior science fair projects that address water efficiency, water supplies, or water treatment. This program is coordinated and co-funded through RWEP.

2.3.3 Outdoor Water Use Efficiency

The City's outdoor water use efficiency programs are intended to promote the "new normal" of water wise landscaping through proper design, installation, and maintenance of new and existing landscapes and irrigation systems. The City's active measures also include water wise landscape design information, landscape classes and hands-on workshops, demonstration gardens, irrigation how-to videos, and educational programs. Recent participation levels for the City's active water conservation programs over the past five fiscal years can be found in Table F-3 in Appendix F.

- **Smart Landscape Rebate Program** – This is a rebate to replace turfgrass and/or an inefficient sprinkler system in commercial and residential landscapes. The rebate is for 50% of the material costs of pre-approved irrigation equipment and landscape materials.

Smart Landscape Rebate Program Before and After Images.

- **Irrigation Evaluations** – As an element of the Water Checkups, staff perform site-specific landscape irrigation surveys that include checking the irrigation system for maintenance and repairs, reviewing the irrigation schedule, and making recommendations for adjusting the programing of the irrigation controller.
- **Irrigation Budgets for Dedicated Irrigation Meters** – The City has budget-based rates for accounts with dedicated irrigation meters to incentivize water efficiency. For the City's over 750 irrigation meters, the monthly water budget is determined by the property's irrigated landscaped area, the water requirements of plants, and the current weather conditions. The purpose of providing a monthly water budget is to bill based on the water needs of the landscaping; water use that exceeds the budget is billed at a higher rate. Monthly online water use reports provide education to customers to identify ways to irrigate more efficiently and track their usage compared to their budget.
- **Green Gardener Program** – Taught through Santa Barbara City College School of Extended Learning, gardeners are trained in resource efficiency and pollution prevention landscape maintenance practices. Gardeners attend a 15-week course taught in both English and Spanish covering topics including irrigation design and maintenance, fertilizing, soil health, integrated pest management, pruning, and reduction of green waste. This program is coordinated and co-funded through RWEP.
- **Mulch Delivery Rebate** – The City will rebate the cost of up to two dump truck loads per year of county mulch deliveries to reduce evaporation and increase water retention in the soil.
- **Graywater Information** – The City provides education on the use of graywater with handouts, fact sheets, sample plan sheet, hands-on workshops, 101 classes, videos, and information on the City's website. The City promotes the use of graywater in accordance with the California Plumbing Code Chapter 16A.[8]
- **WaterWise Garden Recognition Contest** – Residential gardens are evaluated for water efficiency, design elements, and sustainability. The winning garden is submitted to the countywide contest for the top prize. Winning properties receive an engraved sandstone boulder and are highlighted in public outreach to encourage water wise practices. This program is coordinated and co-funded through RWEP.

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[8] California Department of Water Resources. (2016). Chapter 16A Non-Potable Water Reuse Systems. https://up.codes/viewer/california/ca-plumbing-code-2016/chapter/16A/non-potable-water-reuse-systems#16A

2.3.4 Residential Programs

In addition to the programs previously listed, the following programs are geared toward residential customers:

- **Water Checkup Appointments** – The City's Water Resources Specialists conduct free Water Checkup appointments upon request by water customers. A Water Checkup includes evaluating all water uses on the property and providing recommendations to the customer for improved efficiency including indoor usage, leak detection, meter reading demonstration, irrigation systems evaluation, and specific recommendations on improvements and upgrades.
- **Washing Machine Rebate Program** – The Smart Rebates Program is coordinated by CalWEP for participating water suppliers throughout California. The City participates with high efficiency clothes washer rebates for residential customers who replace an existing high water use washing machine with a qualifying high efficiency model.

2.3.5 Commercial, Industrial and Institutional (CII) Programs

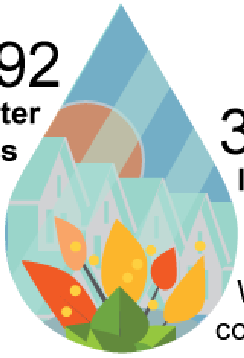
In addition to the programs previously listed, the following programs are geared toward CII customers:

- **CII WaterWise Survey and Incentive Program** – This tailored program for high water use CII customers includes a comprehensive water survey as well as rebate incentives for making recommended upgrades. The survey includes identifying high water use appliances, searching for hidden leaks, cataloging use and flow rates of fixtures, and identifying areas for improvement. A summary report is generated which includes an analysis of the facility's water use, water and cost-saving recommendations eligible for monetary incentives from the City, and estimated payback periods.
- **Lodging Industry Towel and Linen Cards** – Free linen cards and towel rack hangers are available to encourage patrons to conserve water during their stay by reusing towels and linens.
- **Restaurant Table Cards** – Free table tents are available to inform restaurant customers that water will be served upon request.
- **Green Business Program of Santa Barbara County** – Existing businesses are certified through onsite evaluations from City staff. New and existing certified Green Businesses receive workshops, trainings, resources, and recognition. Organized by the California Green Business Network, Santa Barbara County.

Restaurant Table Card Example.

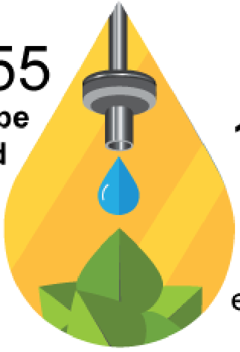
Conservation Participation

2014-2019



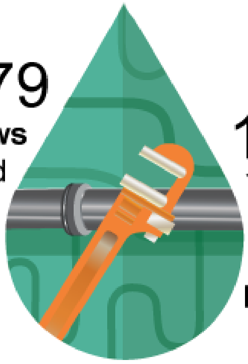
7,192
Water Checkups at homes and businesses

3,676
Irrigation Evaluations (a subset of the Water Checkups conducted)



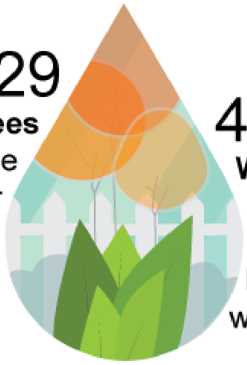
1,255
Landscape Rebates Issued for water wise landscaping

1,837
Free Mulch Deliveries to reduce evaporation



61,179
Video Views of DIY and educational videos

13,506
Youth Reached through Water Education Programs



2,129
Class Attendees at Landscape 101 and other courses

456
Workshop Attendees at hands-on landscape workshops

3 FUTURE WATER USE OBJECTIVES

The City utilizes a suite of various benchmarks to assess progress in the implementation of the ongoing conservation program. A sample report demonstrating past conservation measure implementation tracking can be found in Appendix G. The City also tracks SB X7-7 per capita water use goals as well as measures performance metrics such as number of rebates administered, students reached, classes held, and Water Checkups. At this time, City system-wide total water use remains 30% below year 2013 water use. Looking ahead, the City plans to track state legislation metrics related to the future water use objectives as the standards are developed through the state's stakeholder process by DWR and the State Water Resources Control Board (SWRCB).

A supply assessment is conducted regularly of the water supply portfolio demonstrating how conservation is evaluated and regarded as equal to other water supply options. When the City conducts supply and demand forecasting analyses the estimated water made available through conservation is a part of the supply portfolio. This is evident in the City's previous 2015 and pending 2020 Urban Water Management Plan as well as the Water Supply Management Reports that are adopted annually.[9]

3.1 California Legislation and the Water Use Objectives

On April 7, 2017, the state of California released the "Making Water Conservation a California Way of Life, Implementing Executive Order B-37-16" Final Framework Report[10] (State Framework Report). The State Framework Report, which builds upon Governor Brown's call for new long-term water use efficiency requirements in Executive Order (EO) B-37-16, provided the state's proposed approach for implementing new long-term water conservation requirements. A key element of the report is the proposed new water use targets for urban water suppliers that go beyond existing SB X7-7 requirements[11] and are based on strengthened standards for indoor residential per capita use, outdoor irrigation, CII water use, and water loss.

On May 17, 2018, the California Legislature adopted SB 606 and AB 1668 to implement new long-term water use efficiency requirements, including new urban water use objectives for urban water suppliers. The legislation requires the State Water Resources Control Board, in coordination with DWR, to adopt long-term standards for the efficient use of water. The legislation establishes specified standards for per capita daily indoor residential use. In addition, with stakeholder input, the SWRCB will adopt performance measures for CII water use and long-term efficiency standards for outdoor water use and water loss.

The legislation requires each urban retail water supplier to calculate and report an urban water use objective, which is an estimate of aggregate efficient water use for the previous year based on the adopted water use efficiency standards. Urban retail water suppliers will be required to calculate and report urban water use objectives by November 1, 2023 and by November every year thereafter, and to compare actual water use to the objective for the prior year by the same date.

The bills grant SWRCB the authority to enforce compliance with the urban water use objectives, with enforcement actions ramping up over the first three years of implementation. The bills also establish a schedule for state agencies to develop the methodology for implementing the requirements, as presented in Table 3-1.

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[9] https://www.SantaBarbaraCA.gov/Drought

[10] California Department of Water Resources, et al. (2017). *Making Water Conservation a California Way of Life, Implementing Executive Order B-37-16*.

[11] SB X7-7, also known as the Water Conservation Act of 2009, was a significant amendment introduced after the drought of 2007-2009 and because of the California governor's call for a statewide 20% reduction in urban water use by the year 2020.

Table 3-1. Implementation Schedule for SB 606 and AB 1668 Key Requirements

Date	SB 606/AB 1668 Key Requirements
January 1, 2021	1. DWR to recommend to legislature standards for indoor residential water use. Defaults are: • 55 GPCD until 2025 • 52.5 GPCD from 2025 until January 2030 • 50 GPCD beginning in 2030 2. DWR to provide each urban retail water supplier with data regarding irrigable lands at level of detail sufficient to verify accuracy at the parcel level
October 1, 2021	1. DWR to recommend standards for outdoor residential use for adoption by SWRCB • Incorporate Model Water Efficient Landscape Ordinance principles • Applies to irrigable lands • Include provisions for swimming pools, spas, etc. 2. DWR to recommend performance measures for CII water use, including: • CII classification system • Minimum size thresholds for converting mixed CII meters to dedicated irrigation meters • Recommendations for CII best management practices 3. DWR to recommend variance provisions for: evaporative coolers, horses and livestock, seasonal populations, soil compaction/dust control, water to sustain wildlife, and water for fire protection 4. DWR to recommend standards for outdoor irrigation of landscape areas with dedicated irrigation meters and incorporate MWELO principles.
June 30, 2022	1. SWRCB to adopt long-term standards for efficient water use: • Outdoor residential • Outdoor irrigation of landscape with dedicated irrigation meters at CII customer sites • Water loss (consistent with SB 555) 2. SWRCB to adopt performance measures for CII water use
November 1, 2023 and annually thereafter	1. Urban water supplier shall calculate its urban water use objective: • Efficient indoor residential water use, plus • Efficient outdoor residential water use, plus • Efficient outdoor water use through dedicated irrigation meters at CII customer sites, plus • Efficient water loss, plus • Variances as appropriate 2. Urban water supplier shall submit report to DWR on urban water use objectives, actual urban water use, implementation of CII water use performance measures, and progress towards urban water use objective.

4 CONSERVATION MEASURE EVALUATION

This section details the screening process, the conservation measures that were analyzed, the measure assumptions, and inputs used in the DSS Model.

4.1 Screening of Conservation Measures

This section presents the City's goal to develop a Plan that would result in the greatest ease and efficiency of program administration, the lowest cost of implementation, and the greatest water savings. The measures also needed to address water conservation across all relevant customer categories. The screening process undertaken with the City's staff yielded 21 measures for further evaluation.

The experience of many utilities has shown there is a reasonable limit to how many measures can be feasibly implemented at one time. Programs that consist of a large number of measures are historically difficult to implement successfully. Therefore, prioritization of measures is important both as an outcome of this planning effort and as the program is implemented. The approach to program implementation is viewed as a "living" process where opportunities may arise and be adopted as new technologies become available over time. Program timelines can also be adjusted, with the recognition that doing so may impact the savings objectives.

An important step in updating the City's Water Conservation Program included identification of new measures that may be appropriate and the screening of these measures to a short-list for detailed evaluation (benefit-cost analysis). This evaluation was specific to the factors that were unique to the City's service area, such as water use characteristics, economies of scale, and demographics.

Potential new measures for the City's 2020 Water Conservation Strategic Plan were screened using qualitative evaluation. The overall initial list of more than 100 potential water conservation measures was drawn from MWM and the City's experience, the previous conservation planning effort conducted in 2010, and a review of what other water agencies with innovative and effective conservation programs are currently implementing.

In the 2010 effort, significant stakeholder input was solicited from the City's community members. Numerous work groups (including work groups for indoor measures and outdoor measures) were established to evaluate a wide range of needs and rank measures per pre-defined and stakeholder-defined criteria. The measure screening conducted for this 2020 Plan was an update to the previous thorough endeavor.

In this measure screening update, City staff considered the criteria outlined in Figure 4-1 when evaluating whether a measure should be included in the DSS Model.

More details on the measure screening inputs and results can be found in Appendix E.

Figure 4-1. City of Santa Barbara Measure Screening Criteria

Measure Screening Criteria

TECHNOLOGY/ MARKET MATURITY

Refers to whether technology needed to implement conservation measure, such as an irrigation control device, is commercially available and supported by the local service industry.

CUSTOMER ACCEPTANCE/ INTEREST

Refers to whether customers within the service area would be interested in and accepting of the conservation measure and willing to implement it.

STAFF TIME FEASIBILITY

Refers to how feasible it is for the City to staff the measure for successful implementation.

EASE OF IMPLEMENTATION/ SCHEDULE

Refers to how feasible the measure implementation is for the City, including many factors such as cost, staff availability, and whether the timeline for the measure fits into the City's overall schedule.

LEGAL/INSTITUTIONAL OBSTACLES

Refers to if there are legal and/or institutional issues surrounding the measure and its implementation.

SERVICE AREA MATCH

Refers to whether the measure or related technology is appropriate for the area's climate, building stock, or lifestyle.

WATER SAVINGS POTENTIAL

Refers to whether the measure has the potential for saving a significant amount of water by account and the ability to confidently quantify savings.

COMMUNITY AND SOCIAL EQUITY

Refers to customer equity, when one category of customers receives benefit while another cannot (e.g., residential customers cannot receive the direct benefit from a commercial incentive program.

COMPLIANCE WITH REGULATIONS AND PROGRAMMATIC CONSERVATION PRACTICES

Refers to whether the measure meets certain regulations and conservation practices, including, but not limited to, federal or state requirements.

SAVINGS QUANTIFIABLE

Are the water savings quantifiable? For example, it is more difficult to determine the amount of water saved as a result of a water wise demonstration garden versus replacing a grass playing field?

ACCOUNT SATURATION

Refers to extent to which customers would be willing and able to implement measure or related technology based on how much they have already conserved (i.e., have they reached their limit in terms of ability to conserve more water with particular measure).

COST FEASIBILITY

Refers to how feasible it is for the City to fund the cost of measure implementation..

PARTNERSHIP/ FUNDING OPPORTUNITIES

Refers to opportunities connected with the measure that allow the City to partner with other entities and/or to obtain full or partial funding for the measure through other sources.

4.2 Conservation Measures Analyzed

Table 4-1 describes the 21 measures that were selected for analysis through the measure screening process. The list includes devices or programs that can be used to achieve water conservation; methods through which the device or program will be implemented; and what distribution method, or mechanism, can be used to activate the device or program.

Table 4-1. Measure Descriptions

Measure Name	Description
Commercial	
CII Water Survey Level 2 and Customized Rebate	Eligible CII customers can receive a thorough level 2 water survey targeting indoor and non-irrigation outdoor water uses. Financial incentives will be provided after analyzing the benefit-cost ratio of each proposed project. Rebates are tailored to each individual site and will be granted at the sole discretion of the City while funding lasts.
Ultra-High Efficiency Urinal Rebate	Provide a rebate for the installation of ultra-high efficiency urinals flushing 0.125 gpf (1 pint) or less.
Pre-Rinse Spray Nozzle Giveaway	Provide free 1.15 gpm (or lower) spray nozzles and possibly free installation for the rinse and clean operation in restaurants and other commercial kitchens.
Dipper Well Rebate	Rebate for retrofitting traditional constant flow dipper wells with on-demand or hot well dipper. Dipper wells common in ice cream and smoothie businesses.
Irrigation	
Rain Barrel Rebate	Provide an incentive for installation of rain barrels to offset potable irrigation use.
Large Rainwater Catchment System Rebate	Provide a rebate for installation of large rainwater catchment systems, minimum size of 250 gallons.
Irrigation and Landscape Rebate	Rebate on pre-approved irrigation equipment and landscape materials, such as drip irrigation, smart controllers, and water wise plants.
Free Sprinkler Nozzle Program	Provide low precipitation sprinkler nozzles free of charge via online voucher program to be redeemed at local irrigation stores.
Mulch Program	Subsidize delivery charges for free mulch offered by the county, up to two free deliveries every 12 months to reduce evaporation.
Residential	
Residential Rebates for HECW	Rebate for a high efficiency clothes washer. Only applicable on eligible models and for replacing an existing high-water using washer.
Pressure Reduction Valve Rebate	Provide a rebate to install pressure regulating valve on existing properties with pressure exceeding 80 psi.
Leak Detection Device Rebate	Provide a rebate for private leak detection/alert device that provides real time water usage data to customer and may allow for remote shutoff by the customer.
Hot Water on Demand Pump System Rebate	Provide a rebate to equip homes with efficient hot water on demand systems. These systems use a pump placed under the sink to recycle water sitting in the hot water pipes to reduce hot water waiting times.

Measure Name	Description
Ultra-High Efficiency Toilet Rebate	Rebate for replacing a toilet that uses 1.6 gallons per flush or more with a U.S. Environmental Protection Agency WaterSense-approved toilet that uses 0.8 gpf or less.
Full AMI Implementation – Online Water Use Software and Leak Detection Customer Notification	Full AMI Implementation cost for the meter transmitting units, radio or cellular network, and meter data management software. Measure includes customer leak notification via online water consumption software, phone, or e-mail.
Community & Education	
Water Conserving Landscape and Irrigation Codes	Enforce City's Landscape Design Standards for Water Conservation. Compliance with the Standards is mandatory for all new or altered landscaping proposed as a part of a project subject to review by any City design review body.
School Education	Offer school presentations, field trips, musical assemblies, video contests, teacher training, and multiple online and hands-on resources. The LivingWise® Program also is included in this measure and is a water and energy efficiency take home kit program for 6th graders designed to generate immediate and long-term resource savings.
General Public Education	This measure includes the City's general public outreach efforts. Advertising, website, gardening website, and all printed materials for events and Water Checkups, fliers, restaurant and lodging display cards, posters, etc.
Water Checkup	Onsite assistance program to work with customers to assess water usage on property, find leaks/causes of high water use, and identify ways to use water more efficiently.
Irrigation Evaluations	Onsite assistance program to work with customers to evaluate their irrigation system and provide specific recommendations on irrigation improvements, scheduling, and upgrades.
Toilet Flapper Leak Alert Giveaway	Provide toilet leak alert indication device for simple installation on toilet tanks. If flapper malfunctions, device notifies with light and/or sound.

Information about the DSS Model analysis approach to measure unit costs, water savings, and market penetrations can be found in Appendix D. Actual measure inputs used in the DSS Model to evaluate the water conservation measures selected by the City can be found in individual measure screenshots in Appendix E.

4.3 Comparison of Individual Conservation Measures

MWM conducted an economic evaluation of each selected water conservation measure using the DSS Model. Appendix F presents detailed results with how much water each measure will save through 2050, how much each measure will cost, and the cost of saved water per unit volume if the measure were to be implemented on a stand-alone basis (i.e., without interaction or overlap from other measures that might address the same end use or uses). Cost savings from reduced water demand was quantified annually and based on avoided costs provided by the City.[12]

While each measure was analyzed independently, it is important to note that very few measures operate independently. For example, Full AMI Implementation – Online Water Use Software and Leak Detection Customer Notification may lead to an Irrigation Evaluation or Irrigation and Landscape Rebate. Higher efficiency indoor fixtures go hand-in-hand with indoor water checkups and public education.

It should be noted that the water savings from General Public Education are not double-counted with other conservation measures. As a result, the costs appear significantly higher for General Public Education than for other measures due to the very minimal water savings estimated for the high staff time investment. However, other measures certainly would be less effective or possibly infeasible without an active outreach program. Without public outreach, customers would be unaware of conservation measures and participation would likely plummet. With that in mind, Figure 4-2 presents a comparison of each measure's cost of water saved per unit volume.

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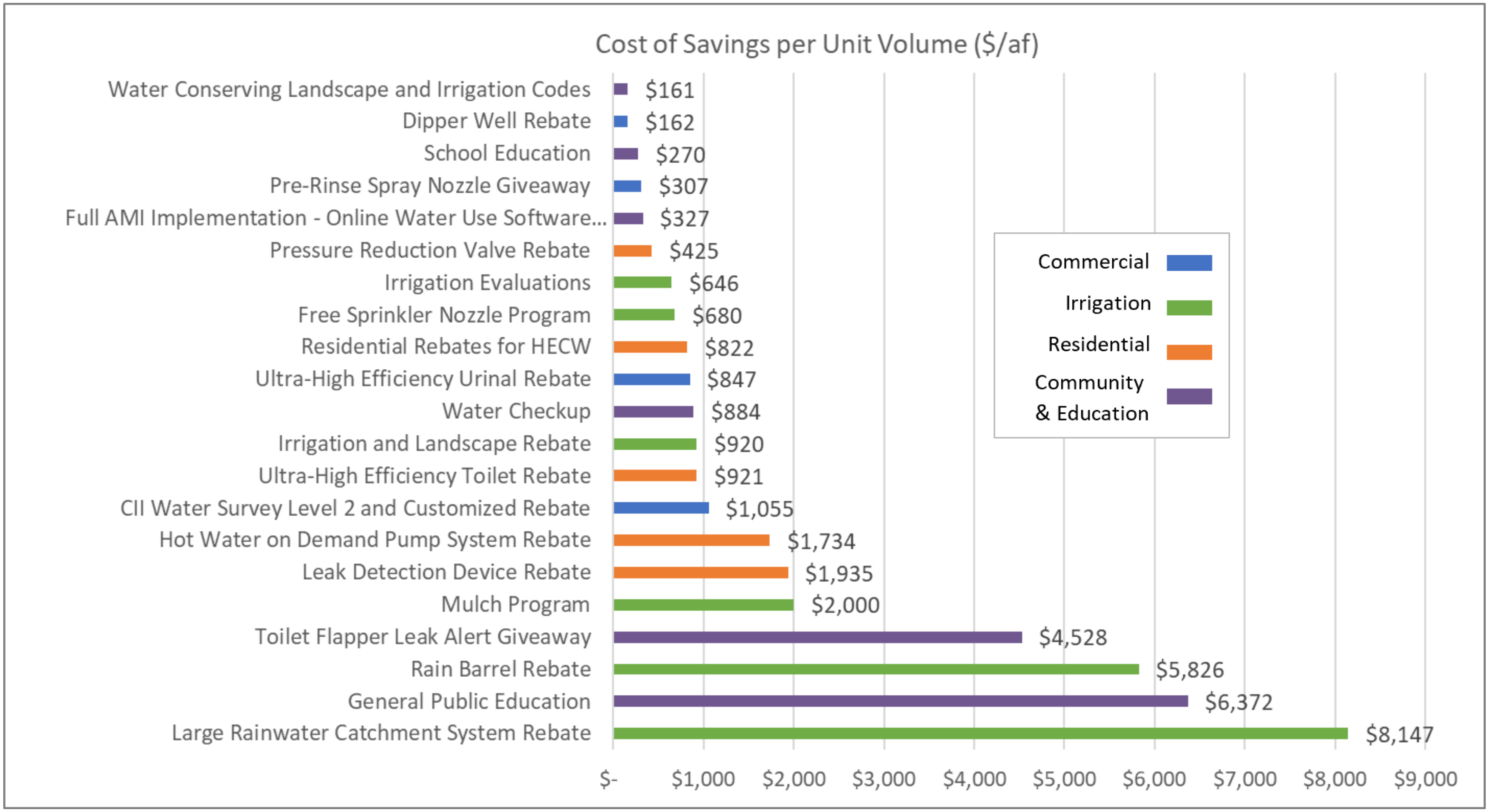
[12] The City's estimated average water production cost is $865/AF including treatment, energy, and transport costs. Water production costs are based on 2019 generated drought supplies and costs including the following supply sources: Cachuma, Gibraltar/Mission Tunnel, Cachuma carryover/MWD, groundwater, State Water, banked water/water purchases, existing desalination, and expanded desalination. The City's average wastewater cost of $1,017/AF is based on FY 2017 costs.

Figure 4-2. Conservation Measures – Cost Per Acre-Foot of Water Saved



The "General Public Education" conservation measure has minimal assigned water savings and is based on an investment in community education and awareness to help drive participation in other conservation measures.

5 CONSERVATION PROGRAM EVALUATION

This section provides a summary of which measures were included in each of the three conservation programs as well as which program the City selected to implement. The three programs were designed to illustrate a range of various measure combinations and resulting water savings. The following key items were taken into consideration during measure selection for Programs A, B, and C:

- Existing conservation measures
- Conservation measures recommended by AWWA, CalWEP (formerly CUWCC), DWR, and others
- New and innovative measures
- Measure equitability among customer categories
- Customer demographics

In addition, this section identifies and prioritizes the conservation programs and projects by cost effectiveness, quantifiable water savings, and compliance with American Water Works Association G480 Water Conservation Program Operation and Management Standard (G480 Standard).

5.1 Measure Selection for Conservation Program Alternatives

MWM developed an economic analysis to show the true cost of implementing water conservation programs. The City's existing conservation program was evaluated, then two additional, increasingly aggressive programs were developed for the City to consider.

Using the data gathered, MWM created a list of all potential program concepts that were appropriate for the City's service area to meet future regulatory and conservation compliance mandates. Factors for determining which measures should be in each program included budgeting, feasibility to implement the program, and the time at which each measure would need to be introduced to promote conservation efforts. Programs also needed to address water conservation across all relevant customer categories.

These program scenarios were not intended to be rigid but rather to demonstrate the range in savings that could be generated if selected measures were run at the same time. When programs were analyzed, any overlap in water savings (and benefits) from individual measures was considered to provide a total combined water savings (and benefits). Each program is described below:

- Program A: Current Measures. Current conservation program with no changes; includes 9 measures.
- Program B: Recommended Measures. In addition to existing efforts, includes more customer-centric, extended programs in indoor and outdoor efficiency as well as commercial efficiency; includes 17 measures. This is the recommended program.
- Program C: All Modeled Measures. In addition to all those above, includes expanded indoor residential incentives, including rain barrel and large rainwater catchment system rebates; includes all measures modeled in this effort for a total of 21 measures.

Figure 5-1 presents the City's conservation measure program scenarios, indicating which measures were selected and modeled within each program.

Figure 5-1. Selected Conservation Program Measures

Current Program — **Program A**

- Residential Rebates for HECW
- Water Checkup
- Irrigation Evaluations
- CII Water Survey Level 2 and Customized Rebate
- Mulch Program
- Landscape and Irrigation Codes
- Irrigation and Landscape Rebate
- School Education
- General Public Education

New Measures Selected — **Program B**

- Full AMI Implementation
- Free Sprinkler Nozzle Program
- Pressure Reduction Valve Rebate
- Leak Detection Device Rebate
- Ultra-High Efficiency Toilet Rebate
- Ultra-High Efficiency Urinal Rebate
- Pre-Rinse Spray Nozzle Giveaway
- Dipper Well Rebate

Future Options — **Program C**

- Toilet Flapper Leak Alert Giveaway
- Hot Water on Demand Pump System Rebate
- Rain Barrel Rebate
- Large Rainwater Catchment System Rebate

Table 5-1 shows the benefit-cost ratios for conservation Programs A, B, and C. Each program's present value of water savings and utility costs as well as cost of water saved can be found in Appendix F.

Table 5-1. Comparison of Program Benefit-Cost Ratios

Conservation Program	Water Utility Benefit-Cost Ratio
Program A with Plumbing Code	0.96
Program B with Plumbing Code	1.08
Program C with Plumbing Code	1.07

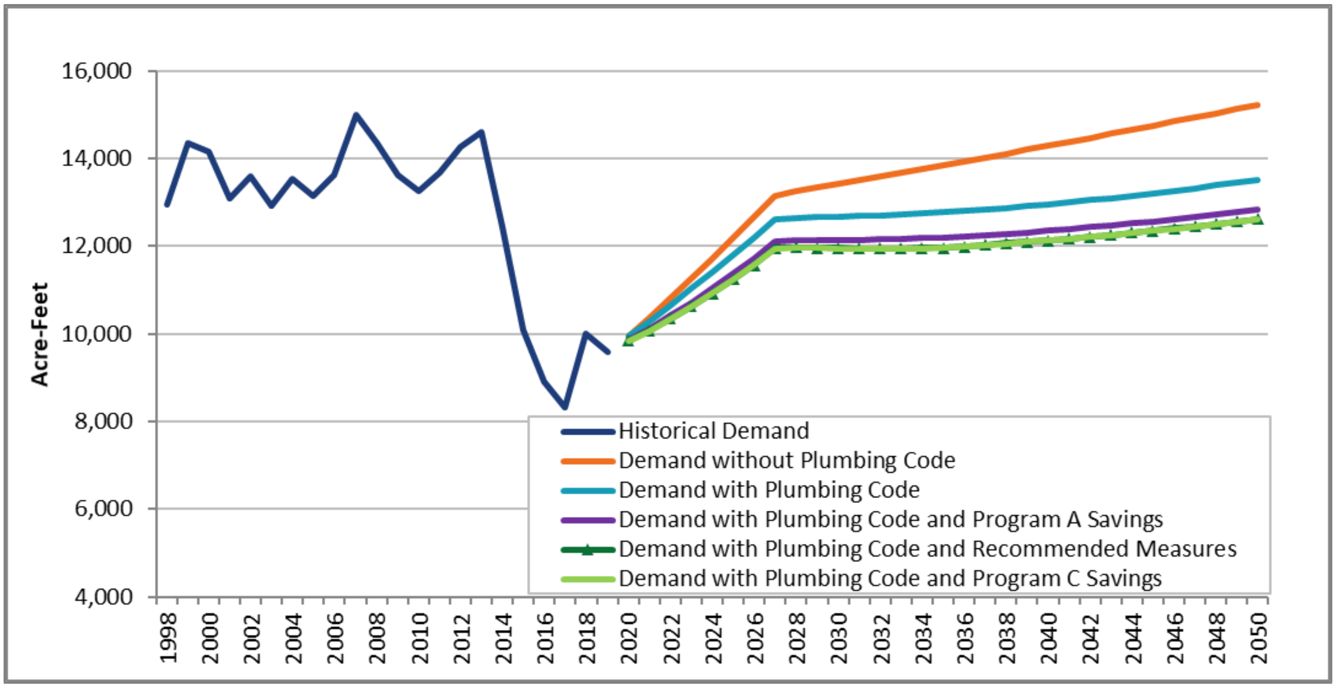
Table 5-2 shows the water system demands for the City of Santa Barbara. Demand is shown in acre-feet in 5-year increments over the 31-year modeling period (2020-2050). Table 5-2 and Figure 5-2 include historical demand, demand with and without plumbing code, and projected demand with plumbing codes and three active conservation program scenarios.

Table 5-2. City of Santa Barbara Potable Water System Demands in AFY for Years 2020-2050

	2020	2025	2030	2035	2040	2045	2050
Baseline Demands	9,947	12,187	13,425	13,822	14,236	14,668	15,119
Plumbing Code Savings	-	387	760	1,093	1,352	1,561	1,737
Demands with Plumbing Code Savings	9,947	11,799	12,665	12,729	12,885	13,107	13,382
Conservation Program A Savings	96	434	531	565	599	637	677
Demands with Plumbing Code and Conservation Program A Savings	9,851	11,366	12,134	12,164	12,285	12,470	12,704
Conservation Program B Savings	105	561	718	803	817	848	878
Demands with Plumbing Code and Conservation Program B Savings	9,842	11,239	11,946	11,926	12,068	12,259	12,504
Conservation Program C Savings	107	566	722	807	821	852	882
Demands with Plumbing Code and Conservation Program C Savings	9,840	11,234	11,942	11,922	12,064	12,256	12,500

Figure 5-2 presents historical and projected water demand in AFY given multiple scenarios. Plumbing code elements include current local, state, and federal plumbing code standards for retrofits of items such as toilets, urinals, showerheads, faucets, and clothes washers.

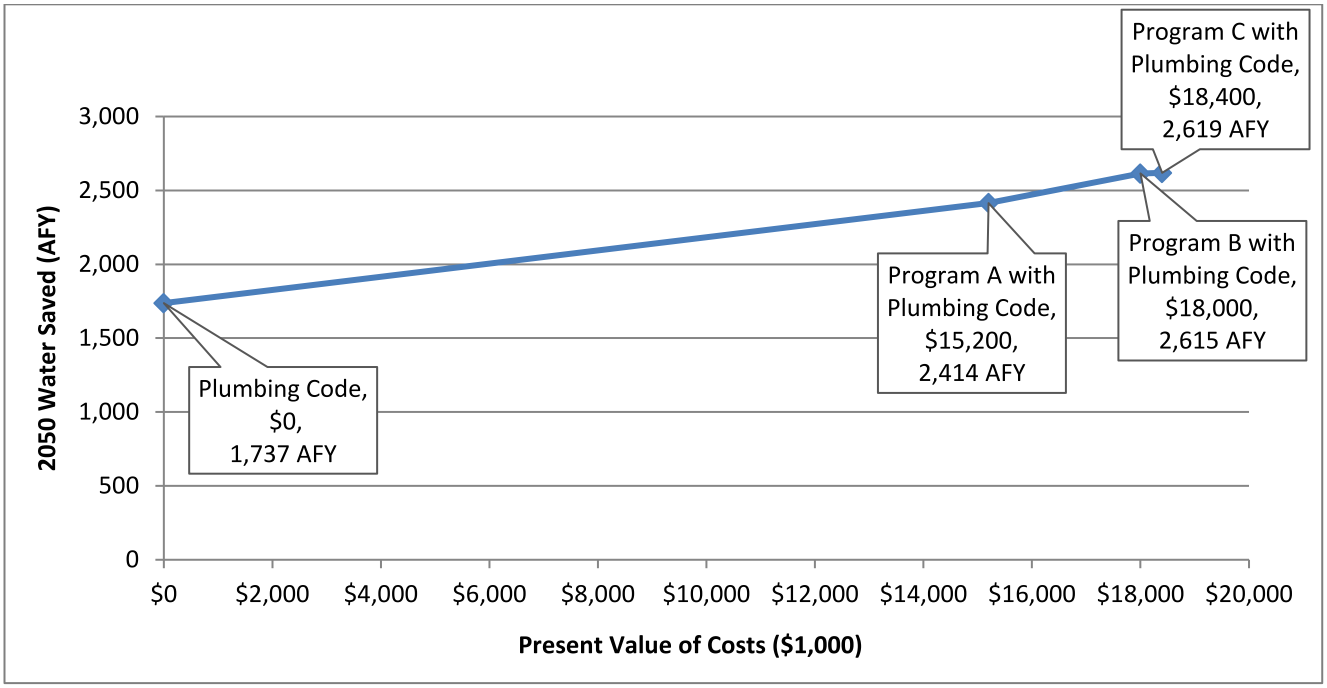
Figure 5-2. City of Santa Barbara Historical and Projected Demand



All line types shown in the legend are presented in the graph. Program B and Program C demand scenarios are close in value and therefore may be somewhat indistinguishable in the figure.

Figure 5-3 illustrates how marginal returns change as more money is spent to achieve water savings in AFY in 2050. A cost-effectiveness curve displays the results of the present value of each program's costs versus the cumulative water savings at the end of the planning period. This curve is helpful in determining how far to push the "conservation envelope" as the point of diminishing economic returns is evident. Note that only a slight increase in savings is achieved when graduating from Program B to Program C.

Figure 5-3. Present Value of Utility Costs Versus Water Saved in 2050



5.2 Selected/Recommended Program

The City has been refining its water use efficiency measures since its first conservation plan was published in 1995. Seeing the need for more up-to-date and expansive measures to meet further water use reductions, the City has elected to implement Program B, which includes 17 of the measures modeled in this planning effort and represents a thoroughly robust program with the highest benefit-cost ratio.

The City selected the Recommended Program (Program B) as the most forward-thinking, comprehensive option. Measures that have been analyzed and are included in the Plan are likely to be implemented and more likely to be deemed eligible for funding and outside partnerships. Program B offers the full range of measures and provides benefits for all categories of City customers.

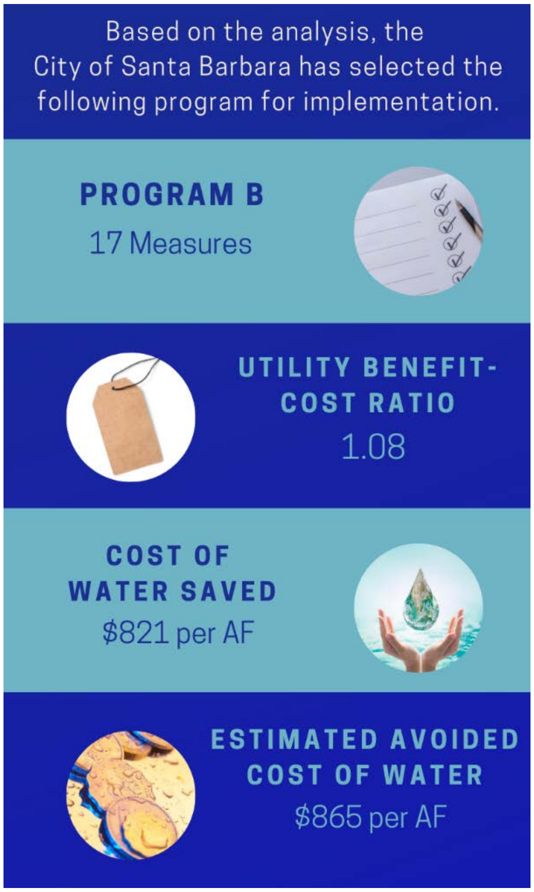
The previous Figure 5-3 shows year 2050 conservation program estimated water savings by implementing Program B, which includes measures required by law and more customer-centric, extended programs in indoor efficiency (rebates for dipper wells, toilets, urinals). In addition, this program includes significant fund matching for high water users to perform institutional retrofits and incentives to install leak detection devices and pressure reduction valves.

6 NEXT STEPS AND CONCLUSIONS

Current conditions have encouraged the City to choose Program B as the Recommended Program for implementation. However, water use is very dynamic and responds to changes in population, economy, weather, efficiency of devices, and types of industry. In the future, as the community evolves and water use patterns and weather change, the City may adjust measure implementation targets and schedules. This may include expanding upon, or scaling back, various program components and measures to increase efficiency, meet benefit-cost ratios, adopt better technology or methods, or meet budget and staffing restrictions. Whether additional measures become necessary would be dependent on several factors, including potential future drought conditions, compliance with the annual aggregate water use objectives as provided by the state, and the City's ability to support new and more innovative programs.

With clearly defined individual conservation measures as well as calculable water saving objectives and customer target goals, the City has quantifiable performance objectives that can be tracked on both an individual conservation measure level and an overall program level.

6.1 Selected Program Estimated Water Savings and Budget



Based on the analysis, the City of Santa Barbara has selected the following program for implementation.

PROGRAM B
17 Measures

UTILITY BENEFIT-COST RATIO
1.08

COST OF WATER SAVED
$821 per AF

ESTIMATED AVOIDED COST OF WATER
$865 per AF

More than 70% of the City's service area water use is associated with residential water use. Consequently, residential conservation programs will produce the most savings. At less than 23% of overall water use, the City's service area does not include extensive commercial activity. Therefore, the conservation potential for the commercial sector is not as high. In conjunction with plumbing codes, the Recommended Program saves 6% of projected demand in 2050. From the utility standpoint, the average cost of water saved for the Recommended Program is $821 per AF, which is less than the avoided cost of water at $865 per AF. Therefore, this program has the potential to reduce per capita water use in a cost-effective manner.

6.2 Implementation

In accordance with the policies of the City's 2011 Long Term Water Supply Plan (LTWSP), ongoing monitoring and reporting of the City's water supply status will be conducted, including annual reports to the City Council and regular five-year updates of the City's Urban Water Management Plan. The next Urban Water Management Plan update is on schedule to be completed in 2021 and will include an update to the LTWSP.

Additionally, progress on the demand management elements of the LTWSP are tracked using the City's Paradise Performance Program (P^3), updates to Water Commission and City Council, and annual BMP reporting to the Bureau of Reclamation.

Future implementation and tracking of demand management measures identified in this plan will be aligned with forthcoming water use targets to be established in accordance with SB 606 and AB 1668.

6.2.1 Tracking and Monitoring

The City will continue to monitor progress and track the level of participation and effectiveness of conservation measures through the following:

CONSERVATION PROGRAM TRACKING & MONITORING

Progress toward conservation program targets will be reviewed annually by analyzing the costs, participation, water savings, and quantity of measurable factors for each conservation measure.

QUANTITY
- Electronic messages
- Radio and television advertisements
- Workshops and presentations
- Fixture replacements
- Rebates issued

COST
- Demonstration garden install and maintenance
- Community workshops
- Public outreach

PARTICIPATION
- Student attendance at City presentations
- Workshop attendance
- Customer satisfaction surveys
- Hits on public information website
- Traffic on City Water Resource's website

WATER SAVINGS
- Water use before and after fixture replacement
- Water use before and after rebate
- Behavior change
- Water use before and after program

- Prepare an annual performance plan in concert with the budget planning process.
- Set up a method to store and manage measure participation, cost, and other data to gauge successes and areas that need improvement.
- Review Plan goals in the DSS Model annually and update measure participation or other elements that are refined through experience.
- Track water use to ensure the Plan is on track to meet water use reduction goals. Use the input from City staff and the annual work planning process as the forum to amend the plan, budget, staffing, contracting, schedule, and so forth to stay on track.

6.3 Next Steps

Next steps in Plan implementation include the following:

- Engage in the state processes to establish the urban water supplier efficiency standards as part of SB 606 and AB 1668. The City will review state documents, submit written comments as needed, and participate in public workshops and stakeholder groups.
- Integrate results of the Plan into the updated LTWSP (currently underway) to inform future water supply policies and strategies. The updated LTWSP is anticipated to be completed in the spring of 2021.
- Review program staff needs and hire staff accordingly to adequately support program needs.
- Prioritize measures for implementation, with the highest priority for implementation given to those that contribute the most to meeting water saving targets and/or can be implemented with relative ease. Key questions to direct action include:
    - What level of support will be required from conservation staff to run the selected measures?
    - What other support is needed (e.g., outsourced support or other sources of funding) or wanted to run these programs?
- Develop implementation plans that describe in detail how to implement each conservation measure.
- Prepare an annual performance metric plan for each Plan year in concert with the budget process.
- Form partnerships and apply for grants where appropriate.
- Continue to collect and analyze measure participation, costs, and other data to gauge successes and areas that need improvement.

6.4 Conclusions

The following is a summary of the water conservation analysis findings:

- Conservation is one of the least expensive means of meeting future water supply needs for the area. The implementation of these conservation measures should reduce per capita water use and has the potential to defer the need for further infrastructure expansion. While the conservation actions identified can have a significant cost, the cost of not participating in conservation and having to address increased demands through engineering solutions may be even higher. Furthermore, with climate change, long-term drought, and environmental restrictions on the delivery of imported water, additional water supplies may not be available to meet future increases in demands without conservation.
- Governor Brown signed SB 606 and AB 1668 into state law to create a more permanent conservation standard as part of implementing the "Making Water Conservation a California Way of Life" legislation. The City should track development of the DWR framework into new state mandates for what is planned for 2021 and beyond and update this Plan as necessary to comply with those new mandates.
- Through the DSS Model analysis, the City identified fixture costs, applicable customer classes, time period of implementation, measure life, administrative costs, end uses, end-use savings per replacement, and a target number or percentage of accounts per program year. This thorough analysis is planned to be used in the 2020 City of Santa Barbara Urban Water Management Plan and additional Santa Barbara planning documents.
- Creating expanded water conservation efforts appears to be a feasible and cost-effective means of:
    - Being more sustainable within existing water supplies;
    - Meeting the water use objectives outlined in SB 606 and AB 1668;
    - Maintaining a program in line with the former CUWCC's Best Management Practices;
    - Measuring, tracking, and reducing non-revenue water losses as outlined in SB 555; and
    - Addressing reduction in water use as previously required by the statewide drought emergency declaration that was recently lifted.
- Based on the analysis, the City has selected to implement Program B, with 17 measures, a utility benefit-cost ratio of 1.08 and a cost of water saved of $821 per AF versus the estimated avoided cost of water at $865 per AF.

7 REFERENCES

All links below were accessed in August 2020 unless otherwise indicated.

Alliance for Water Efficiency. (2016). *The Status of Legislation, Regulation, Codes & Standards on Indoor Plumbing Water Efficiency*. http://www.allianceforwaterefficiency.org/Codes-Standards-White-Paper.aspx

American Water Works Association (AWWA). G480 Standard and AWE Leaderboard web page. https://www.allianceforwaterefficiency.org/resources/topic/g480-standard-and-awe-leaderboard

Ibid. (2016). *M36 Water Audits and Loss Control Programs, 4th Edition*. https://www.awwa.org/Store/Product-Details/productId/56652738

Ibid. (2017). *M52 Water Conservation Programs – A Planning Manual, 2nd Edition*. https://www.awwa.org/Store/Product-Details/productId/61841578

California Department of Water Resources. (2016). Chapter 16A Non-Potable Water Reuse Systems. https://up.codes/viewer/california/ca-plumbing-code-2016/chapter/16A/non-potable-water-reuse-systems#16A

Ibid. (2015). *Model Water Efficient Landscape Ordinance*. https://water.ca.gov/Programs/Water-Use-And-Efficiency/Urban-Water-Use-Efficiency/Model-Water-Efficient-Landscape-Ordinance

California Department of Water Resources, et al. (2017). *Making Water Conservation a California Way of Life, Implementing Executive Order B-37-16*. https://cawaterlibrary.net/wp-content/uploads/2017/06/20170407_EO_B-37-16_Final_Report.pdf

California Energy Commission. (2013). *Analysis of Standards Proposal for Residential Faucets and Faucet Accessories*, Docket #12-AAER-2C, prepared by Energy Solutions and Natural Resources Defense Council. https://efiling.energy.ca.gov/GetDocument.aspx?tn=71768&DocumentContentId=8103

Ibid. (2015). *Appliance Efficiency Regulations, California Code of Regulations, Title 20, Sections 1601-1609, Toilet, Urinal, Faucet, and Showerhead Regulations*.

Ibid. (2014). *Staff Analysis of Toilets, Urinals and Faucets*, Report # CEC-400-2014-007-SD. http://droughtresilience.com/wp-content/uploads/2018/08/CEC-400-2014-007-SD.pdf

California Green (CALGreen) Building Standards 2019 Code, effective January 1, 2020. https://www.dgs.ca.gov/BSC/Resources/Page-Content/Building-Standards-Commission-Resources-List-Folder/CALGreen#@ViewBag.JumpTo

California State Legislature. Assembly Bill 715 (Laird), October 11, 2007. http://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=200720080AB715

Ibid. Assembly Bill 1668 (Friedman), May 31, 2018. http://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201720180AB1668

Ibid. Senate Bill 407 (Padilla), October 11, 2009. https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=200920100SB407

Ibid. Senate Bill 606 (Hertzberg), May 31, 2018. http://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201720180AB606

Ibid. Senate Bill 837 (Blakeslee), July 1, 2011. http://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201120120SB837

City of Santa Barbara. *Water Supply Management Report*, 2018-2019 Water Year. https://www.santabarbaraca.gov/civicax/filebank/blobdload.aspx?blobid=225657

Ibid. Water Supply & Drought Planning web page. https://www.SantaBarbaraCA.gov/Drought

Ibid. Municipal Code, SBMC §14.08.010. http://qcode.us/codes/santabarbara/?view=desktop&topic=14-14_20-14_08_010

Ibid. Municipal Code, SBMC §14.20.007. http://qcode.us/codes/santabarbara/?view=desktop&topic=14-14_20-14_20_007

Ibid. Municipal Code, SBMC §14.20.0226. http://qcode.us/codes/santabarbara/?view=desktop&topic=14-14_20-14_20_226

Ibid. (1989). Ordinance 4558. http://qcode.us/codes/santabarbara/

Ibid. (2014). Ordinance 5653. http://qcode.us/codes/santabarbara/

Ibid. Smart Landscape Rebate web page: www.SantaBarbaraCA.gov/LandscapeRebate

Ibid. Tree Watering web page:
https://www.santabarbaraca.gov/gov/depts/pw/resources/conservation/landscaping/treewatering.asp?utm_source=PublicWork&utm_medium=TreeWatering&utm_content=QuickLinks

Ibid. Water Wise Landscaping web page: https://www.SantaBarbaraCA.gov/Landscaping

Ibid. YouTube Garden Wise TV program entitled "How to Pick the Right Plants [for your climate] with Billy Goodnick." https://www.youtube.com/watch?v=1kgE4LIrido&t=35s

Consortium for Efficient Energy website. www.cee1.org

County of Santa Barbara. Water Wise website. http://www.waterwisesb.org/

DeOreo, W.B. (2016). *Residential End Uses of Water, Version 2 - 4309.* Denver, Colorado: AWWA Research Foundation. https://www.waterrf.org/research/projects/residential-end-uses-water-version-2

DeOreo, W.B., P.W. Mayer, Leslie Martien, Matthew Hayden, Andrew Funk, Michael Kramer-Duffield, Renee Davis, James Henderson, Bob Raucher, Peter Gleick, and Matt Heberger. (2011). *California Single-Family Water Use Efficiency Study*. Sacramento, California: Department of Water Resources.
http://water.cityofdavis.org/Media/PublicWorks/Documents/PDF/PW/Water/Documents/California-Single-Family-Home-Water-Use-Efficiency-Study-20110420.pdf

Dziegielewski, B. (2009). *Residential Water Use in Northeastern Illinois Estimating Water-use Effects of In-fill Growth versus Exurban Expansion.* Prepared for the Chicago Metropolitan Agency for Planning.
https://www.cmap.illinois.gov/documents/10180/14452/NE+IL+Residential+Water+Use.pdf/9a07c0d8-3733-48c3-94f6-abaa5bad1477

Dziegielewski, B., J. C. Kiefer, W. DeOreo, P. Mayer, E. M. Opitz, G. A. Porter, G. L. Lantz, and J. O. Nelson. (2000). *Commercial and Institutional End Uses of Water*. Denver, Colorado: AWWA, Research Foundation and American Water Works Association with Cooperation of the U.S. Bureau of Reclamation. Catalog No.90806. 264 pp. ISBN 1-58321-035-0. http://ufdc.ufl.edu/WC13511002/00001

Employment Development Department (EDD). Employment Projections web page.
https://www.labormarketinfo.edd.ca.gov/data/employment-projections.html

GMP Research, Inc. (2019). 2019 U.S. WaterSense Market Penetration Industry Report, commissioned by Plumbing Manufacturers International.
https://www.safeplumbing.org/files/safeplumbing.org/documents/misc/7-1-19-WaterSense-2019-Report.pdf

Lee, J. (2014). *Residential Water Demand Analysis Due to Meter Installations*, a report submitted to California Water Service Company.
https://www.researchgate.net/publication/269046998_Residential_Water_Demand_Analysis_Due_to_Water_Meter_Installation_in_California

Oak Ridge National Laboratory, Energy Division. (1998). "Bern Clothes Washer Study, Final Report," prepared for U.S. Department of Energy. https://digital.library.unt.edu/ark:/67531/metadc691712/

Plumbing Efficiency Research Coalition. (2012). *The Drainline Transport of Solid Waste in Buildings, PERC Phase 1 Report*, Table 2-A: Water Consumption by Water-Using Plumbing Products and Appliances – 1980-2012. http://www.map-testing.com/assets/files/PERC%20Report_Final_Phase%20One_Nov%202011_v1.1.pdf

Santa Clara Valley Water District Water Use Efficiency Unit. (2008). "SCVWD CII Water Use and Baseline Study." https://www.valleywater.org/sites/default/files/2008%20CII%20Water%20Use%20and%20Baseline%20Study.pdf

State Water Resources Control Board (SWRCB). California Statues web page (defining "Making Conservation a California Way of Life"). https://www.waterboards.ca.gov/water_issues/programs/conservation_portal/california_statutes.html

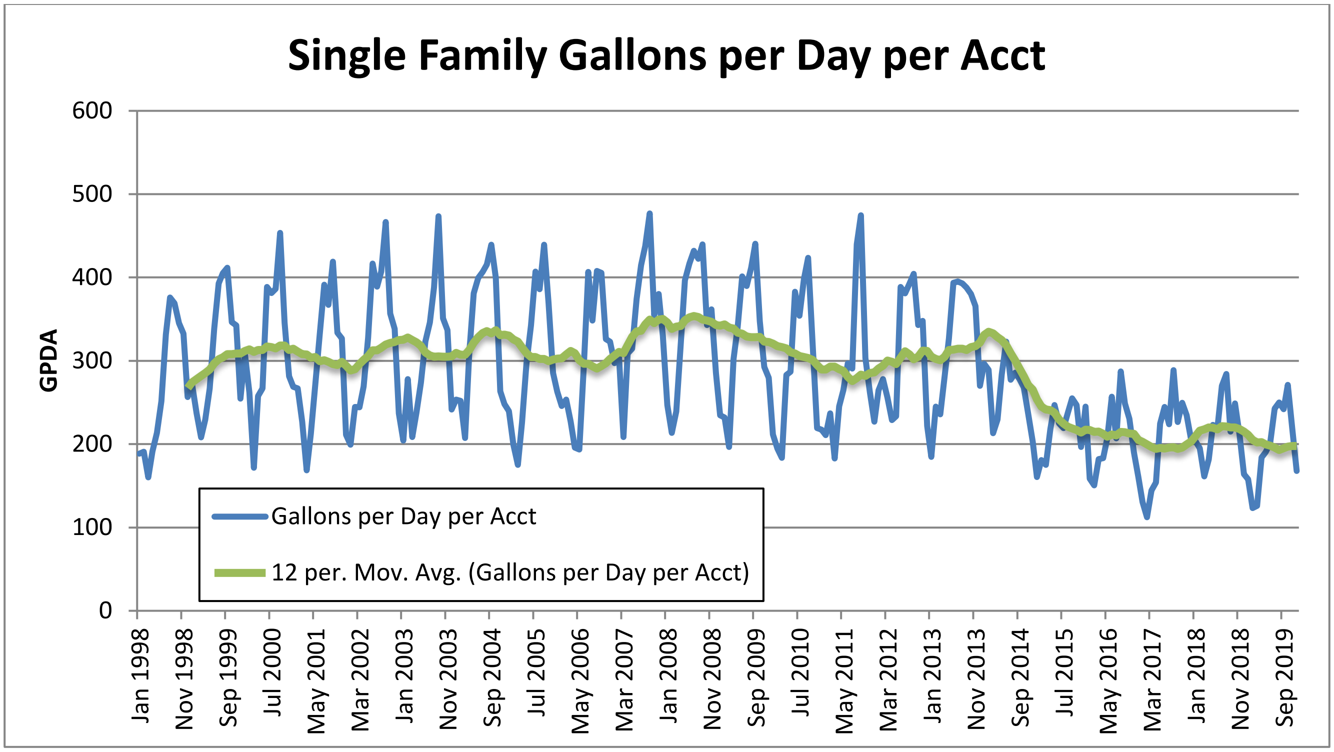
U.S. Census Bureau. American Fact Finder Population Finder web page. https://data.census.gov/cedsci/

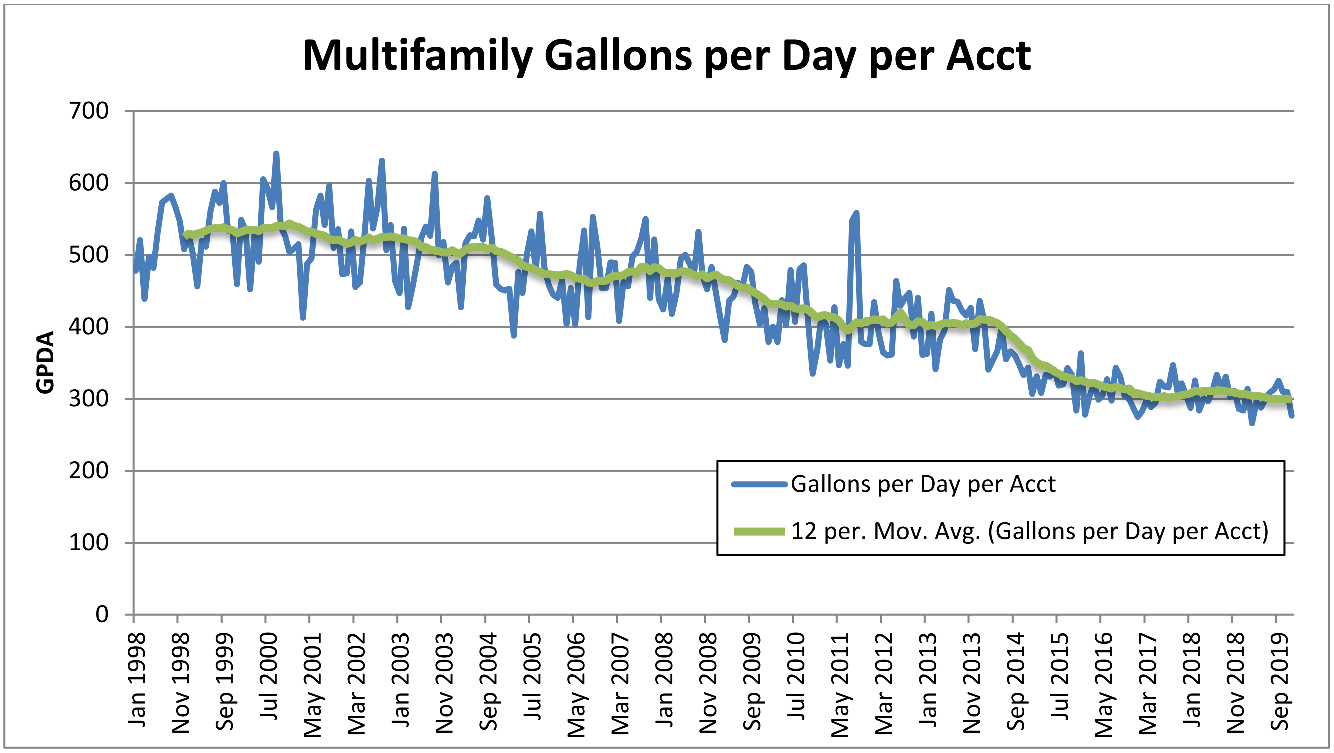
Ibid. Quick Access web page for July 1, 2018. https://www.census.gov/quickfacts/fact/table/santabarbaracitycalifornia/PST045218#PST045218

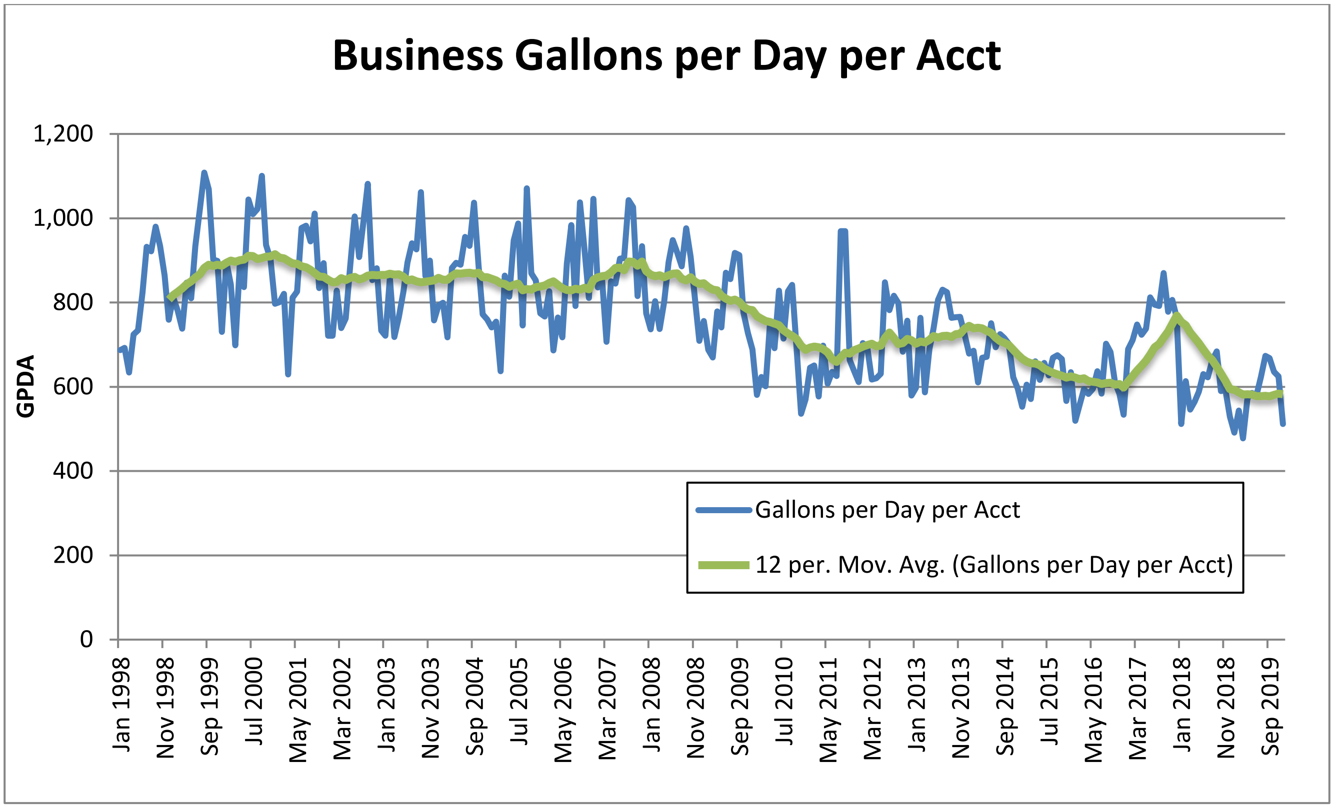
Ibid. 2010 Census Data web page. https://www.census.gov/programs-surveys/decennial-census/data/datasets.2010.html

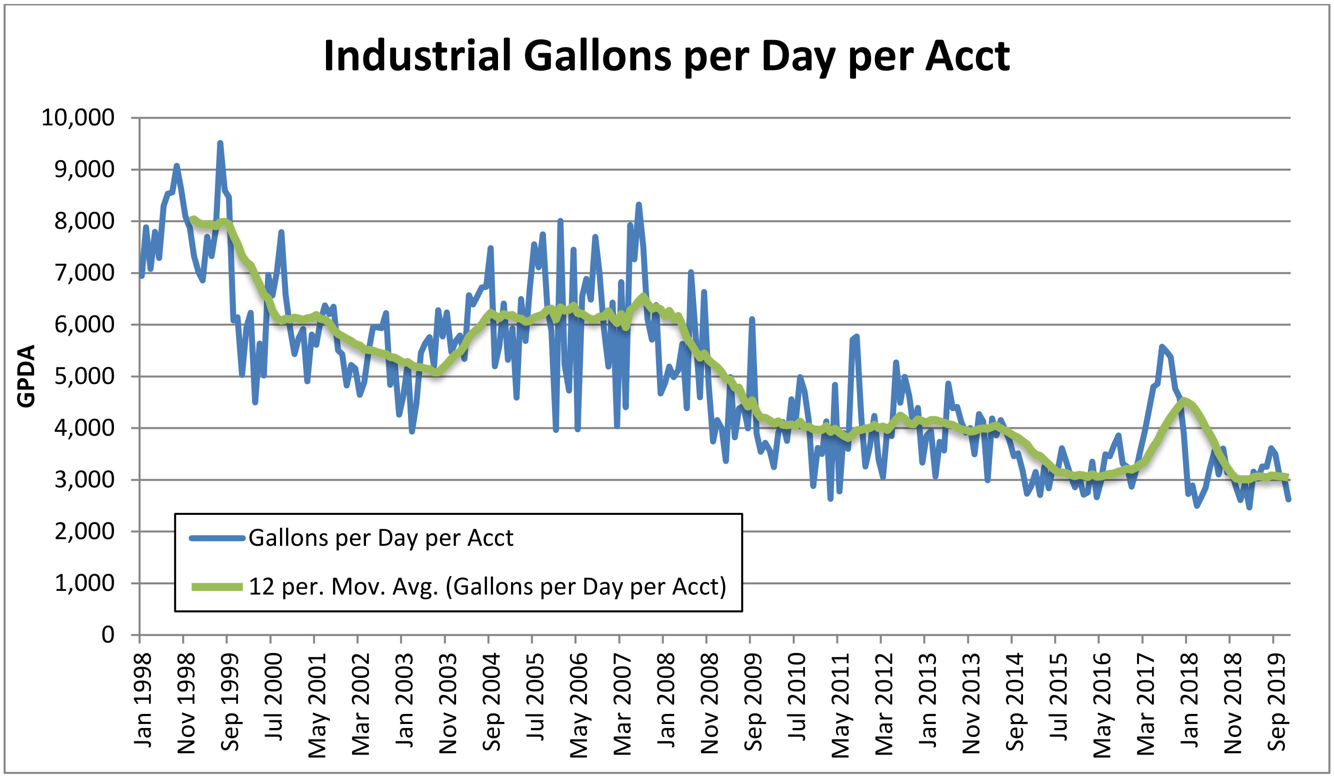
U.S. Congress. Energy Policy Act of 1992; amended in 2005. https://www.congress.gov/bill/102nd-congress/house-bill/776/text/enr; https://www.epa.gov/laws-regulations/summary-energy-policy-act; https://www.gpo.gov/fdsys/pkg/BILLS-109hr6enr/pdf/BILLS-109hr6enr.pdf

APPENDIX A – HISTORICAL MONTHLY WATER USE PER ACCOUNT TYPE






Business Gallons per Day per Acct
GPDA
1,200
1,000
800
600
400
200
0
Jan 1998
Nov 1998
Sep 1999
Jul 2000
May 2001
Mar 2002
Jan 2003
Nov 2003
Sep 2004
Jul 2005
May 2006
Mar 2007
Jan 2008
Nov 2008
Sep 2009
Jul 2010
May 2011
Mar 2012
Jan 2013
Nov 2013
Sep 2014
Jul 2015
May 2016
Mar 2017
Jan 2018
Nov 2018
Sep 2019
Gallons per Day per Acct
12 per. Mov. Avg. (Gallons per Day per Acct)


Industrial Gallons per Day per Acct
GPDA
10,000
9,000
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
Jan 1998
Nov 1998
Sep 1999
Jul 2000
May 2001
Mar 2002
Jan 2003
Nov 2003
Sep 2004
Jul 2005
May 2006
Mar 2007
Jan 2008
Nov 2008
Sep 2009
Jul 2010
May 2011
Mar 2012
Jan 2013
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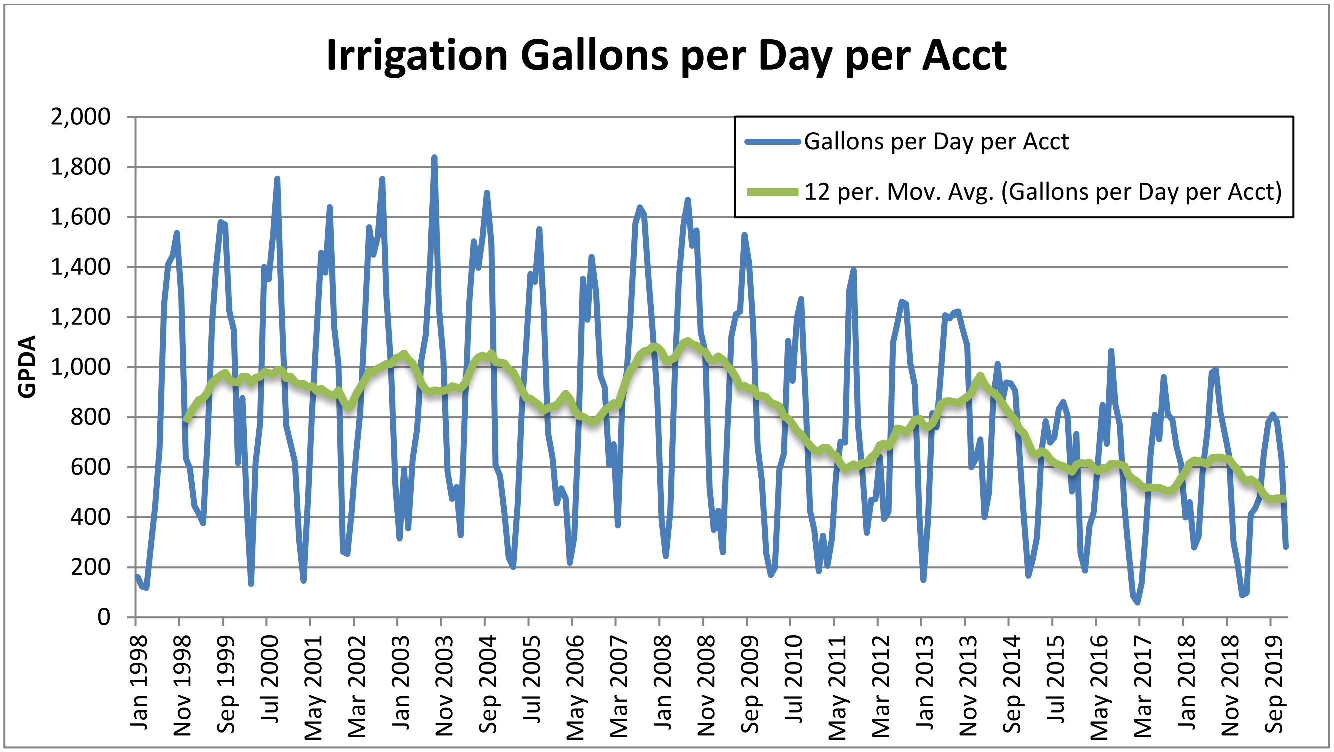
Sep 2019
Gallons per Day per Acct
12 per. Mov. Avg. (Gallons per Day per Acct)


Irrigation Gallons per Day per Acct
GPDA
2,000
1,800
1,600
1,400
1,200
1,000
800
600
400
200
0
Gallons per Day per Acct
12 per. Mov. Avg. (Gallons per Day per Acct)
Jan 1998
Nov 1998
Sep 1999
Jul 2000
May 2001
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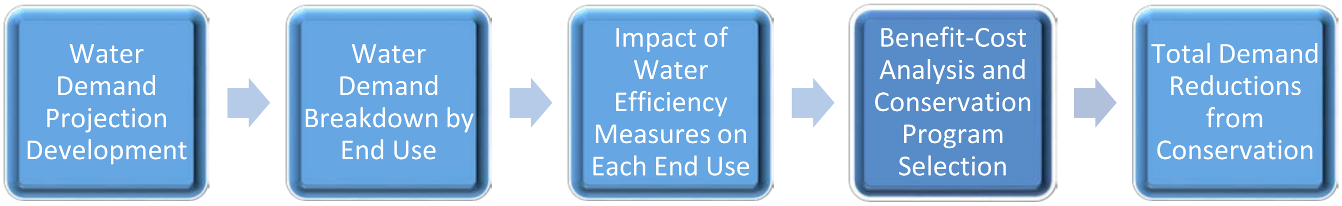
APPENDIX B – DSS MODEL OVERVIEW



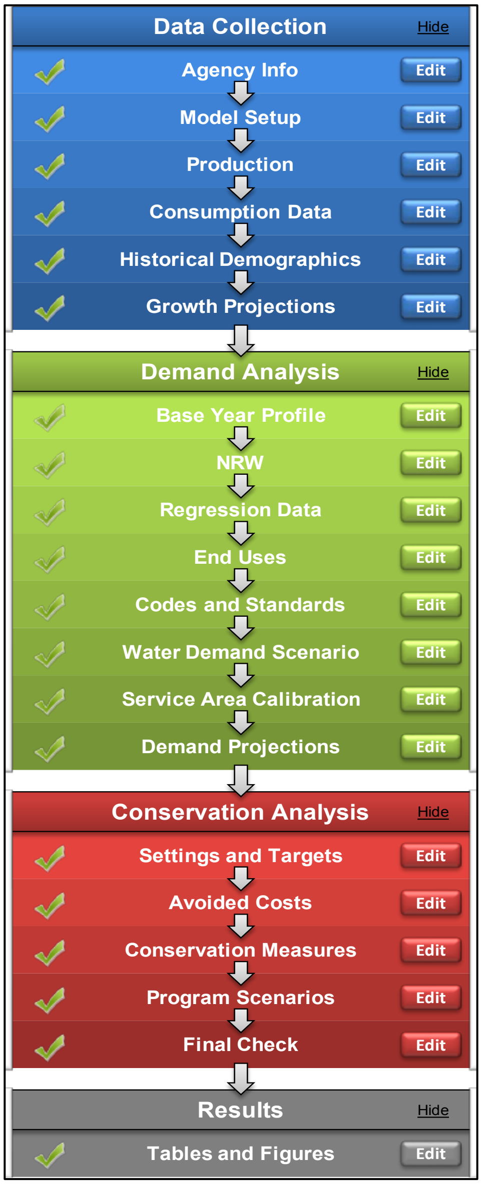


Figure B-1. DSS Model Main Page

DSS Model Overview: The Least Cost Planning Decision Support System Model (DSS Model) is used to prepare long-range, detailed demand projections. The purpose of the extra detail is to enable a more accurate assessment of the impact of water efficiency programs on demand and to provide a rigorous and defensible modeling approach necessary for projects subject to regulatory or environmental review.

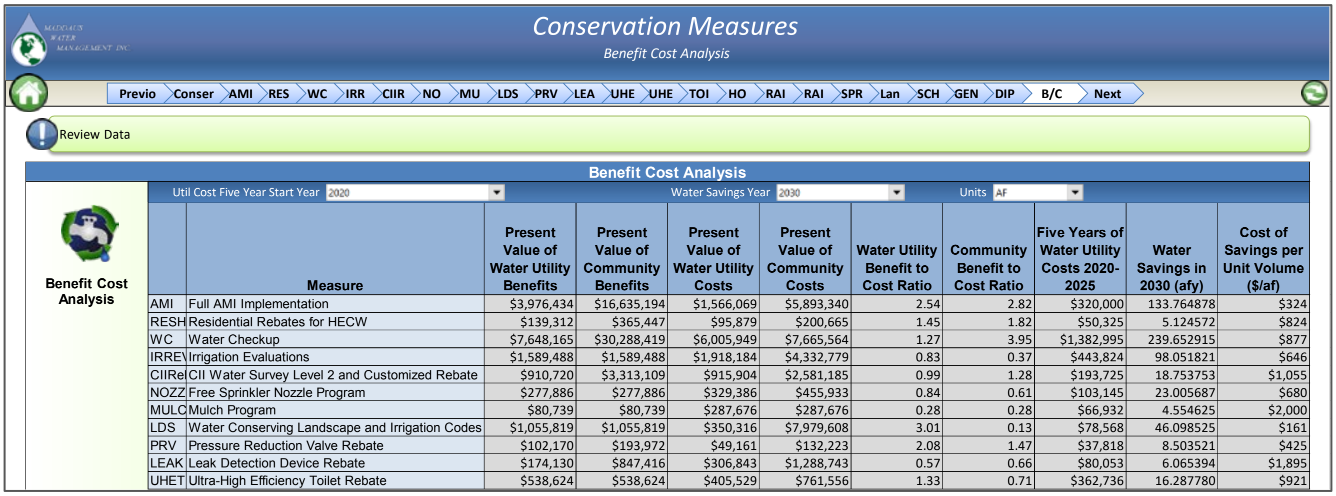
Originally developed in 1999 and continuously updated, the DSS Model is an “end-use” model that breaks down total water production (water demand in the service area) to specific water end uses, such as plumbing fixtures and appliances. The model uses a bottom-up approach that allows for multiple criteria to be considered when estimating future demands, such as the effects of natural fixture replacement, plumbing codes, and conservation efforts. The DSS Model may also use a top-down approach with a utility-prepared water demand forecast.

Demand Forecast Development and Model Calibration: To forecast urban water demands using the DSS Model, customer demand data is obtained from the water agency being modeled. Demand data is reconciled with available demographic data to characterize water usage for each customer category in terms of number of users per account and per capita water use. Data is further analyzed to approximate the split of indoor and outdoor water usage in each customer category. The indoor/outdoor water usage is further divided into typical end uses for each customer category. Published data on average per capita indoor water use and average per capita end use is combined with the number of water users to calibrate the volume of water allocated to specific end uses in each customer category. In other words, the DSS Model checks that social norms from end studies on water use behavior (e.g., flushes per person per day) are not exceeded or drop below reasonable use limits.

Passive Water Savings Calculations: The DSS Model is used to forecast service area water fixture use. Specific end-use type, average water use, and lifetime are compiled for each fixture. Additionally, state and national plumbing codes and appliance standards are modeled by customer category. These fixtures and plumbing codes can be added to, edited, or deleted by the user. This process yields two demand forecasts, one with plumbing codes and one without plumbing codes.

Active Conservation Measure Analysis Using Benefit-Cost Analysis: The DSS Model evaluates active conservation measures using benefit-cost analysis with the present value of the cost of water saved ($/Million Gallons or $/Acre-Feet). Benefits are based on savings in water and wastewater facility operations and maintenance (O&M) and any deferred capital expenditures. The figures on the previous page illustrate the processes for forecasting conservation water savings, including the impacts of fixture replacement due to existing plumbing codes and standards.

Figure B-2. Sample Benefit-Cost Analysis Summary



Conservation Measures

Benefit Cost Analysis

Benefit Cost Analysis

Benefit Cost Analysis

Util Cost Five Year Start Year 2020

Water Savings Year 2030

Units AF

	Measure	Present Value of Water Utility Benefits	Present Value of Community Benefits	Present Value of Water Utility Costs	Present Value of Community Costs	Water Utility Benefit to Cost Ratio	Community Benefit to Cost Ratio	Five Years of Water Utility Costs 2020-2025	Water Savings in 2030 (afy)	Cost of Savings per Unit Volume ($/af)
AMI	Full AMI Implementation	$3,976,434	$16,635,194	$1,566,069	$5,893,340	2.54	2.82	$320,000	133.764878	$324
RESH	Residential Rebates for HECW	$139,312	$365,447	$95,879	$200,665	1.45	1.82	$50,325	5.124572	$824
WC	Water Checkup	$7,648,165	$30,288,419	$6,005,949	$7,665,564	1.27	3.95	$1,382,995	239.652915	$877
IRREV	Irrigation Evaluations	$1,589,488	$1,589,488	$1,918,184	$4,332,779	0.83	0.37	$443,824	98.051821	$646
CIIRe	CII Water Survey Level 2 and Customized Rebate	$910,720	$3,313,109	$915,904	$2,581,185	0.99	1.28	$193,725	18.753753	$1,055
NOZZ	Free Sprinkler Nozzle Program	$277,886	$277,886	$329,386	$455,933	0.84	0.61	$103,145	23.005687	$680
MULC	Mulch Program	$80,739	$80,739	$287,676	$287,676	0.28	0.28	$66,932	4.554625	$2,000
LDS	Water Conserving Landscape and Irrigation Codes	$1,055,819	$1,055,819	$350,316	$7,979,608	3.01	0.13	$78,568	46.098525	$161
PRV	Pressure Reduction Valve Rebate	$102,170	$193,972	$49,161	$132,223	2.08	1.47	$37,818	8.503521	$425
LEAK	Leak Detection Device Rebate	$174,130	$847,416	$306,843	$1,288,743	0.57	0.66	$80,053	6.065394	$1,895
UHET	Ultra-High Efficiency Toilet Rebate	$538,624	$538,624	$405,529	$761,556	1.33	0.71	$362,736	16.287780	$921

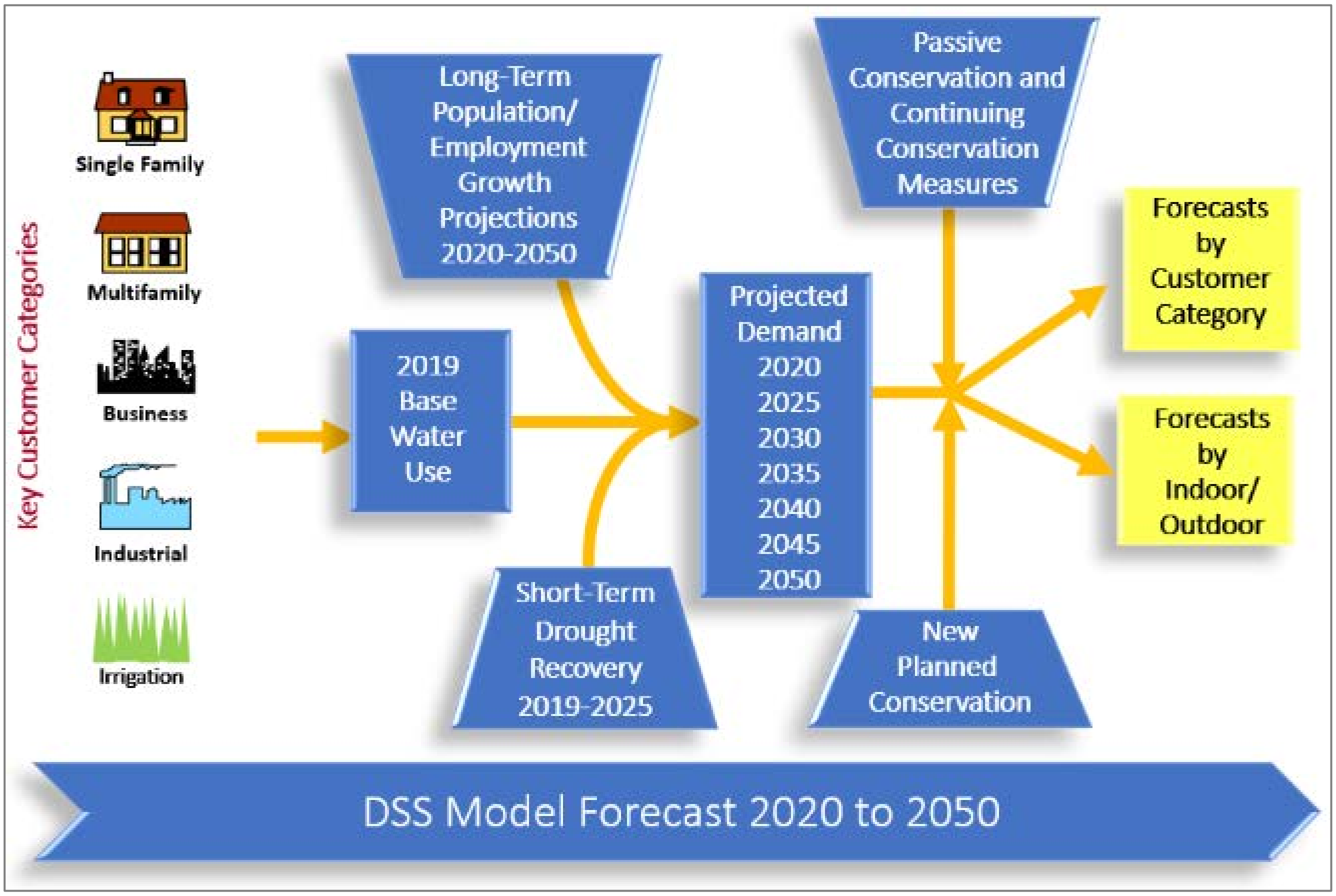
Model Use and Validation: The DSS Model has been used for over 20 years for practical applications of conservation planning in over 300 service areas representing 60 million people, including extensive efforts nationally and internationally in Australia, New Zealand, and Canada.

Figure B-3. DSS Model Analysis Locations in the U.S.

The California Water Efficiency Partnership, or CalWEP (formerly the CUWCC), has peer reviewed and endorsed the model since 2006. It is offered to all CalWEP members for use to estimate water demand, plumbing code, and conservation program savings.

The DSS Model can use one of the following: 1) a statistical approach to forecast demands (e.g., an econometric model); 2) a forecasted increase in population and employment; 3) predicted future demands; or 4) a demand projection entered into the model from an outside source. For the City, baseline demand was developed based on an increase in residential population. The following figure presents the flow of information in the DSS Model Analysis.

Figure B-4. DSS Model Analysis Flow



APPENDIX C – PROJECTED WATER DEMANDS WITH AND WITHOUT PLUMBING CODE SAVINGS

This section presents baseline water demands with and without the plumbing code; details regarding the national and state plumbing codes; and key inputs and assumptions used in the DSS Model, which is used to prepare long-range, detailed demand projections. This rigorous modeling approach is especially important if the project will be subject to regulatory or environmental review.

C.1 Projected Baseline Demand

The assumptions having the most dramatic effect on future demands are: 1) the natural replacement rate of fixtures; 2) how residential or commercial future use is projected; and 3) the percent of estimated real water losses. As described in the previous section, baseline customer category water use was determined using 2018–2019 post-drought historical monthly water use. After several demand scenarios were explored, it was determined by City staff that the projected baseline water demand would assume a multi-year drought recovery to bring the 2026 water use to 10% less than the average of 2008–2013 levels. As part of the development of the Enhanced Urban Management Plan, the City reviewed a total of 11 different scenarios. The scenarios included higher and lower population and employment growth rates, drought recovery, and climate change. As a result of the modeling process, it was determined that the effect of drought recovery will likely be the largest impact to water demands in the coming years.

C.2 Estimated Plumbing Code Savings

The DSS Model forecasts service area water fixture use. In the codes and standards part of the DSS Model, specific fixture end-use type (point of use fixture or appliance), average water use, and lifetime are compiled. Additionally, state and national plumbing codes and appliance standards for toilets, urinals, showers, and clothes washers are modeled by customer category. This approach yields two distinct demand forecasts related to plumbing code savings: 1) with plumbing codes and 2) without plumbing codes. Plumbing code measures are independent of any conservation program and are based on customers following applicable local, state and federal laws, building codes, and ordinances.

Plumbing code-related water savings are considered “passive” and reliable long-term savings and can be depended upon over time to help reduce overall system water demand. In contrast, water savings are considered “active” if a specific action unrelated to the implementation of codes and standards is taken by the water agency to accomplish conservation measure savings (e.g., offering turf replacement rebates). The DSS Model incorporates the following items as a “code,” meaning that the savings are assumed to occur and therefore are “passive” savings:

- The Federal Energy Policy Act of 1992 (amended in 2005)
- California Code of Regulations Title 20 California State Law (Assembly Bill 715)
- California State Law Senate Bill 407
- 2015 California Code of Regulations Title 20 Appliance Efficiency Regulations
- 2019 CALGreen Code (effective January 1, 2020)

The following figure conceptually describes how plumbing codes using “fixture models” are incorporated into the flow of information in the DSS Model.[13] The demand projections, including plumbing code savings, further assumes no active involvement by the water utility, and that the costs of purchasing and installing replacement equipment (and new equipment in new construction) are borne solely by the customers, occurring at no direct

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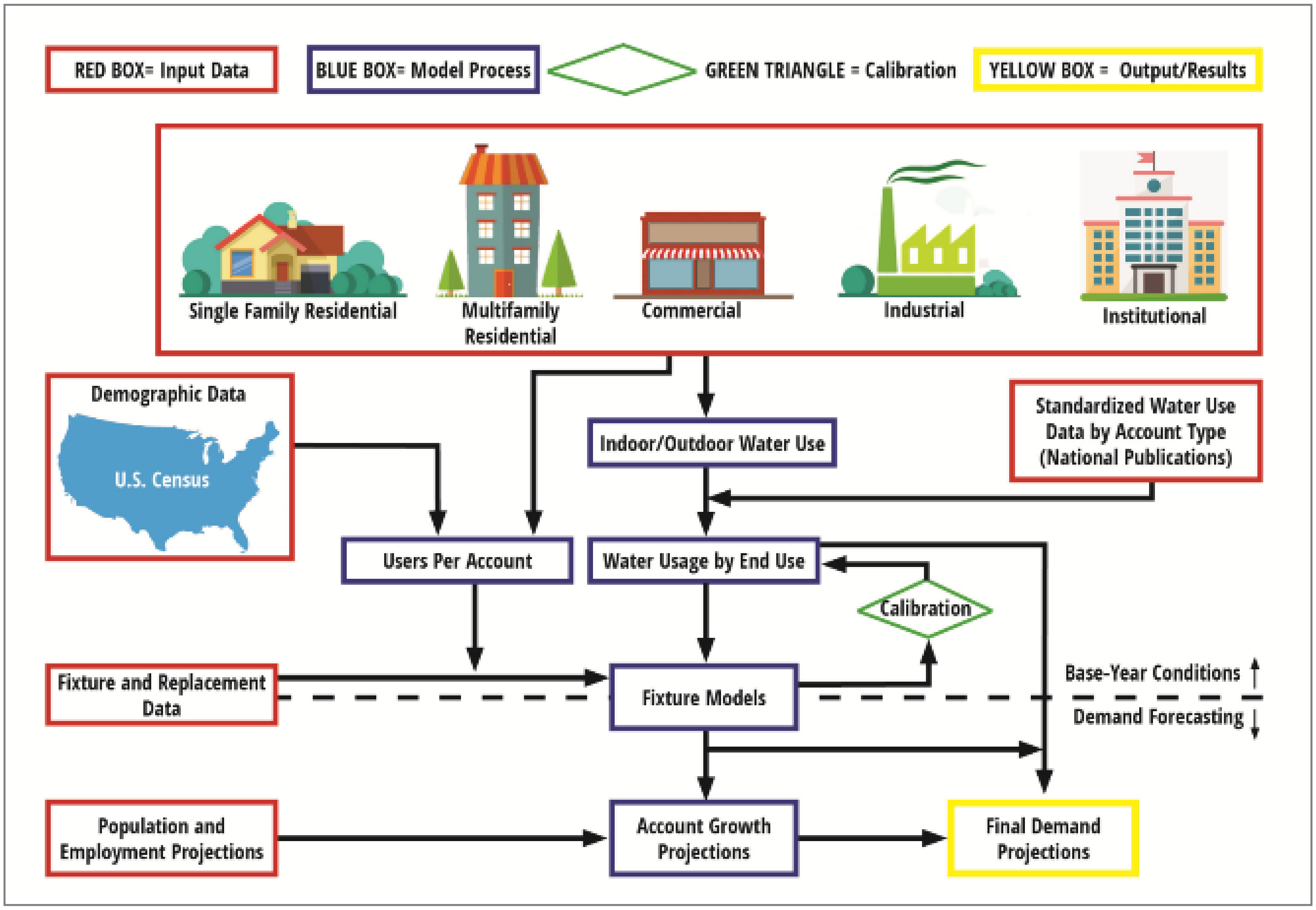
[13] Fixture models are used in the DSS Model to track individual plumbing devices and their water savings as they change and become more efficient over time.

utility expense. The inverse of the fixture life is the natural replacement rate expressed as a percent (i.e., 10 years is a rate of 10% per year).

Figure C-1. DSS Model Overview Used to Make Potable Water Demand Projections



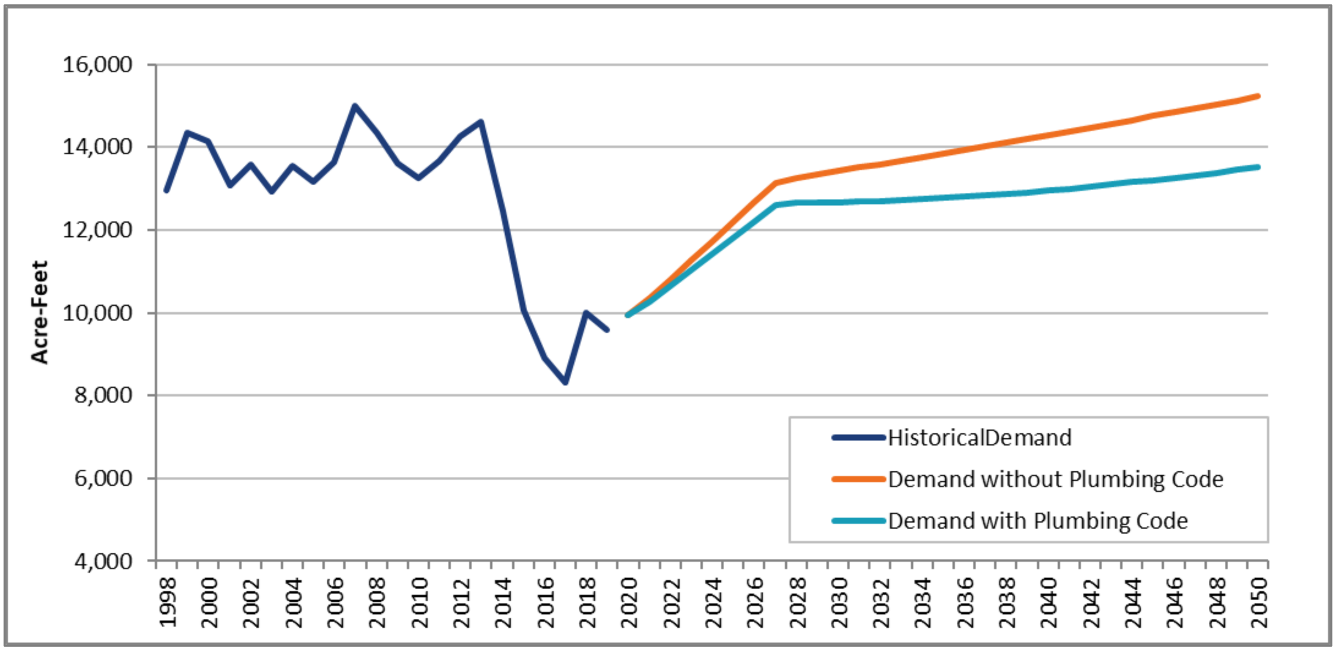
The DSS Model makes water demand projections using a multi-level process.

Table C-1 shows the water system demands for the City in acre-feet in 5-year increments over the 31-year modeling period (years 2020-2050). Figure C-2 illustrates demands in graphical format. Both the table and the figure include historical (baseline) demand as well as demand with and without plumbing code.

Table C-1. City of Santa Barbara Potable Water System Demands in AFY for Years 2020-2050

	2020	2025	2030	2035	2040	2045	2050
Baseline Demands	9,947	12,187	13,425	13,822	14,236	14,668	15,119
Plumbing Code Savings	-	387	760	1,093	1,352	1,561	1,737
Demands with Plumbing Code Savings	9,947	11,799	12,665	12,729	12,885	13,107	13,382

Figure C-2. City of Santa Barbara Potable Water System Demands



C.3 National Plumbing Code

The Federal Energy Policy Act of 1992, as amended in 2005, mandates that only fixtures meeting the following standards can be installed in new buildings:

- Toilet – 1.6 gal/flush maximum
- Urinals – 1.0 gal/flush maximum
- Showerhead – 2.5 gal/min at 80 pounds per square inch (psi)
- Residential faucets – 2.2 gal/min at 60 psi
- Public restroom faucets – 0.5 gal/min at 60 psi
- Dishwashing pre-rinse spray valves – 1.6 gal/min at 60 psi

Replacement of fixtures in existing buildings is also governed by the Federal Energy Policy Act, which mandates that only devices with the specified level of efficiency (as shown above) can be sold as of 2006. The net result of the plumbing code is that new buildings will have more efficient fixtures and old inefficient fixtures will slowly be replaced with new, more efficient models. The national plumbing code is an important piece of legislation and must be carefully taken into consideration when analyzing the overall water efficiency of a service area.

In addition to the plumbing code, the U.S. Department of Energy regulates appliances, such as residential clothes washers, further reducing indoor water demands. Regulations to make these appliances more energy efficient have driven manufactures to dramatically reduce the amount of water these machines use. Generally, front-loading washing machines use 30-50% less water than conventional models (which are still available).

In this analysis, the DSS Model forecasts a gradual transition to high efficiency clothes washers (using 12 gallons or less) so that by the year 2025 that will be the only type of machine available for purchase. In addition to the industry becoming more efficient, rebate programs for washers have been successful in encouraging customers to buy more water efficient models. Given that machines last about 10 years, eventually all machines on the market will be the more water efficient models. Energy Star washing machines have a water factor of 6.0 or less – the equivalent of using 3.1 cubic feet (or 23.2 gallons) of water per load. The maximum water factor for residential clothes washers under current federal standards is 9.5. The water factor equals the number of gallons used per cycle per cubic foot of capacity. Prior to the year 2000, the water factor for a typical new residential clothes washer was about 12. In March 2015, the federal standard reduced the maximum water factor for top- and front-loading machines to 8.4 and 4.7, respectively. In 2018, the maximum water factor for top-loading machines was further reduced to 6.5. For commercial washers, the maximum water factors were reduced in 2010 to 8.5 and 5.5 for top- and front-loading machines, respectively. Beginning in 2015, the maximum water factor for Energy Star certified washers was 3.7 for front-loading and 4.3 for top-loading machines. In 2011, the U.S. Environmental Protection Agency estimated that Energy Star washers comprised more that 60% of the residential market and 30% of the commercial market (Energy Star, 2011). A new Energy Star compliant washer uses about two-thirds less water per cycle than washers manufactured in the 1990s.

C.4 State Plumbing Code

This section describes California state codes applicable to the City’s water use.

C.4.1 California State Law – AB 715

Plumbing codes for toilets, urinals, showerheads, and faucets were initially adopted by California in 1991, mandating the sale and use of ultra-low flush toilets (ULFTs) using 1.6 gpf, urinals using 1 gpf, and low-flow showerheads and faucets. AB 715 led to an update to California Code of Regulations Title 20 mandating that all toilets and urinals sold and installed in California as of January 1, 2014 must be high efficiency versions having flush ratings that do not exceed 1.28 gpf (toilets) and 0.5 gpf (urinals).

C.4.2 California State Laws – SB 407 and SB 837

SB 407 addresses plumbing fixture retrofits on resale or remodel. The DSS Model carefully considers the overlap with SB 407, the plumbing code (natural replacement), CALGreen, AB 715 and rebate programs (such as toilet rebates). SB 407 (enacted in 2009) requires that properties built prior to 1994 be fully retrofitted with water conserving fixtures by the year 2017 for single family residential houses and 2019 for multifamily and commercial properties. SB 407 program length is variable and continues until all the older high flush toilets have been replaced in the service area. The number of accounts with high flow fixtures is tracked to make sure that the situation of replacing more high flow fixtures than actually exist does not occur. Additionally, SB 407 conditions issuance of building permits for major improvements and renovations upon retrofit of non-compliant plumbing fixtures. SB 837 (enacted in 2011) requires that sellers of real estate property disclose on their Real Estate Transfer Disclosure Statement whether their property complies with these requirements. Both laws are intended to accelerate the replacement of older, low efficiency plumbing fixtures, and ensure that only high efficiency fixtures are installed in new residential and commercial buildings.

C.4.3 2019 CALGreen and 2015 CA Code of Regulations Title 20 Appliance Efficiency Regulations

Fixture characteristics in the DSS Model are tracked in new accounts, which are subject to the requirements of the 2019 California Green Building Code and 2015 California Code of Regulations Title 20 Appliance Efficiency Regulations adopted by the California Energy Commission (CEC) on September 1, 2015. The CEC 2015 appliance efficiency standards apply to the following new appliances, if they are sold in California: showerheads, lavatory faucets, kitchen faucets, metering faucets, replacement aerators, wash fountains, tub spout diverters, public lavatory faucets, commercial pre-rinse spray valves, urinals, and toilets. The DSS Model accounts for plumbing code savings due to the effects these standards have on showerheads, faucet aerators, urinals, toilets, and clothes washers.

- Showerheads – July 2016: 2.0 gpm; July 2018: 1.8 gpm
- Wall Mounted Urinals – January 2016: 0.125 gpf (pint)
- Lavatory Faucets and Aerator – July 2016: 1.2 gpm at 60 psi
- Kitchen Faucets and Aerator – July 2016: 1.8 gpm with optional temporary flow of 2.2 gpm at 60 psi
- Public Lavatory Faucets – July 2016: 0.5 gpm at 60 psi

In summary, the controlling law for **toilets** is Assembly Bill 715, requiring high efficiency toilets of 1.28 gpf sold in California beginning in 2014. The controlling law for wall-mounted urinals is the 2015 CEC efficiency regulations requiring that ultra-high efficiency pint **urinals** (0.125 gpf) be exclusively sold in California beginning January 1, 2016. This is an efficiency progression for urinals from AB 715's requirement of high efficiency (0.5 gpf) urinals starting in 2014.

Standards for **residential clothes washers** fall under the regulations of the U.S. Department of Energy. In 2018, the maximum water factor for standard top-loading machines was reduced to 6.5.

Showerhead flow rates are regulated under the 2015 California Code of Regulations Title 20 Appliance Efficiency Regulations adopted by the CEC, which requires the exclusive sale in California of 2.0 gpm showerheads at 80 psi as of July 1, 2016 and 1.8 gpm showerheads at 80 psi as of July 1, 2018. The WaterSense specification applies to showerheads that have a maximum flow rate of 2.0 gpm or less. This represents a 20% reduction in showerhead flow rate over the current federal standard of 2.5 gpm, as specified by the Energy Policy Act of 1992.

Faucet flow rates likewise have been regulated by the 2015 CEC Title 20 regulations. This standard requires that the residential faucets and aerators manufactured on or after July 1, 2016 be exclusively sold in California at 1.2 gpm at 60 psi; and public lavatory and kitchen faucets/aerators sold or offered for sale on or after July 1, 2016 be 0.5 gpm at 60 psi and 1.8 gpm at 60 psi (with optional temporary flow of 2.2 gpm), respectively. Previously, all faucets had been regulated by the 2010 California Green Building Code at 2.2 gpm at 60 psi.

C.5 Key Baseline Potable Demand Inputs, Passive Savings Assumptions, and Resources

The following table presents the key assumptions and references that are used in the DSS Model in determining projected demands with plumbing code savings.

Table C-2. List of Key Assumptions

<table>
<tr><th>Parameter</th><th colspan="5">Model Input Value, Assumptions, and Key References</th></tr>
<tr><td>Model Start Year for Analysis</td><td colspan="5">2020</td></tr>
<tr><td>Water Demand Factor Year (Base Year)</td><td colspan="5">2018-2019</td></tr>
<tr><td>Population Projection Source</td><td colspan="5">2015 UWMP</td></tr>
<tr><td>Employment Projection Source</td><td colspan="5">Employment Development Department, Labor Market Information Division, published 2019.</td></tr>
<tr><td>Avoided Cost of Water</td><td colspan="5">* $865/AF average water production cost.
Water production cost based on 2019 generated drought supplies and cost including the following supply sources: Cachuma, Gibraltar/Mission Tunnel, Cachuma Carryover/MWD, Groundwater, State Water, Banked Water/ Water Purchases, Existing Desalination, Expanded Desalination.
* $1,017/AF average wastewater cost based on FY 2017 costs provided by Todd Heldoorn, WW Treatment Superintendent.</td></tr>
<tr><td colspan="6">Potable Water System Base Year Water Use Profile</td></tr>
<tr><td>Customer Categories</td><td>Start Year Accounts</td><td>Total Water Use Distribution</td><td>Demand Factors (gpd/acct)</td><td>Indoor Use %</td><td>2020 Residential Indoor Water Use (GPCD)</td></tr>
<tr><td>Single Family</td><td>16,925</td><td>45%</td><td>212</td><td>67%</td><td>55</td></tr>
<tr><td>Multifamily</td><td>7,099</td><td>27%</td><td>309</td><td>92%</td><td>39</td></tr>
<tr><td>Business</td><td>2,694</td><td>20%</td><td>603</td><td>86%</td><td>N/A</td></tr>
<tr><td>Industrial</td><td>54</td><td>2%</td><td>3,140</td><td>93%</td><td>N/A</td></tr>
<tr><td>Irrigation</td><td>855</td><td>6%</td><td>553</td><td>0%</td><td>N/A</td></tr>
<tr><td>Total/Avg</td><td>27,627</td><td>100%</td><td>N/A</td><td>74%</td><td>N/A</td></tr>
</table>

Table C-3. Key Assumptions Resources

Parameter	Resource
Residential End Uses	Key Reference: CA DWR Report "California Single Family Water Use Efficiency Study," (DeOreo, 2011 – Page 28, Figure 3: Comparison of household end-uses) and AWWA Research Foundation (AWWARF) Report "Residential End Uses of Water, Version 2 - 4309" (DeOreo, 2016). Table 2-A. Water Consumption by Water-Using Plumbing Products and Appliances - 1980-2012. PERC Phase 1 Report. Plumbing Efficiency Research Coalition. 2013. http://www.map-testing.com/content/info/menu/perc.html Model Input Values are found in the "End Uses" section of the DSS Model on the "Breakdown" worksheet.
Non-Residential End Uses, percent	Key Reference: AWWARF Report "Commercial and Institutional End Uses of Water" (Dziegielewski, 2000 – Appendix D: Details of Commercial and Industrial Assumptions, by End Use). Santa Clara Valley Water District Water Use Efficiency Unit. "SCVWD CII Water Use and Baseline Study." February 2008. Model Input Values are found in the "End Uses" section of the DSS Model on the "Breakdown" worksheet.
Efficiency Residential Fixture Current Installation Rates	U.S. Census, Housing age by type of dwelling plus natural replacement plus rebate program (if any). Key Reference: GMP Research, Inc. (2019). 2019 U.S. WaterSense Market Penetration Industry Report. Key Reference: Consortium for Efficient Energy (www.cee1.org). Model Input Values are found in the "Codes and Standards" green section of the DSS Model by customer category fixtures.
Water Savings for Fixtures, gal/capita/day	Key Reference: AWWARF Report "Residential End Uses of Water, Version 2 - 4309" (DeOreo, 2016). Key Reference: CA DWR Report "California Single Family Water Use Efficiency Study" (DeOreo, 2011 – Page 28, Figure 3: Comparison of household end-uses). WCWCD supplied data on costs and savings; professional judgment was made where no published data was available. Key Reference: California Energy Commission, Staff Analysis of Toilets, Urinals and Faucets, Report # CEC-400-2014-007-SD, 2014. Model Input Values are found in the "Codes and Standards" green section on the "Fixtures" worksheet of the DSS Model.
Non-Residential Fixture Efficiency Current Installation Rates	Key Reference: 2010 U.S. Census, Housing age by type of dwelling plus natural replacement plus rebate program (if any). Assume commercial establishments built at same rate as housing, plus natural replacement. California Energy Commission, Staff Analysis of Toilets, Urinals and Faucets, Report # CEC-400-2014-007-SD, 2014. Santa Clara Valley Water District Water Use Efficiency Unit. "SCVWD CII Water Use and Baseline Study." February 2008. Model Input Values are found in the "Codes and Standards" green section of the DSS Model by customer category fixtures.

Residential Frequency of Use Data, Toilets, Showers, Faucets, Washers, Uses/user/day	Key Reference: AWWARF Report "Residential End Uses of Water, Version 2 - 4309" (DeOreo, 2016). Summary values can be found in the full report: http://www.waterrf.org/Pages/Projects.aspx?PID=4309 Key Reference: California Energy Commission, Staff Analysis of Toilets, Urinals and Faucets, Report # CEC-400-2014-007-SD, 2014. Key Reference: Alliance for Water Efficiency, The Status of Legislation, Regulation, Codes & Standards on Indoor Plumbing Water Efficiency, January 2016. Model Input Values are found in the "Codes and Standards" green section on the "Fixtures" worksheet of the DSS Model and confirmed in each "Service Area Calibration End Use" worksheet by customer category.
Non-Residential Frequency of Use Data, Toilets, Urinals, and Faucets, Uses/user/day	Key References: Estimated based on AWWARF Report "Commercial and Institutional End Uses of Water" (Dziegielewski, 2000 – Appendix D: Details of Commercial and Industrial Assumptions, by End Use). Key Reference: California Energy Commission, Staff Analysis of Toilets, Urinals and Faucets, Report # CEC-400-2014-007-SD, 2014. Fixture uses over a 5-day work week are prorated to 7 days. Non-residential 0.5gpm faucet standards per Table 2-A. Water Consumption by Water-Using Plumbing Products and Appliances - 1980-2012. PERC Phase 1 Report. Plumbing Efficiency Research Coalition, 2012. http://www.map-testing.com/content/info/menu/perc.html Model Input Values are found in the "Codes and Standards" green section on the "Fixtures" worksheet of the DSS Model and confirmed in each "Service Area Calibration End Use" worksheet by customer category.
Natural Replacement Rate of Fixtures (percent per year)	Residential Toilets 2%-4%
	Non-Residential Toilets 2%-3%
	Residential Showers 4% (corresponds to 25-year life of a new fixture)
	Residential Clothes Washers 10% (based on 10-year washer life). Key References: "Residential End Uses of Water" (DeOreo, 2016) and "Bern Clothes Washer Study, Final Report" (Oak Ridge National Laboratory, 1998).
	Residential Faucets 10% and Non-Residential Faucets 6.7% (every 15 years). CEC uses an average life of 10 years for faucet accessories (aerators). A similar assumption can be made for public lavatories, though no hard data exists and since CII fixtures are typically replaced less frequently than residential, 15 years is assumed. CEC, Analysis of Standards Proposal for Residential Faucets and Faucet Accessories, a report prepared under CEC's Codes and Standards Enhancement Initiative, Docket #12-AAER-2C, August 2013.
	Model Input Value is found in the "Codes and Standards" green section on the "Fixtures" worksheet of the DSS Model.
Residential Future Water Use	Increases Based on Population Growth and Demographic Forecast
Non-Residential Future Water Use	Increases Based on Employment Growth and Demographic Forecast

C.5.1 Fixture Estimates

Determining the current level of efficient fixtures in a service area while evaluating passive savings in the DSS Model is part of the standard process and is called "initial fixture proportions." MWM reconciled water efficient fixtures and devices installed within the City of Santa Barbara service area and estimated the number of outstanding inefficient fixtures.

MWM used the DSS Model to perform a saturation analysis for toilets, urinals, showerheads, faucets, and clothes washers. The process included a review of age of buildings from census data, number of rebates per device, and assumed natural replacement rates. MWM presumed the fixtures that were nearing saturation and worth analysis would include residential toilets and residential clothes washers, as both have been included in recommended conservation practices for over two decades.

In 2014, the Water Research Foundation updated its 1999 Residential End Uses of Water Study (REUWS). Water utilities, industry regulators, and government planning agencies consider it the industry benchmark for single family home indoor water use. This Plan incorporates recent study results which reflect the change to the profile of water use in residential homes including adoption of more water efficient fixtures over the 15 years that transpired from 1999 to 2014. REUWS results were combined with City historical rebate and billing data to enhance and verify assumptions made for all customer accounts, including saturation levels on the above-mentioned plumbing fixtures.

The DSS Model presents the estimated current and projected proportions of these fixtures by efficiency level within the City's service area. These proportions were calculated by:

- Using standards in place at the time of building construction;
- Taking the initial proportions of homes by age (corresponding to fixture efficiency levels);
- Adding the net change due to natural replacement; and
- Adding the change due to rebate measure minus the "free rider effect".[14]

Further adjustments were made to initial proportions to account for the reduction in fixture use due to lower occupancy and based on field observations. The projected fixture proportions do **not** include any future active conservation measures implemented by the City. More information about the development of initial and projected fixture proportions can be found in the DSS Model "Codes and Standards" section.

The DSS Model is capable of modeling multiple types of fixtures, including fixtures with different designs. For example, currently toilets can be purchased that flush at a rate of 0.8 gallons per flush (gpf), 1.0 gpf or 1.28 gpf. The 1.6 gpf and higher toilets still exist but can no longer be purchased in California. Therefore, they cannot be used for replacement or new installation of a toilet. So, the DSS Model utilizes fixture replacement rates to determine what type of fixture should be used for a new construction installation or replacement. The replacement of the fixtures is listed as a percentage within the DSS Model. A value of 100% would indicate that all the toilets installed would be of one particular flush volume. A value of 75% means that three out of every four toilets installed would be of that particular flush volume. All the Fixture Model information and assumptions were carefully reviewed and accepted by City staff.

The DSS Model provides inputs and analysis of the number, type, and replacement rates of fixtures for each customer category (e.g., single family toilets, commercial toilets, residential clothes washing machines). For example, the DSS Model incorporates the effects of the 1992 Federal Energy Policy Act and AB 715 on toilet fixtures. A DSS Model feature determines the "saturation" of 1.6 gpf toilets as the 1992 Federal Energy Policy Act was in effect from 1992-2014 for 1.6 gpf toilet replacements. AB 715 now applies for the replacement of toilets at 1.28 gpf. Further consideration and adjustments were made to replacement rates to account for the reduction in fixture use and wear, due to lower occupancy and based on field observations.

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[14] It is important to note that in water conservation program management the "free rider effect" occurs when a customer applies for and receives a rebate on a targeted high efficiency fixture that they would have purchased even without a rebate. In this case, the rebate was not the incentive for their purchase but a "bonus." Rebate measures are designed to target customers needing financial incentive to install the more efficient fixture.

APPENDIX D – DSS MODEL MEASURE ANALYSIS, METHODOLOGY, PERSPECTIVES, AND ASSUMPTIONS

Throughout the planning process, the City of Santa Barbara and MWM conducted more than 20 meetings, primarily in an effort to complete the DSS Model, which is robust for each of the 21 measures modeled. In the model, the City identified fixture costs, applicable customer classes, time period of implementation, measure life, administrative costs, end uses, end-use savings per replacement, and a target number or percentage of accounts per program year. The robust analysis is planned to be used in further Santa Barbara planning documents such as the 2020 City of Santa Barbara Urban Water Management Plan.

D.1 Water Reduction Methodology

Each conservation measure targets a particular water use, such as indoor single family water use. Targeted water uses are categorized by water user group and by end use. Targeted water user groups include single family residential; multifamily residential; commercial, industrial, and institutional; and so forth. Measures may apply to more than one water user group. Targeted end uses include indoor and outdoor use. The targeted water use is important to identify because the water savings are generated from reductions in water use for the targeted end use. For example, a residential retrofit conservation measure targets single family and multifamily residential indoor use, and in some cases specifically shower use. When considering the water savings potential generated by a residential retrofit, one considers the water saved by installing low-flow showerheads in single family and multifamily homes.

The market penetration goal for a measure is the extent to which the product or service related to the conservation measure occupies the potential market. Essentially, the market penetration goal identifies how many fixtures, rebates, surveys, and so forth that the wholesale customer would have to offer or conduct over time to reach its water savings goal for that conservation measure. This is often expressed in terms of the number of fixtures, rebates, or surveys offered or conducted per year.

The potential for error in market penetration goal estimates for each measure can be significant because the estimates are based on previous experience, chosen implementation methods, projected utility effort, and funds allocated to implement the measure. The potential error can be corrected through reevaluation of the measure as the implementation of the measure progresses. For example, if the market penetration required to achieve specific water savings turns out to be different than predicted, adjustments to the implementation efforts can be made. Larger rebates or additional promotions are often used to increase the market penetration. The process is iterative to reflect actual conditions and helps to ensure that market penetration and needed savings are achieved regardless of future variances between estimates and actual conditions.

In contrast, market penetration for mandatory ordinances can be more predictable with the greatest potential for error occurring in implementing the ordinance change. For example, requiring dedicated irrigation meters for new accounts through an ordinance can assure an almost 100% market penetration for affected properties.

The City is constantly examining when a measure might reach saturation. Baseline surveys are the best approach to having the most accurate information on market saturation. This was considered when analyzing individual conservation measures where best estimates were made. MWM was not provided with any baseline surveys for this analysis, but discussions were held with the City regarding what the saturation best estimates were within its service area.

D.2 Present Value Analysis and Perspectives on Benefits and Costs

The determination of the economic feasibility of water conservation programs involves comparing the costs of the programs to the benefits provided using the DSS Model, which calculates the cost effectiveness of conservation measure savings at the end-use level. For example, the model determines the amount of water a toilet rebate program saves in daily toilet use for each single family account.

Present value analysis using present day dollars and a real discount rate of 3% is used to discount costs and benefits to the base year. From this analysis, benefit-cost ratios of each measure are computed. When measures are put together in programs, the model is set up to avoid double counting savings from multiple measures that act on the same end use of water. For example, multiple measures in a program may target toilet replacements. The model includes assumptions to apportion water savings between the multiple measures.

Economic analysis can be performed from several different perspectives, based on which party is affected. For planning water use efficiency programs for utilities, perspectives most commonly used for benefit-cost analyses are the "utility" perspective and the "community" perspective. The "utility" benefit-cost analysis is based on the benefits and costs to the water provider. The "community" benefit-cost analysis includes the utility benefit and costs together with account owner/customer benefits and costs. These include customer energy and other capital or operating cost benefits plus costs of implementing the measure beyond what the utility pays.

The utility perspective offers two advantages. First, it considers only the program costs that will be directly borne by the utility. This enables the utility to fairly compare potential investments for saving versus supplying increased quantities of water. Second, revenue shifts are treated as transfer payments, which means program participants will have lower water bills and non-participants will have slightly higher water bills so that the utility's revenue needs continue to be met. Therefore, the analysis is not complicated with uncertainties associated with long-term rate projections and retail rate design assumptions. It should be noted that there is a significant difference between the utility's savings from the avoided cost of procurement and delivery of water and the reduction in retail revenue that results from reduced water sales due to water use efficiency. This budget impact occurs slowly and can be accounted for in water rate planning. Because it is the water provider's role in developing a water use efficiency plan that is vital in this study, the utility perspective was primarily used to evaluate elements of this report.

The community perspective is defined to include the utility and the customer costs and benefits. Costs incurred by customers striving to save water while participating in water use efficiency programs are considered, as well as benefits received in terms of reduced energy bills (from water heating costs) and wastewater savings, among others. Water bill savings are not a customer benefit in aggregate for reasons described previously. Other factors external to the utility, such as environmental effects, are often difficult to quantify or are not necessarily under the control of the utility. They are therefore frequently excluded from economic analyses, including this one.

The time value of money is explicitly considered. Typically, the costs to save water occur early in the planning period whereas the benefits usually extend to the end of the planning period. A long planning period of over 30 years is often used because costs and benefits that occur beyond these 30 years (beyond the year 2050 in this Plan) have very little influence on the total present value of the costs and benefits. The value of all future costs and benefits is discounted to the first year in the DSS Model (the base year) at the real interest rate of 3.01%. The DSS Model calculates this real interest rate, adjusting the current nominal interest rate (assumed to be approximately 6.1%) by the assumed rate of inflation (3.0%).

The formula to calculate the real interest rate is:

(nominal interest rate – assumed rate of inflation) / (1 + assumed rate of inflation)

Cash flows discounted in this manner are herein referred to as "Present Value" sums.

D.3 Measure Cost and Water Savings Assumptions

Appendix E presents more detail on the assumptions and inputs used in the City's DSS Model to evaluate each water conservation measure. Assumptions regarding the following variables were made for each measure:

- **Targeted Water User Group End Use** – Water user group (e.g., single family residential) and end use (e.g., indoor or outdoor water use).
- **Utility Unit Cost** – Cost of rebates, incentives, and contractors hired to implement measures. The assumed dollar values for the measure unit costs were closely reviewed by staff and are found to be

adequate for each individual measure. The values in most cases are in the range of what is currently offered by other water utilities in the region.
- **Retail Customer Unit Cost** – Cost for implementing measures that is paid by retail customers (i.e., the remainder of a measure's cost that is not covered by a utility rebate or incentive).
- **Utility Administration and Marketing Cost** – The cost to the utility for administering the measure, including consultant contract administration, marketing, and participant tracking. The mark-up is sufficient (in total) to cover conservation staff time, general expenses, and overhead.

Costs are determined for each of the measures based on industry knowledge, past experience, and data provided by the City. Costs may include incentive costs, usually determined on a per-participant basis; fixed costs, such as marketing; variable costs, such as the cost to staff the measures and to obtain and maintain equipment; and a one-time set-up cost. The set-up cost is for measure design by staff or consultants, any required pilot testing, and preparation of materials that are used in marketing the measure. Measure costs are estimated each year through 2050. Costs are spread over the time period depending on the length of the implementation period for the measure and estimated voluntary customer participation levels.

Lost revenue due to reduced water sales is not included as a cost because the water use conservation measures evaluated herein generally take effect over a long span of time. This span is sufficient to enable timely rate adjustments, if necessary, to meet fixed cost obligations and savings on variable costs such as energy and chemicals.

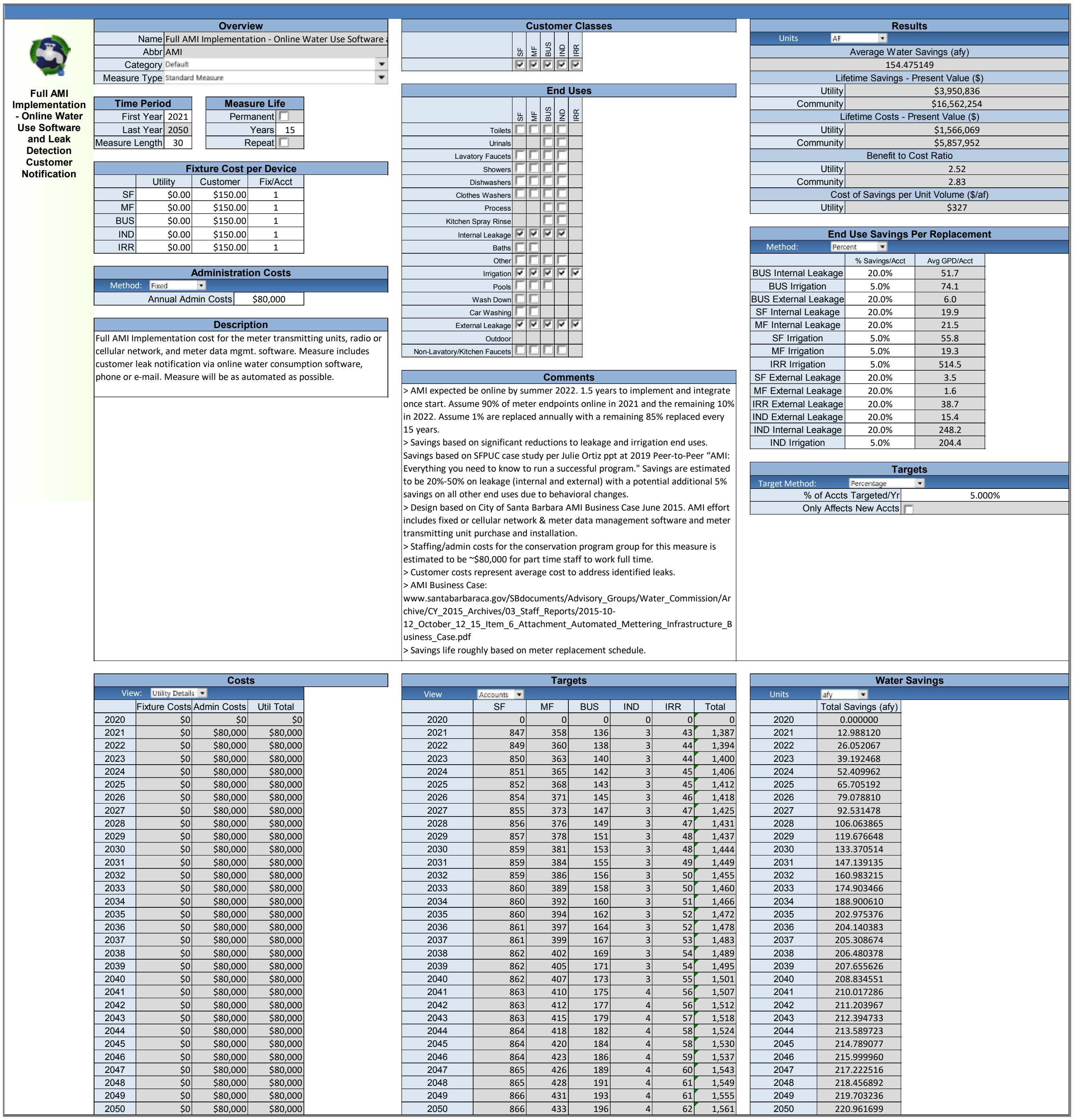
The unit costs vary according to the type of customer account and implementation method being addressed. For example, a measure might cost a different amount for a residential single family account than for a residential multifamily account, and for a rebate versus an ordinance requirement or a direct installation implementation method. Typically, water utilities have found there are increased costs associated with achieving higher market saturation, such as more surveys per year. The DSS Model calculates the annual costs based on the number of participants each year. The general formula for calculating annual utility costs is:

- Annual Utility Cost = Annual market penetration rate x total accounts in category x unit cost per account x (1+administration and marketing markup percentage)
- Annual Customer Cost = Annual number of participants x unit customer cost
- Annual Community Cost = Annual utility cost + annual customer cost

Data necessary to forecast water savings of measures include specifics on water use, demographics, market penetration, and unit water savings. Savings normally develop at a measured and predetermined pace, reaching full maturity after full market penetration is achieved. This may occur 3–10 years after the start of implementation, depending upon the implementation schedule.

For every water use efficiency activity or replacement with more efficient devices, there is a useful life. The useful life is called the "Measure Life" and is defined to be how long water use conservation measures stay in place and continue to save water. It is assumed that measures implemented because of codes, standards, or ordinances (e.g., toilets) would be "permanent" and not revert to an old inefficient level of water use if the device needed to be replaced. However, some measures that are primarily behavior-based, such as residential surveys, are assumed to need to be repeated on an ongoing basis to retain the water savings (e.g., homeowners move away, and the new homeowners may have less efficient water using practices). Surveys typically have a measure life on the order of five years.

APPENDIX E – INDIVIDUAL CONSERVATION MEASURE DESIGN INPUTS AND RESULTS



Full AMI Implementation - Online Water Use Software and Leak Detection Customer Notification

Overview

Name: Full AMI Implementation - Online Water Use Software a
Abbr: AMI
Category: Default
Measure Type: Standard Measure

Time Period

First Year: 2021
Last Year: 2050
Measure Length: 30

Measure Life

Permanent: ☐
Years: 15
Repeat: ☐

Fixture Cost per Device

	Utility	Customer	Fix/Acct
SF	$0.00	$150.00	1
MF	$0.00	$150.00	1
BUS	$0.00	$150.00	1
IND	$0.00	$150.00	1
IRR	$0.00	$150.00	1

Administration Costs

Method: Fixed
Annual Admin Costs: $80,000

Description

Full AMI Implementation cost for the meter transmitting units, radio or cellular network, and meter data mgmt. software. Measure includes customer leak notification via online water consumption software, phone or e-mail. Measure will be as automated as possible.

Customer Classes

SF	MF	BUS	IND	IRR
☑	☑	☑	☑	☑

End Uses

	SF	MF	BUS	IND	IRR
Toilets	☐	☐	☐	☐	
Urinals			☐	☐	
Lavatory Faucets	☐	☐	☐	☐	
Showers	☐	☐	☐	☐	
Dishwashers	☐	☐	☐	☐	
Clothes Washers	☐	☐	☐	☐	
Process			☐	☐	
Kitchen Spray Rinse			☐	☐	
Internal Leakage	☑	☑	☑	☑	
Baths	☐	☐			
Other	☐	☐	☐	☐	
Irrigation	☑	☑	☑	☑	☑
Pools	☐	☐	☐		
Wash Down	☐	☐			
Car Washing	☐	☐			
External Leakage	☑	☑	☑	☑	☑
Outdoor					
Non-Lavatory/Kitchen Faucets	☐	☐	☐	☐	

Comments

> AMI expected be online by summer 2022. 1.5 years to implement and integrate once start. Assume 90% of meter endpoints online in 2021 and the remaining 10% in 2022. Assume 1% are replaced annually with a remaining 85% replaced every 15 years.
> Savings based on significant reductions to leakage and irrigation end uses. Savings based on SFPUC case study per Julie Ortiz ppt at 2019 Peer-to-Peer “AMI: Everything you need to know to run a successful program." Savings are estimated to be 20%-50% on leakage (internal and external) with a potential additional 5% savings on all other end uses due to behavioral changes.
> Design based on City of Santa Barbara AMI Business Case June 2015. AMI effort includes fixed or cellular network & meter data management software and meter transmitting unit purchase and installation.
> Staffing/admin costs for the conservation program group for this measure is estimated to be ~$80,000 for part time staff to work full time.
> Customer costs represent average cost to address identified leaks.
> AMI Business Case: www.santabarbaraca.gov/SBdocuments/Advisory_Groups/Water_Commission/Archive/CY_2015_Archives/03_Staff_Reports/2015-10-12_October_12_15_Item_6_Attachment_Automated_Mettering_Infrastructure_Business_Case.pdf
> Savings life roughly based on meter replacement schedule.

Results

Units: AF

Average Water Savings (afy)	
	154.475149
Lifetime Savings - Present Value ($)	
Utility	$3,950,836
Community	$16,562,254
Lifetime Costs - Present Value ($)	
Utility	$1,566,069
Community	$5,857,952
Benefit to Cost Ratio	
Utility	2.52
Community	2.83
Cost of Savings per Unit Volume ($/af)	
Utility	$327

End Use Savings Per Replacement

Method: Percent

	% Savings/Acct	Avg GPD/Acct
BUS Internal Leakage	20.0%	51.7
BUS Irrigation	5.0%	74.1
BUS External Leakage	20.0%	6.0
SF Internal Leakage	20.0%	19.9
MF Internal Leakage	20.0%	21.5
SF Irrigation	5.0%	55.8
MF Irrigation	5.0%	19.3
IRR Irrigation	5.0%	514.5
SF External Leakage	20.0%	3.5
MF External Leakage	20.0%	1.6
IRR External Leakage	20.0%	38.7
IND External Leakage	20.0%	15.4
IND Internal Leakage	20.0%	248.2
IND Irrigation	5.0%	204.4

Targets

Target Method: Percentage
% of Accts Targeted/Yr: 5.000%
Only Affects New Accts: ☐

Costs

View: Utility Details

	Fixture Costs	Admin Costs	Util Total
2020	$0	$0	$0
2021	$0	$80,000	$80,000
2022	$0	$80,000	$80,000
2023	$0	$80,000	$80,000
2024	$0	$80,000	$80,000
2025	$0	$80,000	$80,000
2026	$0	$80,000	$80,000
2027	$0	$80,000	$80,000
2028	$0	$80,000	$80,000
2029	$0	$80,000	$80,000
2030	$0	$80,000	$80,000
2031	$0	$80,000	$80,000
2032	$0	$80,000	$80,000
2033	$0	$80,000	$80,000
2034	$0	$80,000	$80,000
2035	$0	$80,000	$80,000
2036	$0	$80,000	$80,000
2037	$0	$80,000	$80,000
2038	$0	$80,000	$80,000
2039	$0	$80,000	$80,000
2040	$0	$80,000	$80,000
2041	$0	$80,000	$80,000
2042	$0	$80,000	$80,000
2043	$0	$80,000	$80,000
2044	$0	$80,000	$80,000
2045	$0	$80,000	$80,000
2046	$0	$80,000	$80,000
2047	$0	$80,000	$80,000
2048	$0	$80,000	$80,000
2049	$0	$80,000	$80,000
2050	$0	$80,000	$80,000

Targets

View: Accounts

	SF	MF	BUS	IND	IRR	Total
2020	0	0	0	0	0	0
2021	847	358	136	3	43	1,387
2022	849	360	138	3	44	1,394
2023	850	363	140	3	44	1,400
2024	851	365	142	3	45	1,406
2025	852	368	143	3	45	1,412
2026	854	371	145	3	46	1,418
2027	855	373	147	3	47	1,425
2028	856	376	149	3	47	1,431
2029	857	378	151	3	48	1,437
2030	859	381	153	3	48	1,444
2031	859	384	155	3	49	1,449
2032	859	386	156	3	50	1,455
2033	860	389	158	3	50	1,460
2034	860	392	160	3	51	1,466
2035	860	394	162	3	52	1,472
2036	861	397	164	3	52	1,478
2037	861	399	167	3	53	1,483
2038	862	402	169	3	54	1,489
2039	862	405	171	3	54	1,495
2040	862	407	173	3	55	1,501
2041	863	410	175	4	56	1,507
2042	863	412	177	4	56	1,512
2043	863	415	179	4	57	1,518
2044	864	418	182	4	58	1,524
2045	864	420	184	4	58	1,530
2046	864	423	186	4	59	1,537
2047	865	426	189	4	60	1,543
2048	865	428	191	4	61	1,549
2049	866	431	193	4	61	1,555
2050	866	433	196	4	62	1,561

Water Savings

Units: afy

	Total Savings (afy)
2020	0.000000
2021	12.988120
2022	26.052067
2023	39.192468
2024	52.409962
2025	65.705192
2026	79.078810
2027	92.531478
2028	106.063865
2029	119.676648
2030	133.370514
2031	147.139135
2032	160.983215
2033	174.903466
2034	188.900610
2035	202.975376
2036	204.140383
2037	205.308674
2038	206.480378
2039	207.655626
2040	208.834551
2041	210.017286
2042	211.203967
2043	212.394733
2044	213.589723
2045	214.789077
2046	215.999960
2047	217.222516
2048	218.456892
2049	219.703236
2050	220.961699

Residential Rebates for HECW

Overview

Name	Residential Rebates for HECW
Abbr	RESHECW
Category	Default
Measure Type	Standard Measure

Time Period

First Year	2020
Last Year	2030
Measure Length	11

Measure Life

Permanent ☑

Fixture Cost per Device

	Utility	Customer	Fix/Acct
SF	$150.00	$200.00	1
MF	$150.00	$200.00	1

Administration Costs

Method: Percent

Markup Percentage	22%

Description

Rebate for a high efficiency clothes washer. Only applicable on eligible models and for replacing an existing high-water using washer.

Customer Classes

SF	MF	BUS	IND	IRR
☑	☑	☐	☐	☐

End Uses

	SF	MF	BUS	IND	IRR
Toilets	☐	☐			
Urinals					
Lavatory Faucets	☐	☐			
Showers	☐	☐			
Dishwashers	☐	☐			
Clothes Washers	☑	☑			
Process					
Kitchen Spray Rinse					
Internal Leakage	☐	☐			
Baths	☐	☐			
Other	☐	☐			
Irrigation	☐	☐			
Pools	☐	☐			
Wash Down	☐	☐			
Car Washing	☐	☐			
External Leakage	☐	☐			
Outdoor					
Non-Lavatory/Kitchen Faucets	☐	☐			

Comments

> Assume 50 rebates/yr SFR accounts and 5/yr MFR accounts.
>According to their website, ENERGY STAR certified clothes washers use about 45% less water than regular washers (assumes 23 gallon per load is reduced to 13 gallon per load). Since only 1 of 4 MF units is expected to replace their washer, assume 25% of the 45% savings.
> Admin cost per SB paying CalWEP for their admin of the program approx. $33.44 per fixture (rebate).

Results

Units: AF

Average Water Savings (afy)	
	3.228164
Lifetime Savings - Present Value ($)	
Utility	$121,695
Community	$319,234
Lifetime Costs - Present Value ($)	
Utility	$80,689
Community	$168,874
Benefit to Cost Ratio	
Utility	1.51
Community	1.89
Cost of Savings per Unit Volume ($/af)	
Utility	$806

End Use Savings Per Replacement

Method: Percent

	% Savings/Acct	Avg GPD/Acct
SF Clothes Washers	45.0%	21.4
MF Clothes Washers	11.3%	51.5

Targets

Target Method: Detailed

Enter Annual Targets Below

Costs

View: Utility Details

	Fixture Costs	Admin Costs	Util Total
2020	$8,250	$1,815	$10,065
2021	$8,250	$1,815	$10,065
2022	$8,250	$1,815	$10,065
2023	$8,250	$1,815	$10,065
2024	$8,250	$1,815	$10,065
2025	$8,250	$1,815	$10,065
2026	$8,250	$1,815	$10,065
2027	$8,250	$1,815	$10,065
2028	$8,250	$1,815	$10,065
2029	$0	$0	$0
2030	$0	$0	$0
2031	$0	$0	$0
2032	$0	$0	$0
2033	$0	$0	$0
2034	$0	$0	$0
2035	$0	$0	$0
2036	$0	$0	$0
2037	$0	$0	$0
2038	$0	$0	$0
2039	$0	$0	$0
2040	$0	$0	$0
2041	$0	$0	$0
2042	$0	$0	$0
2043	$0	$0	$0
2044	$0	$0	$0
2045	$0	$0	$0
2046	$0	$0	$0
2047	$0	$0	$0
2048	$0	$0	$0
2049	$0	$0	$0
2050	$0	$0	$0

Targets

View: Accounts

	SF	MF	Total
2020	50	5	55
2021	50	5	55
2022	50	5	55
2023	50	5	55
2024	50	5	55
2025	50	5	55
2026	50	5	55
2027	50	5	55
2028	50	5	55
2029	0	0	0
2030	0	0	0
2031	0	0	0
2032	0	0	0
2033	0	0	0
2034	0	0	0
2035	0	0	0
2036	0	0	0
2037	0	0	0
2038	0	0	0
2039	0	0	0
2040	0	0	0
2041	0	0	0
2042	0	0	0
2043	0	0	0
2044	0	0	0
2045	0	0	0
2046	0	0	0
2047	0	0	0
2048	0	0	0
2049	0	0	0
2050	0	0	0

Water Savings

Units: afy

	Total Savings (afy)
2020	0.550382
2021	1.093213
2022	1.625290
2023	2.143847
2024	2.646494
2025	3.131174
2026	3.596115
2027	4.032059
2028	4.435684
2029	4.323741
2030	4.201409
2031	4.070860
2032	3.953463
2033	3.847892
2034	3.752956
2035	3.667583
2036	3.590809
2037	3.521767
2038	3.459679
2039	3.403844
2040	3.353632
2041	3.308477
2042	3.267868
2043	3.231348
2044	3.198506
2045	3.168970
2046	3.142408
2047	3.118520
2048	3.097037
2049	3.077717
2050	3.060341

Water Checkup

Overview

Name	Water Checkup
Abbr	WC
Category	Default
Measure Type	Standard Measure

Time Period

First Year	2020
Last Year	2050
Measure Length	31

Measure Life

Permanent	☐
Years	7
Repeat	☐

Fixture Cost per Device

	Utility	Customer	Fix/Acct
SF	$150.00	$30.00	1
MF	$75.00	$30.00	4
BUS	$150.00	$30.00	2

Administration Costs

Method: Percent

Markup Percentage	0%

Description

Conventional indoor and partial outdoor water surveys for existing customers. Irrigation systems are not surveyed in this measure. Normally those with high water use are targeted and provided a customized report to the property owner on how to save water in their home. This is a cursory survey for CII customers who are also offered a more extensive survey with incentives if they qualify.

Customer Classes

	SF	MF	BUS	IND	IRR
	☑	☑	☑	☐	☐

End Uses

	SF	MF	BUS	IND	IRR
Toilets	☑	☑	☑		
Urinals			☑		
Lavatory Faucets	☑	☑	☑		
Showers	☑	☑	☑		
Dishwashers	☑	☑	☑		
Clothes Washers	☑	☑	☑		
Process			☑		
Kitchen Spray Rinse			☑		
Internal Leakage	☑	☑	☑		
Baths	☑	☑			
Other	☑	☑	☑		
Irrigation	☐	☐	☐		
Pools	☑	☑	☑		
Wash Down	☑	☑			
Car Washing	☑	☑			
External Leakage	☑	☑	☑		
Outdoor					
Non-Lavatory/Kitchen Faucets	☑	☑	☑		

Comments

> Historically, surveys identify primarily leaks in toilets.
> In the future, this measure may include or become an online self-audit/screening measure to identify if a site visit is warranted.
> Average utility cost is $150 per SF, BUS and IND account and $75 per MF unit (4 per account). Cost includes staff site visit and prep, travel and follow-up time. Admin cost minimal separate from utility unit cost.
> Customer cost represents average cost to implement survey suggestions or repairs.

Results

Units: AF

Average Water Savings (afy)	
219.761487	
Lifetime Savings - Present Value ($)	
Utility	$7,624,681
Community	$30,192,376
Lifetime Costs - Present Value ($)	
Utility	$6,021,902
Community	$7,705,244
Benefit to Cost Ratio	
Utility	1.27
Community	3.92
Cost of Savings per Unit Volume ($/af)	
Utility	$884

End Use Savings Per Replacement

Method: Percent

	% Savings/Acct	Avg GPD/Acct
SF Toilets	5.0%	24.2
SF Lavatory Faucets	5.0%	7.8
SF Showers	5.0%	32.8
SF Dishwashers	5.0%	2.8
SF Clothes Washers	5.0%	21.4
SF Internal Leakage	50.0%	19.9
SF Baths	5.0%	4.3
SF Other	5.0%	10.7
SF Pools	10.0%	0.7
SF Wash Down	10.0%	4.9
SF Car Washing	10.0%	4.9
SF External Leakage	50.0%	3.5
SF Non-Lavatory/Kitchen Faucets	5.0%	18.5
MF Toilets	5.0%	62.9
MF Lavatory Faucets	5.0%	18.6
MF Showers	5.0%	85.8
MF Dishwashers	5.0%	2.9
MF Clothes Washers	5.0%	51.5
MF Internal Leakage	50.0%	21.5
MF Baths	5.0%	1.4
MF Other	5.0%	1.4
MF Pools	10.0%	0.5
MF Wash Down	10.0%	0.9
MF Car Washing	10.0%	0.9
MF External Leakage	50.0%	1.6
MF Non-Lavatory/Kitchen Faucets	5.0%	40.0
BUS Toilets	5.0%	82.7
BUS Urinals	5.0%	31.0
BUS Lavatory Faucets	5.0%	20.7
BUS Showers	5.0%	46.5
BUS Dishwashers	5.0%	31.0
BUS Clothes Washers	5.0%	77.5
BUS Process	5.0%	67.2
BUS Kitchen Spray Rinse	5.0%	25.8
BUS Internal Leakage	50.0%	51.7
BUS Other	5.0%	36.2
BUS Pools	10.0%	6.0
BUS External Leakage	50.0%	6.0
BUS Non-Lavatory/Kitchen Faucets	5.0%	46.5

Targets

Target Method: Percentage

% of Accts Targeted/Yr	5.000%
Only Affects New Accts	☐

Costs

View: Utility Details

	Fixture Costs	Admin Costs	Util Total
2020	$273,833	$27	$273,860
2021	$275,309	$28	$275,337
2022	$276,792	$28	$276,820
2023	$278,282	$28	$278,310
2024	$279,778	$28	$279,806
2025	$281,281	$28	$281,309
2026	$282,790	$28	$282,818
2027	$284,306	$28	$284,335
2028	$285,829	$29	$285,858
2029	$287,359	$29	$287,388
2030	$288,896	$29	$288,925
2031	$290,310	$29	$290,339
2032	$291,730	$29	$291,760
2033	$293,158	$29	$293,188
2034	$294,594	$29	$294,623
2035	$296,037	$30	$296,067
2036	$297,487	$30	$297,517
2037	$298,946	$30	$298,976
2038	$300,412	$30	$300,442
2039	$301,885	$30	$301,916
2040	$303,367	$30	$303,398
2041	$304,857	$30	$304,888
2042	$306,355	$31	$306,386
2043	$307,861	$31	$307,892
2044	$309,376	$31	$309,407
2045	$310,899	$31	$310,930
2046	$312,431	$31	$312,462
2047	$313,971	$31	$314,003
2048	$315,520	$32	$315,552
2049	$317,078	$32	$317,110
2050	$318,646	$32	$318,677

Targets

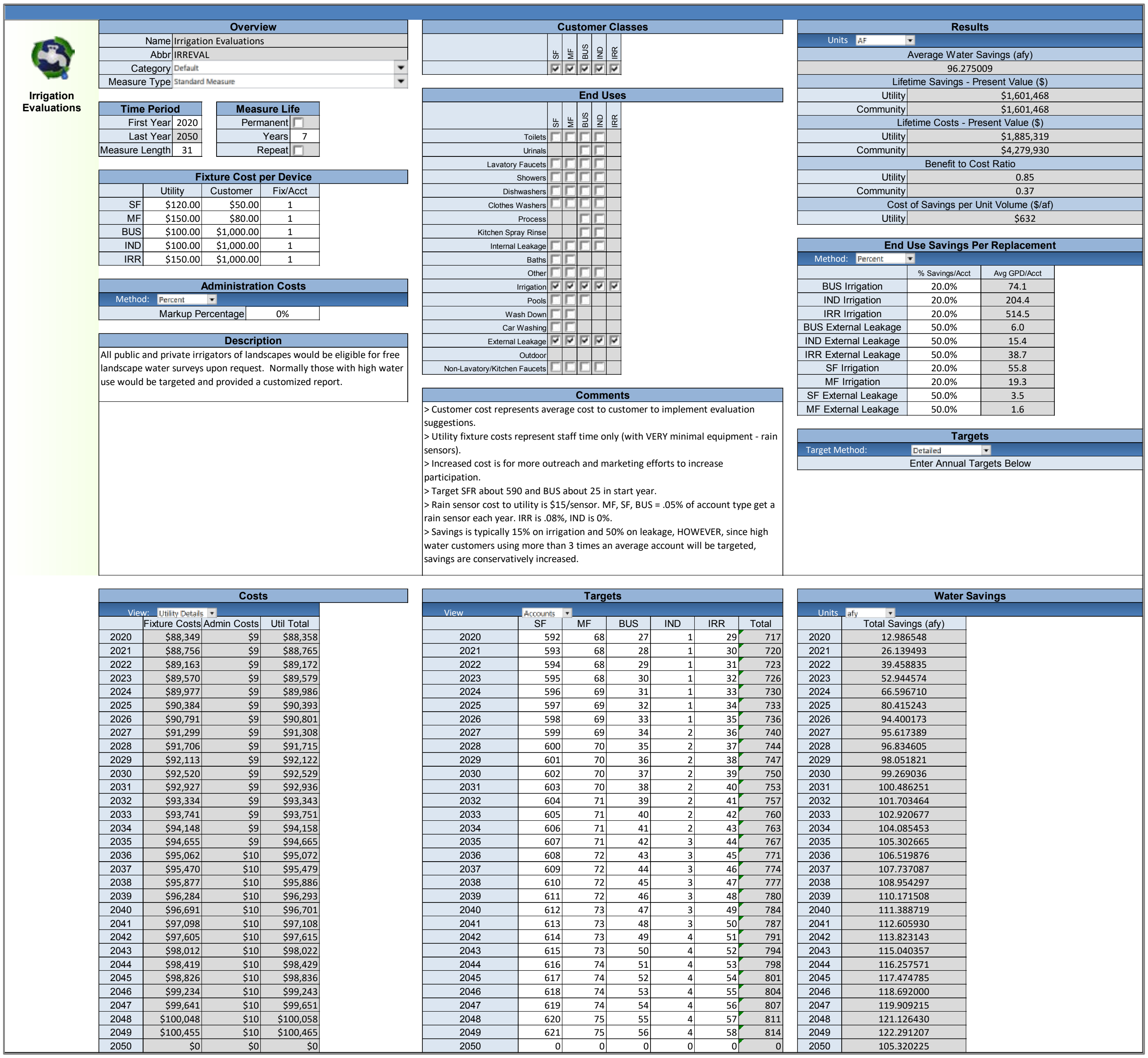
View: Accounts

	SF	MF	BUS	Total
2020	846	355	135	1,336
2021	847	358	136	1,341
2022	849	360	138	1,347
2023	850	363	140	1,353
2024	851	365	142	1,358
2025	852	368	143	1,364
2026	854	371	145	1,369
2027	855	373	147	1,375
2028	856	376	149	1,381
2029	857	378	151	1,387
2030	859	381	153	1,392
2031	859	384	155	1,397
2032	859	386	156	1,402
2033	860	389	158	1,407
2034	860	392	160	1,412
2035	860	394	162	1,417
2036	861	397	164	1,422
2037	861	399	167	1,427
2038	862	402	169	1,432
2039	862	405	171	1,437
2040	862	407	173	1,442
2041	863	410	175	1,447
2042	863	412	177	1,453
2043	863	415	179	1,458
2044	864	418	182	1,463
2045	864	420	184	1,468
2046	864	423	186	1,474
2047	865	426	189	1,479
2048	865	428	191	1,484
2049	866	431	193	1,490
2050	866	433	196	1,495

Water Savings

Units: afy

	Total Savings (afy)
2020	34.500499
2021	68.828093
2022	102.999561
2023	137.030236
2024	170.934146
2025	204.724143
2026	238.412016
2027	238.641932
2028	238.878299
2029	239.121742
2030	239.372792
2031	239.621734
2032	239.927771
2033	240.285501
2034	240.690027
2035	241.136914
2036	241.622140
2037	242.142062
2038	242.710060
2039	243.323031
2040	243.978171
2041	244.672939
2042	245.406239
2043	246.175913
2044	246.980006
2045	247.816747
2046	248.684532
2047	249.581910
2048	250.507565
2049	251.460307
2050	252.439060



Irrigation Evaluations

Overview

Name	Irrigation Evaluations
Abbr	IRREVAL
Category	Default
Measure Type	Standard Measure

Time Period

First Year	2020
Last Year	2050
Measure Length	31

Measure Life

Permanent	☐
Years	7
Repeat	☐

Fixture Cost per Device

	Utility	Customer	Fix/Acct
SF	$120.00	$50.00	1
MF	$150.00	$80.00	1
BUS	$100.00	$1,000.00	1
IND	$100.00	$1,000.00	1
IRR	$150.00	$1,000.00	1

Administration Costs

Method: Percent

Markup Percentage	0%

Description

All public and private irrigators of landscapes would be eligible for free landscape water surveys upon request. Normally those with high water use would be targeted and provided a customized report.

Customer Classes

SF	MF	BUS	IND	IRR
☑	☑	☑	☑	☑

End Uses

	SF	MF	BUS	IND	IRR
Toilets	☐	☐	☐	☐	
Urinals			☐	☐	
Lavatory Faucets	☐	☐	☐	☐	
Showers	☐	☐	☐	☐	
Dishwashers	☐	☐	☐	☐	
Clothes Washers	☐	☐	☐	☐	
Process			☐	☐	
Kitchen Spray Rinse			☐	☐	
Internal Leakage	☐	☐	☐	☐	
Baths	☐	☐			
Other	☐	☐	☐	☐	
Irrigation	☑	☑	☑	☑	☑
Pools	☐	☐	☐		
Wash Down	☐	☐			
Car Washing	☐	☐			
External Leakage	☑	☑	☑	☑	☑
Outdoor					
Non-Lavatory/Kitchen Faucets	☐	☐	☐	☐	

Comments

> Customer cost represents average cost to customer to implement evaluation suggestions.
> Utility fixture costs represent staff time only (with VERY minimal equipment - rain sensors).
> Increased cost is for more outreach and marketing efforts to increase participation.
> Target SFR about 590 and BUS about 25 in start year.
> Rain sensor cost to utility is $15/sensor. MF, SF, BUS = .05% of account type get a rain sensor each year. IRR is .08%, IND is 0%.
> Savings is typically 15% on irrigation and 50% on leakage, HOWEVER, since high water customers using more than 3 times an average account will be targeted, savings are conservatively increased.

Results

Units AF

Average Water Savings (afy)	
96.275009	
Lifetime Savings - Present Value ($)	
Utility	$1,601,468
Community	$1,601,468
Lifetime Costs - Present Value ($)	
Utility	$1,885,319
Community	$4,279,930
Benefit to Cost Ratio	
Utility	0.85
Community	0.37
Cost of Savings per Unit Volume ($/af)	
Utility	$632

End Use Savings Per Replacement

Method: Percent

	% Savings/Acct	Avg GPD/Acct
BUS Irrigation	20.0%	74.1
IND Irrigation	20.0%	204.4
IRR Irrigation	20.0%	514.5
BUS External Leakage	50.0%	6.0
IND External Leakage	50.0%	15.4
IRR External Leakage	50.0%	38.7
SF Irrigation	20.0%	55.8
MF Irrigation	20.0%	19.3
SF External Leakage	50.0%	3.5
MF External Leakage	50.0%	1.6

Targets

Target Method: Detailed

Enter Annual Targets Below

Costs

View: Utility Details

	Fixture Costs	Admin Costs	Util Total
2020	$88,349	$9	$88,358
2021	$88,756	$9	$88,765
2022	$89,163	$9	$89,172
2023	$89,570	$9	$89,579
2024	$89,977	$9	$89,986
2025	$90,384	$9	$90,393
2026	$90,791	$9	$90,801
2027	$91,299	$9	$91,308
2028	$91,706	$9	$91,715
2029	$92,113	$9	$92,122
2030	$92,520	$9	$92,529
2031	$92,927	$9	$92,936
2032	$93,334	$9	$93,343
2033	$93,741	$9	$93,751
2034	$94,148	$9	$94,158
2035	$94,655	$9	$94,665
2036	$95,062	$10	$95,072
2037	$95,470	$10	$95,479
2038	$95,877	$10	$95,886
2039	$96,284	$10	$96,293
2040	$96,691	$10	$96,701
2041	$97,098	$10	$97,108
2042	$97,605	$10	$97,615
2043	$98,012	$10	$98,022
2044	$98,419	$10	$98,429
2045	$98,826	$10	$98,836
2046	$99,234	$10	$99,243
2047	$99,641	$10	$99,651
2048	$100,048	$10	$100,058
2049	$100,455	$10	$100,465
2050	$0	$0	$0

Targets

View Accounts

	SF	MF	BUS	IND	IRR	Total
2020	592	68	27	1	29	717
2021	593	68	28	1	30	720
2022	594	68	29	1	31	723
2023	595	68	30	1	32	726
2024	596	69	31	1	33	730
2025	597	69	32	1	34	733
2026	598	69	33	1	35	736
2027	599	69	34	2	36	740
2028	600	70	35	2	37	744
2029	601	70	36	2	38	747
2030	602	70	37	2	39	750
2031	603	70	38	2	40	753
2032	604	71	39	2	41	757
2033	605	71	40	2	42	760
2034	606	71	41	2	43	763
2035	607	71	42	3	44	767
2036	608	72	43	3	45	771
2037	609	72	44	3	46	774
2038	610	72	45	3	47	777
2039	611	72	46	3	48	780
2040	612	73	47	3	49	784
2041	613	73	48	3	50	787
2042	614	73	49	4	51	791
2043	615	73	50	4	52	794
2044	616	74	51	4	53	798
2045	617	74	52	4	54	801
2046	618	74	53	4	55	804
2047	619	74	54	4	56	807
2048	620	75	55	4	57	811
2049	621	75	56	4	58	814
2050	0	0	0	0	0	0

Water Savings

Units afy

	Total Savings (afy)
2020	12.986548
2021	26.139493
2022	39.458835
2023	52.944574
2024	66.596710
2025	80.415243
2026	94.400173
2027	95.617389
2028	96.834605
2029	98.051821
2030	99.269036
2031	100.486251
2032	101.703464
2033	102.920677
2034	104.085453
2035	105.302665
2036	106.519876
2037	107.737087
2038	108.954297
2039	110.171508
2040	111.388719
2041	112.605930
2042	113.823143
2043	115.040357
2044	116.257571
2045	117.474785
2046	118.692000
2047	119.909215
2048	121.126430
2049	122.291207
2050	105.320225

CII Water Survey Level 2 and Customized Rebate

Overview	
Name	CII Water Survey Level 2 and Customized Rebate
Abbr	CIIReb
Category	Default
Measure Type	Standard Measure

Time Period	
First Year	2020
Last Year	2050
Measure Length	31

Measure Life	
Permanent	☑

Fixture Cost per Device

	Utility	Customer	Fix/Acct
BUS	$5,000.00	$10,000.00	1
IND	$5,000.00	$10,000.00	1

Administration Costs

Method: Percent

Markup Percentage	10%

Description

Eligible CII customers can receive a thorough level 2 water survey targeting indoor and non-irrigation outdoor water uses. Irrigation evaluations are conducted separately and tracked in a different measure. After the site survey is complete, the City will analyze the recommendations on the findings report that is provided and determine if the site qualifies for a rebate. Financial incentives will be provided after analyzing the cost benefit ratio of each proposed project. Rebates are tailored to each individual site as each site has varying water savings potential; and will be granted at the sole discretion of the City while funding lasts. The measure is intended to provide financial incentives for unique or site specific items (for example localized recycling systems for commercial laundries). All CII customers are offered a free level 1 water checkup that evaluates ways for a business to save water and money, level 2 surveys are only given to sites that average 100+ HCF/month.

Customer Classes

	SF	MF	BUS	IND	IRR
	☐	☐	☑	☑	☐

End Uses

	SF	MF	BUS	IND	IRR
Toilets			☑	☑	
Urinals			☑	☑	
Lavatory Faucets			☑	☑	
Showers			☑	☑	
Dishwashers			☑	☑	
Clothes Washers			☑	☑	
Process			☑	☑	
Kitchen Spray Rinse			☑	☑	
Internal Leakage			☑	☑	
Baths					
Other			☑	☑	
Irrigation			☐	☐	
Pools			☑		
Wash Down					
Car Washing					
External Leakage			☑	☑	
Outdoor					
Non-Lavatory/Kitchen Faucets			☑	☑	

Comments

> Admin costs represent staff time per survey. Assume every other account surveyed receives a rebate.
> Rebate up to $15K - average ~$10K. But not all customers actually take a rebate - assumed 50% do rebates, which makes utility cost $5K. Staff time is about $500 per survey. If an account completes a rebate there is only about one more hour of staff time.
> Typical account savings are 20%, however since large water-using accounts (using more than 4x the average BUS and IND account water use) will be targeted, targeted savings are conservatively doubled to 40% to represent the larger water use customers.
> In 2019 avg water use per CII account is ~ 29 HCF/mo and the median is ~7HCF/mo. Measure participation req is ~100 HCF/mo (>4 x avg).

Results

Units: AF

Average Water Savings (afy)	
28.017623	
Lifetime Savings - Present Value ($)	
Utility	$910,720
Community	$3,313,109
Lifetime Costs - Present Value ($)	
Utility	$915,904
Community	$2,581,185
Benefit to Cost Ratio	
Utility	0.99
Community	1.28
Cost of Savings per Unit Volume ($/af)	
Utility	$1,055

End Use Savings Per Replacement

Method: Percent

	% Savings/Acct	Avg GPD/Acct
BUS Toilets	40.0%	82.7
BUS Urinals	40.0%	31.0
BUS Lavatory Faucets	40.0%	20.7
BUS Showers	40.0%	46.5
BUS Dishwashers	40.0%	31.0
BUS Clothes Washers	40.0%	77.5
BUS Process	40.0%	67.2
BUS Kitchen Spray Rinse	40.0%	25.8
BUS Internal Leakage	40.0%	51.7
BUS External Leakage	40.0%	6.0
IND Toilets	40.0%	671.7
IND Urinals	40.0%	189.8
IND Lavatory Faucets	40.0%	160.6
IND Showers	40.0%	262.8
IND Dishwashers	40.0%	175.2
IND Clothes Washers	40.0%	438.0
IND Process	40.0%	379.6
IND Kitchen Spray Rinse	40.0%	146.0
IND Internal Leakage	40.0%	248.2
IND External Leakage	40.0%	15.4
BUS Other	40.0%	36.2
IND Other	40.0%	61.3
BUS Pools	40.0%	6.0
BUS Non-Lavatory/Kitchen Faucets	40.0%	46.5
IND Non-Lavatory/Kitchen Faucets	40.0%	186.9

Targets

Target Method: Percentage

% of Accts Targeted/Yr	0.250%
Only Affects New Accts	☐

Costs

View: Utility Details

	Fixture Costs	Admin Costs	Util Total
2020	$34,350	$3,435	$37,785
2021	$34,781	$3,478	$38,259
2022	$35,217	$3,522	$38,739
2023	$35,659	$3,566	$39,225
2024	$36,107	$3,611	$39,717
2025	$36,560	$3,656	$40,216
2026	$37,018	$3,702	$40,720
2027	$37,483	$3,748	$41,231
2028	$37,953	$3,795	$41,748
2029	$38,429	$3,843	$42,272
2030	$38,911	$3,891	$42,802
2031	$39,399	$3,940	$43,339
2032	$39,894	$3,989	$43,883
2033	$40,394	$4,039	$44,434
2034	$40,901	$4,090	$44,991
2035	$41,414	$4,141	$45,556
2036	$41,934	$4,193	$46,127
2037	$42,460	$4,246	$46,706
2038	$42,993	$4,299	$47,292
2039	$43,532	$4,353	$47,885
2040	$44,078	$4,408	$48,486
2041	$44,631	$4,463	$49,094
2042	$45,191	$4,519	$49,710
2043	$45,758	$4,576	$50,334
2044	$46,332	$4,633	$50,966
2045	$46,914	$4,691	$51,605
2046	$47,502	$4,750	$52,252
2047	$48,098	$4,810	$52,908
2048	$48,702	$4,870	$53,572
2049	$49,313	$4,931	$54,244
2050	$49,931	$4,993	$54,924

Targets

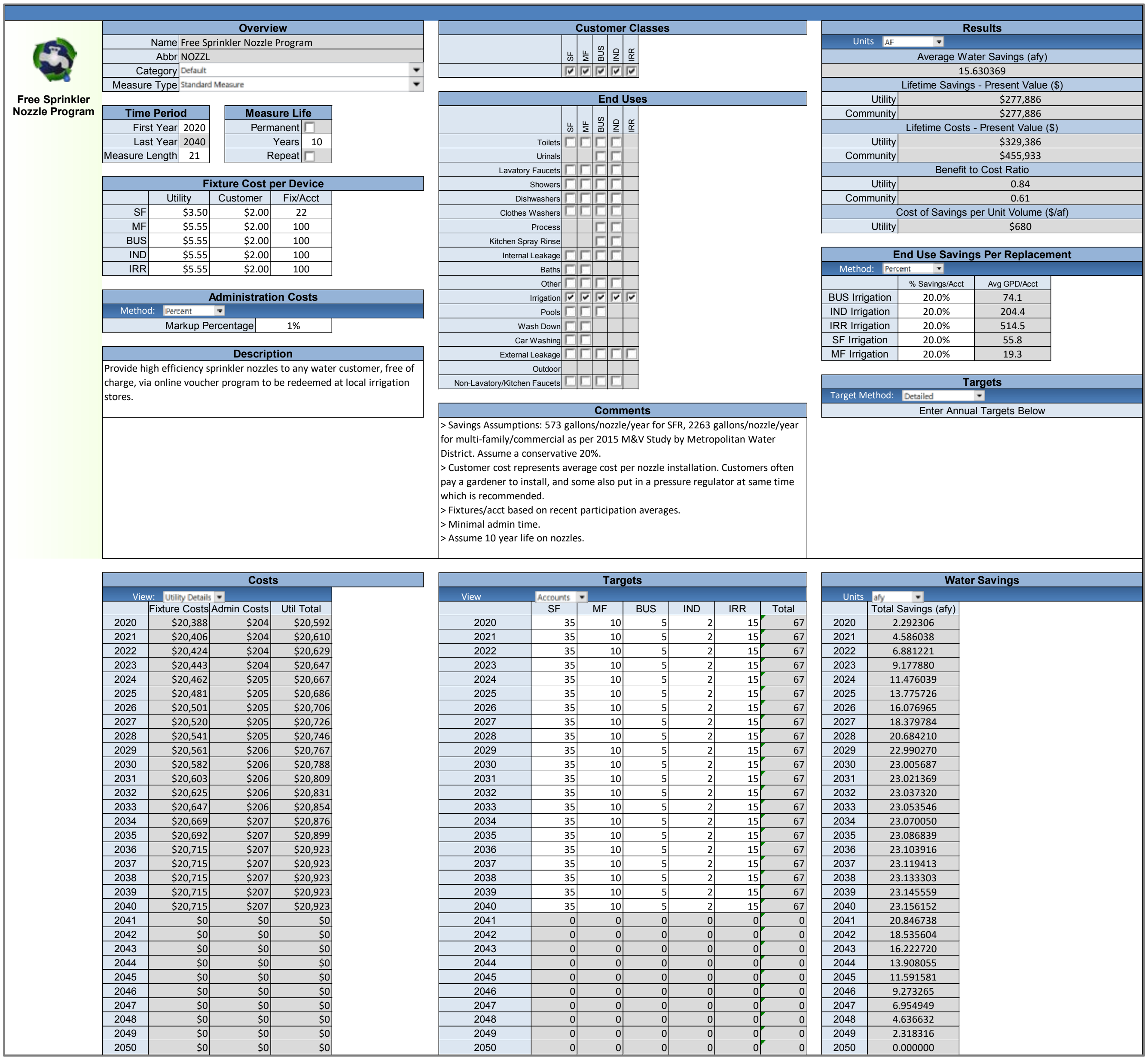
View: Accounts

	BUS	IND	Total
2020	7	0	7
2021	7	0	7
2022	7	0	7
2023	7	0	7
2024	7	0	7
2025	7	0	7
2026	7	0	7
2027	7	0	7
2028	7	0	8
2029	8	0	8
2030	8	0	8
2031	8	0	8
2032	8	0	8
2033	8	0	8
2034	8	0	8
2035	8	0	8
2036	8	0	8
2037	8	0	8
2038	8	0	9
2039	9	0	9
2040	9	0	9
2041	9	0	9
2042	9	0	9
2043	9	0	9
2044	9	0	9
2045	9	0	9
2046	9	0	10
2047	9	0	10
2048	10	0	10
2049	10	0	10
2050	10	0	10

Water Savings

Units: afy

	Total Savings (afy)
2020	1.708771
2021	3.411873
2022	5.111166
2023	6.808379
2024	8.505127
2025	10.202914
2026	11.903147
2027	13.607149
2028	15.316156
2029	17.031328
2030	18.753753
2031	20.484457
2032	22.224693
2033	23.975433
2034	25.737601
2035	27.512072
2036	29.299679
2037	31.101217
2038	32.917444
2039	34.749086
2040	36.596838
2041	38.461369
2042	40.343322
2043	42.243317
2044	44.161953
2045	46.099812
2046	48.057455
2047	50.035430
2048	52.034270
2049	54.054494
2050	56.096611



Free Sprinkler Nozzle Program

Overview	
Name	Free Sprinkler Nozzle Program
Abbr	NOZZL
Category	Default
Measure Type	Standard Measure

Time Period	
First Year	2020
Last Year	2040
Measure Length	21

Measure Life	
Permanent	☐
Years	10
Repeat	☐

Fixture Cost per Device

	Utility	Customer	Fix/Acct
SF	$3.50	$2.00	22
MF	$5.55	$2.00	100
BUS	$5.55	$2.00	100
IND	$5.55	$2.00	100
IRR	$5.55	$2.00	100

Administration Costs

Method: Percent

Markup Percentage	1%

Description

Provide high efficiency sprinkler nozzles to any water customer, free of charge, via online voucher program to be redeemed at local irrigation stores.

Customer Classes

	SF	MF	BUS	IND	IRR
	☑	☑	☑	☑	☑

End Uses

	SF	MF	BUS	IND	IRR
Toilets	☐	☐	☐	☐	
Urinals			☐	☐	
Lavatory Faucets	☐	☐	☐	☐	
Showers	☐	☐	☐	☐	
Dishwashers	☐	☐	☐	☐	
Clothes Washers	☐	☐	☐	☐	
Process			☐	☐	
Kitchen Spray Rinse			☐	☐	
Internal Leakage	☐	☐	☐	☐	
Baths	☐	☐			
Other	☐	☐	☐	☐	
Irrigation	☑	☑	☑	☑	☑
Pools	☐	☐	☐		
Wash Down	☐	☐			
Car Washing	☐	☐			
External Leakage	☐	☐	☐	☐	☐
Outdoor					
Non-Lavatory/Kitchen Faucets	☐	☐	☐	☐	

Comments

> Savings Assumptions: 573 gallons/nozzle/year for SFR, 2263 gallons/nozzle/year for multi-family/commercial as per 2015 M&V Study by Metropolitan Water District. Assume a conservative 20%.
> Customer cost represents average cost per nozzle installation. Customers often pay a gardener to install, and some also put in a pressure regulator at same time which is recommended.
> Fixtures/acct based on recent participation averages.
> Minimal admin time.
> Assume 10 year life on nozzles.

Results

Units AF

Average Water Savings (afy)	
15.630369	
Lifetime Savings - Present Value ($)	
Utility	$277,886
Community	$277,886
Lifetime Costs - Present Value ($)	
Utility	$329,386
Community	$455,933
Benefit to Cost Ratio	
Utility	0.84
Community	0.61
Cost of Savings per Unit Volume ($/af)	
Utility	$680

End Use Savings Per Replacement

Method: Percent

	% Savings/Acct	Avg GPD/Acct
BUS Irrigation	20.0%	74.1
IND Irrigation	20.0%	204.4
IRR Irrigation	20.0%	514.5
SF Irrigation	20.0%	55.8
MF Irrigation	20.0%	19.3

Targets

Target Method: Detailed

Enter Annual Targets Below

Costs

View: Utility Details

	Fixture Costs	Admin Costs	Util Total
2020	$20,388	$204	$20,592
2021	$20,406	$204	$20,610
2022	$20,424	$204	$20,629
2023	$20,443	$204	$20,647
2024	$20,462	$205	$20,667
2025	$20,481	$205	$20,686
2026	$20,501	$205	$20,706
2027	$20,520	$205	$20,726
2028	$20,541	$205	$20,746
2029	$20,561	$206	$20,767
2030	$20,582	$206	$20,788
2031	$20,603	$206	$20,809
2032	$20,625	$206	$20,831
2033	$20,647	$206	$20,854
2034	$20,669	$207	$20,876
2035	$20,692	$207	$20,899
2036	$20,715	$207	$20,923
2037	$20,715	$207	$20,923
2038	$20,715	$207	$20,923
2039	$20,715	$207	$20,923
2040	$20,715	$207	$20,923
2041	$0	$0	$0
2042	$0	$0	$0
2043	$0	$0	$0
2044	$0	$0	$0
2045	$0	$0	$0
2046	$0	$0	$0
2047	$0	$0	$0
2048	$0	$0	$0
2049	$0	$0	$0
2050	$0	$0	$0

Targets

View Accounts

	SF	MF	BUS	IND	IRR	Total
2020	35	10	5	2	15	67
2021	35	10	5	2	15	67
2022	35	10	5	2	15	67
2023	35	10	5	2	15	67
2024	35	10	5	2	15	67
2025	35	10	5	2	15	67
2026	35	10	5	2	15	67
2027	35	10	5	2	15	67
2028	35	10	5	2	15	67
2029	35	10	5	2	15	67
2030	35	10	5	2	15	67
2031	35	10	5	2	15	67
2032	35	10	5	2	15	67
2033	35	10	5	2	15	67
2034	35	10	5	2	15	67
2035	35	10	5	2	15	67
2036	35	10	5	2	15	67
2037	35	10	5	2	15	67
2038	35	10	5	2	15	67
2039	35	10	5	2	15	67
2040	35	10	5	2	15	67
2041	0	0	0	0	0	0
2042	0	0	0	0	0	0
2043	0	0	0	0	0	0
2044	0	0	0	0	0	0
2045	0	0	0	0	0	0
2046	0	0	0	0	0	0
2047	0	0	0	0	0	0
2048	0	0	0	0	0	0
2049	0	0	0	0	0	0
2050	0	0	0	0	0	0

Water Savings

Units afy

	Total Savings (afy)
2020	2.292306
2021	4.586038
2022	6.881221
2023	9.177880
2024	11.476039
2025	13.775726
2026	16.076965
2027	18.379784
2028	20.684210
2029	22.990270
2030	23.005687
2031	23.021369
2032	23.037320
2033	23.053546
2034	23.070050
2035	23.086839
2036	23.103916
2037	23.119413
2038	23.133303
2039	23.145559
2040	23.156152
2041	20.846738
2042	18.535604
2043	16.222720
2044	13.908055
2045	11.591581
2046	9.273265
2047	6.954949
2048	4.636632
2049	2.318316
2050	0.000000

Mulch Program

Overview

Name	Mulch Program
Abbr	MULCH
Category	Default
Measure Type	Standard Measure

Time Period

First Year	2020
Last Year	2050
Measure Length	31

Measure Life

Permanent	☐
Years	2
Repeat	☐

Fixture Cost per Device

	Utility	Customer	Fix/Acct
SF	$40.00	$0.00	1
MF	$40.00	$0.00	2
BUS	$40.00	$0.00	1
IND	$40.00	$0.00	1
IRR	$40.00	$0.00	2

Administration Costs

Method: Percent

Markup Percentage	2%

Description

City will subsidize delivery charges for free mulch offered by the County so it is completely free to customers. Up to two free deliveries every 12 months. Larger customers often get two deliveries at once. Goal is to reduce runoff and keep water from evaporating. The water savings benefits from keeping the soil moist after rainfall and irrigation, reducing the need and frequency of watering.

Customer Classes

	SF	MF	BUS	IND	IRR
	☑	☑	☑	☑	☑

End Uses

	SF	MF	BUS	IND	IRR
Toilets	☐	☐	☐	☐	
Urinals			☐	☐	
Lavatory Faucets	☐	☐	☐	☐	
Showers	☐	☐	☐	☐	
Dishwashers	☐	☐	☐	☐	
Clothes Washers	☐	☐	☐	☐	
Process			☐	☐	
Kitchen Spray Rinse			☐	☐	
Internal Leakage	☐	☐	☐	☐	
Baths	☐	☐			
Other	☐	☐	☐	☐	
Irrigation	☑	☑	☑	☑	☑
Pools	☐	☐	☐		
Wash Down	☐	☐			
Car Washing	☐	☐			
External Leakage	☐	☐	☐	☐	☐
Outdoor					
Non-Lavatory/Kitchen Faucets	☐	☐	☐	☐	

Comments

> Current City cost is $40/load for delivery. Load approx. 8-10 yards.
> Most IRR & MFR accounts get 2 loads-worth per delivery.
> Savings sources: https://saveourwater.com/conservation-lifestyle/around-the-yard/ & www.allianceforwaterefficiency.org/Mulches_for_the_Landscape.aspx
> SaveOurWater.com states mulch saves 20-30 gallons/ 1,000 sq ft each watering incident.
> Minimal customer cost. SFR seem to do the labor themselves or it is part of regular gardener duties for other account types. Customers fill out and submit simple form, then call to arrange delivery date, then have the mulch pile distributed around their garden as they see fit.
> Admin markup is minimal at 2% since admin time/costs are low; just some quick data entry and paying bulk invoices.
> Targets are based on an avg of the past 5 years (2014-2019) and assume lower participation levels after the City switches to a rebate (pay first, then get reimbursed). 2019 targets to start as follows and grow proportional to customer category growth. SF: 290, MF: 12, BUS: 1, IRR: 4
> IRR savings percentage is assumed to be slightly higher due to multiple loads delivered/used.

Results

Units: AF

Average Water Savings (afy)	
	4.639735
Lifetime Savings - Present Value ($)	
Utility	$80,739
Community	$80,739
Lifetime Costs - Present Value ($)	
Utility	$287,676
Community	$287,676
Benefit to Cost Ratio	
Utility	0.28
Community	0.28
Cost of Savings per Unit Volume ($/af)	
Utility	$2,000

End Use Savings Per Replacement

Method: Percent

	% Savings/Acct	Avg GPD/Acct
SF Irrigation	10.0%	55.8
MF Irrigation	10.0%	19.3
BUS Irrigation	10.0%	74.1
IND Irrigation	10.0%	204.4
IRR Irrigation	15.0%	514.5

Targets

Target Method: Detailed

Enter Annual Targets Below

Costs

View: Utility Details

	Fixture Costs	Admin Costs	Util Total
2020	$13,017	$260	$13,278
2021	$13,070	$261	$13,332
2022	$13,124	$262	$13,386
2023	$13,177	$264	$13,441
2024	$13,231	$265	$13,496
2025	$13,285	$266	$13,551
2026	$13,339	$267	$13,606
2027	$13,393	$268	$13,661
2028	$13,447	$269	$13,716
2029	$13,501	$270	$13,771
2030	$13,556	$271	$13,827
2031	$13,610	$272	$13,883
2032	$13,665	$273	$13,938
2033	$13,720	$274	$13,994
2034	$13,775	$276	$14,051
2035	$13,830	$277	$14,107
2036	$13,886	$278	$14,163
2037	$13,941	$279	$14,220
2038	$13,997	$280	$14,277
2039	$14,052	$281	$14,333
2040	$14,108	$282	$14,391
2041	$14,165	$283	$14,448
2042	$14,221	$284	$14,505
2043	$14,277	$286	$14,563
2044	$14,334	$287	$14,621
2045	$14,391	$288	$14,679
2046	$14,448	$289	$14,737
2047	$14,505	$290	$14,795
2048	$14,563	$291	$14,854
2049	$14,620	$292	$14,913
2050	$14,678	$294	$14,972

Targets

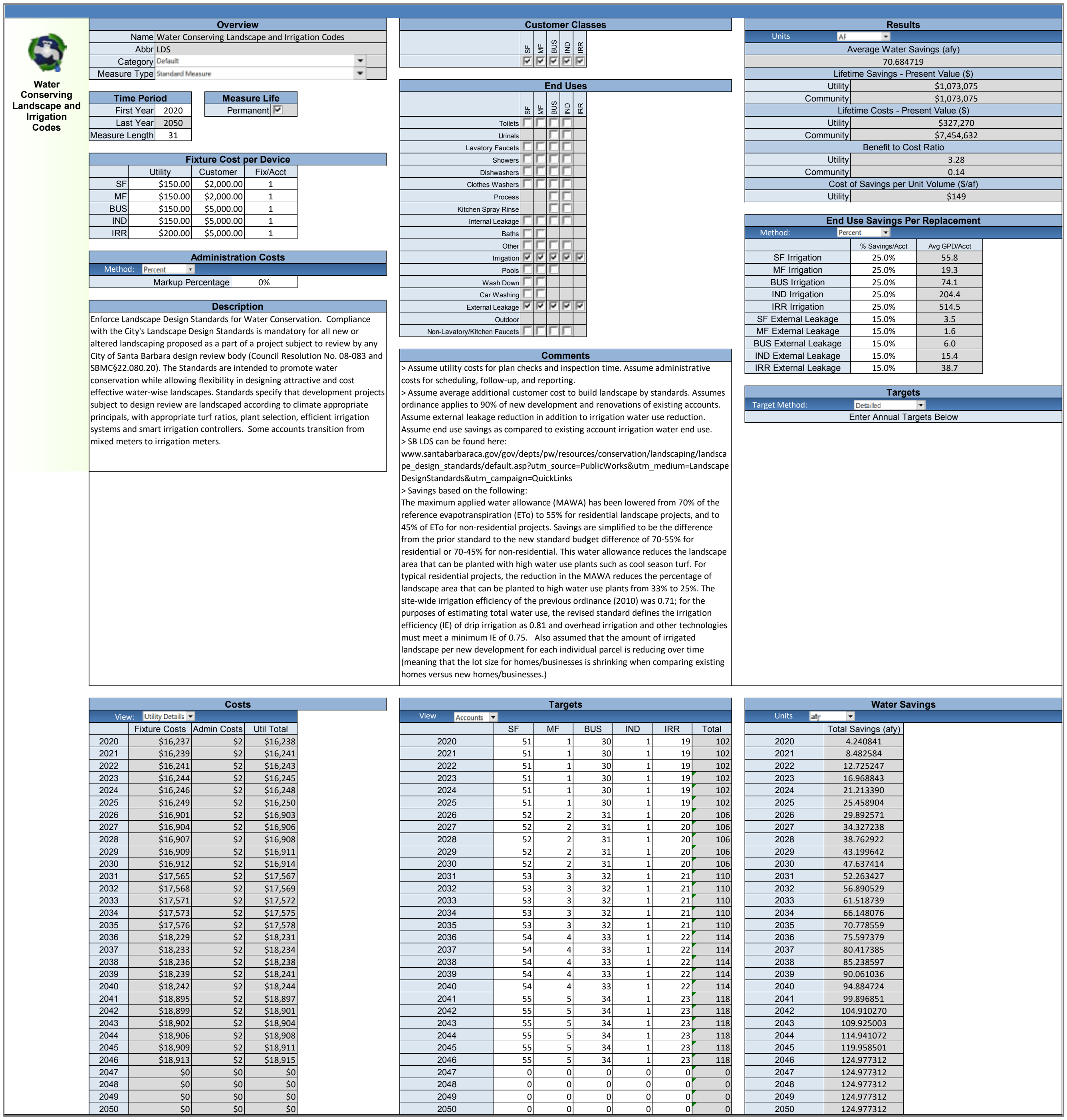
View: Accounts

	SF	MF	BUS	IND	IRR	Total
2020	291	12	1	1	4	309
2021	292	12	1	1	4	311
2022	293	12	1	1	4	312
2023	294	12	1	1	4	313
2024	295	12	1	1	4	314
2025	296	12	1	1	4	315
2026	297	12	1	1	5	317
2027	299	12	1	1	5	318
2028	300	12	1	1	5	319
2029	301	12	1	1	5	320
2030	302	12	1	1	5	322
2031	303	13	1	1	5	323
2032	304	13	1	1	5	324
2033	305	13	1	1	5	325
2034	306	13	1	1	5	327
2035	307	13	1	1	5	328
2036	308	13	1	1	5	329
2037	309	13	1	1	5	330
2038	310	13	1	2	6	332
2039	311	13	1	2	6	333
2040	312	13	1	2	6	334
2041	313	13	1	2	6	335
2042	315	13	1	2	6	337
2043	316	13	2	2	6	338
2044	317	13	2	2	6	339
2045	318	13	2	2	6	340
2046	319	13	2	2	6	342
2047	320	13	2	2	6	343
2048	321	13	2	2	7	344
2049	322	13	2	2	7	346
2050	323	13	2	2	7	347

Water Savings

Units: afy

	Total Savings (afy)
2020	2.149998
2021	4.312908
2022	4.338843
2023	4.364999
2024	4.391380
2025	4.417991
2026	4.444835
2027	4.471916
2028	4.499239
2029	4.526807
2030	4.554625
2031	4.582693
2032	4.611016
2033	4.639602
2034	4.668455
2035	4.697580
2036	4.726981
2037	4.756664
2038	4.786633
2039	4.816893
2040	4.847450
2041	4.878307
2042	4.909471
2043	4.940959
2044	4.972766
2045	5.004885
2046	5.037332
2047	5.070112
2048	5.103232
2049	5.136697
2050	5.170514



Water Conserving Landscape and Irrigation Codes

Overview

Name	Water Conserving Landscape and Irrigation Codes
Abbr	LDS
Category	Default
Measure Type	Standard Measure

Time Period

First Year	2020
Last Year	2050
Measure Length	31

Measure Life

Permanent ☑

Fixture Cost per Device

	Utility	Customer	Fix/Acct
SF	$150.00	$2,000.00	1
MF	$150.00	$2,000.00	1
BUS	$150.00	$5,000.00	1
IND	$150.00	$5,000.00	1
IRR	$200.00	$5,000.00	1

Administration Costs

Method: Percent

Markup Percentage 0%

Description

Enforce Landscape Design Standards for Water Conservation. Compliance with the City's Landscape Design Standards is mandatory for all new or altered landscaping proposed as a part of a project subject to review by any City of Santa Barbara design review body (Council Resolution No. 08-083 and SBMC§22.080.20). The Standards are intended to promote water conservation while allowing flexibility in designing attractive and cost effective water-wise landscapes. Standards specify that development projects subject to design review are landscaped according to climate appropriate principals, with appropriate turf ratios, plant selection, efficient irrigation systems and smart irrigation controllers. Some accounts transition from mixed meters to irrigation meters.

Customer Classes

SF	MF	BUS	IND	IRR
☑	☑	☑	☑	☑

End Uses

	SF	MF	BUS	IND	IRR
Toilets	☐	☐	☐	☐	
Urinals			☐	☐	
Lavatory Faucets	☐	☐	☐	☐	
Showers	☐	☐	☐	☐	
Dishwashers	☐	☐	☐	☐	
Clothes Washers	☐	☐	☐	☐	
Process			☐	☐	
Kitchen Spray Rinse			☐	☐	
Internal Leakage	☐	☐	☐	☐	
Baths	☐	☐			
Other	☐	☐	☐	☐	
Irrigation	☑	☑	☑	☑	☑
Pools	☐	☐	☐		
Wash Down	☐	☐			
Car Washing	☐	☐			
External Leakage	☑	☑	☑	☑	☑
Outdoor					
Non-Lavatory/Kitchen Faucets	☐	☐	☐	☐	

Comments

> Assume utility costs for plan checks and inspection time. Assume administrative costs for scheduling, follow-up, and reporting.

> Assume average additional customer cost to build landscape by standards. Assumes ordinance applies to 90% of new development and renovations of existing accounts. Assume external leakage reduction in addition to irrigation water use reduction. Assume end use savings as compared to existing account irrigation water end use.

> SB LDS can be found here: www.santabarbaraca.gov/gov/depts/pw/resources/conservation/landscaping/landscape_design_standards/default.asp?utm_source=PublicWorks&utm_medium=LandscapeDesignStandards&utm_campaign=QuickLinks

> Savings based on the following: The maximum applied water allowance (MAWA) has been lowered from 70% of the reference evapotranspiration (ETo) to 55% for residential landscape projects, and to 45% of ETo for non-residential projects. Savings are simplified to be the difference from the prior standard to the new standard budget difference of 70-55% for residential or 70-45% for non-residential. This water allowance reduces the landscape area that can be planted with high water use plants such as cool season turf. For typical residential projects, the reduction in the MAWA reduces the percentage of landscape area that can be planted to high water use plants from 33% to 25%. The site-wide irrigation efficiency of the previous ordinance (2010) was 0.71; for the purposes of estimating total water use, the revised standard defines the irrigation efficiency (IE) of drip irrigation as 0.81 and overhead irrigation and other technologies must meet a minimum IE of 0.75. Also assumed that the amount of irrigated landscape per new development for each individual parcel is reducing over time (meaning that the lot size for homes/businesses is shrinking when comparing existing homes versus new homes/businesses.)

Results

Units: AF

Average Water Savings (afy)	
70.684719	
Lifetime Savings - Present Value ($)	
Utility	$1,073,075
Community	$1,073,075
Lifetime Costs - Present Value ($)	
Utility	$327,270
Community	$7,454,632
Benefit to Cost Ratio	
Utility	3.28
Community	0.14
Cost of Savings per Unit Volume ($/af)	
Utility	$149

End Use Savings Per Replacement

Method: Percent

	% Savings/Acct	Avg GPD/Acct
SF Irrigation	25.0%	55.8
MF Irrigation	25.0%	19.3
BUS Irrigation	25.0%	74.1
IND Irrigation	25.0%	204.4
IRR Irrigation	25.0%	514.5
SF External Leakage	15.0%	3.5
MF External Leakage	15.0%	1.6
BUS External Leakage	15.0%	6.0
IND External Leakage	15.0%	15.4
IRR External Leakage	15.0%	38.7

Targets

Target Method: Detailed

Enter Annual Targets Below

Costs

View: Utility Details

	Fixture Costs	Admin Costs	Util Total
2020	$16,237	$2	$16,238
2021	$16,239	$2	$16,241
2022	$16,241	$2	$16,243
2023	$16,244	$2	$16,245
2024	$16,246	$2	$16,248
2025	$16,249	$2	$16,250
2026	$16,901	$2	$16,903
2027	$16,904	$2	$16,906
2028	$16,907	$2	$16,908
2029	$16,909	$2	$16,911
2030	$16,912	$2	$16,914
2031	$17,565	$2	$17,567
2032	$17,568	$2	$17,569
2033	$17,571	$2	$17,572
2034	$17,573	$2	$17,575
2035	$17,576	$2	$17,578
2036	$18,229	$2	$18,231
2037	$18,233	$2	$18,234
2038	$18,236	$2	$18,238
2039	$18,239	$2	$18,241
2040	$18,242	$2	$18,244
2041	$18,895	$2	$18,897
2042	$18,899	$2	$18,901
2043	$18,902	$2	$18,904
2044	$18,906	$2	$18,908
2045	$18,909	$2	$18,911
2046	$18,913	$2	$18,915
2047	$0	$0	$0
2048	$0	$0	$0
2049	$0	$0	$0
2050	$0	$0	$0

Targets

View: Accounts

	SF	MF	BUS	IND	IRR	Total
2020	51	1	30	1	19	102
2021	51	1	30	1	19	102
2022	51	1	30	1	19	102
2023	51	1	30	1	19	102
2024	51	1	30	1	19	102
2025	51	1	30	1	19	102
2026	52	2	31	1	20	106
2027	52	2	31	1	20	106
2028	52	2	31	1	20	106
2029	52	2	31	1	20	106
2030	52	2	31	1	20	106
2031	53	3	32	1	21	110
2032	53	3	32	1	21	110
2033	53	3	32	1	21	110
2034	53	3	32	1	21	110
2035	53	3	32	1	21	110
2036	54	4	33	1	22	114
2037	54	4	33	1	22	114
2038	54	4	33	1	22	114
2039	54	4	33	1	22	114
2040	54	4	33	1	22	114
2041	55	5	34	1	23	118
2042	55	5	34	1	23	118
2043	55	5	34	1	23	118
2044	55	5	34	1	23	118
2045	55	5	34	1	23	118
2046	55	5	34	1	23	118
2047	0	0	0	0	0	0
2048	0	0	0	0	0	0
2049	0	0	0	0	0	0
2050	0	0	0	0	0	0

Water Savings

Units: afy

	Total Savings (afy)
2020	4.240841
2021	8.482584
2022	12.725247
2023	16.968843
2024	21.213390
2025	25.458904
2026	29.892571
2027	34.327238
2028	38.762922
2029	43.199642
2030	47.637414
2031	52.263427
2032	56.890529
2033	61.518739
2034	66.148076
2035	70.778559
2036	75.597379
2037	80.417385
2038	85.238597
2039	90.061036
2040	94.884724
2041	99.896851
2042	104.910270
2043	109.925003
2044	114.941072
2045	119.958501
2046	124.977312
2047	124.977312
2048	124.977312
2049	124.977312
2050	124.977312

Pressure Reduction Valve Rebate

Overview

Name	Pressure Reduction Valve Rebate
Abbr	PRV
Category	Default
Measure Type	Standard Measure

Time Period

First Year	2020
Last Year	2034
Measure Length	15

Measure Life

Permanent	☐
Years	10
Repeat	☐

Fixture Cost per Device

	Utility	Customer	Fix/Acct
SF	$75.00	$150.00	1
MF	$75.00	$150.00	1
BUS	$75.00	$200.00	1
IRR	$75.00	$200.00	1

Administration Costs

Method: Percent

Markup Percentage	25%

Description

Provide a rebate to install pressure regulating valve on existing properties with pressure exceeding 80 psi.

Customer Classes

SF	MF	BUS	IND	IRR
☑	☑	☑	☐	☑

End Uses

	SF	MF	BUS	IND	IRR
Toilets	☐	☐	☐		
Urinals			☐		
Lavatory Faucets	☑	☑	☑		
Showers	☑	☑	☑		
Dishwashers	☐	☐	☐		
Clothes Washers	☐	☐	☐		
Process			☐		
Kitchen Spray Rinse			☑		
Internal Leakage	☑	☑	☑		
Baths	☐	☐			
Other	☐	☐	☐		
Irrigation	☑	☑	☑		☑
Pools	☐	☐	☐		
Wash Down	☑	☑			
Car Washing	☑	☑			
External Leakage	☑	☑	☑		☑
Outdoor					
Non-Lavatory/Kitchen Faucets	☑	☑	☑		

Comments

> Focus of Program: ALL (except IND)
> New measure
> Inspection time and rebate included in utility cost
> Customer costs include device (approx. $80) and installation. Installation costs may be $50 indoors, $100 outdoors for irrigation systems.
> Targets based on Soquel Creek WD, started off popular and dwindled
> Low markup, would be all paper/online by plumber/homeowner, no inspection needed. Assume pushed by plumber.
> Measure life of 10 years and measure length of 15 years as people don't replace these often, hence the rebate.
> Utility could fund and facilitate appropriate installation of regulators, first targeting neighborhoods with the highest pressure. Utility may need to impose regulations to require that such installations are made and maintained thereafter.
> For every 10 psi over the recommended operating pressure of the irrigation components, Rainbird asserts 15% more water is used.
> HUD Study (1983) found savings from pressure reduction were 4-6%.
> Pressure regulator life expectancy of 10-15 years.
www.atlantisplumbing.com/water-pressure-regulators.php. Though most manufacturers and plumbing professionals
recommend valve replacement every 5 years (per SB website).
> Target SF: 80, MF: 20, BUS: 10, IND: 0, IRR: 10 and reduce over time.

Results

Units: AF

Average Water Savings (afy)	
1.133625	
Lifetime Savings - Present Value ($)	
Utility	$31,661
Community	$60,188
Lifetime Costs - Present Value ($)	
Utility	$15,108
Community	$40,664
Benefit to Cost Ratio	
Utility	2.10
Community	1.48
Cost of Savings per Unit Volume ($/af)	
Utility	$430

End Use Savings Per Replacement

Method: Percent

	% Savings/Acct	Avg GPD/Acct
SF Lavatory Faucets	5.0%	7.8
MF Lavatory Faucets	5.0%	18.6
BUS Lavatory Faucets	5.0%	20.7
SF Showers	5.0%	32.8
MF Showers	5.0%	85.8
BUS Showers	5.0%	46.5
BUS Kitchen Spray Rinse	5.0%	25.8
SF Internal Leakage	5.0%	19.9
MF Internal Leakage	5.0%	21.5
BUS Internal Leakage	5.0%	51.7
SF Irrigation	15.0%	55.8
MF Irrigation	15.0%	19.3
BUS Irrigation	15.0%	74.1
IRR Irrigation	15.0%	514.5
SF Wash Down	5.0%	4.9
MF Wash Down	5.0%	0.9
SF Car Washing	5.0%	4.9
MF Car Washing	5.0%	0.9
SF External Leakage	5.0%	3.5
MF External Leakage	5.0%	1.6
BUS External Leakage	5.0%	6.0
IRR External Leakage	5.0%	38.7
SF Non-Lavatory/Kitchen Faucets	5.0%	18.5
MF Non-Lavatory/Kitchen Faucets	5.0%	40.0
BUS Non-Lavatory/Kitchen Faucets	5.0%	46.5

Targets

Target Method: Detailed

Enter Annual Targets Below

Costs

View: Utility Details

	Fixture Costs	Admin Costs	Util Total
2020	$2,949	$737	$3,686
2021	$2,359	$590	$2,949
2022	$1,887	$472	$2,359
2023	$1,510	$377	$1,887
2024	$1,208	$302	$1,510
2025	$1,050	$263	$1,313
2026	$825	$206	$1,031
2027	$675	$169	$844
2028	$450	$113	$563
2029	$150	$38	$188
2030	$0	$0	$0
2031	$0	$0	$0
2032	$0	$0	$0
2033	$0	$0	$0
2034	$0	$0	$0
2035	$0	$0	$0
2036	$0	$0	$0
2037	$0	$0	$0
2038	$0	$0	$0
2039	$0	$0	$0
2040	$0	$0	$0
2041	$0	$0	$0
2042	$0	$0	$0
2043	$0	$0	$0
2044	$0	$0	$0
2045	$0	$0	$0
2046	$0	$0	$0
2047	$0	$0	$0
2048	$0	$0	$0
2049	$0	$0	$0
2050	$0	$0	$0

Targets

View: Accounts

	SF	MF	BUS	IRR	Total
2020	26	7	3	3	39
2021	21	5	3	3	31
2022	17	4	2	2	25
2023	13	3	2	2	20
2024	11	3	1	1	16
2025	9	3	1	1	14
2026	7	2	1	1	11
2027	5	2	1	1	9
2028	3	1	1	1	6
2029	1	1	0	0	2
2030	0	0	0	0	0
2031	0	0	0	0	0
2032	0	0	0	0	0
2033	0	0	0	0	0
2034	0	0	0	0	0
2035	0	0	0	0	0
2036	0	0	0	0	0
2037	0	0	0	0	0
2038	0	0	0	0	0
2039	0	0	0	0	0
2040	0	0	0	0	0
2041	0	0	0	0	0
2042	0	0	0	0	0
2043	0	0	0	0	0
2044	0	0	0	0	0
2045	0	0	0	0	0
2046	0	0	0	0	0
2047	0	0	0	0	0
2048	0	0	0	0	0
2049	0	0	0	0	0
2050	0	0	0	0	0

Water Savings

Units: afy

	Total Savings (afy)
2020	0.801873
2021	1.438079
2022	1.942706
2023	2.342800
2024	2.659824
2025	2.918381
2026	3.136942
2027	3.327579
2028	3.479348
2029	3.496490
2030	2.709494
2031	2.081657
2032	1.580696
2033	1.180925
2034	0.861876
2035	0.600517
2036	0.377487
2037	0.181823
2038	0.023874
2039	0.000000
2040	0.000000
2041	0.000000
2042	0.000000
2043	0.000000
2044	0.000000
2045	0.000000
2046	0.000000
2047	0.000000
2048	0.000000
2049	0.000000
2050	0.000000

Leak Detection Device Rebate

Overview

Name	Leak Detection Device Rebate
Abbr	LEAK
Category	Default
Measure Type	Standard Measure

Time Period

First Year	2020
Last Year	2045
Measure Length	26

Measure Life

Permanent	☐
Years	5
Repeat	☐

Fixture Cost per Device

	Utility	Customer	Fix/Acct
SF	$100.00	$400.00	1
MF	$100.00	$400.00	4
BUS	$100.00	$400.00	2
IND	$100.00	$400.00	1

Administration Costs

Method: Percent

Markup Percentage	25%

Description

Provide a rebate for private leak detection/alert device that provides real time water usage data to customer and may or may not allow for remote shutoff with a smart phone interface.

Customer Classes

SF	MF	BUS	IND	IRR
☑	☑	☑	☑	☐

End Uses

	SF	MF	BUS	IND	IRR
Toilets	☐	☐	☐	☐	
Urinals			☐	☐	
Lavatory Faucets	☐	☐	☐	☐	
Showers	☐	☐	☐	☐	
Dishwashers	☐	☐	☐	☐	
Clothes Washers	☐	☐	☐	☐	
Process			☐	☐	
Kitchen Spray Rinse			☐	☐	
Internal Leakage	☑	☑	☑	☑	
Baths	☐	☐			
Other	☐	☐	☐	☐	
Irrigation	☑	☑	☑	☑	
Pools	☐	☐	☐		
Wash Down	☐	☐			
Car Washing	☐	☐			
External Leakage	☑	☑	☑	☑	
Outdoor					
Non-Lavatory/Kitchen Faucets	☐	☐	☐	☐	

Comments

> New measure
> Focus of Program: ALL
> Would be less relevant with AMI so measure ends when AMI is fully deployed by 2024.
> Savings based on 7% SF total account savings reported in Feb 2020 by San Antonio WS and Water Alliance Now in recent pilot studies.
> Total utility and customer costs assume half the customers would install more-costly remote or auto-shut-off device and half the less-costly sensor.
> Ex: Flume, Flo, Buoy, Phyn
> Flume sensor straps around water meter and provides intelligent leak detection and real-time water use via mobile app. No pipes cut. ($200).
> Water Hero Leak Detection & Automatic Water Shut Off System ($650). Plumbed components last 20+ years; electronics last ~10 yrs.
> Assume 25% admin to cover online mgmt of measure.
> Savings designed to align with AMI savings assumptions and basis. When available willl compare to savings from SNWA, EBMUD, BAWSCA and San Antonio pilot studies.

Results

Units: AF

Average Water Savings (afy)	
	5.180277
Lifetime Savings - Present Value ($)	
Utility	$173,095
Community	$843,877
Lifetime Costs - Present Value ($)	
Utility	$310,709
Community	$1,304,976
Benefit to Cost Ratio	
Utility	0.56
Community	0.65
Cost of Savings per Unit Volume ($/af)	
Utility	$1,935

End Use Savings Per Replacement

Method: Percent

	% Savings/Acct	Avg GPD/Acct
SF Internal Leakage	50.0%	19.9
MF Internal Leakage	50.0%	21.5
BUS Internal Leakage	50.0%	51.7
IND Internal Leakage	50.0%	248.2
SF Irrigation	5.0%	55.8
MF Irrigation	5.0%	19.3
BUS Irrigation	5.0%	74.1
IND Irrigation	5.0%	204.4
SF External Leakage	50.0%	3.5
MF External Leakage	50.0%	1.6
BUS External Leakage	50.0%	6.0
IND External Leakage	50.0%	15.4

Targets

Target Method: Percentage

% of Accts Targeted/Yr	0.250%
Only Affects New Accts	☐

Costs

View: Utility Details

	Fixture Costs	Admin Costs	Util Total
2020	$12,691	$3,173	$15,863
2021	$12,766	$3,192	$15,958
2022	$12,842	$3,211	$16,053
2023	$12,918	$3,230	$16,148
2024	$12,994	$3,249	$16,243
2025	$13,071	$3,268	$16,338
2026	$13,147	$3,287	$16,434
2027	$13,224	$3,306	$16,530
2028	$13,301	$3,325	$16,627
2029	$13,379	$3,345	$16,723
2030	$13,456	$3,364	$16,820
2031	$13,530	$3,382	$16,912
2032	$13,603	$3,401	$17,004
2033	$13,677	$3,419	$17,097
2034	$13,752	$3,438	$17,189
2035	$13,826	$3,456	$17,282
2036	$13,901	$3,475	$17,376
2037	$13,976	$3,494	$17,470
2038	$14,051	$3,513	$17,564
2039	$14,126	$3,532	$17,658
2040	$14,202	$3,551	$17,753
2041	$14,278	$3,570	$17,848
2042	$14,354	$3,589	$17,943
2043	$14,431	$3,608	$18,039
2044	$14,508	$3,627	$18,135
2045	$14,585	$3,646	$18,231
2046	$0	$0	$0
2047	$0	$0	$0
2048	$0	$0	$0
2049	$0	$0	$0
2050	$0	$0	$0

Targets

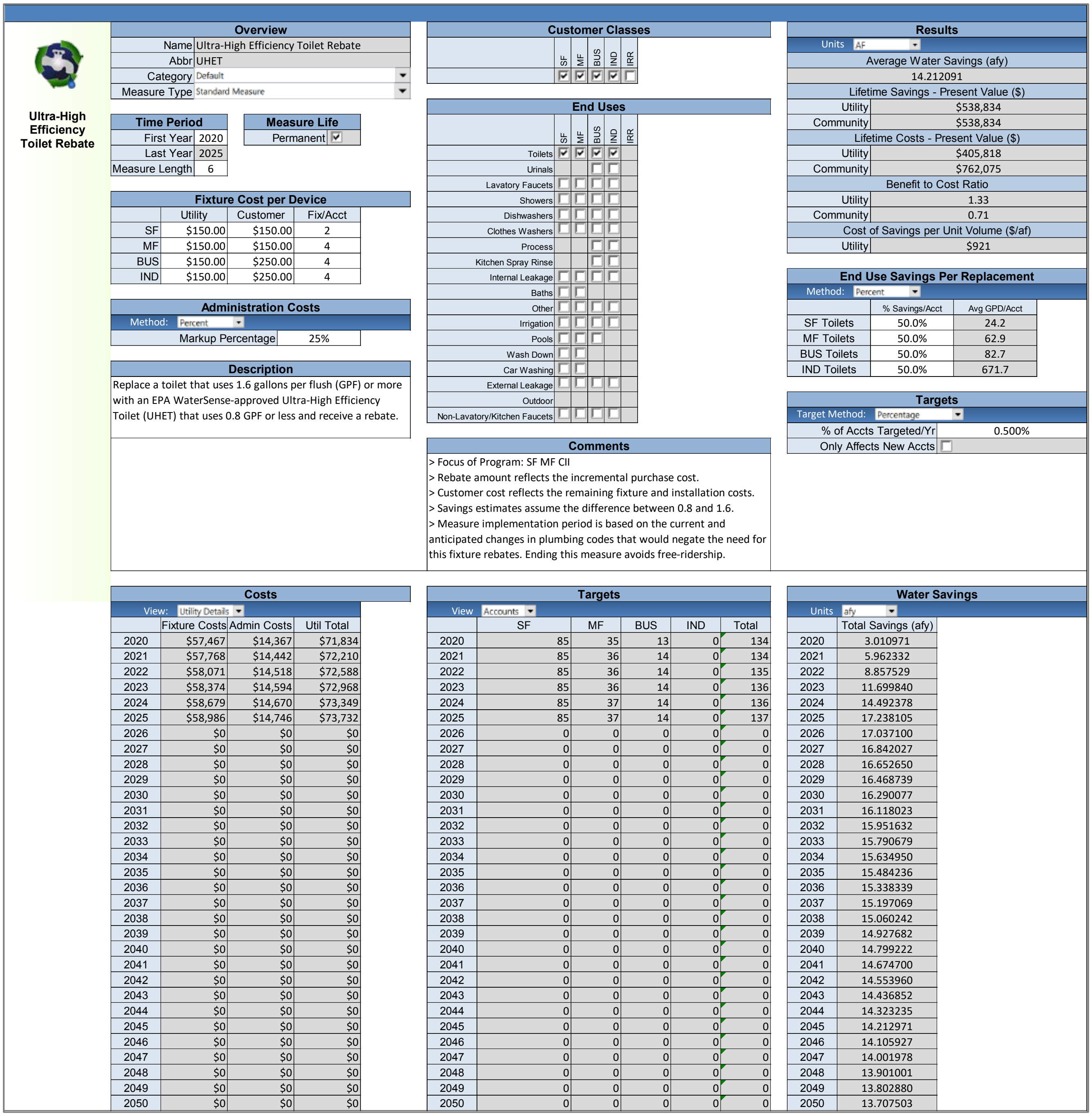
View: Accounts

	SF	MF	BUS	IND	Total
2020	42	18	7	0	67
2021	42	18	7	0	67
2022	42	18	7	0	67
2023	42	18	7	0	68
2024	43	18	7	0	68
2025	43	18	7	0	68
2026	43	19	7	0	69
2027	43	19	7	0	69
2028	43	19	7	0	69
2029	43	19	8	0	69
2030	43	19	8	0	70
2031	43	19	8	0	70
2032	43	19	8	0	70
2033	43	19	8	0	71
2034	43	20	8	0	71
2035	43	20	8	0	71
2036	43	20	8	0	71
2037	43	20	8	0	72
2038	43	20	8	0	72
2039	43	20	9	0	72
2040	43	20	9	0	72
2041	43	20	9	0	73
2042	43	21	9	0	73
2043	43	21	9	0	73
2044	43	21	9	0	73
2045	43	21	9	0	74
2046	0	0	0	0	0
2047	0	0	0	0	0
2048	0	0	0	0	0
2049	0	0	0	0	0
2050	0	0	0	0	0

Water Savings

Units: afy

	Total Savings (afy)
2020	1.159572
2021	2.325105
2022	3.496639
2023	4.674215
2024	5.857874
2025	5.888088
2026	5.918509
2027	5.949141
2028	5.979986
2029	6.011046
2030	6.042324
2031	6.073143
2032	6.103504
2033	6.133410
2034	6.162865
2035	6.191871
2036	6.221112
2037	6.250592
2038	6.280313
2039	6.310278
2040	6.340490
2041	6.370953
2042	6.401669
2043	6.432642
2044	6.463875
2045	6.495371
2046	5.208895
2047	3.916173
2048	2.617152
2049	1.311779
2050	0.000000



Ultra-High Efficiency Toilet Rebate

Overview

Name	Ultra-High Efficiency Toilet Rebate
Abbr	UHET
Category	Default
Measure Type	Standard Measure

Time Period

First Year	2020
Last Year	2025
Measure Length	6

Measure Life

Permanent	☑

Fixture Cost per Device

	Utility	Customer	Fix/Acct
SF	$150.00	$150.00	2
MF	$150.00	$150.00	4
BUS	$150.00	$250.00	4
IND	$150.00	$250.00	4

Administration Costs

Method: Percent

Markup Percentage	25%

Description

Replace a toilet that uses 1.6 gallons per flush (GPF) or more with an EPA WaterSense-approved Ultra-High Efficiency Toilet (UHET) that uses 0.8 GPF or less and receive a rebate.

Customer Classes

SF	MF	BUS	IND	IRR
☑	☑	☑	☑	☐

End Uses

	SF	MF	BUS	IND	IRR
Toilets	☑	☑	☑	☑	
Urinals			☐	☐	
Lavatory Faucets	☐	☐	☐	☐	
Showers	☐	☐	☐	☐	
Dishwashers	☐	☐	☐	☐	
Clothes Washers	☐	☐	☐	☐	
Process			☐	☐	
Kitchen Spray Rinse			☐	☐	
Internal Leakage	☐	☐	☐	☐	
Baths	☐	☐			
Other	☐	☐	☐	☐	
Irrigation	☐	☐	☐	☐	
Pools	☐	☐	☐		
Wash Down	☐	☐			
Car Washing	☐	☐			
External Leakage	☐	☐	☐	☐	
Outdoor					
Non-Lavatory/Kitchen Faucets	☐	☐	☐	☐	

Comments

> Focus of Program: SF MF CII
> Rebate amount reflects the incremental purchase cost.
> Customer cost reflects the remaining fixture and installation costs.
> Savings estimates assume the difference between 0.8 and 1.6.
> Measure implementation period is based on the current and anticipated changes in plumbing codes that would negate the need for this fixture rebates. Ending this measure avoids free-ridership.

Results

Units: AF

Average Water Savings (afy)	
	14.212091
Lifetime Savings - Present Value ($)	
Utility	$538,834
Community	$538,834
Lifetime Costs - Present Value ($)	
Utility	$405,818
Community	$762,075
Benefit to Cost Ratio	
Utility	1.33
Community	0.71
Cost of Savings per Unit Volume ($/af)	
Utility	$921

End Use Savings Per Replacement

Method: Percent

	% Savings/Acct	Avg GPD/Acct
SF Toilets	50.0%	24.2
MF Toilets	50.0%	62.9
BUS Toilets	50.0%	82.7
IND Toilets	50.0%	671.7

Targets

Target Method: Percentage

% of Accts Targeted/Yr	0.500%
Only Affects New Accts	☐

Costs

View: Utility Details

	Fixture Costs	Admin Costs	Util Total
2020	$57,467	$14,367	$71,834
2021	$57,768	$14,442	$72,210
2022	$58,071	$14,518	$72,588
2023	$58,374	$14,594	$72,968
2024	$58,679	$14,670	$73,349
2025	$58,986	$14,746	$73,732
2026	$0	$0	$0
2027	$0	$0	$0
2028	$0	$0	$0
2029	$0	$0	$0
2030	$0	$0	$0
2031	$0	$0	$0
2032	$0	$0	$0
2033	$0	$0	$0
2034	$0	$0	$0
2035	$0	$0	$0
2036	$0	$0	$0
2037	$0	$0	$0
2038	$0	$0	$0
2039	$0	$0	$0
2040	$0	$0	$0
2041	$0	$0	$0
2042	$0	$0	$0
2043	$0	$0	$0
2044	$0	$0	$0
2045	$0	$0	$0
2046	$0	$0	$0
2047	$0	$0	$0
2048	$0	$0	$0
2049	$0	$0	$0
2050	$0	$0	$0

Targets

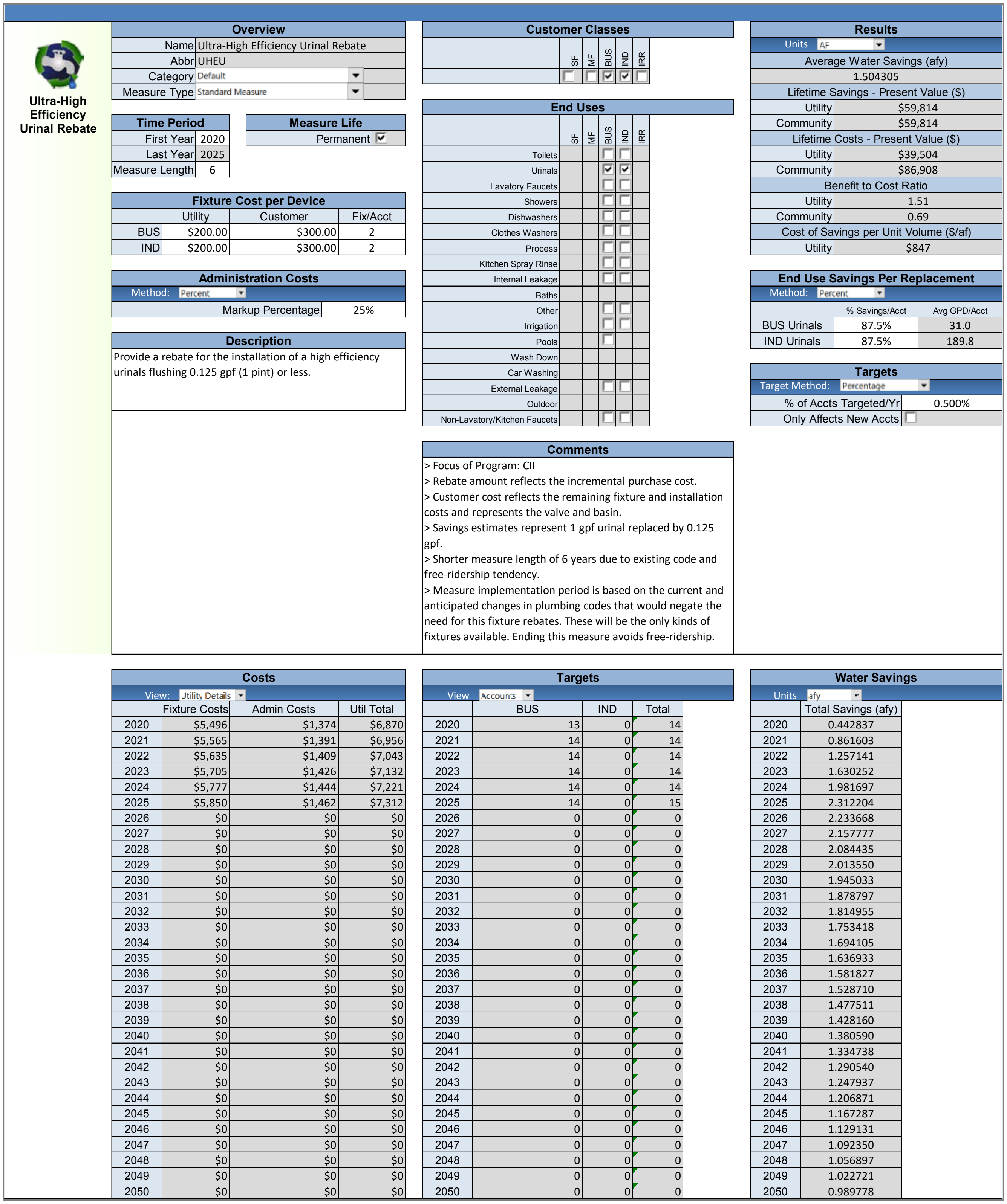
View: Accounts

	SF	MF	BUS	IND	Total
2020	85	35	13	0	134
2021	85	36	14	0	134
2022	85	36	14	0	135
2023	85	36	14	0	136
2024	85	37	14	0	136
2025	85	37	14	0	137
2026	0	0	0	0	0
2027	0	0	0	0	0
2028	0	0	0	0	0
2029	0	0	0	0	0
2030	0	0	0	0	0
2031	0	0	0	0	0
2032	0	0	0	0	0
2033	0	0	0	0	0
2034	0	0	0	0	0
2035	0	0	0	0	0
2036	0	0	0	0	0
2037	0	0	0	0	0
2038	0	0	0	0	0
2039	0	0	0	0	0
2040	0	0	0	0	0
2041	0	0	0	0	0
2042	0	0	0	0	0
2043	0	0	0	0	0
2044	0	0	0	0	0
2045	0	0	0	0	0
2046	0	0	0	0	0
2047	0	0	0	0	0
2048	0	0	0	0	0
2049	0	0	0	0	0
2050	0	0	0	0	0

Water Savings

Units: afy

	Total Savings (afy)
2020	3.010971
2021	5.962332
2022	8.857529
2023	11.699840
2024	14.492378
2025	17.238105
2026	17.037100
2027	16.842027
2028	16.652650
2029	16.468739
2030	16.290077
2031	16.118023
2032	15.951632
2033	15.790679
2034	15.634950
2035	15.484236
2036	15.338339
2037	15.197069
2038	15.060242
2039	14.927682
2040	14.799222
2041	14.674700
2042	14.553960
2043	14.436852
2044	14.323235
2045	14.212971
2046	14.105927
2047	14.001978
2048	13.901001
2049	13.802880
2050	13.707503



Ultra-High Efficiency Urinal Rebate

Overview	
Name	Ultra-High Efficiency Urinal Rebate
Abbr	UHEU
Category	Default
Measure Type	Standard Measure

Time Period	
First Year	2020
Last Year	2025
Measure Length	6

Measure Life	
Permanent	☑

Fixture Cost per Device

	Utility	Customer	Fix/Acct
BUS	$200.00	$300.00	2
IND	$200.00	$300.00	2

Administration Costs

Method: Percent

Markup Percentage	25%

Description

Provide a rebate for the installation of a high efficiency urinals flushing 0.125 gpf (1 pint) or less.

Customer Classes

SF	MF	BUS	IND	IRR
☐	☐	☑	☑	☐

End Uses

	SF	MF	BUS	IND	IRR
Toilets			☐	☐	
Urinals			☑	☑	
Lavatory Faucets			☐	☐	
Showers			☐	☐	
Dishwashers			☐	☐	
Clothes Washers			☐	☐	
Process			☐	☐	
Kitchen Spray Rinse			☐	☐	
Internal Leakage			☐	☐	
Baths					
Other			☐	☐	
Irrigation			☐	☐	
Pools			☐		
Wash Down					
Car Washing					
External Leakage			☐	☐	
Outdoor					
Non-Lavatory/Kitchen Faucets			☐	☐	

Results

Units: AF

Average Water Savings (afy)	
1.504305	
Lifetime Savings - Present Value ($)	
Utility	$59,814
Community	$59,814
Lifetime Costs - Present Value ($)	
Utility	$39,504
Community	$86,908
Benefit to Cost Ratio	
Utility	1.51
Community	0.69
Cost of Savings per Unit Volume ($/af)	
Utility	$847

End Use Savings Per Replacement

Method: Percent

	% Savings/Acct	Avg GPD/Acct
BUS Urinals	87.5%	31.0
IND Urinals	87.5%	189.8

Targets

Target Method: Percentage

% of Accts Targeted/Yr	0.500%
Only Affects New Accts	☐

Comments

> Focus of Program: CII
> Rebate amount reflects the incremental purchase cost.
> Customer cost reflects the remaining fixture and installation costs and represents the valve and basin.
> Savings estimates represent 1 gpf urinal replaced by 0.125 gpf.
> Shorter measure length of 6 years due to existing code and free-ridership tendency.
> Measure implementation period is based on the current and anticipated changes in plumbing codes that would negate the need for this fixture rebates. These will be the only kinds of fixtures available. Ending this measure avoids free-ridership.

Costs

View: Utility Details

	Fixture Costs	Admin Costs	Util Total
2020	$5,496	$1,374	$6,870
2021	$5,565	$1,391	$6,956
2022	$5,635	$1,409	$7,043
2023	$5,705	$1,426	$7,132
2024	$5,777	$1,444	$7,221
2025	$5,850	$1,462	$7,312
2026	$0	$0	$0
2027	$0	$0	$0
2028	$0	$0	$0
2029	$0	$0	$0
2030	$0	$0	$0
2031	$0	$0	$0
2032	$0	$0	$0
2033	$0	$0	$0
2034	$0	$0	$0
2035	$0	$0	$0
2036	$0	$0	$0
2037	$0	$0	$0
2038	$0	$0	$0
2039	$0	$0	$0
2040	$0	$0	$0
2041	$0	$0	$0
2042	$0	$0	$0
2043	$0	$0	$0
2044	$0	$0	$0
2045	$0	$0	$0
2046	$0	$0	$0
2047	$0	$0	$0
2048	$0	$0	$0
2049	$0	$0	$0
2050	$0	$0	$0

Targets

View: Accounts

	BUS	IND	Total
2020	13	0	14
2021	14	0	14
2022	14	0	14
2023	14	0	14
2024	14	0	14
2025	14	0	15
2026	0	0	0
2027	0	0	0
2028	0	0	0
2029	0	0	0
2030	0	0	0
2031	0	0	0
2032	0	0	0
2033	0	0	0
2034	0	0	0
2035	0	0	0
2036	0	0	0
2037	0	0	0
2038	0	0	0
2039	0	0	0
2040	0	0	0
2041	0	0	0
2042	0	0	0
2043	0	0	0
2044	0	0	0
2045	0	0	0
2046	0	0	0
2047	0	0	0
2048	0	0	0
2049	0	0	0
2050	0	0	0

Water Savings

Units: afy

	Total Savings (afy)
2020	0.442837
2021	0.861603
2022	1.257141
2023	1.630252
2024	1.981697
2025	2.312204
2026	2.233668
2027	2.157777
2028	2.084435
2029	2.013550
2030	1.945033
2031	1.878797
2032	1.814955
2033	1.753418
2034	1.694105
2035	1.636933
2036	1.581827
2037	1.528710
2038	1.477511
2039	1.428160
2040	1.380590
2041	1.334738
2042	1.290540
2043	1.247937
2044	1.206871
2045	1.167287
2046	1.129131
2047	1.092350
2048	1.056897
2049	1.022721
2050	0.989778

Toilet Flapper Leak Alert Giveaway

Overview

Name	Toilet Flapper Leak Alert Giveaway
Abbr	TOILALERT
Category	Default
Measure Type	Standard Measure

Time Period

First Year	2020
Last Year	2022
Measure Length	3

Measure Life

Permanent	☐
Years	4
Repeat	☐

Fixture Cost per Device

	Utility	Customer	Fix/Acct
MF	$30.00	$15.00	4
BUS	$30.00	$15.00	4

Administration Costs

Method: Percent

Markup Percentage	25%

Description

Provide toilet leak alert indication device for simple installation on toilet tanks, if flapper issue- device notifies with light and/or sound. Also responds to high water level overflow issues (silent leaks).

Customer Classes

SF	MF	BUS	IND	IRR
☐	☑	☑	☐	☐

End Uses

	SF	MF	BUS	IND	IRR
Toilets		☐	☐		
Urinals			☐		
Lavatory Faucets		☐	☐		
Showers		☐	☐		
Dishwashers		☐	☐		
Clothes Washers		☐	☐		
Process			☐		
Kitchen Spray Rinse			☐		
Internal Leakage		☑	☑		
Baths		☐			
Other		☐	☐		
Irrigation		☐	☐		
Pools		☐	☐		
Wash Down		☐			
Car Washing		☐			
External Leakage		☐	☐		
Outdoor					
Non-Lavatory/Kitchen Faucets		☐	☐		

Comments

> Focus of Program: MFR & BUS
> Opportunity to reach underserved, high density housing. ex. SB Housing Authority, apartments, hotels, senior housing.
> LeakAlertor - fully automatic leak AND overflow detection device for toilets (installs in seconds). ~ $30/ea.
> Devices typically have 3 year warranty - so assume 4 year savings life.
> Savings similar to AMI - slightly less since smaller investment and likely investment would be by bldg owner and not renter.
> Assumes 1.2 toilets per MF DU and 3.3 DU per MF account
> Assume customer cost for installation.
> Assume 25% admin cost.
> Would be a giveaway at appointments. Staff would oversee the installation of one; assume some are not installed.

Results

Units: AF

Average Water Savings (afy)	
0.307521	
Lifetime Savings - Present Value ($)	
Utility	$16,670
Community	$104,525
Lifetime Costs - Present Value ($)	
Utility	$43,163
Community	$60,428
Benefit to Cost Ratio	
Utility	0.39
Community	1.73
Cost of Savings per Unit Volume ($/af)	
Utility	$4,528

End Use Savings Per Replacement

Method: Percent

	% Savings/Acct	Avg GPD/Acct
MF Internal Leakage	25.0%	21.5
BUS Internal Leakage	25.0%	51.7

Targets

Target Method: Percentage

% of Accts Targeted/Yr	1.000%
Only Affects New Accts	☐

Costs

View: Utility Details

	Fixture Costs	Admin Costs	Util Total
2020	$11,752	$2,938	$14,690
2021	$11,855	$2,964	$14,819
2022	$11,959	$2,990	$14,948
2023	$0	$0	$0
2024	$0	$0	$0
2025	$0	$0	$0
2026	$0	$0	$0
2027	$0	$0	$0
2028	$0	$0	$0
2029	$0	$0	$0
2030	$0	$0	$0
2031	$0	$0	$0
2032	$0	$0	$0
2033	$0	$0	$0
2034	$0	$0	$0
2035	$0	$0	$0
2036	$0	$0	$0
2037	$0	$0	$0
2038	$0	$0	$0
2039	$0	$0	$0
2040	$0	$0	$0
2041	$0	$0	$0
2042	$0	$0	$0
2043	$0	$0	$0
2044	$0	$0	$0
2045	$0	$0	$0
2046	$0	$0	$0
2047	$0	$0	$0
2048	$0	$0	$0
2049	$0	$0	$0
2050	$0	$0	$0

Targets

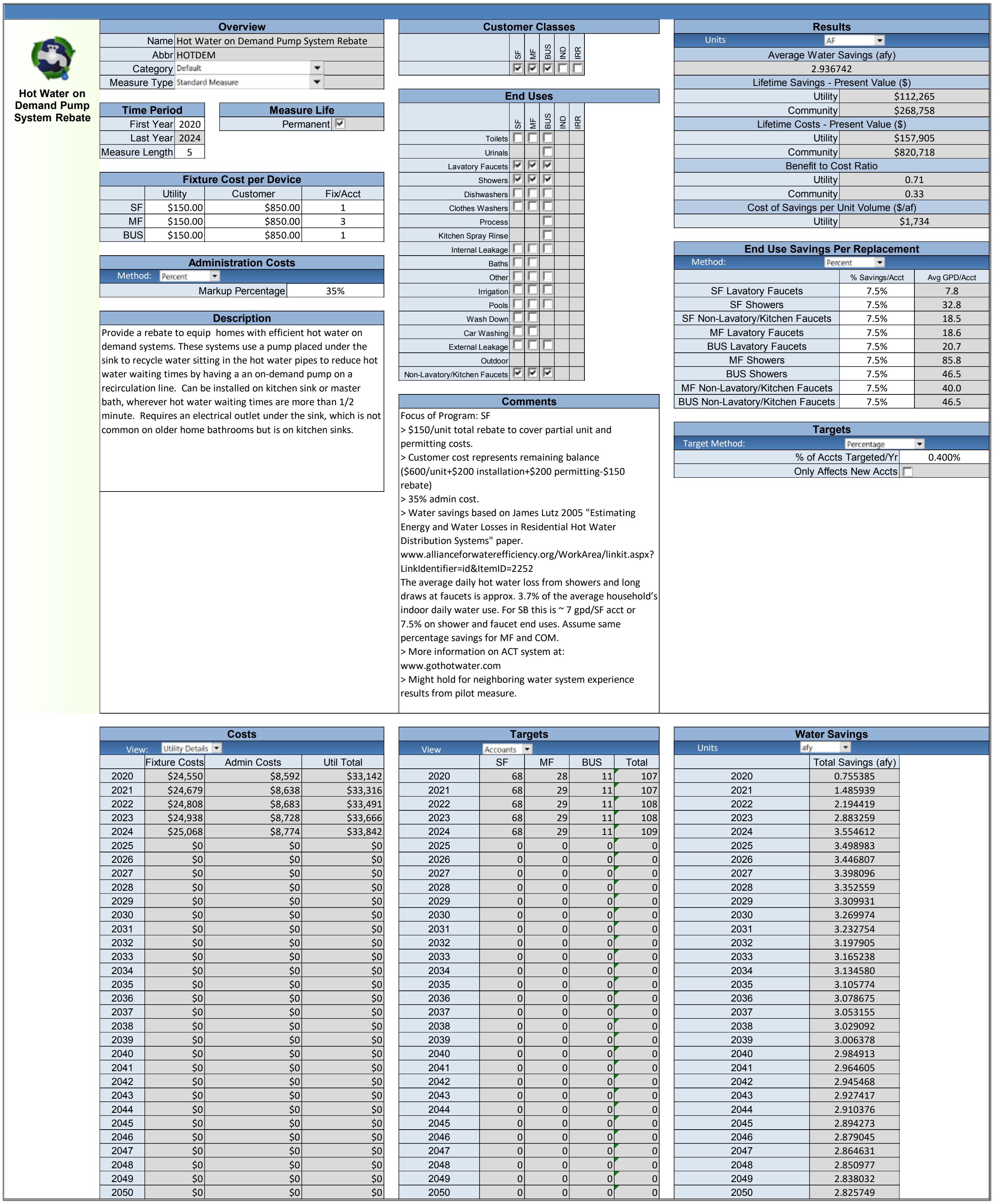
View: Accounts

	MF	BUS	Total
2020	71	27	98
2021	72	27	99
2022	72	28	100
2023	0	0	0
2024	0	0	0
2025	0	0	0
2026	0	0	0
2027	0	0	0
2028	0	0	0
2029	0	0	0
2030	0	0	0
2031	0	0	0
2032	0	0	0
2033	0	0	0
2034	0	0	0
2035	0	0	0
2036	0	0	0
2037	0	0	0
2038	0	0	0
2039	0	0	0
2040	0	0	0
2041	0	0	0
2042	0	0	0
2043	0	0	0
2044	0	0	0
2045	0	0	0
2046	0	0	0
2047	0	0	0
2048	0	0	0
2049	0	0	0
2050	0	0	0

Water Savings

Units: afy

	Total Savings (afy)
2020	0.786669
2021	1.581080
2022	2.383291
2023	2.383291
2024	1.596622
2025	0.802211
2026	0.000000
2027	0.000000
2028	0.000000
2029	0.000000
2030	0.000000
2031	0.000000
2032	0.000000
2033	0.000000
2034	0.000000
2035	0.000000
2036	0.000000
2037	0.000000
2038	0.000000
2039	0.000000
2040	0.000000
2041	0.000000
2042	0.000000
2043	0.000000
2044	0.000000
2045	0.000000
2046	0.000000
2047	0.000000
2048	0.000000
2049	0.000000
2050	0.000000



Hot Water on Demand Pump System Rebate

Overview

Name	Hot Water on Demand Pump System Rebate
Abbr	HOTDEM
Category	Default
Measure Type	Standard Measure

Time Period

First Year	2020
Last Year	2024
Measure Length	5

Measure Life

Permanent	☑

Fixture Cost per Device

	Utility	Customer	Fix/Acct
SF	$150.00	$850.00	1
MF	$150.00	$850.00	3
BUS	$150.00	$850.00	1

Administration Costs

Method:	Percent
Markup Percentage	35%

Description

Provide a rebate to equip homes with efficient hot water on demand systems. These systems use a pump placed under the sink to recycle water sitting in the hot water pipes to reduce hot water waiting times by having a an on-demand pump on a recirculation line. Can be installed on kitchen sink or master bath, wherever hot water waiting times are more than 1/2 minute. Requires an electrical outlet under the sink, which is not common on older home bathrooms but is on kitchen sinks.

Customer Classes

SF	MF	BUS	IND	IRR
☑	☑	☑	☐	☐

End Uses

	SF	MF	BUS	IND	IRR
Toilets	☐	☐	☐		
Urinals			☐		
Lavatory Faucets	☑	☑	☑		
Showers	☑	☑	☑		
Dishwashers	☐	☐	☐		
Clothes Washers	☐	☐	☐		
Process			☐		
Kitchen Spray Rinse			☐		
Internal Leakage	☐	☐	☐		
Baths	☐	☐			
Other	☐	☐	☐		
Irrigation	☐	☐	☐		
Pools	☐	☐	☐		
Wash Down	☐	☐			
Car Washing	☐	☐			
External Leakage	☐	☐	☐		
Outdoor					
Non-Lavatory/Kitchen Faucets	☑	☑	☑		

Comments

Focus of Program: SF
> $150/unit total rebate to cover partial unit and permitting costs.
> Customer cost represents remaining balance ($600/unit+$200 installation+$200 permitting-$150 rebate)
> 35% admin cost.
> Water savings based on James Lutz 2005 "Estimating Energy and Water Losses in Residential Hot Water Distribution Systems" paper. www.allianceforwaterefficiency.org/WorkArea/linkit.aspx?LinkIdentifier=id&ItemID=2252
The average daily hot water loss from showers and long draws at faucets is approx. 3.7% of the average household’s indoor daily water use. For SB this is ~ 7 gpd/SF acct or 7.5% on shower and faucet end uses. Assume same percentage savings for MF and COM.
> More information on ACT system at: www.gothotwater.com
> Might hold for neighboring water system experience results from pilot measure.

Results

Units	AF
Average Water Savings (afy)	
2.936742	
Lifetime Savings - Present Value ($)	
Utility	$112,265
Community	$268,758
Lifetime Costs - Present Value ($)	
Utility	$157,905
Community	$820,718
Benefit to Cost Ratio	
Utility	0.71
Community	0.33
Cost of Savings per Unit Volume ($/af)	
Utility	$1,734

End Use Savings Per Replacement

Method: Percent

	% Savings/Acct	Avg GPD/Acct
SF Lavatory Faucets	7.5%	7.8
SF Showers	7.5%	32.8
SF Non-Lavatory/Kitchen Faucets	7.5%	18.5
MF Lavatory Faucets	7.5%	18.6
BUS Lavatory Faucets	7.5%	20.7
MF Showers	7.5%	85.8
BUS Showers	7.5%	46.5
MF Non-Lavatory/Kitchen Faucets	7.5%	40.0
BUS Non-Lavatory/Kitchen Faucets	7.5%	46.5

Targets

Target Method:	Percentage
% of Accts Targeted/Yr	0.400%
Only Affects New Accts	☐

Costs

View: Utility Details

	Fixture Costs	Admin Costs	Util Total
2020	$24,550	$8,592	$33,142
2021	$24,679	$8,638	$33,316
2022	$24,808	$8,683	$33,491
2023	$24,938	$8,728	$33,666
2024	$25,068	$8,774	$33,842
2025	$0	$0	$0
2026	$0	$0	$0
2027	$0	$0	$0
2028	$0	$0	$0
2029	$0	$0	$0
2030	$0	$0	$0
2031	$0	$0	$0
2032	$0	$0	$0
2033	$0	$0	$0
2034	$0	$0	$0
2035	$0	$0	$0
2036	$0	$0	$0
2037	$0	$0	$0
2038	$0	$0	$0
2039	$0	$0	$0
2040	$0	$0	$0
2041	$0	$0	$0
2042	$0	$0	$0
2043	$0	$0	$0
2044	$0	$0	$0
2045	$0	$0	$0
2046	$0	$0	$0
2047	$0	$0	$0
2048	$0	$0	$0
2049	$0	$0	$0
2050	$0	$0	$0

Targets

View: Accounts

	SF	MF	BUS	Total
2020	68	28	11	107
2021	68	29	11	107
2022	68	29	11	108
2023	68	29	11	108
2024	68	29	11	109
2025	0	0	0	0
2026	0	0	0	0
2027	0	0	0	0
2028	0	0	0	0
2029	0	0	0	0
2030	0	0	0	0
2031	0	0	0	0
2032	0	0	0	0
2033	0	0	0	0
2034	0	0	0	0
2035	0	0	0	0
2036	0	0	0	0
2037	0	0	0	0
2038	0	0	0	0
2039	0	0	0	0
2040	0	0	0	0
2041	0	0	0	0
2042	0	0	0	0
2043	0	0	0	0
2044	0	0	0	0
2045	0	0	0	0
2046	0	0	0	0
2047	0	0	0	0
2048	0	0	0	0
2049	0	0	0	0
2050	0	0	0	0

Water Savings

Units: afy

	Total Savings (afy)
2020	0.755385
2021	1.485939
2022	2.194419
2023	2.883259
2024	3.554612
2025	3.498983
2026	3.446807
2027	3.398096
2028	3.352559
2029	3.309931
2030	3.269974
2031	3.232754
2032	3.197905
2033	3.165238
2034	3.134580
2035	3.105774
2036	3.078675
2037	3.053155
2038	3.029092
2039	3.006378
2040	2.984913
2041	2.964605
2042	2.945468
2043	2.927417
2044	2.910376
2045	2.894273
2046	2.879045
2047	2.864631
2048	2.850977
2049	2.838032
2050	2.825749

Rain Barrel Rebate

Overview

Name	Rain Barrel Rebate
Abbr	RAINBAR
Category	Default
Measure Type	Standard Measure

Time Period

First Year	2020
Last Year	2050
Measure Length	31

Measure Life

Permanent	☐
Years	5
Repeat	☐

Fixture Cost per Device

	Utility	Customer	Fix/Acct
SF	$35.00	$35.00	1
MF	$35.00	$35.00	2
BUS	$35.00	$35.00	1
IRR	$35.00	$35.00	1

Administration Costs

Method: Percent

Markup Percentage	70%

Description

Provide an incentive for installation of rain barrels to offset irrigation use.

Customer Classes

SF	MF	BUS	IND	IRR
☑	☑	☑	☐	☑

End Uses

	SF	MF	BUS	IND	IRR
Toilets	☐	☐	☐		
Urinals			☐		
Lavatory Faucets	☐	☐	☐		
Showers	☐	☐	☐		
Dishwashers	☐	☐	☐		
Clothes Washers	☐	☐	☐		
Process			☐		
Kitchen Spray Rinse			☐		
Internal Leakage	☐	☐	☐		
Baths	☐	☐			
Other	☐	☐	☐		
Irrigation	☑	☑	☑		☑
Pools	☐	☐	☐		
Wash Down	☐	☐			
Car Washing	☐	☐			
External Leakage	☐	☐	☐		☐
Outdoor					
Non-Lavatory/Kitchen Faucets	☐	☐	☐		

Comments

> Modeled after SoCal Water Smart Program https://socalwatersmart.com/en/residential/rebates/available-rebates/rain-barrels-cisterns/
> Photos and online or mail-in application
> Max 2 barrels per property, 50 gallon minimum.
> Admin costs reflect 30 min of staff time to process receipt and generate rebate check; markup of 70% = $24 (or 30 min) of admin time per rebate.
> 2% savings calculated with Maddaus Rainwater Harvesting Calculator based on local SB rainfall, ET, irrigation needs, average roof area, and collection coefficient.
> Targets based on Soquel Creek WD uptake, likely not to see much BUS uptake

Results

Units: AF

Average Water Savings (afy)	
0.700926	
Lifetime Savings - Present Value ($)	
Utility	$11,892
Community	$11,892
Lifetime Costs - Present Value ($)	
Utility	$124,401
Community	$197,578
Benefit to Cost Ratio	
Utility	0.10
Community	0.06
Cost of Savings per Unit Volume ($/af)	
Utility	$5,725

End Use Savings Per Replacement

Method: Percent

	% Savings/Acct	Avg GPD/Acct
SF Irrigation	2.0%	55.8
MF Irrigation	2.0%	19.3
BUS Irrigation	2.0%	74.1
IRR Irrigation	2.0%	514.5

Targets

Target Method: Detailed

Enter Annual Targets Below

Costs

View: Utility Details

	Fixture Costs	Admin Costs	Util Total
2020	$3,385	$2,370	$5,755
2021	$3,396	$2,377	$5,773
2022	$3,407	$2,385	$5,792
2023	$3,418	$2,392	$5,810
2024	$3,429	$2,400	$5,829
2025	$3,440	$2,408	$5,848
2026	$3,451	$2,416	$5,866
2027	$3,567	$2,497	$6,064
2028	$3,578	$2,505	$6,083
2029	$3,589	$2,512	$6,102
2030	$3,600	$2,520	$6,121
2031	$3,612	$2,528	$6,140
2032	$3,623	$2,536	$6,159
2033	$3,634	$2,544	$6,178
2034	$3,645	$2,552	$6,197
2035	$3,657	$2,560	$6,217
2036	$3,668	$2,568	$6,236
2037	$3,785	$2,649	$6,434
2038	$3,796	$2,657	$6,454
2039	$3,808	$2,666	$6,474
2040	$3,820	$2,674	$6,493
2041	$3,831	$2,682	$6,513
2042	$3,843	$2,690	$6,533
2043	$3,855	$2,698	$6,553
2044	$3,867	$2,707	$6,573
2045	$3,879	$2,715	$6,594
2046	$3,891	$2,723	$6,614
2047	$3,903	$2,732	$6,634
2048	$3,915	$2,740	$6,655
2049	$3,927	$2,749	$6,676
2050	$0	$0	$0

Targets

View: Accounts

	SF	MF	BUS	IRR	Total
2020	68	10	5	4	87
2021	68	10	5	4	87
2022	69	10	5	4	87
2023	69	10	5	4	88
2024	69	10	5	4	88
2025	69	10	5	4	88
2026	70	10	5	4	89
2027	70	11	6	4	91
2028	70	11	6	4	91
2029	70	11	6	4	92
2030	71	11	6	4	92
2031	71	11	6	4	92
2032	71	11	6	4	93
2033	71	11	6	4	93
2034	72	11	6	4	93
2035	72	11	6	5	93
2036	72	11	6	5	94
2037	72	12	7	5	96
2038	73	12	7	5	96
2039	73	12	7	5	97
2040	73	12	7	5	97
2041	73	12	7	5	97
2042	74	12	7	5	98
2043	74	12	7	5	98
2044	74	12	7	5	98
2045	74	12	7	5	99
2046	75	12	7	5	99
2047	75	12	7	6	100
2048	75	12	7	6	100
2049	75	12	7	6	100
2050	0	0	0	0	0

Water Savings

Units: afy

	Total Savings (afy)
2020	0.133393
2021	0.267759
2022	0.403108
2023	0.539452
2024	0.676803
2025	0.681780
2026	0.686817
2027	0.693930
2028	0.701105
2029	0.708343
2030	0.715645
2031	0.723011
2032	0.728429
2033	0.733913
2034	0.739466
2035	0.745088
2036	0.750781
2037	0.758562
2038	0.766416
2039	0.774345
2040	0.782349
2041	0.790431
2042	0.796576
2043	0.802801
2044	0.809108
2045	0.815497
2046	0.821970
2047	0.828529
2048	0.835174
2049	0.841908
2050	0.676219

Large Rainwater Catchment System Rebate

Overview

Name	Large Rainwater Catchment System Rebate
Abbr	RAINCAT
Category	Default
Measure Type	Standard Measure

Time Period

First Year	2020
Last Year	2023
Measure Length	4

Measure Life

Permanent	☐
Years	15
Repeat	☐

Fixture Cost per Device

	Utility	Customer	Fix/Acct
SF	$300.00	$2,000.00	1
MF	$300.00	$2,000.00	1
BUS	$300.00	$2,000.00	1
IRR	$300.00	$2,000.00	1

Administration Costs

Method: Percent

Markup Percentage	15%

Description

Provide a rebate for installation of large rainwater catchment systems, minimum size of 250 gallons, max 1,000. Permitting may be an issue for larger ones.

Customer Classes

SF	MF	BUS	IND	IRR
☑	☑	☑	☐	☑

End Uses

	SF	MF	BUS	IND	IRR
Toilets	☐	☐	☐		
Urinals			☐		
Lavatory Faucets	☐	☐	☐		
Showers	☐	☐	☐		
Dishwashers	☐	☐	☐		
Clothes Washers	☐	☐	☐		
Process			☐		
Kitchen Spray Rinse			☐		
Internal Leakage	☐	☐	☐		
Baths	☐	☐			
Other	☐	☐	☐		
Irrigation	☑	☑	☑		☑
Pools	☐	☐	☐		
Wash Down	☐	☐			
Car Washing	☐	☐			
External Leakage	☐	☐	☐		☐
Outdoor					
Non-Lavatory/Kitchen Faucets	☐	☐	☐		

Comments

> Rebate amount depends on size of tank, similar to So Cal Water Smart Rebate
> Savings varies per tank size and landscape irrigation demand, system costs vary. 4% savings based on Maddaus rainwater harvesting calculator for 265 gallon cistern and average roof catchment for single family home.
> 500 sqft of waterwise plantings needs approx. 1,000 gallons per month, 500 sqft of garden planting needs approx. 1,800 gallons per month.
> Staff time about 1 hr per rebate for processing and answering questions.
> Target reduced for MF and BUS, don't expect much uptake.

Results

Units: AF

Average Water Savings (afy)	
	0.145117
Lifetime Savings - Present Value ($)	
Utility	$3,050
Community	$3,050
Lifetime Costs - Present Value ($)	
Utility	$36,651
Community	$249,120
Benefit to Cost Ratio	
Utility	0.08
Community	0.01
Cost of Savings per Unit Volume ($/af)	
Utility	$8,147

End Use Savings Per Replacement

Method: Percent

	% Savings/Acct	Avg GPD/Acct
MF Irrigation	4.0%	19.3
BUS Irrigation	4.0%	74.1
IRR Irrigation	4.0%	514.5
SF Irrigation	4.0%	55.8

Targets

Target Method: Percentage

% of Accts Targeted/Yr	0.100%
Only Affects New Accts	☐

Costs

View: Utility Details

	Fixture Costs	Admin Costs	Util Total
2020	$8,272	$1,241	$9,513
2021	$8,308	$1,246	$9,555
2022	$8,345	$1,252	$9,597
2023	$8,382	$1,257	$9,639
2024	$0	$0	$0
2025	$0	$0	$0
2026	$0	$0	$0
2027	$0	$0	$0
2028	$0	$0	$0
2029	$0	$0	$0
2030	$0	$0	$0
2031	$0	$0	$0
2032	$0	$0	$0
2033	$0	$0	$0
2034	$0	$0	$0
2035	$0	$0	$0
2036	$0	$0	$0
2037	$0	$0	$0
2038	$0	$0	$0
2039	$0	$0	$0
2040	$0	$0	$0
2041	$0	$0	$0
2042	$0	$0	$0
2043	$0	$0	$0
2044	$0	$0	$0
2045	$0	$0	$0
2046	$0	$0	$0
2047	$0	$0	$0
2048	$0	$0	$0
2049	$0	$0	$0
2050	$0	$0	$0

Targets

View: Accounts

	SF	MF	BUS	IRR	Total
2020	17	7	3	1	28
2021	17	7	3	1	28
2022	17	7	3	1	28
2023	17	7	3	1	28
2024	0	0	0	0	0
2025	0	0	0	0	0
2026	0	0	0	0	0
2027	0	0	0	0	0
2028	0	0	0	0	0
2029	0	0	0	0	0
2030	0	0	0	0	0
2031	0	0	0	0	0
2032	0	0	0	0	0
2033	0	0	0	0	0
2034	0	0	0	0	0
2035	0	0	0	0	0
2036	0	0	0	0	0
2037	0	0	0	0	0
2038	0	0	0	0	0
2039	0	0	0	0	0
2040	0	0	0	0	0
2041	0	0	0	0	0
2042	0	0	0	0	0
2043	0	0	0	0	0
2044	0	0	0	0	0
2045	0	0	0	0	0
2046	0	0	0	0	0
2047	0	0	0	0	0
2048	0	0	0	0	0
2049	0	0	0	0	0
2050	0	0	0	0	0

Water Savings

Units: afy

	Total Savings (afy)
2020	0.074299
2021	0.149047
2022	0.224249
2023	0.299909
2024	0.299909
2025	0.299909
2026	0.299909
2027	0.299909
2028	0.299909
2029	0.299909
2030	0.299909
2031	0.299909
2032	0.299909
2033	0.299909
2034	0.299909
2035	0.225611
2036	0.150862
2037	0.075660
2038	0.000000
2039	0.000000
2040	0.000000
2041	0.000000
2042	0.000000
2043	0.000000
2044	0.000000
2045	0.000000
2046	0.000000
2047	0.000000
2048	0.000000
2049	0.000000
2050	0.000000

Pre-Rinse Spray Nozzle Giveaway

Overview

Name	Pre-Rinse Spray Nozzle Giveaway
Abbr	SPRAYNOZ
Category	Default
Measure Type	Standard Measure

Time Period

First Year	2021
Last Year	2023
Measure Length	3

Measure Life

Permanent	☑

Fixture Cost per Device

	Utility	Customer	Fix/Acct
BUS	$60.00	$50.00	2
IND	$60.00	$50.00	2

Administration Costs

Method: Percent

Markup Percentage	35%

Description

Provide free 1.15 gpm (or lower) spray nozzles and possibly free installation for the rinse and clean operation in restaurants and other commercial kitchens. Thousands have been replaced in California going door to door, very cost-effective because saves hot water.

Customer Classes

	SF	MF	BUS	IND	IRR
	☐	☐	☑	☑	☐

End Uses

	SF	MF	BUS	IND	IRR
Toilets			☐	☐	
Urinals			☐	☐	
Lavatory Faucets			☐	☐	
Showers			☐	☐	
Dishwashers			☐	☐	
Clothes Washers			☐	☐	
Process			☐	☐	
Kitchen Spray Rinse			☑	☑	
Internal Leakage			☐	☐	
Baths					
Other			☐	☐	
Irrigation			☐	☐	
Pools			☐		
Wash Down					
Car Washing					
External Leakage			☐	☐	
Outdoor					
Non-Lavatory/Kitchen Faucets			☐	☐	

Comments

> Focus of Program: CII
> Utility costs are based on $60 for valve and utility staff time for door to distribution (15-30 min/account).
> Customer costs reflect installation.
> Savings assume 1.15 gpm nozzles are replacing 50% 2.5 gpm and 50% 5.0 gpm nozzles. And only 65% are installed.
> https://fishnick.com/equipment/sprayvalves/
> Assume 1-3 fixtures per account (1.5 avg) since small restaurants will only have one, but grocery stores might have 5 or more. Measure will allow more than one fixture per account.
> The City plans to make a concerted effort to target many over short period of time. Estimate 350 - 400 restaurants/food service in SB have pre-rinse nozzle (per City Trash & Recycling estimate)
> Measure implementation period is based on the current and anticipated changes in plumbing codes that would negate the need for this fixture rebates. Ending this measure avoids free-ridership.

Results

Units: AF

Average Water Savings (afy)	
4.097481	
Lifetime Savings - Present Value ($)	
Utility	$153,422
Community	$1,252,137
Lifetime Costs - Present Value ($)	
Utility	$38,970
Community	$63,025
Benefit to Cost Ratio	
Utility	3.94
Community	19.87
Cost of Savings per Unit Volume ($/af)	
Utility	$307

End Use Savings Per Replacement

Method: Percent

	% Savings/Acct	Avg GPD/Acct
BUS Kitchen Spray Rinse	42.6%	25.8
IND Kitchen Spray Rinse	42.6%	146.0

Targets

Target Method: Percentage

% of Accts Targeted/Yr	4.000%
Only Affects New Accts	☐

Costs

View: Utility Details

	Fixture Costs	Admin Costs	Util Total
2020	$0	$0	$0
2021	$10,083	$3,529	$13,611
2022	$10,209	$3,573	$13,782
2023	$10,337	$3,618	$13,955
2024	$0	$0	$0
2025	$0	$0	$0
2026	$0	$0	$0
2027	$0	$0	$0
2028	$0	$0	$0
2029	$0	$0	$0
2030	$0	$0	$0
2031	$0	$0	$0
2032	$0	$0	$0
2033	$0	$0	$0
2034	$0	$0	$0
2035	$0	$0	$0
2036	$0	$0	$0
2037	$0	$0	$0
2038	$0	$0	$0
2039	$0	$0	$0
2040	$0	$0	$0
2041	$0	$0	$0
2042	$0	$0	$0
2043	$0	$0	$0
2044	$0	$0	$0
2045	$0	$0	$0
2046	$0	$0	$0
2047	$0	$0	$0
2048	$0	$0	$0
2049	$0	$0	$0
2050	$0	$0	$0

Targets

View: Accounts

	BUS	IND	Total
2020	0	0	0
2021	109	2	111
2022	110	2	113
2023	112	2	114
2024	0	0	0
2025	0	0	0
2026	0	0	0
2027	0	0	0
2028	0	0	0
2029	0	0	0
2030	0	0	0
2031	0	0	0
2032	0	0	0
2033	0	0	0
2034	0	0	0
2035	0	0	0
2036	0	0	0
2037	0	0	0
2038	0	0	0
2039	0	0	0
2040	0	0	0
2041	0	0	0
2042	0	0	0
2043	0	0	0
2044	0	0	0
2045	0	0	0
2046	0	0	0
2047	0	0	0
2048	0	0	0
2049	0	0	0
2050	0	0	0

Water Savings

Units: afy

	Total Savings (afy)
2020	0.000000
2021	1.442270
2022	2.902634
2023	4.381321
2024	4.381321
2025	4.381321
2026	4.381321
2027	4.381321
2028	4.381321
2029	4.381321
2030	4.381321
2031	4.381321
2032	4.381321
2033	4.381321
2034	4.381321
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2041	4.381321
2042	4.381321
2043	4.381321
2044	4.381321
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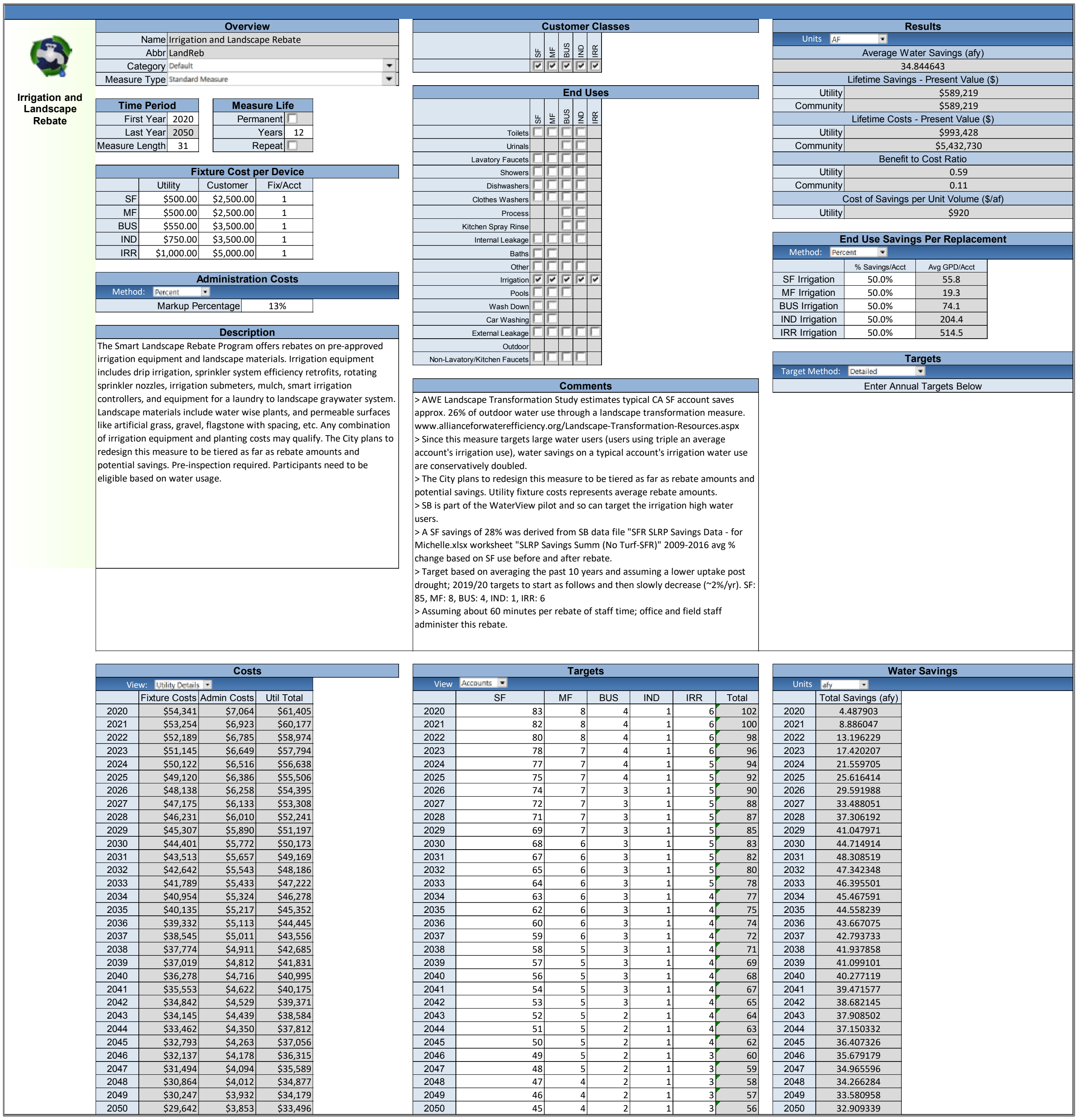
2048	4.381321
2049	4.381321
2050	4.381321



Irrigation and Landscape Rebate

Overview

Name	Irrigation and Landscape Rebate
Abbr	LandReb
Category	Default
Measure Type	Standard Measure

Time Period	
First Year	2020
Last Year	2050
Measure Length	31

Measure Life	
Permanent	☐
Years	12
Repeat	☐

Fixture Cost per Device

	Utility	Customer	Fix/Acct
SF	$500.00	$2,500.00	1
MF	$500.00	$2,500.00	1
BUS	$550.00	$3,500.00	1
IND	$750.00	$3,500.00	1
IRR	$1,000.00	$5,000.00	1

Administration Costs

Method: Percent

Markup Percentage: 13%

Description

The Smart Landscape Rebate Program offers rebates on pre-approved irrigation equipment and landscape materials. Irrigation equipment includes drip irrigation, sprinkler system efficiency retrofits, rotating sprinkler nozzles, irrigation submeters, mulch, smart irrigation controllers, and equipment for a laundry to landscape graywater system. Landscape materials include water wise plants, and permeable surfaces like artificial grass, gravel, flagstone with spacing, etc. Any combination of irrigation equipment and planting costs may qualify. The City plans to redesign this measure to be tiered as far as rebate amounts and potential savings. Pre-inspection required. Participants need to be eligible based on water usage.

Customer Classes

	SF	MF	BUS	IND	IRR
	☑	☑	☑	☑	☑

End Uses

	SF	MF	BUS	IND	IRR
Toilets	☐	☐	☐	☐	
Urinals			☐	☐	
Lavatory Faucets	☐	☐	☐	☐	
Showers	☐	☐	☐	☐	
Dishwashers	☐	☐	☐	☐	
Clothes Washers	☐	☐	☐	☐	
Process			☐	☐	
Kitchen Spray Rinse			☐	☐	
Internal Leakage	☐	☐	☐	☐	
Baths	☐	☐			
Other	☐	☐	☐	☐	
Irrigation	☑	☑	☑	☑	☑
Pools	☐	☐	☐		
Wash Down	☐	☐			
Car Washing	☐	☐			
External Leakage	☐	☐	☐	☐	☐
Outdoor					
Non-Lavatory/Kitchen Faucets	☐	☐	☐	☐	

Comments

> AWE Landscape Transformation Study estimates typical CA SF account saves approx. 26% of outdoor water use through a landscape transformation measure. www.allianceforwaterefficiency.org/Landscape-Transformation-Resources.aspx
> Since this measure targets large water users (users using triple an average account's irrigation use), water savings on a typical account's irrigation water use are conservatively doubled.
> The City plans to redesign this measure to be tiered as far as rebate amounts and potential savings. Utility fixture costs represents average rebate amounts.
> SB is part of the WaterView pilot and so can target the irrigation high water users.
> A SF savings of 28% was derived from SB data file "SFR SLRP Savings Data - for Michelle.xlsx worksheet "SLRP Savings Summ (No Turf-SFR)" 2009-2016 avg % change based on SF use before and after rebate.
> Target based on averaging the past 10 years and assuming a lower uptake post drought; 2019/20 targets to start as follows and then slowly decrease (~2%/yr). SF: 85, MF: 8, BUS: 4, IND: 1, IRR: 6
> Assuming about 60 minutes per rebate of staff time; office and field staff administer this rebate.

Results

Units: AF

Average Water Savings (afy)	
34.844643	
Lifetime Savings - Present Value ($)	
Utility	$589,219
Community	$589,219
Lifetime Costs - Present Value ($)	
Utility	$993,428
Community	$5,432,730
Benefit to Cost Ratio	
Utility	0.59
Community	0.11
Cost of Savings per Unit Volume ($/af)	
Utility	$920

End Use Savings Per Replacement

Method: Percent

	% Savings/Acct	Avg GPD/Acct
SF Irrigation	50.0%	55.8
MF Irrigation	50.0%	19.3
BUS Irrigation	50.0%	74.1
IND Irrigation	50.0%	204.4
IRR Irrigation	50.0%	514.5

Targets

Target Method: Detailed

Enter Annual Targets Below

Costs

View: Utility Details

	Fixture Costs	Admin Costs	Util Total
2020	$54,341	$7,064	$61,405
2021	$53,254	$6,923	$60,177
2022	$52,189	$6,785	$58,974
2023	$51,145	$6,649	$57,794
2024	$50,122	$6,516	$56,638
2025	$49,120	$6,386	$55,506
2026	$48,138	$6,258	$54,395
2027	$47,175	$6,133	$53,308
2028	$46,231	$6,010	$52,241
2029	$45,307	$5,890	$51,197
2030	$44,401	$5,772	$50,173
2031	$43,513	$5,657	$49,169
2032	$42,642	$5,543	$48,186
2033	$41,789	$5,433	$47,222
2034	$40,954	$5,324	$46,278
2035	$40,135	$5,217	$45,352
2036	$39,332	$5,113	$44,445
2037	$38,545	$5,011	$43,556
2038	$37,774	$4,911	$42,685
2039	$37,019	$4,812	$41,831
2040	$36,278	$4,716	$40,995
2041	$35,553	$4,622	$40,175
2042	$34,842	$4,529	$39,371
2043	$34,145	$4,439	$38,584
2044	$33,462	$4,350	$37,812
2045	$32,793	$4,263	$37,056
2046	$32,137	$4,178	$36,315
2047	$31,494	$4,094	$35,589
2048	$30,864	$4,012	$34,877
2049	$30,247	$3,932	$34,179
2050	$29,642	$3,853	$33,496

Targets

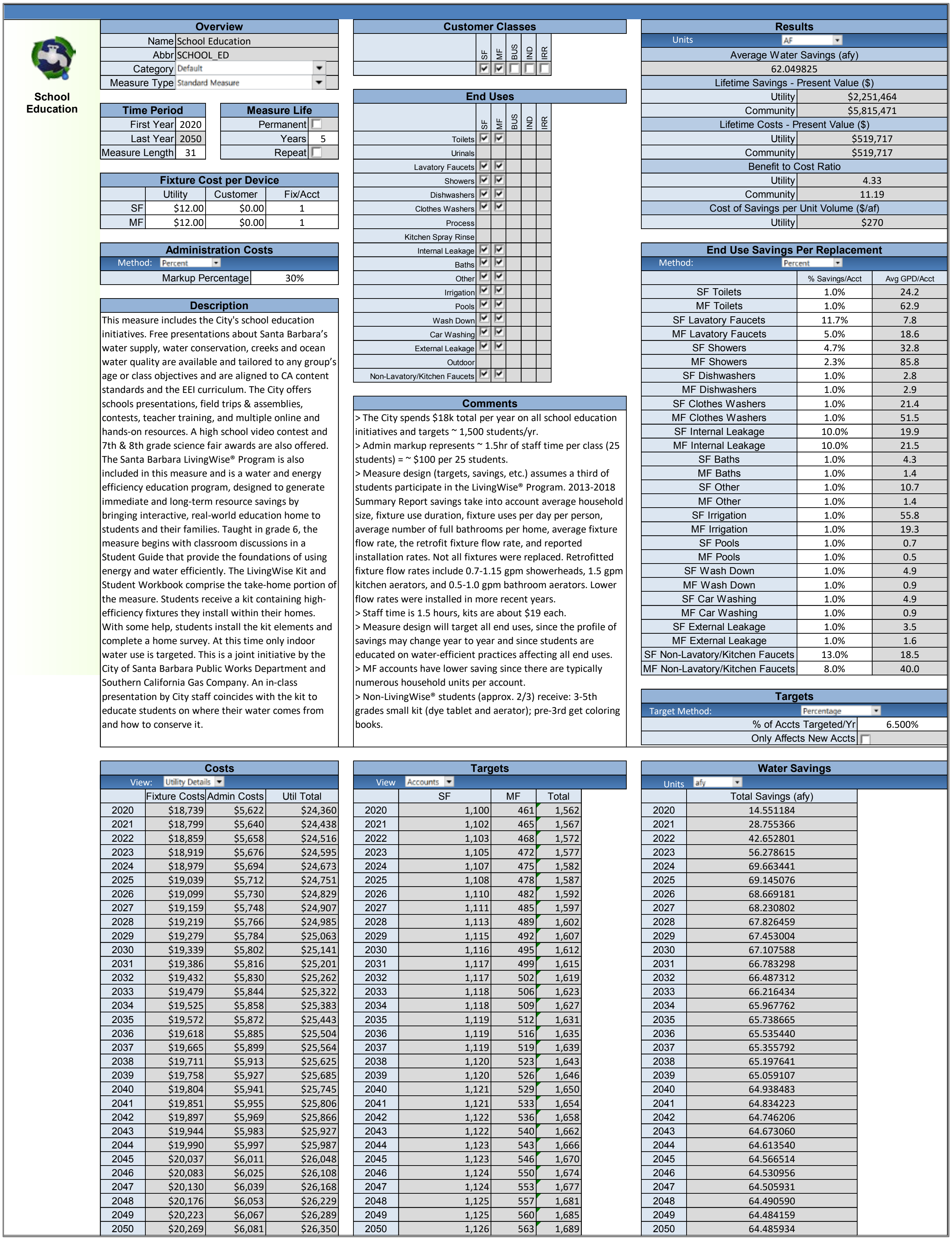
View: Accounts

	SF	MF	BUS	IND	IRR	Total
2020	83	8	4	1	6	102
2021	82	8	4	1	6	100
2022	80	8	4	1	6	98
2023	78	7	4	1	6	96
2024	77	7	4	1	5	94
2025	75	7	4	1	5	92
2026	74	7	3	1	5	90
2027	72	7	3	1	5	88
2028	71	7	3	1	5	87
2029	69	7	3	1	5	85
2030	68	6	3	1	5	83
2031	67	6	3	1	5	82
2032	65	6	3	1	5	80
2033	64	6	3	1	5	78
2034	63	6	3	1	4	77
2035	62	6	3	1	4	75
2036	60	6	3	1	4	74
2037	59	6	3	1	4	72
2038	58	5	3	1	4	71
2039	57	5	3	1	4	69
2040	56	5	3	1	4	68
2041	54	5	3	1	4	67
2042	53	5	3	1	4	65
2043	52	5	2	1	4	64
2044	51	5	2	1	4	63
2045	50	5	2	1	4	62
2046	49	5	2	1	3	60
2047	48	5	2	1	3	59
2048	47	4	2	1	3	58
2049	46	4	2	1	3	57
2050	45	4	2	1	3	56

Water Savings

Units: afy

	Total Savings (afy)
2020	4.487903
2021	8.886047
2022	13.196229
2023	17.420207
2024	21.559705
2025	25.616414
2026	29.591988
2027	33.488051
2028	37.306192
2029	41.047971
2030	44.714914
2031	48.308519
2032	47.342348
2033	46.395501
2034	45.467591
2035	44.558239
2036	43.667075
2037	42.793733
2038	41.937858
2039	41.099101
2040	40.277119
2041	39.471577
2042	38.682145
2043	37.908502
2044	37.150332
2045	36.407326
2046	35.679179
2047	34.965596
2048	34.266284
2049	33.580958
2050	32.909339



School Education

Overview

Name	School Education
Abbr	SCHOOL_ED
Category	Default
Measure Type	Standard Measure

Time Period

First Year	2020
Last Year	2050
Measure Length	31

Measure Life

Permanent	☐
Years	5
Repeat	☐

Fixture Cost per Device

	Utility	Customer	Fix/Acct
SF	$12.00	$0.00	1
MF	$12.00	$0.00	1

Administration Costs

Method: Percent

Markup Percentage	30%

Description

This measure includes the City's school education initiatives. Free presentations about Santa Barbara's water supply, water conservation, creeks and ocean water quality are available and tailored to any group's age or class objectives and are aligned to CA content standards and the EEI curriculum. The City offers schools presentations, field trips & assemblies, contests, teacher training, and multiple online and hands-on resources. A high school video contest and 7th & 8th grade science fair awards are also offered. The Santa Barbara LivingWise® Program is also included in this measure and is a water and energy efficiency education program, designed to generate immediate and long-term resource savings by bringing interactive, real-world education home to students and their families. Taught in grade 6, the measure begins with classroom discussions in a Student Guide that provide the foundations of using energy and water efficiently. The LivingWise Kit and Student Workbook comprise the take-home portion of the measure. Students receive a kit containing high-efficiency fixtures they install within their homes. With some help, students install the kit elements and complete a home survey. At this time only indoor water use is targeted. This is a joint initiative by the City of Santa Barbara Public Works Department and Southern California Gas Company. An in-class presentation by City staff coincides with the kit to educate students on where their water comes from and how to conserve it.

Customer Classes

	SF	MF	BUS	IND	IRR
	☑	☑	☐	☐	☐

End Uses

	SF	MF	BUS	IND	IRR
Toilets	☑	☑			
Urinals					
Lavatory Faucets	☑	☑			
Showers	☑	☑			
Dishwashers	☑	☑			
Clothes Washers	☑	☑			
Process					
Kitchen Spray Rinse					
Internal Leakage	☑	☑			
Baths	☑	☑			
Other	☑	☑			
Irrigation	☑	☑			
Pools	☑	☑			
Wash Down	☑	☑			
Car Washing	☑	☑			
External Leakage	☑	☑			
Outdoor					
Non-Lavatory/Kitchen Faucets	☑	☑			

Comments

> The City spends $18k total per year on all school education initiatives and targets ~ 1,500 students/yr.
> Admin markup represents ~ 1.5hr of staff time per class (25 students) = ~ $100 per 25 students.
> Measure design (targets, savings, etc.) assumes a third of students participate in the LivingWise® Program. 2013-2018 Summary Report savings take into account average household size, fixture use duration, fixture uses per day per person, average number of full bathrooms per home, average fixture flow rate, the retrofit fixture flow rate, and reported installation rates. Not all fixtures were replaced. Retrofitted fixture flow rates include 0.7-1.15 gpm showerheads, 1.5 gpm kitchen aerators, and 0.5-1.0 gpm bathroom aerators. Lower flow rates were installed in more recent years.
> Staff time is 1.5 hours, kits are about $19 each.
> Measure design will target all end uses, since the profile of savings may change year to year and since students are educated on water-efficient practices affecting all end uses.
> MF accounts have lower saving since there are typically numerous household units per account.
> Non-LivingWise® students (approx. 2/3) receive: 3-5th grades small kit (dye tablet and aerator); pre-3rd get coloring books.

Results

Units: AF

Average Water Savings (afy)	
62.049825	
Lifetime Savings - Present Value ($)	
Utility	$2,251,464
Community	$5,815,471
Lifetime Costs - Present Value ($)	
Utility	$519,717
Community	$519,717
Benefit to Cost Ratio	
Utility	4.33
Community	11.19
Cost of Savings per Unit Volume ($/af)	
Utility	$270

End Use Savings Per Replacement

Method: Percent

	% Savings/Acct	Avg GPD/Acct
SF Toilets	1.0%	24.2
MF Toilets	1.0%	62.9
SF Lavatory Faucets	11.7%	7.8
MF Lavatory Faucets	5.0%	18.6
SF Showers	4.7%	32.8
MF Showers	2.3%	85.8
SF Dishwashers	1.0%	2.8
MF Dishwashers	1.0%	2.9
SF Clothes Washers	1.0%	21.4
MF Clothes Washers	1.0%	51.5
SF Internal Leakage	10.0%	19.9
MF Internal Leakage	10.0%	21.5
SF Baths	1.0%	4.3
MF Baths	1.0%	1.4
SF Other	1.0%	10.7
MF Other	1.0%	1.4
SF Irrigation	1.0%	55.8
MF Irrigation	1.0%	19.3
SF Pools	1.0%	0.7
MF Pools	1.0%	0.5
SF Wash Down	1.0%	4.9
MF Wash Down	1.0%	0.9
SF Car Washing	1.0%	4.9
MF Car Washing	1.0%	0.9
SF External Leakage	1.0%	3.5
MF External Leakage	1.0%	1.6
SF Non-Lavatory/Kitchen Faucets	13.0%	18.5
MF Non-Lavatory/Kitchen Faucets	8.0%	40.0

Targets

Target Method: Percentage

% of Accts Targeted/Yr	6.500%
Only Affects New Accts	☐

Costs

View: Utility Details

	Fixture Costs	Admin Costs	Util Total
2020	$18,739	$5,622	$24,360
2021	$18,799	$5,640	$24,438
2022	$18,859	$5,658	$24,516
2023	$18,919	$5,676	$24,595
2024	$18,979	$5,694	$24,673
2025	$19,039	$5,712	$24,751
2026	$19,099	$5,730	$24,829
2027	$19,159	$5,748	$24,907
2028	$19,219	$5,766	$24,985
2029	$19,279	$5,784	$25,063
2030	$19,339	$5,802	$25,141
2031	$19,386	$5,816	$25,201
2032	$19,432	$5,830	$25,262
2033	$19,479	$5,844	$25,322
2034	$19,525	$5,858	$25,383
2035	$19,572	$5,872	$25,443
2036	$19,618	$5,885	$25,504
2037	$19,665	$5,899	$25,564
2038	$19,711	$5,913	$25,625
2039	$19,758	$5,927	$25,685
2040	$19,804	$5,941	$25,745
2041	$19,851	$5,955	$25,806
2042	$19,897	$5,969	$25,866
2043	$19,944	$5,983	$25,927
2044	$19,990	$5,997	$25,987
2045	$20,037	$6,011	$26,048
2046	$20,083	$6,025	$26,108
2047	$20,130	$6,039	$26,168
2048	$20,176	$6,053	$26,229
2049	$20,223	$6,067	$26,289
2050	$20,269	$6,081	$26,350

Targets

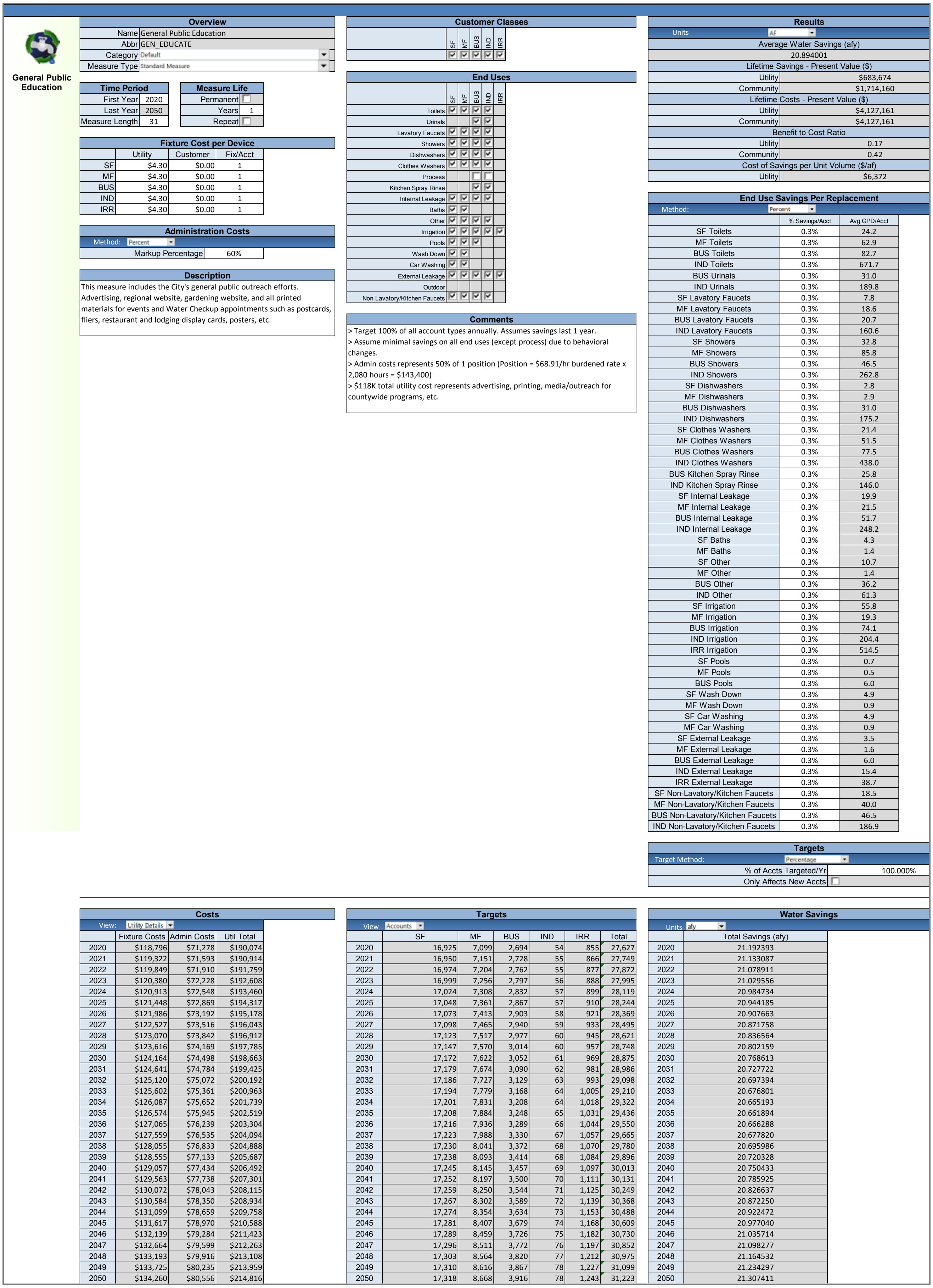
View: Accounts

	SF	MF	Total
2020	1,100	461	1,562
2021	1,102	465	1,567
2022	1,103	468	1,572
2023	1,105	472	1,577
2024	1,107	475	1,582
2025	1,108	478	1,587
2026	1,110	482	1,592
2027	1,111	485	1,597
2028	1,113	489	1,602
2029	1,115	492	1,607
2030	1,116	495	1,612
2031	1,117	499	1,615
2032	1,117	502	1,619
2033	1,118	506	1,623
2034	1,118	509	1,627
2035	1,119	512	1,631
2036	1,119	516	1,635
2037	1,119	519	1,639
2038	1,120	523	1,643
2039	1,120	526	1,646
2040	1,121	529	1,650
2041	1,121	533	1,654
2042	1,122	536	1,658
2043	1,122	540	1,662
2044	1,123	543	1,666
2045	1,123	546	1,670
2046	1,124	550	1,674
2047	1,124	553	1,677
2048	1,125	557	1,681
2049	1,125	560	1,685
2050	1,126	563	1,689

Water Savings

Units: afy

	Total Savings (afy)
2020	14.551184
2021	28.755366
2022	42.652801
2023	56.278615
2024	69.663441
2025	69.145076
2026	68.669181
2027	68.230802
2028	67.826459
2029	67.453004
2030	67.107588
2031	66.783298
2032	66.487312
2033	66.216434
2034	65.967762
2035	65.738665
2036	65.535440
2037	65.355792
2038	65.197641
2039	65.059107
2040	64.938483
2041	64.834223
2042	64.746206
2043	64.673060
2044	64.613540
2045	64.566514
2046	64.530956
2047	64.505931
2048	64.490590
2049	64.484159
2050	64.485934



General Public Education

Overview

Name	General Public Education
Abbr	GEN_EDUCATE
Category	Default
Measure Type	Standard Measure

Time Period

First Year	2020
Last Year	2050
Measure Length	31

Measure Life

Permanent	☐
Years	1
Repeat	☐

Fixture Cost per Device

	Utility	Customer	Fix/Acct
SF	$4.30	$0.00	1
MF	$4.30	$0.00	1
BUS	$4.30	$0.00	1
IND	$4.30	$0.00	1
IRR	$4.30	$0.00	1

Administration Costs

Method: Percent

Markup Percentage	60%

Description

This measure includes the City's general public outreach efforts. Advertising, regional website, gardening website, and all printed materials for events and Water Checkup appointments such as postcards, fliers, restaurant and lodging display cards, posters, etc.

Customer Classes

	SF	MF	BUS	IND	IRR
	☑	☑	☑	☑	☑

End Uses

	SF	MF	BUS	IND	IRR
Toilets	☑	☑	☑	☑	
Urinals			☑	☑	
Lavatory Faucets	☑	☑	☑	☑	
Showers	☑	☑	☑	☑	
Dishwashers	☑	☑	☑	☑	
Clothes Washers	☑	☑	☑	☑	
Process			☐	☐	
Kitchen Spray Rinse			☑	☑	
Internal Leakage	☑	☑	☑	☑	
Baths	☑	☑			
Other	☑	☑	☑	☑	
Irrigation	☑	☑	☑	☑	☑
Pools	☑	☑	☑		
Wash Down	☑	☑			
Car Washing	☑	☑			
External Leakage	☑	☑	☑	☑	☑
Outdoor					
Non-Lavatory/Kitchen Faucets	☑	☑	☑	☑	

Comments

> Target 100% of all account types annually. Assumes savings last 1 year.
> Assume minimal savings on all end uses (except process) due to behavioral changes.
> Admin costs represents 50% of 1 position (Position = $68.91/hr burdened rate x 2,080 hours = $143,400)
> $118K total utility cost represents advertising, printing, media/outreach for countywide programs, etc.

Results

Units: AF

Average Water Savings (afy)	
20.894001	
Lifetime Savings - Present Value ($)	
Utility	$683,674
Community	$1,714,160
Lifetime Costs - Present Value ($)	
Utility	$4,127,161
Community	$4,127,161
Benefit to Cost Ratio	
Utility	0.17
Community	0.42
Cost of Savings per Unit Volume ($/af)	
Utility	$6,372

End Use Savings Per Replacement

Method: Percent

	% Savings/Acct	Avg GPD/Acct
SF Toilets	0.3%	24.2
MF Toilets	0.3%	62.9
BUS Toilets	0.3%	82.7
IND Toilets	0.3%	671.7
BUS Urinals	0.3%	31.0
IND Urinals	0.3%	189.8
SF Lavatory Faucets	0.3%	7.8
MF Lavatory Faucets	0.3%	18.6
BUS Lavatory Faucets	0.3%	20.7
IND Lavatory Faucets	0.3%	160.6
SF Showers	0.3%	32.8
MF Showers	0.3%	85.8
BUS Showers	0.3%	46.5
IND Showers	0.3%	262.8
SF Dishwashers	0.3%	2.8
MF Dishwashers	0.3%	2.9
BUS Dishwashers	0.3%	31.0
IND Dishwashers	0.3%	175.2
SF Clothes Washers	0.3%	21.4
MF Clothes Washers	0.3%	51.5
BUS Clothes Washers	0.3%	77.5
IND Clothes Washers	0.3%	438.0
BUS Kitchen Spray Rinse	0.3%	25.8
IND Kitchen Spray Rinse	0.3%	146.0
SF Internal Leakage	0.3%	19.9
MF Internal Leakage	0.3%	21.5
BUS Internal Leakage	0.3%	51.7
IND Internal Leakage	0.3%	248.2
SF Baths	0.3%	4.3
MF Baths	0.3%	1.4
SF Other	0.3%	10.7
MF Other	0.3%	1.4
BUS Other	0.3%	36.2
IND Other	0.3%	61.3
SF Irrigation	0.3%	55.8
MF Irrigation	0.3%	19.3
BUS Irrigation	0.3%	74.1
IND Irrigation	0.3%	204.4
IRR Irrigation	0.3%	514.5
SF Pools	0.3%	0.7
MF Pools	0.3%	0.5
BUS Pools	0.3%	6.0
SF Wash Down	0.3%	4.9
MF Wash Down	0.3%	0.9
SF Car Washing	0.3%	4.9
MF Car Washing	0.3%	0.9
SF External Leakage	0.3%	3.5
MF External Leakage	0.3%	1.6
BUS External Leakage	0.3%	6.0
IND External Leakage	0.3%	15.4
IRR External Leakage	0.3%	38.7
SF Non-Lavatory/Kitchen Faucets	0.3%	18.5
MF Non-Lavatory/Kitchen Faucets	0.3%	40.0
BUS Non-Lavatory/Kitchen Faucets	0.3%	46.5
IND Non-Lavatory/Kitchen Faucets	0.3%	186.9

Targets

Target Method: Percentage

% of Accts Targeted/Yr	100.000%
Only Affects New Accts	☐

Costs

View: Utility Details

	Fixture Costs	Admin Costs	Util Total
2020	$118,796	$71,278	$190,074
2021	$119,322	$71,593	$190,914
2022	$119,849	$71,910	$191,759
2023	$120,380	$72,228	$192,608
2024	$120,913	$72,548	$193,460
2025	$121,448	$72,869	$194,317
2026	$121,986	$73,192	$195,178
2027	$122,527	$73,516	$196,043
2028	$123,070	$73,842	$196,912
2029	$123,616	$74,169	$197,785
2030	$124,164	$74,498	$198,663
2031	$124,641	$74,784	$199,425
2032	$125,120	$75,072	$200,192
2033	$125,602	$75,361	$200,963
2034	$126,087	$75,652	$201,739
2035	$126,574	$75,945	$202,519
2036	$127,065	$76,239	$203,304
2037	$127,559	$76,535	$204,094
2038	$128,055	$76,833	$204,888
2039	$128,555	$77,133	$205,687
2040	$129,057	$77,434	$206,492
2041	$129,563	$77,738	$207,301
2042	$130,072	$78,043	$208,115
2043	$130,584	$78,350	$208,934
2044	$131,099	$78,659	$209,758
2045	$131,617	$78,970	$210,588
2046	$132,139	$79,284	$211,423
2047	$132,664	$79,599	$212,263
2048	$133,193	$79,916	$213,108
2049	$133,725	$80,235	$213,959
2050	$134,260	$80,556	$214,816

Targets

View: Accounts

	SF	MF	BUS	IND	IRR	Total
2020	16,925	7,099	2,694	54	855	27,627
2021	16,950	7,151	2,728	55	866	27,749
2022	16,974	7,204	2,762	55	877	27,872
2023	16,999	7,256	2,797	56	888	27,995
2024	17,024	7,308	2,832	57	899	28,119
2025	17,048	7,361	2,867	57	910	28,244
2026	17,073	7,413	2,903	58	921	28,369
2027	17,098	7,465	2,940	59	933	28,495
2028	17,123	7,517	2,977	60	945	28,621
2029	17,147	7,570	3,014	60	957	28,748
2030	17,172	7,622	3,052	61	969	28,875
2031	17,179	7,674	3,090	62	981	28,986
2032	17,186	7,727	3,129	63	993	29,098
2033	17,194	7,779	3,168	64	1,005	29,210
2034	17,201	7,831	3,208	64	1,018	29,322
2035	17,208	7,884	3,248	65	1,031	29,436
2036	17,216	7,936	3,289	66	1,044	29,550
2037	17,223	7,988	3,330	67	1,057	29,665
2038	17,230	8,041	3,372	68	1,070	29,780
2039	17,238	8,093	3,414	68	1,084	29,896
2040	17,245	8,145	3,457	69	1,097	30,013
2041	17,252	8,197	3,500	70	1,111	30,131
2042	17,259	8,250	3,544	71	1,125	30,249
2043	17,267	8,302	3,589	72	1,139	30,368
2044	17,274	8,354	3,634	73	1,153	30,488
2045	17,281	8,407	3,679	74	1,168	30,609
2046	17,289	8,459	3,726	75	1,182	30,730
2047	17,296	8,511	3,772	76	1,197	30,852
2048	17,303	8,564	3,820	77	1,212	30,975
2049	17,310	8,616	3,867	78	1,227	31,099
2050	17,318	8,668	3,916	78	1,243	31,223

Water Savings

Units: afy

	Total Savings (afy)
2020	21.192393
2021	21.133087
2022	21.078911
2023	21.029556
2024	20.984734
2025	20.944185
2026	20.907663
2027	20.871758
2028	20.836564
2029	20.802159
2030	20.768613
2031	20.727722
2032	20.697394
2033	20.676801
2034	20.665193
2035	20.661894
2036	20.666288
2037	20.677820
2038	20.695986
2039	20.720328
2040	20.750433
2041	20.785925
2042	20.826637
2043	20.872250
2044	20.922472
2045	20.977040
2046	21.035714
2047	21.098277
2048	21.164532
2049	21.234297
2050	21.307411

Dipper Well Rebate

Overview

Name	Dipper Well Rebate
Abbr	DIPRWEL
Category	Default
Measure Type	Standard Measure

Time Period

First Year	2021
Last Year	2023
Measure Length	3

Measure Life

Permanent	☐
Years	15
Repeat	☐

Fixture Cost per Device

	Utility	Customer	Fix/Acct
BUS	$600.00	$600.00	1

Administration Costs

Method: Percent

Markup Percentage	15%

Description

Provide Dipper Well device incentive for food service accounts. Devices save water and money using ~600 gallons of water per year; they reduce bacteria using heated water held above 140°F. They are easy to remove and clean with a programmable timer option to ensure scheduled water changeouts.

Customer Classes

SF	MF	BUS	IND	IRR
☐	☐	☑	☐	☐

End Uses

	SF	MF	BUS	IND	IRR
Toilets			☐		
Urinals			☐		
Lavatory Faucets			☐		
Showers			☐		
Dishwashers			☑		
Clothes Washers			☐		
Process			☐		
Kitchen Spray Rinse			☐		
Internal Leakage			☐		
Baths					
Other			☐		
Irrigation			☐		
Pools			☐		
Wash Down					
Car Washing					
External Leakage			☐		
Outdoor					
Non-Lavatory/Kitchen Faucets			☐		

Comments

> City costs represent the cost of the device and part of the health permit fee.
> The installation of electricity access might cost more than $350 and may be needed by half of participating accounts.
> A health dept. permit would be about $400 req'd for all. A permit for the electricity installation may cost the customer ~$200, though possibly only apply to half of participating accounts.
> Assume 1.5 hours of admin time per rebate.
>Measure savings estimates are half of published case study values to be conservative (also in the case of a site having 2).
>ConserveWell Drop-in model estimated to use ~320 gal/well/restaurant/yr and costs ~ $510/well. ConserveWell Wall-mount model uses ~550 gal/well/restaurant/yr and costs ~$565/well. Savings assumes Restaurant operates 16 hrs/day, 7 days/wk, & 365 days/yr. ConserveWell water changed every 4 hours. Compared to dipper-well continues flow rate ~30-60 gal/hr or 175,200 gal/yr. Source: https://server-products.com/ConserveWell-notdipperwell
> Dipper Well Replacement Field Evaluation Report. Frontier Energy Report # 50115-R0. Nov 2017. Los Banos site saved 176,000 gal/yr & Madera site saved 116,000 gal/yr. https://fishnick.com/publications/fieldstudies/Dipper_Well_Replacement_Field_Evaluation_ICP.pdf
> The City plans to make a concerted effort to target many over short period of time.

Results

Units: AF

Average Water Savings (afy)	
10.741604	
Lifetime Savings - Present Value ($)	
Utility	$483,862
Community	$3,948,989
Lifetime Costs - Present Value ($)	
Utility	$53,887
Community	$100,745
Benefit to Cost Ratio	
Utility	8.98
Community	39.20
Cost of Savings per Unit Volume ($/af)	
Utility	$162

End Use Savings Per Replacement

Method: Fixed

	Savings GPD/Acct	Avg GPD/Acct
BUS Dishwashers	239.0	31.0

Targets

Target Method: Percentage

% of Accts Targeted/Yr	1.000%
Only Affects New Accts	☐

Costs

View: Utility Details

	Fixture Costs	Admin Costs	Util Total
2020	$0	$0	$0
2021	$16,367	$2,455	$18,822
2022	$16,572	$2,486	$19,058
2023	$16,780	$2,517	$19,297
2024	$0	$0	$0
2025	$0	$0	$0
2026	$0	$0	$0
2027	$0	$0	$0
2028	$0	$0	$0
2029	$0	$0	$0
2030	$0	$0	$0
2031	$0	$0	$0
2032	$0	$0	$0
2033	$0	$0	$0
2034	$0	$0	$0
2035	$0	$0	$0
2036	$0	$0	$0
2037	$0	$0	$0
2038	$0	$0	$0
2039	$0	$0	$0
2040	$0	$0	$0
2041	$0	$0	$0
2042	$0	$0	$0
2043	$0	$0	$0
2044	$0	$0	$0
2045	$0	$0	$0
2046	$0	$0	$0
2047	$0	$0	$0
2048	$0	$0	$0
2049	$0	$0	$0
2050	$0	$0	$0

Targets

View: Accounts

	BUS	Total
2020	0	0
2021	27	27
2022	28	28
2023	28	28
2024	0	0
2025	0	0
2026	0	0
2027	0	0
2028	0	0
2029	0	0
2030	0	0
2031	0	0
2032	0	0
2033	0	0
2034	0	0
2035	0	0
2036	0	0
2037	0	0
2038	0	0
2039	0	0
2040	0	0
2041	0	0
2042	0	0
2043	0	0
2044	0	0
2045	0	0
2046	0	0
2047	0	0
2048	0	0
2049	0	0
2050	0	0

Water Savings

Units: afy

	Total Savings (afy)
2020	0.000000
2021	7.307704
2022	14.707092
2023	22.199316
2024	22.199316
2025	22.199316
2026	22.199316
2027	22.199316
2028	22.199316
2029	22.199316
2030	22.199316
2031	22.199316
2032	22.199316
2033	22.199316
2034	22.199316
2035	22.199316
2036	14.891612
2037	7.492223
2038	0.000000
2039	0.000000
2040	0.000000
2041	0.000000
2042	0.000000
2043	0.000000
2044	0.000000
2045	0.000000
2046	0.000000
2047	0.000000
2048	0.000000
2049	0.000000
2050	0.000000

APPENDIX F – CONSERVATION ANALYSIS RESULTS

This appendix presents benefit and cost analysis results for individual conservation measure and overall conservation programs. Table F-1 presents how much water the measures will save through 2045, how much they will cost, and the cost of saved water per unit volume *if the measures were to be implemented on a stand-alone basis (i.e., without interaction or overlap from other measures that might address the same end use or uses)*. Savings from measures which address the same end use(s) are not additive; the model uses impact factors to avoid double counting in estimating the water savings from programs of measures.[15] This is why a measure like Public Education may show a distorted cost in comparison to water saved. Most, if not all, measures rely on public awareness. However, it is important to note that water savings are more directly attributable to an "active" measure, like a toilet rebate, than the less "active" public education/awareness measure that informs the community of the active measure.

Since interaction between measures has not been accounted for in Table F-1, it is not appropriate to include totals at the bottom of the table. However, the table is useful to give a close approximation of the cost effectiveness of each measure.

Cost categories are defined as follows:

- Utility Costs – Costs the City will incur, as a water utility, to operate measure, including administrative costs.
- Utility Benefits – The avoided cost of producing water at the identified rate $865/AF. More information about the source of this value can be found in Section 4.3.
- Customer (Community) Costs – Those costs customers will incur to implement a measure in the City's conservation program and maintain its effectiveness over the life of the measure.
- Customer (Community) Benefits – The additional savings, such as energy savings resulting from reduced use of hot water. These savings are additional as customers also would have reduced water bills (since the Utility Costs and Benefits transfer to the customers).
- Community Costs – Includes Utility Costs plus Customer Costs.
- Community Benefits – Includes Utility Benefits plus Customer Benefits.

The column headings in Table F-1 are defined as follows:

- Present Value (PV) of Utility and Community Costs and Benefits ($) = the present value of the 31-year time stream of annual costs or benefits, discounted to the base year.
- Utility Benefit to Cost Ratio = PV of Utility Costs divided by PV of Utility Benefits over 31 years.
- Community Benefit to Cost Ratio = (PV of Utility Benefits plus PV of customer energy savings) divided by (PV of Utility Costs plus PV of Customer Costs), over 31 years.
- Five Years of Water Utility Costs ($) = sum of annual Utility Costs for 2019-2023. Measures start in the years as specified for each measure shown in Appendix E. Utility costs include administrative costs and staff labor.
- Water Savings in 2030 (AFY) = water saved in acre-feet per year. The year 2030 is provided as requested by the City staff to correspond with the 2020 UWMP.
- Cost of Savings per Unit Volume ($/AF) = PV of Utility Costs over 31 years divided by the 31-year water savings. The analysis period is 2020–2050. This value is compared to the utility's avoided cost of water as one indicator of the cost effectiveness of conservation efforts. Note that this value somewhat minimizes the cost of savings because program costs are discounted to present value, but water benefits are not.

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[15] For example, if two measures are planned to address the same end use and both save 10% of the prior water use, then the net effect is not the simple sum of 20%. Rather, it is the cumulative impact of the first measure reducing the use to 90% of what it was originally, without the first measure in place. Then, the revised use of 90% is reduced by another 10% (10% x 90% = 9%) to result in the use being 81% (90% - 9% = 81%). In this example, the net savings is 19%, not 20%. Using impact factors, the model computes the reduction as follows, 0.9 x 0.9 = 0.81 or 19% water savings.

Table F-1. Estimated Conservation Measure Costs and Savings

Measure	Present Value of Water Utility Benefits	Present Value of Community Benefits	Present Value of Water Utility Costs	Present Value of Community Costs	Water Utility Benefit to Cost Ratio	Community Benefit to Cost Ratio	Five Years of Water Utility Costs 2020-2025	Water Savings in 2030 (AFY)	Cost of Savings per Unit Volume ($/AF)
Commercial									
CII Water Survey Level 2 and Customized Rebate	$910,720	$3,313,109	$915,904	$2,581,185	0.99	1.28	$193,725	18.8	$1,055
Ultra-High Efficiency Urinal Rebate	$59,814	$59,814	$39,504	$86,908	1.51	0.69	$35,223	1.9	$847
Pre-Rinse Spray Nozzle Giveaway	$153,422	$1,252,137	$38,970	$63,025	3.94	19.87	$41,349	4.4	$307
Hot Water on Demand Pump System Rebate	$112,265	$268,758	$157,905	$820,718	0.71	0.33	$167,458	3.3	$1,734
Dipper Well Rebate	$483,862	$3,948,989	$53,887	$100,745	8.98	39.20	$57,177	22.2	$162
Irrigation									
Rain Barrel Rebate	$11,851	$11,851	$126,503	$200,917	0.09	0.06	$28,867	0.7	$5,826
Large Rainwater Catchment System Rebate	$3,050	$3,050	$36,651	$249,120	0.08	0.01	$38,303	0.3	$8,147
Irrigation and Landscape Rebate	$589,219	$589,219	$993,428	$5,432,730	0.59	0.11	$294,989	44.7	$920
Free Sprinkler Nozzle Program	$277,886	$277,886	$329,386	$455,933	0.84	0.61	$103,145	23.0	$680
Mulch Program	$80,739	$80,739	$287,676	$287,676	0.28	0.28	$66,932	4.6	$2,000
Residential									
Residential Rebates for HECW	$139,707	$366,483	$95,879	$200,665	1.46	1.83	$50,325	5.1	$822

Measure	Present Value of Water Utility Benefits	Present Value of Community Benefits	Present Value of Water Utility Costs	Present Value of Community Costs	Water Utility Benefit to Cost Ratio	Community Benefit to Cost Ratio	Five Years of Water Utility Costs 2020-2025	Water Savings in 2030 (AFY)	Cost of Savings per Unit Volume ($/AF)
Pressure Reduction Valve Rebate	$102,170	$193,970	$49,161	$132,223	2.08	1.47	$37,818	8.5	$425
Leak Detection Device Rebate	$173,095	$843,877	$310,709	$1,304,976	0.56	0.65	$80,264	6.0	$1,935
Ultra-High Efficiency Toilet Rebate	$538,834	$538,834	$405,818	$762,075	1.33	0.71	$362,950	16.3	$921
Full AMI Implementation - Online Water Use Software and Leak Detection Customer Notification	$3,950,836	$16,562,254	$1,566,069	$5,857,952	2.52	2.83	$320,000	133.4	$327
Community & Education									
Water Conserving Landscape and Irrigation Codes	$1,055,819	$1,055,819	$350,316	$7,979,608	3.01	0.13	$78,568	46.1	$161
School Education	$2,251,464	$5,815,471	$519,717	$519,717	4.33	11.19	$122,582	67.1	$270
General Public Education	$683,674	$1,714,160	$4,127,161	$4,127,161	0.17	0.42	$958,815	20.8	$6,372
Water Checkup	$7,624,681	$30,192,376	$6,021,902	$7,705,244	1.27	3.92	$1,384,132	239.4	$884
Irrigation Evaluations	$1,589,488	$1,589,488	$1,918,184	$4,332,779	0.83	0.37	$443,824	98.1	$646
Toilet Flapper Leak Alert Giveaway	$16,670	$104,525	$43,163	$60,428	0.39	1.73	$44,457	0.0	$4,528

Additional information about the water reduction methodology, perspectives on benefits and costs, and assumptions about present value parameters and measure costs/savings can be found earlier in this Plan in Appendix D.

The following table shows each conservation program's present value of water savings and utility costs, as well as cost of water saved. See Appendix D for a more detailed explanation of present value.

Table F-2. Comparison of Program Estimated Costs and Water Savings

Conservation Program	Water Utility Present Value of Water Savings	Water Utility Present Value of Utility Costs	Water Utility Cost of Water Saved ($/AF)
Program A with Plumbing Code	$14,597,000	$15,230,000	$2,870
Program B with Plumbing Code	$19,528,000	$18,024,000	$2,530
Program C with Plumbing Code	$19,664,000	$18,388,000	$2,570

Costs presented in the table above are directly attributable to the City's conservation department only.
Present value costs and savings are rounded to nearest $1,000.

Table F-3 lists participation levels for the City's Active Water Conservation Programs over the past five fiscal years. Elements of these programs have been discussed in greater detail in Section 2.3.

Table F-3. City of Santa Barbara's Active Water Conservation Programs

Program	Description	Participation Numbers[1]
Water Check-up	City staff evaluates indoor water fixtures, such as toilets, water heaters, faucets and provides efficiency recommendations	7,192
6th Grade LivingWise Program	Includes literature and water saving devices	1,529
Water e-Sources	Water Resources Division newsletter - people who opened	90,097
Bill Insert Articles	Delivered 12 times a year to City water customers in paper form and electronically	120,000
101 Classes	Classes provide a great overview of the concepts, design, and best practices for Landscape Site Assessment, Rainwater Harvesting, Graywater, and Landscape Maintenance.	451
Water Check-Ups That Included Irrigation Evaluations	City staff evaluates irrigation controller schedule, provides efficiency recommendations	3,676
Landscape Design Standards Review	City staff performs plan checks for land development projects that include new/revised landscaping; ensure that the City's Landscape Design Standards are met	434
Free Rain Sensor Program	For customers that have compatible irrigation controllers, City staff provides a free wired rain sensor	170
Mulch Program	City water customers can get a up to two free dump truck of mulch delivered a year	1,837
Clothes Washer Rebate	$150 rebate for replacing high-water using clothes washers with eligible high efficiency washer models.	229
Irrigation and Landscape Rebate[2]	Smart Landscape Rebate Program (SLRP) rebates up to $1,000 per residential meter or $2,000 per multifamily or commercial meter to replace lawn with low water using plants and/or install efficient irrigation	1,255
Other Landscape Workshops	Drip irrigation, sheet mulching, hands on workshops	3,795
Green Gardener Program	Educates local gardeners in resource efficient landscape management (with RWEP)	309
Education Videos[2]	Videos on how to read your meter, checking for leaks, water supply etc. YouTube hits	14,612
Landscape Education Videos[2]	Videos on setting up irrigation timers, adjusting sprinklers, plant selection, etc. YouTube hits	46,567
Landscape Education Videos – Spanish[3]	Videos on setting up irrigation timers, adjusting sprinklers, plant selection, etc. YouTube hits	266
Media Campaigns – Funds Spent	Messages tailored to the season and run year-round	1,145,000
Media Campaigns – # of Ads[4]	Messages tailored to the season and run year-round	95,660

[1] *Participation numbers are from FY 2015 to FY 2019.*

[2] As of 2017, Water Wise landscaping rebates have resulted in 740,000 sq. ft. of lawn replaced, which is equal to 13 football fields.

[3] *YouTube hits based on year the video was posted not when video was viewed.*

[4] *In 2017, the City stopped tracking by impressions and number of days on television.*

APPENDIX G – PERFORMANCE MEASURES REPORT

City of Santa Barbara

Fiscal Year 2019 Performance Measure Results

Reporting Period: From 7/1/2018 to 6/30/2019

Department: Public Works

Division: Public Works-Water Resources

Program Name and Number: Water Supply Management (4611) (4612) (4674)

Program Owner: Kelley Dyer, Madeline Wood

5/6, 83%
Objectives
Achieved

Program Mission: Provide an adequate supply of water by implementing the Long-Term Water Supply Program, which includes a cost-effective water conservation element and a diverse portfolio of supplies.

Program Activities:

1. Implement the Long-Term Water Supply Program.
2. Advise on optimal use of the City's diverse sources of water supplies.
3. Provide information on the City's water supplies and water conservation efforts via the City's web site.
4. Manage a cost-effective customer-response based water conservation program that meets federal and state requirements
5. Maintain and protect surface water supplies from the Santa Ynez River.
6. Support member agency activities of the Cachuma Operation and Maintenance Board (COMB), the Cachuma Conservation Release Board (CCRB), and the Central Coast Water Authority (CCWA). Keep Water Commission and City Council liaison briefed on activities of COMB, CCRB, and CCWA.
7. Sustainably manage local groundwater basins for water supply purposes, including ongoing monitoring of water levels and water quality.
8. Evaluate opportunities to increase recycled water use, including non-potable reuse and potable reuse.
9. Manage monthly records of the amount of water produced from each source and the City's surface water diversions in compliance with State requirements, and prepare monthly reports in accordance with the Upper Santa Ynez River Operations Agreement.
10. Update the variable operating cost of each water source for supply planning purposes.
11. Support water financial planning and implement water rates and capacity charges.
12. Provide development review for conformance with individual metering and Landscape Design Standards for Water Conservation requirements.
13. Implement recommendations of multi-year Water Conservation Marketing Plan.

✓ Status	Project Objectives
☑ Complete	1. Present the annual Water Supply Management Report for the previous year to Council for adoption by January 31, 2019.

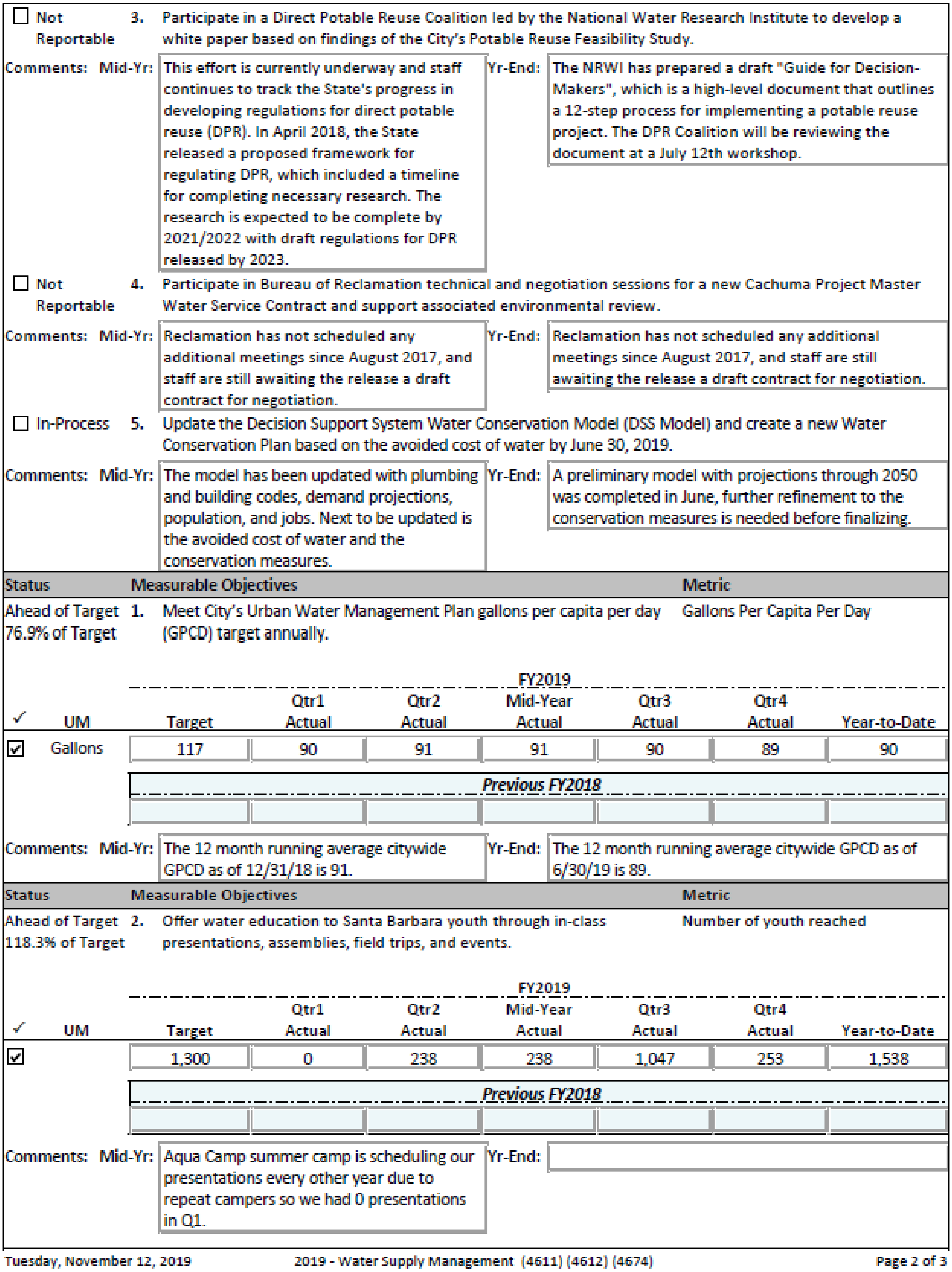
Comments: Mid-Yr: The annual Water Supply Management Report was presented to Water Commission on December 20, 2018 and is scheduled for Council on January 29, 2019.

Yr-End: The annual Water Supply Management Report was adopted by Council on January 29, 2019.

✓ Status	Project Objectives
☑ Complete	2. Work with the United States Geological Survey to complete modeling study of the City's groundwater basins.

Comments: Mid-Yr: The modeling study is complete and the final USGS report was officially released on July 10, 2018.

Yr-End:



☐ Not Reportable **3.** Participate in a Direct Potable Reuse Coalition led by the National Water Research Institute to develop a white paper based on findings of the City's Potable Reuse Feasibility Study.

Comments: Mid-Yr: This effort is currently underway and staff continues to track the State's progress in developing regulations for direct potable reuse (DPR). In April 2018, the State released a proposed framework for regulating DPR, which included a timeline for completing necessary research. The research is expected to be complete by 2021/2022 with draft regulations for DPR released by 2023.

Yr-End: The NRWI has prepared a draft "Guide for Decision-Makers", which is a high-level document that outlines a 12-step process for implementing a potable reuse project. The DPR Coalition will be reviewing the document at a July 12th workshop.

☐ Not Reportable **4.** Participate in Bureau of Reclamation technical and negotiation sessions for a new Cachuma Project Master Water Service Contract and support associated environmental review.

Comments: Mid-Yr: Reclamation has not scheduled any additional meetings since August 2017, and staff are still awaiting the release a draft contract for negotiation.

Yr-End: Reclamation has not scheduled any additional meetings since August 2017, and staff are still awaiting the release a draft contract for negotiation.

☐ In-Process **5.** Update the Decision Support System Water Conservation Model (DSS Model) and create a new Water Conservation Plan based on the avoided cost of water by June 30, 2019.

Comments: Mid-Yr: The model has been updated with plumbing and building codes, demand projections, population, and jobs. Next to be updated is the avoided cost of water and the conservation measures.

Yr-End: A preliminary model with projections through 2050 was completed in June, further refinement to the conservation measures is needed before finalizing.

Status **Measurable Objectives** **Metric**

Ahead of Target 76.9% of Target **1.** Meet City's Urban Water Management Plan gallons per capita per day (GPCD) target annually. — Gallons Per Capita Per Day

					FY2019			
✓	UM	Target	Qtr1 Actual	Qtr2 Actual	Mid-Year Actual	Qtr3 Actual	Qtr4 Actual	Year-to-Date
☑	Gallons	117	90	91	91	90	89	90
					Previous FY2018			

Comments: Mid-Yr: The 12 month running average citywide GPCD as of 12/31/18 is 91.

Yr-End: The 12 month running average citywide GPCD as of 6/30/19 is 89.

Status **Measurable Objectives** **Metric**

Ahead of Target 118.3% of Target **2.** Offer water education to Santa Barbara youth through in-class presentations, assemblies, field trips, and events. — Number of youth reached

					FY2019			
✓	UM	Target	Qtr1 Actual	Qtr2 Actual	Mid-Year Actual	Qtr3 Actual	Qtr4 Actual	Year-to-Date
☑		1,300	0	238	238	1,047	253	1,538
					Previous FY2018			

Comments: Mid-Yr: Aqua Camp summer camp is scheduling our presentations every other year due to repeat campers so we had 0 presentations in Q1.

Yr-End:

Status	Measurable Objectives	Metric
Ahead of Target 137.3% of Target	3. Offer water conservation classes and workshops for homeowners and landscape professionals.	Number of participants

		FY2019						
✓	UM	Target	Qtr1 Actual	Qtr2 Actual	Mid-Year Actual	Qtr3 Actual	Qtr4 Actual	Year-to-Date
☑		300	59	133	192	60	160	412
	Previous FY2018							

Comments: Mid-Yr: Q1: 59 professionals, 0 homeowners
Q2: 51 professionals, 82 homeowners
Yr-End: Q3: 19 professionals, 41 homeowners
Q4: 15 professionals, 145 homeowners

			FY2019						
Status	Other Program Measures	UM	Target	Qtr1 Actual	Qtr2 Actual	Mid-Year Actual	Qtr3 Actual	Qtr4 Actual	Year-to-Date
Below Projections 50.% of Target	1. Smart Landscape Rebates pre-inspections completed		200	29	28	57	25	18	100
	Previous FY2018		*300*	*46*	*30*	*76*	*24*	*39*	*139*

			FY2019						
Status	Other Program Measures	UM	Target	Qtr1 Actual	Qtr2 Actual	Mid-Year Actual	Qtr3 Actual	Qtr4 Actual	Year-to-Date
Below Projections 72.7% of Target	2. Plans reviewed for conformance with Landscape Design Standards for Water Conservation		150	32	33	65	23	21	109
	Previous FY2018		*100*	*38*	*28*	*66*	*48*	*44*	*158*

			FY2019						
Status	Other Program Measures	UM	Target	Qtr1 Actual	Qtr2 Actual	Mid-Year Actual	Qtr3 Actual	Qtr4 Actual	Year-to-Date
Ahead of Target 190.% of Target	3. Plans reviewed for conformance with individual water metering requirements		50	30	28	58	18	19	95
	Previous FY2018								

			FY2019						
Status	Other Program Measures	UM	Target	Qtr1 Actual	Qtr2 Actual	Mid-Year Actual	Qtr3 Actual	Qtr4 Actual	Year-to-Date
Below Projections 87.6% of Target	4. Free Water Checkup appointments conducted		1,400	379	357	736	251	240	1,227
	Previous FY2018								

Comments: 2. Mid-Yr: Q1: 32 Initial Reviews, 16 1st Resubmittal, 16 2nd Resub, 18 3rd Resub.
Q2: 33 Initial Reviews, 21 1st Resubmittal, 12 2nd Resub, 13 3rd + Resub.
Yr-End: Q3: 23 Initial Reviews, 23 1st Resubmittal, 14 2nd Resub, 4 3rd + Resub.
Q4: 21 Initial Reviews, 18 1st Resubmittal, 6 2nd Resub, 1 3rd + Resub.

4. Yr-End: We have seen a reduction in Water Checkup requests due to the long winter and marine layer; most irrigation systems were off for Q3 and much of Q4.

APPENDIX H – REGIONAL WATER EFFICIENCY PROGRAM (RWEP) ANNUAL REPORT FY2019-20

REGIONAL WATER EFFICIENCY PROGRAM (RWEP)
for
SANTA BARBARA COUNTY

Annual Report for FY2019-2020

Covering July 1, 2019 - June 30, 2020

Let's Save Together
waterwise
IN SANTA BARBARA COUNTY

Prepared by the

Santa Barbara County Water Agency

July 2020

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Regional Water Efficiency Program Overview

The Regional Water Efficiency Program (RWEP) of Santa Barbara County was established by the Santa Barbara County Water Agency in December 1990 in partnership with local water purveyors. RWEP promotes the efficient use of urban and agricultural water supplies countywide, and provides information and assistance to the eighteen local water purveyors within the county, as listed on page 4. Through the RWEP, the Santa Barbara County Water Agency coordinates a collaborative water conservation partnership among purveyors, co-funds projects and programs, acts as a clearinghouse for information on water use efficiency, manages specific projects and programs, and monitors local, state and national legislation related to efficient water use.

This annual report provides information on accomplishments of the RWEP as coordinated by the County. This report does not capture all water conservation activities or accomplishments of each individual water purveyor across the County.

Some local water purveyors, along with the County Water Agency, are required to implement certain Best Management Practices (BMPs) identified by the U.S. Bureau of Reclamation (USBR). This report identifies which RWEP accomplishments relate to specific BMPs that satisfy the USBR's requirement for the County Water Agency, as USBR master contractor for the Cachuma Project, to have a **regional** water conservation plan as a supplement to individual water purveyors' water conservation and supply plans.

For information on water conservation in Santa Barbara County, please visit the RWEP's website at www.WaterWiseSB.org.

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Water Purveyors in Santa Barbara County

Below is the list of the 18 water purveyors in Santa Barbara County:

Buellton, City of
Carpinteria Valley Water District
Casmalia Community Services District
Cuyama Community Services District
Goleta Water District
Golden State Water Company, Orcutt
Guadalupe, City of
La Cumbre Mutual Water Company
Lompoc, City of
Los Alamos Community Services District
Mission Hills Community Services District
Montecito Water District
Santa Barbara, City of
Santa Maria, City of
Santa Ynez River Conservation District, I.D. #1
Solvang, City of
Vandenberg Airforce Base
Vandenberg Village Community Services District

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Public Information Programs

Supporting USBR's Public Information Program BMP #2.1

Continued to promote the new WaterWiseSB brand and logo for the Regional Water Efficiency Program

- Seasonal media campaigns featured our brand (WaterWise in Santa Barbara County), our logo (see cover of this report), and our tagline (*Let's Save Together*).
- Included the brand/logo on items such as tote bags and water bottles given to students participating in the High School Video Contest, as well as clip boards and hats given to graduates of the Green Gardener Program, and on all outreach material available to the public.

Informed the Public Through Media Campaigns

- Seasonal Media Campaigns and Ads:
    - Summer 2019 media campaign consisted of:
        - TV: "*It's 4 am, Do You Know What Your Sprinklers are Doing?*"
            - July 2019 – September 2019: 7 Stations; 813 spots.
        - Digital: *"It's 4 am, Do You Know What Your Sprinklers Are Doing?"*
            - July 2019 – September 2019: 15,000 Impressions.
        - Theatre Screens:
            - Segment 1: July 26- August 1, 2019, High School Video Contest 1st, 2nd and 3rd place
            - Segment 2: August 2 - August 8, 2019 and September 6, 2019 – September 19: *"It's 4 am, Do You Know What Your Sprinklers Are Doing?"*
            - August 2019 - September 2019: 132 screens.
    - Fall 2019 media campaign consisted of:
        - TV: "*Fall Baby Plants*"
            - October 2019 – December 2019: 7 Stations; 805 spots.
        - Digital: *"Fall Baby Plants"*
            - October 2019 – November 2019: 292,000 Impressions.
        - Theatre Screens: *"Fall Baby Plants"*
            - November 2019: 66 screens.
    - Winter 2020 media campaign consisted of:
        - TV: "*Sneaking In" & "Sneaking Out"*
            - January 2020 – March 2020: 643 spots
        - Digital: *"Sneaking In"* & *"Sneaking Out"*
            - 100,000 pre-roll impressions
        - Theatre Screens: *"Sneaking In" & "Sneaking Out"*
            - January 2020 – March 2020: 220 screens.
    - Spring/Summer 2020 media campaign consisted of:

- TV: *"Spruce Up Your Sprinklers This Spring"*
    - May 2020 – June 2020: 8 Stations; 505 Spots.
- Theatre Screens: *"Spruce Up Your Sprinklers This Spring"*
    - Since theaters were closed in spring, ads will be aired once theaters open in July 2020 - August 2020.
- Digital: *"Spruce Up Your Sprinklers This Spring"*
    - May 2020 – June 2020: 30,000 pre-roll impressions, 436,951 mobile/desktop impressions.
- Print: "*Spruce Up Your Sprinklers This Spring*"
    - May 2020 – June 2020: 1 news publication; 1 print spot.

- Green Gardener Program
    - 329 Green Gardener radio ads were placed to advertise classes in fall, spring, and summer; as well as to promote the list of certified Green Gardeners on WaterWiseSB.org.
- Media ads were co-funded by most water providers across the County. See list of funding agencies at end of this report.

Informed Public Through Water Conservation Website: www.WaterWiseSB.org

- County staff maintained the website to be current and used as a resource to help promote and expand outreach for member agencies. Continually, staff posted needed changes and updates, countywide calendar events, new information, resources and links.
- The website averaged 1,436 "users" per month. There were a total of 17,236 users in FY2019-20.

Participated in Public Events

- The County WA coordinated and registered on behalf of RWEP members to table at the Landscape Expo sponsored by All-Around Landscape Supply. This event was held at Earl Warren Showgrounds in February 2020. The County WA coordinated the display table with RWEP members, organized a tabling schedule, and brought materials on behalf of members who could not attend.
- The Santa Barbara Earth Day Festival was held virtually this year in April 2020.
- In support of Water Awareness Month in May, SBCWA prepared a Resolution that was passed by the County Board of Supervisors on May 5, 2020.
- Annually, the County WA coordinates a public display in North County at the County's Santa Maria Center and in South County at the County's Admin Building for the month of May. There were no displays this year due to the closure of buildings from COVID-19. The public was directed to access informational materials online.
- Provided educational water conservation brochures and handouts for free.
- Provided materials for members to distribute at local community events year-round.

Water Conservation Outreach Material and Brochures updated

- Distributed over 10,000 brochures, catch cans, and other materials; and to RWEP partners for distribution to their retail customers.
- Development for the new Water Wise Landscape Maintenance Guidebook is underway.

Issued Press Releases

- Periodically issued 4 press releases County-wide for RWEP program announcements:
  - *“Applications Open for the WaterWise High School Video Contest”* (November 25, 2019).
  - *“Water Providers Launch WaterWise Garden Recognition Contest”* (February 5, 2020).
  - *““Your Vote Counts in the County’s 21st Annual WaterWise High School Video Contest”* (March 30, 2020).
  - *“Dos Pueblos High School Wins the 21st Annual Santa Barbara County WaterWise High School Video Contest”* (April 22, 2020).

Landscape Water Use Programs

Supporting USBR’s Landscape BMP #5;
and Residential BMP #3.2 for Landscape Water Survey.

Garden Recognition Contest

- This program was reinstituted in FY19-20.
- Four agencies participated in the program this year, including the Carpinteria Valley Water District, City of Santa Barbara, Montecito Water District, and the Vandenberg Village Community Services District.
- We received a total of 12 applications. One winner from each district was selected. One County winner was selected out of the district winners. The winners for the contest this year were:
  - Carpinteria Valley Water District - Bob and Pat Wingate
  - Montecito Water District- Laura and Geof Wyatt
  - Vandenberg Village Community Services District- Linda Zivich
  - City of Santa Barbara - Stephanie Poole, who was also the overall County winner
- Winners were presented with an engraved Garden Award boulder to showcase in their garden.
- A Press Release to announce the winners will be issued in summer 2020.

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Water Wise Landscape Maintenance Guidebook

- The County WA in coordination with RWEP members established a contract with CalWEP as the Project Manager of the Guidebook.
- The County WA serves on the Project Advisory Committee on behalf of the regional partners along with members from other funding agencies. Staff attended meetings, reported updates and collated all feedback from participating members, and will continue to represent RWEP until the final product is complete and published.
- The feedback was provided from participating members on the Table of Contents and Regional Page to CalWEP.
- The development and printing of the Guidebook was funded by previous FY Landscape Education program funds already paid by members.

Green Gardener Program

- Students received training and certification from Santa Barbara City College (SBCC) or Allan Hancock College (AHC) through the 15-week course.
- AHC in Santa Maria secured a new instructor in fall 2019.
- At SBCC, there was a Basic class held during fall, spring (virtual), and summer I and II (virtual) semesters. Vocation ESL class was offered in fall 2019 as a supplemental class for students to improve their English communication skills. The Advanced class was held in spring 2020. In total, there were 65 graduates (24 were advanced students)..
- At AHC, there were no classes in fall 2019 or spring 2020. The online classes during spring and summer 2020 semesters at SBCC were advertised in North and Mid-County for students to participate virtually.
- Green Gardener Public List was updated and published in July and December 2019, and June 2020 on www.GreenGardener.org.
- In coordination with both class instructors, the class curriculum, PowerPoint slides, and Student Manual were updated with current information and resources.
- A new Green Gardener logo was developed, and one was created to honor this year's 20th Anniversary of the program.
- Four class flyers were created and posted on the website.
- Principal co-funders were: SBCC, County WA, City of Santa Barbara, Goleta Water District, Montecito WD, Carpinteria Valley WD, La Cumbre Mutual WC, Buellton, Solvang, Santa Ynez River WCD, ID#1, City of Santa Maria and some non-RWEP member sponsors including All Around Landscape Supply; Santa Barbara County Resource Recovery & Waste Management Division; Santa Barbara County APCD; Engel & Grey; and City of Santa Barbara Creeks Division.

Produced and Aired additional episodes for *Garden Wise TV Show*

- 2 new episodes aired during FY19-20.
    - Episode 19: *"Microbial Life"*
    - Episode 20: *"Do it Yourself"*

- Santa Barbara City TV filmed all shows; Aired on County GATV20, SB City TV18, Comcast 23 and Santa Maria public access TV. Also available for viewing online at WaterWiseSB's YouTube page.
- Co-funded by County, City of Santa Barbara, Goleta WD, and other water providers.

Funded website for "*Water Wise Gardening for Santa Barbara County*"

- Website received 73,309 page views with 8,835 visits and users. This was a 43% increase from last year's page views of 51,036.

Updated Weekly Watering % Adjust

- County WA staff updated website weekly using data from five out of nine California Irrigation Management Information System (CIMIS) stations across SB County. Due to drought conditions, a number of CIMIS stations have stopped collecting data over the last few years.
- The Watering % Adjust was updated to be off after significant rain events.

Funded Large Landscape Evaluations across Santa Barbara County

- County funded Cachuma Resource Conservation District's Mobile Irrigation Lab.
- CRCD's expert staff conducted irrigation system evaluations through site visits and testing of turf and crop irrigation systems County-wide.
    - 13 irrigation evaluations covering 145 irrigated acres in Santa Maria, Lompoc and Goleta
    - Range of DU values: 0.13-0.94 (mean value = 0.77)
- CRCD staff gave tutorials on water conservation strategies at one-on-one field visits:
    - Conducted field visits with 59 individual growers in Santa Maria
    - Emphasis on nitrate leaching and importance of irrigation management
- CRCD staff assisted growers in applying for SWEEP funding through CDFA:
    - 2 application workshops (Santa Ynez and Santa Maria)
    - One workshop conducted in Spanish
    - 9 attendees and at least 2 applications for funding submitted

Youth Education Programs

Supporting USBR's School Education Programs BMP #2.2

School Assembly Presentations on Water Conservation

- The County WA partnered with local water purveyors to co-fund water education assembly-style presentations at elementary schools.
- Extended contract (with "Shows That Teach") for engaging musical-comedy-educational show about the value of water & water conservation, while developing a new Fall Proposal to offer digital/video performances next fall.

- There were 11 performances that reached 1762 students at 8 schools in Buellton, Carpinteria, Goleta, and Santa Barbara. There were 5 performances scheduled that were cancelled due to COVID-19.

High Schools Competed in the 2020 WaterWise High School Video Contest

- The County WA updated the contest flyer, sent letters and flyers to schools, and digitized student contest materials that were posted on the website.
- The contest received 10 video submissions by 28 students from 5 different schools countywide for potential use as 30-second Public Service Announcements on water conservation.
- The County WA secured ~$3,000 of in-kind donations from 7 sponsors for student prizes, including 2 new sponsors. This was the first year the contest had a sponsor for a new Spanish award category. The featured prizes donated by the private sector companies were provided to the student winning teams:
    - First place, *"Drought Resistant Lawns are the Future"* by Dos Pueblos High School received $1000. Students won a $500 prize provided by Carollo Engineers.
    - Second Place, *"Mulch Master"* by Pioneer Valley High School received $500. Students received a $350 prize provided by Geosyntec consultants.
    - Third Place, *"Doctor Drought"* by Santa Ynez High School received $300. Students received a $150 prize provided by Ewing Irrigation.
    - North County Honorable Mention, *"Life without Lawns"* by Santa Ynez High School received $100. Students received carwash vouchers provided by Splash n' Dash Recycled Carwash.
    - South County Honorable Mention, *"Alternative Ways"* by Dos Pueblos High School received $100. Students won tickets to the 2021 Santa Barbara International Film Festival.
    - People's Choice Award: *"Drought Resistant Lawns are the Future"* by Dos Pueblos High School received a record high of 364 likes on the WaterWiseSB YouTube channel.
    - Teachers who participated in the Teacher Questionnaire received movie tickets provided by NCM Theaters.
- Students and schools received awarded trophies and certificates. Schools included Bishop Garcia Diego High School, Dos Pueblos High School, Orcutt Academy, Pioneer Valley High School, and Santa Ynez Valley Union High School.
- The Awards Ceremony at Parks Plaza Theatre in Buellton was planned for May 2020. Due to COVID-19, the event was cancelled. Students were mailed their prizes and certificates.
- The student video submissions were posted on YouTube, Facebook, and www.WaterWiseSB.org.
- The Teacher Questionnaire was updated and sent out to this year's and previous participating teachers.
- 1st, 2nd and 3rd place winning videos used in spring and summer media campaigns.

- Co-funded by all RWEP members across the County.

Made awards as part of Santa Barbara County Science Fair

- The Science Fair is open to all high school and junior high students county-wide. This event was cancelled due to COVID-19.

Commercial and Institutional Programs

Supporting USBR's Commercial, Industrial, and Institutional BMP #4

Participated in County's Green Business Program

- The County WA served as a representative on program's Steering Committee and attended 6 bi-monthly meetings.
- The County WA helped coordinate a virtual Green Business Academy, four Green Business Alliance meetings/mixers, and virtual water audits. Staff also helped coordinate the program's Annual Luncheon in March 2020. The County WA was recognized for the recertification of the County Public Works' Naomi Schwartz Building in Santa Barbara.
- There were 10 new Green Business certifications, 2 reached Innovator level, and 14 Green Business re- certifications, 2 reached Innovator level.
- The County WA provided high-efficiency faucet aerators and educational materials for water audits, meetings, and mixers.
- The County WA achieved recertification of the County Public Works Department's Naomi Schwartz Building in Santa Barbara. WA staff are continue to work on the recertification of the County Public Works Department's Santa Maria Service Center in Santa Maria.

Information on Utility Operations

Supporting USBR's Utility Operations BMP #1.3 for metering rates; and BMP #1.4 for retail conservation pricing.

Reported on Local Water Rates

- The County WA compiled water rate information from 17 local water purveyors across Santa Barbara County and organized a 2020 Water Rates Summary.
- The report was shared and posted online under "About Us" at www.WaterWiseSB.org.
- All local purveyors cooperated; staffed by County WA.

Compiled Water Production Data

- The County WA compiled local water purveyors' annual water production data for CY2019, and organized a 2019 Water Use Summary.

- The summary table was shared and posted online under "About Us" at www.WaterWiseSB.org.
- All local purveyors cooperated; staffed by County WA.

Coordination of Regional Water Efficiency Program

Supporting USBR's Utility Operations BMP #1.1.1 for a Conservation Coordinator

Coordinated Monthly RWEP Meetings

- For program coordination, information sharing, vetting ideas, etc.
- The County WA scheduled and facilitated all meetings, including preparing agenda drafts for feedback, meeting materials, and circulated meeting notes. The County WA also maintained a video conferencing contract to hold virtual meetings.
- The County WA coordinated and conducted 12 meetings.

Coordinated Quarterly RWEP Sub-Committee Meetings: Website & Education

- For program coordination, planning, and discussion of education and website specific programs. Vet ideas through sub-committee members to present to monthly RWEP meetings.
- The County WA coordinated and conducted 8 meetings total for the sub-committees.
- Coordinated the HSVC group judging session in March 2020.

Coordinated Joint-Meetings with Outside Water Conservation Agencies

- The County WA coordinates with staff from water purveyors in Ventura County to host a meeting every December. This joint-meeting was combined with the CalWEP Plenary held in Santa Barbara County in December 2019.
- The County WA coordinated with staff from water purveyors in San Luis Obispo County to host a joint-meeting in February 2020.
- Meetings useful for program coordination, information sharing, networking, vetting ideas, etc.

Coordinated and Hosted California Water Efficiency Partnership (CalWEP) Plenary in Santa Barbara

- The County WA coordinated with CalWEP and members to host a Plenary in December 2019 in Santa Barbara County. Coordination included assisting with the agenda, speakers, Plenary events, procuring venues, etc. There were over 100 attendees throughout the State at the event.
- The County WA served as the Host Presenter at the event.

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Coordinated and Hosted Division of Water Resources (DWR) Water Education Committee Meeting in Santa Barbara

- The County WA coordinated with City of Santa Barbara and Ventura staff to host a DWR Water Education Committee meeting in Santa Barbara County in February 2020. Coordination included organizing the meeting agenda, presenters, event tour and mixer, procuring meeting venue, etc. Multiple water education staff throughout the State attended.

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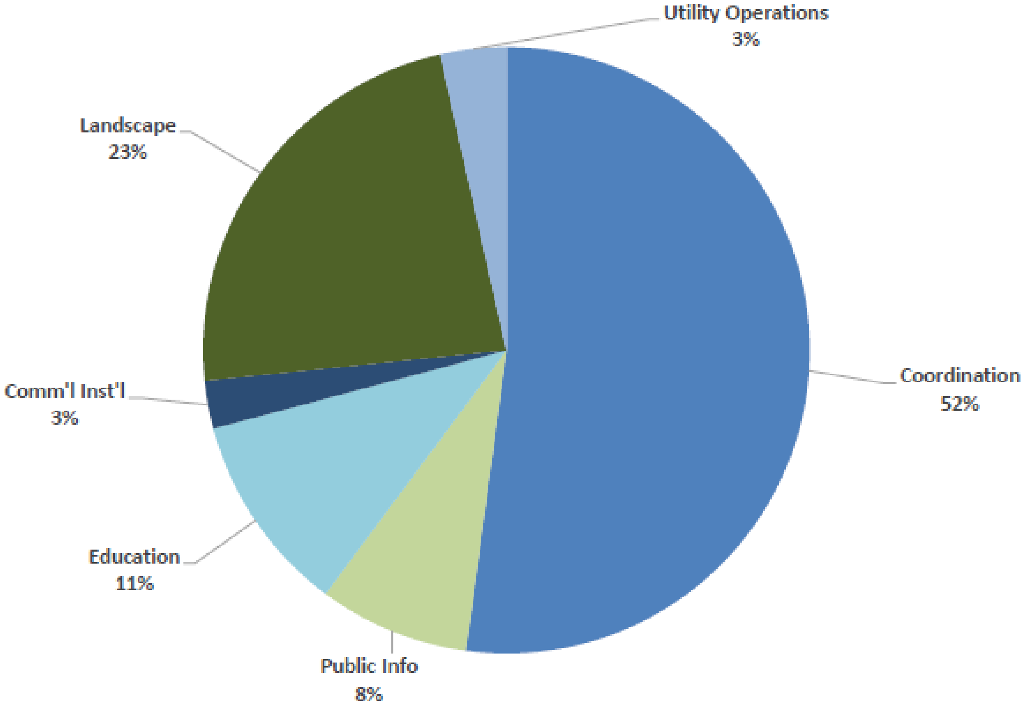
Regional Programs and Projects Co-Funded by Local Water Providers FY2019-2020*

	Website	Media Campaigns	Youth Education	Garden Wise TV Show	Green Gardener Program
City of Buellton	Website	Ads	HS Video	TV	Green
Carpinteria Valley Water District	Website	Ads	HS Video	TV	Green
Cuyama CSD	Website	Ads	HS Video		
Golden State Water Company, Orcutt	*Not participating				
Goleta WD	Website	Ads	HS Video	TV	Green
City of Guadalupe	*Not participating				
La Cumbre Mutual Water Company	Website	Ads	H S Video	TV	Green
City of Lompoc	Website	Ads	H S Video	TV	
Los Alamos CSD	Website	Ads	H S Video		
Mission Hills CSD	*Not participating				
Montecito WD	Website	Ads	HS Video	TV	Green
City of Santa Barbara	Website	Ads	HS Video	TV	Green
Santa Barbara County Water Agency	Website	Ads	HS Video	TV	Green
City of Santa Maria	Website	Ads	HS Video	TV	Green
Santa Ynez River WCD, ID#1	Website	Ads	HS Video	TV	Green
City of Solvang	Website	Ads	HS Video	TV	Green
Vandenberg Village CSD	Website	Ads	HS Video	TV	

*Many water purveyors have water conservation programs separate from regional projects listed here.

The Allocation of County Water Agency Staff Time for the RWEP in FY2019-2020

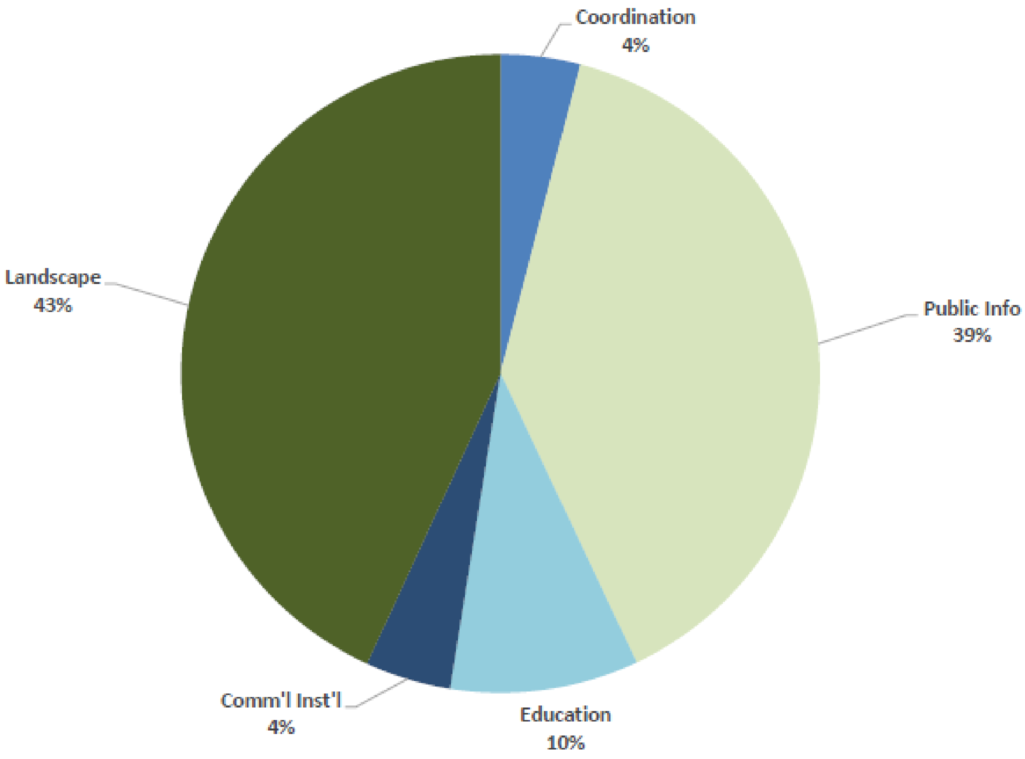
Listed below is the total labor hours worked on RWEP programs and/or projects categories by County Water Agency staff.



Let's Save Together waterwise IN SANTA BARBARA COUNTY

The Allocation of RWEP Funds in FY2019-2020

Listed below is the percentage of total funds spent on RWEP programs and projects by category. The total includes County Water Agency funds and the contributions from RWEP members for FY2019-2020. The total excludes funds for staff time and the CRCD Mobile Irrigation Lab that were funded by the County Water Agency.



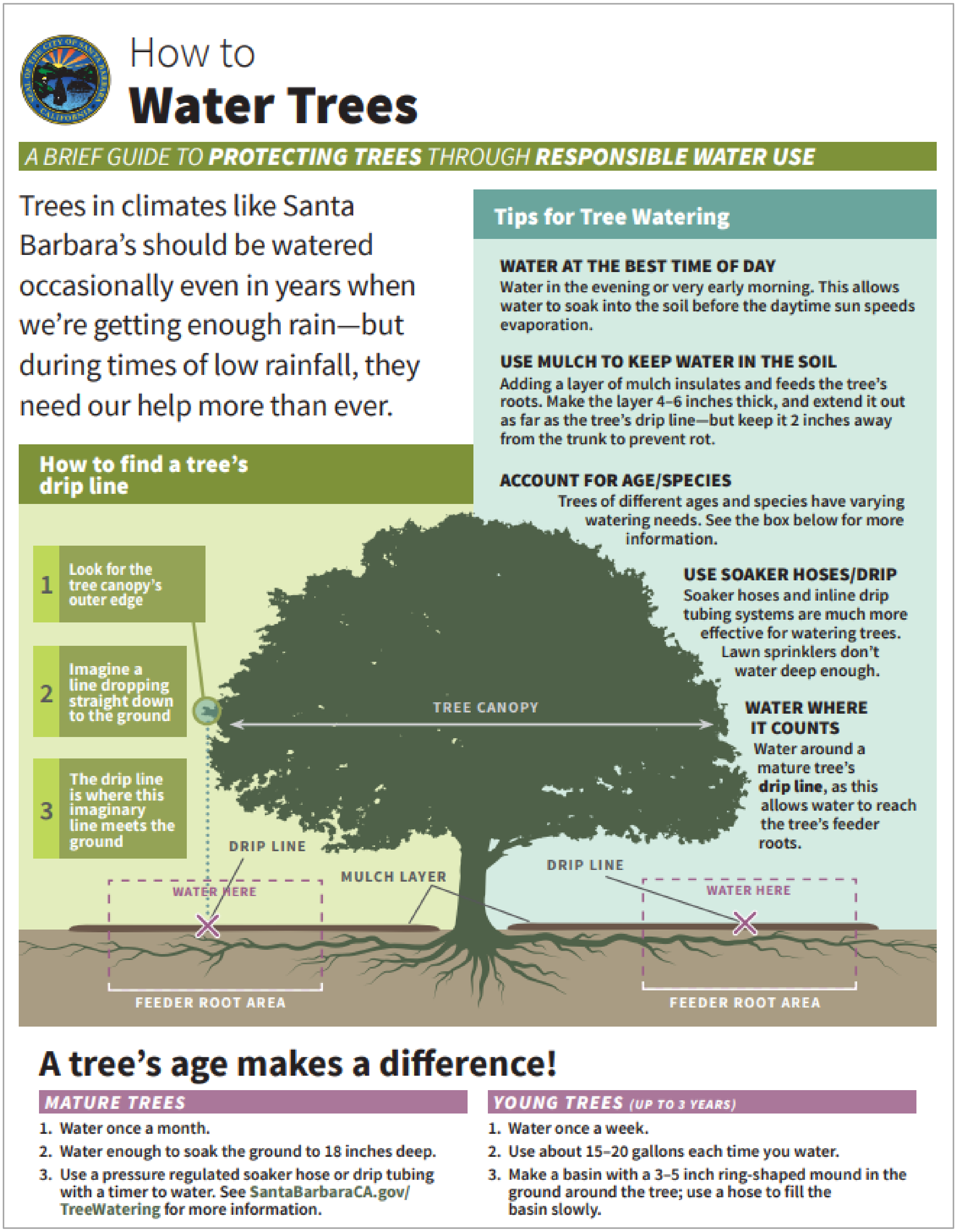
APPENDIX I – EXAMPLES OF LOCAL AND REGIONAL OUTREACH INITIATIVES

Social Media Examples

“Let the rain do the work!” Landscape Campaign

Online Example

City of Santa Barbara's Water Wise Landscaping "Tree Watering" Web Page



How to
Water Trees

*A BRIEF GUIDE TO **PROTECTING TREES** THROUGH **RESPONSIBLE WATER USE***

Trees in climates like Santa Barbara's should be watered occasionally even in years when we're getting enough rain—but during times of low rainfall, they need our help more than ever.

Tips for Tree Watering

WATER AT THE BEST TIME OF DAY
Water in the evening or very early morning. This allows water to soak into the soil before the daytime sun speeds evaporation.

USE MULCH TO KEEP WATER IN THE SOIL
Adding a layer of mulch insulates and feeds the tree's roots. Make the layer 4–6 inches thick, and extend it out as far as the tree's drip line—but keep it 2 inches away from the trunk to prevent rot.

ACCOUNT FOR AGE/SPECIES
Trees of different ages and species have varying watering needs. See the box below for more information.

USE SOAKER HOSES/DRIP
Soaker hoses and inline drip tubing systems are much more effective for watering trees. Lawn sprinklers don't water deep enough.

WATER WHERE IT COUNTS
Water around a mature tree's **drip line**, as this allows water to reach the tree's feeder roots.

How to find a tree's drip line

1. Look for the tree canopy's outer edge
2. Imagine a line dropping straight down to the ground
3. The drip line is where this imaginary line meets the ground

A tree's age makes a difference!

MATURE TREES
1. Water once a month.
2. Water enough to soak the ground to 18 inches deep.
3. Use a pressure regulated soaker hose or drip tubing with a timer to water. See SantaBarbaraCA.gov/TreeWatering for more information.

***YOUNG TREES** (UP TO 3 YEARS)*
1. Water once a week.
2. Use about 15–20 gallons each time you water.
3. Make a basin with a 3–5 inch ring-shaped mound in the ground around the tree; use a hose to fill the basin slowly.

Source: City of Santa Barbara Tree Watering web page.
https://www.santabarbaraca.gov/gov/depts/pw/resources/conservation/landscaping/treewatering.asp?utm_source=PublicWork&utm_medium=TreeWatering&utm_content=QuickLinks

Print Ad Examples

Plant in fall for spring color.

Leonotis leonurus
Lion's Tail

Saving water never looked so good.
Click **here** to find the perfect plant.

Let's Save Together
waterwise
IN SANTA BARBARA COUNTY

Keep Saving Santa Barbara!

To reduce water use & your bill:

- **Check and adjust your** automatic sprinkler system every month.
- **Apply a layer of mulch** to increase your soil's water retention.
- **Irrigate efficiently** by switching to drip or watering by hand.

Rebates may be available. Call 805-564-5460 to schedule a FREE water checkup.
Learn more at *SantaBarbaraCA.gov/WaterWise*

Let's Save Together
waterwise
City of Santa Barbara

Appendix I: SB X7-7 Verification Forms

WUEdata Entry Exceptions

The data from the tables below will not be entered into WUEdata tables (the tabs for these tables' worksheets are colored **purple**). These tables will be submitted as separate uploads, in Excel, to WUEdata.

Process Water Deduction

SB X7-7 tables 4-C, 4-C.1, 4-C.2, 4-C.3, 4-C.4 and 4-D

A supplier that will use the process water deduction will complete the appropriate tables in Excel, submit them as a separate upload to the WUE data tool, and include them in its UWMP.

Target Method 2

SB X7-7 tables 7-B, 7-C, and 7-D

A supplier that selects Target Method 2 will contact DWR (gwen.huff@water.ca.gov) for SB X7-7 tables 7-B, 7-C, and 7-D.

Target Method 4

These tables are only available online at http://www.dwr.water.ca.gov/wateruseefficiency/sb7/committees/urban/u4/ptm4.cfm

A supplier that selects Target Method 4 will save the tables from the website listed above, complete the tables, submit as a separate upload to WUE data, and include them with its UWMP.

SB X7-7 Table 0: Units of Measure Used in UWMP* *(select one from the drop down list)*
Acre Feet
**The unit of measure must be consistent with Table 2-3*
NOTES:

SB X7-7 Table-1: Baseline Period Ranges

Baseline	Parameter	Value	Units
10- to 15-year baseline period	2008 total water deliveries	14,175	Acre Feet
	2008 total volume of delivered recycled water	837	Acre Feet
	2008 recycled water as a percent of total deliveries	5.90%	Percent
	Number of years in baseline period[1, 2]	10	Years
	Year beginning baseline period range	2000	
	Year ending baseline period range[3]	2009	
5-year baseline period	Number of years in baseline period	5	Years
	Year beginning baseline period range	2006	
	Year ending baseline period range[4]	2010	

[1] If the 2008 recycled water percent is less than 10 percent, then the first baseline period is a continuous 10-year period. If the amount of recycled water delivered in 2008 is 10 percent or greater, the first baseline period is a continuous 10- to 15-year period. *[2] The Water Code requires that the baseline period is between 10 and 15 years. However, DWR recognizes that some water suppliers may not have the minimum 10 years of baseline data.*

[3] The ending year must be between December 31, 2004 and December 31, 2010.

[4] The ending year must be between December 31, 2007 and December 31, 2010.

NOTES: Data source for 2008 total water deliveries and total volume of delivered recycled water = FY08 Meter Water Sales by Class.

SB X7-7 Table 2: Method for Population Estimates	
Method Used to Determine Population (may check more than one)	
☑	**1. Department of Finance** (DOF) DOF Table E-8 (1990 - 2000) and (2000-2010) and DOF Table E-5 (2011 - 2015) when available
☐	**2. Persons-per-Connection Method**
☐	**3. DWR Population Tool**
☐	**4. Other** DWR recommends pre-review
NOTES: DOF population data for the combined City of Santa Barbara Census Area and the Mission Canyon Census Designated Place were used to determine water service area population.	

SB X7-7 Table 3: Service Area Population

Year		Population
10 to 15 Year Baseline Population		
Year 1	2000	91,908
Year 2	2001	92,249
Year 3	2002	92,543
Year 4	2003	92,191
Year 5	2004	92,040
Year 6	2005	91,311
Year 7	2006	90,144
Year 8	2007	90,046
Year 9	2008	90,748
Year 10	2009	90,661
Year 11		
Year 12		
Year 13		
Year 14		
Year 15		
5 Year Baseline Population		
Year 1	2006	90,144
Year 2	2007	90,046
Year 3	2008	90,748
Year 4	2009	90,661
Year 5	2010	91,114
2015 Compliance Year Population		
2015		93,532

NOTES:

SB X7-7 Table 4: Annual Gross Water Use *

Baseline Year *Fm SB X7-7 Table 3*		**Volume Into Distribution System** *This column will remain blank until SB X7-7 Table 4-A is completed.*	**Deductions**					**Annual Gross Water Use**
			Exported Water	**Change in Dist. System Storage** (+/-)	**Indirect Recycled Water** *This column will remain blank until SB X7-7 Table 4-B is completed.*	**Water Delivered for Agricultural Use**	**Process Water** *This column will remain blank until SB X7-7 Table 4-D is completed.*	
10 to 15 Year Baseline - Gross Water Use								
Year 1	2000	14,846	934		-	120	-	13,792
Year 2	2001	14,092	635		-	113	-	13,344
Year 3	2002	13,962	969		-	114	-	12,879
Year 4	2003	13,250	914		-	113	-	12,223
Year 5	2004	14,133	926		-	134	-	13,073
Year 6	2005	13,510	877		-	105	-	12,528
Year 7	2006	13,713	719		-	134	-	12,860
Year 8	2007	14,901	638		-	157	-	14,106
Year 9	2008	15,802	1,215		-	155	-	14,432
Year 10	2009	14,533	818		-	139	-	13,576
Year 11	0	-			-		-	-
Year 12	0	-			-		-	-
Year 13	0	-			-		-	-
Year 14	0	-			-		-	-
Year 15	0	-			-		-	-
10 - 15 year baseline average gross water use								**13,281**
5 Year Baseline - Gross Water Use								
Year 1	2006	13,713	719		-	134	-	12,860
Year 2	2007	14,901	638		-	157	-	14,106
Year 3	2008	15,802	1,215		-	155	-	14,432
Year 4	2009	14,533	818		-	139	-	13,576
Year 5	2010	14,442	1,060		-	106	-	13,276
5 year baseline average gross water use								**13,650**
2015 Compliance Year - Gross Water Use								
2015		11,506	629		-	152	-	**10,725**

* NOTE that the units of measure must remain consistent throughout the UWMP, as reported in Table 2-3

NOTES: Exported water includes net exports to Goleta Water District, conveyance to La Cumbre Mutual Water District and exports to long term storage (groundwater injection). Agricultural water and exported water is subtracted from annual gross water use; therefore, annual gross water use is not equal to volume of total demands or total volume into the distribution system in other tables.

SB X7-7 Table 4-A: Volume Entering the Distribution System(s)

Complete one table for each source.

Name of Source: Cachuma

This water source is:

☑ The supplier's own water source
☐ A purchased or imported source

Baseline Year *Fm SB X7-7 Table 3*		Volume Entering Distribution System	Meter Error Adjustment* *Optional* *(+/-)*	Corrected Volume Entering Distribution System
10 to 15 Year Baseline - Water into Distribution System				
Year 1	2000	11,300		11,300
Year 2	2001	5,523		5,523
Year 3	2002	7,373		7,373
Year 4	2003	6,484		6,484
Year 5	2004	7,777		7,777
Year 6	2005	7,523		7,523
Year 7	2006	5,305		5,305
Year 8	2007	7,804		7,804
Year 9	2008	10,734		10,734
Year 10	2009	8,236		8,236
Year 11	0			-
Year 12	0			-
Year 13	0			-
Year 14	0			-
Year 15	0			-
5 Year Baseline - Water into Distribution System				
Year 1	2006	5,305		5,305
Year 2	2007	7,804		7,804
Year 3	2008	10,734		10,734
Year 4	2009	8,236		8,236
Year 5	2010	7,637		7,637
2015 Compliance Year - Water into Distribution System				
2015		2,773		2,773

** Meter Error Adjustment - See guidance in Methodology 1, Step 3 of Methodologies Document*

NOTES:

SB X7-7 Table 4-A: Volume Entering the Distribution

Name of Source: Gibraltar

This water source is:

☑ The supplier's own water source
☐ A purchased or imported source

Baseline Year *Fm SB X7-7 Table 3*		Volume Entering Distribution System	Meter Error Adjustment* *Optional* *(+/-)*	Corrected Volume Entering Distribution System
10 to 15 Year Baseline - Water into Distribution System				
Year 1	2,000	1394		1,394
Year 2	2,001	5573		5,573
Year 3	2,002	3827		3,827
Year 4	2,003	3127		3,127
Year 5	2,004	3414		3,414
Year 6	2,005	1879		1,879
Year 7	2,006	4546		4,546
Year 8	2,007	3783		3,783
Year 9	2,008	1576		1,576
Year 10	2,009	2569		2,569

Year 11	-			0
Year 12	-			0
Year 13	-			0
Year 14	-			0
Year 15	-			0
5 Year Baseline - Water into Distribution System				
Year 1	2,006	4546		4,546
Year 2	2,007	3783		3,783
Year 3	2,008	1576		1,576
Year 4	2,009	2569		2,569
Year 5	2,010	2933		2,933
2015 Compliance Year - Water into Distribution System				
2015		951		951

** Meter Error Adjustment - See guidance in Methodology 1, Step 3 of Methodologies Document*

NOTES:

SB X7-7 Table 4-A: Volume Entering the Distribution

Name of Source: Mission Tunnel

This water source is:

☑ The supplier's own water source

☐ A purchased or imported source

Baseline Year *Fm SB X7-7 Table 3*		Volume Entering Distribution System	Meter Error Adjustment* *Optional* *(+/-)*	Corrected Volume Entering Distribution System
10 to 15 Year Baseline - Water into Distribution System				
Year 1	2,000	1149		1,149
Year 2	2,001	1886		1,886
Year 3	2,002	1267		1,267
Year 4	2,003	942		942
Year 5	2,004	1256		1,256
Year 6	2,005	1585		1,585
Year 7	2,006	1786		1,786
Year 8	2,007	1409		1,409
Year 9	2,008	1093		1,093
Year 10	2,009	1142		1,142
Year 11	-			0
Year 12	-			0
Year 13	-			0
Year 14	-			0
Year 15	-			0
5 Year Baseline - Water into Distribution System				
Year 1	2,006	1786		1,786
Year 2	2,007	1409		1,409
Year 3	2,008	1093		1,093
Year 4	2,009	1142		1,142
Year 5	2,010	1220		1,220
2015 Compliance Year - Water into Distribution System				
2015		815		815

** Meter Error Adjustment - See guidance in Methodology 1, Step 3 of Methodologies Document*

NOTES:

SB X7-7 Table 4-A: Volume Entering the Distribution

Name of Source: Devil's Canyon

This water source is:

☑ The supplier's own water source

☐ A purchased or imported source

Baseline Year *Fm SB X7-7 Table 3*		Volume Entering Distribution System	Meter Error Adjustment* *Optional* *(+/-)*	Corrected Volume Entering Distribution System
10 to 15 Year Baseline - Water into Distribution System				
Year 1	2,000	0		0
Year 2	2,001	0		0
Year 3	2,002	3		3
Year 4	2,003	31		31
Year 5	2,004	20		20
Year 6	2,005	70		70
Year 7	2,006	0		0
Year 8	2,007	0		0
Year 9	2,008	160		160
Year 10	2,009	76		76
Year 11	-			0
Year 12	-			0
Year 13	-			0
Year 14	-			0
Year 15	-			0
5 Year Baseline - Water into Distribution System				
Year 1	2,006	0		0
Year 2	2,007	0		0
Year 3	2,008	160		160
Year 4	2,009	76		76
Year 5	2,010	0		0
2015 Compliance Year - Water into Distribution System				
2015		0		0

** Meter Error Adjustment - See guidance in Methodology 1, Step 3 of Methodologies Document*

NOTES:

SB X7-7 Table 4-A: Volume Entering the Distribution

Name of Source	Groundwater

This water source is:

☑ The supplier's own water source
☐ A purchased or imported source

Baseline Year *Fm SB X7-7 Table 3*		Volume Entering Distribution System	Meter Error Adjustment* *Optional* *(+/-)*	Corrected Volume Entering Distribution System
10 to 15 Year Baseline - Water into Distribution System				
Year 1	2,000	357		357
Year 2	2,001	280		280
Year 3	2,002	8		8
Year 4	2,003	0		0
Year 5	2,004	0		0
Year 6	2,005	0		0
Year 7	2,006	906		906
Year 8	2,007	434		434
Year 9	2,008	751		751
Year 10	2,009	1112		1,112
Year 11	-			0
Year 12	-			0
Year 13	-			0
Year 14	-			0
Year 15	-			0
5 Year Baseline - Water into Distribution System				
Year 1	2,006	906		906
Year 2	2,007	434		434

Year 3	2,008	751		751
Year 4	2,009	1112		1,112
Year 5	2,010	1164		1,164
2015 Compliance Year - Water into Distribution System				
2015		1,673		1,673

** Meter Error Adjustment - See guidance in Methodology 1, Step 3 of Methodologies Document*

NOTES:

SB X7-7 Table 4-A: Volume Entering the Distribution

Name of Source	CCWA/State Water Project

This water source is:

☐ The supplier's own water source

☑ A purchased or imported source

Baseline Year *Fm SB X7-7 Table 3*		Volume Entering Distribution System	Meter Error Adjustment* *Optional (+/-)*	Corrected Volume Entering Distribution System
10 to 15 Year Baseline - Water into Distribution System				
Year 1	2,000	646		646
Year 2	2,001	830		830
Year 3	2,002	1484		1,484
Year 4	2,003	2666		2,666
Year 5	2,004	1666		1,666
Year 6	2,005	2453		2,453
Year 7	2,006	1170		1,170
Year 8	2,007	1471		1,471
Year 9	2,008	1488		1,488
Year 10	2,009	1398		1,398
Year 11	-			0
Year 12	-			0
Year 13	-			0
Year 14	-			0
Year 15	-			0
5 Year Baseline - Water into Distribution System				
Year 1	2,006	1170		1,170
Year 2	2,007	1471		1,471
Year 3	2,008	1488		1,488
Year 4	2,009	1398		1,398
Year 5	2,010	1488		1,488
2015 Compliance Year - Water into Distribution System				
2015		5,294		5,294

** Meter Error Adjustment - See guidance in Methodology 1, Step 3 of Methodologies Document*

NOTES: Data includes water received for La Cumbre Mutual Water District conveyance.

SB X7-7 Table 4-A: Volume Entering the Distribution

Name of Source	Source 7

This water source is:

☐ The supplier's own water source

☐ A purchased or imported source

Baseline Year *Fm SB X7-7 Table 3*		Volume Entering Distribution System	Meter Error Adjustment* *Optional (+/-)*	Corrected Volume Entering Distribution System
10 to 15 Year Baseline - Water into Distribution System				
Year 1	2,000			0
Year 2	2,001			0
Year 3	2,002			0

Year 4	2,003			0
Year 5	2,004			0
Year 6	2,005			0
Year 7	2,006			0
Year 8	2,007			0
Year 9	2,008			0
Year 10	2,009			0
Year 11	-			0
Year 12	-			0
Year 13	-			0
Year 14	-			0
Year 15	-			0
5 Year Baseline - Water into Distribution System				
Year 1	2,006			0
Year 2	2,007			0
Year 3	2,008			0
Year 4	2,009			0
Year 5	2,010			0
2015 Compliance Year - Water into Distribution System				
2015				0

** Meter Error Adjustment - See guidance in Methodology 1, Step 3 of Methodologies Document*

NOTES:

SB X7-7 Table 4-A: Volume Entering the Distribution

Name of Source: Source 8

This water source is:

☐ The supplier's own water source
☐ A purchased or imported source

Baseline Year *Fm SB X7-7 Table 3*		Volume Entering Distribution System	Meter Error Adjustment* *Optional (+/-)*	Corrected Volume Entering Distribution System
10 to 15 Year Baseline - Water into Distribution System				
Year 1	2,000			0
Year 2	2,001			0
Year 3	2,002			0
Year 4	2,003			0
Year 5	2,004			0
Year 6	2,005			0
Year 7	2,006			0
Year 8	2,007			0
Year 9	2,008			0
Year 10	2,009			0
Year 11	-			0
Year 12	-			0
Year 13	-			0
Year 14	-			0
Year 15	-			0
5 Year Baseline - Water into Distribution System				
Year 1	2,006			0
Year 2	2,007			0
Year 3	2,008			0
Year 4	2,009			0
Year 5	2,010			0
2015 Compliance Year - Water into Distribution System				
2015				0

** Meter Error Adjustment - See guidance in Methodology 1, Step 3 of Methodologies Document*

NOTES:

SB X7-7 Table 4-A: Volume Entering the Distribution

Name of Source		Source 9		
This water source is:				
☐	The supplier's own water source			
☐	A purchased or imported source			
Baseline Year *Fm SB X7-7 Table 3*		Volume Entering Distribution System	Meter Error Adjustment* *Optional* *(+/-)*	Corrected Volume Entering Distribution System
10 to 15 Year Baseline - Water into Distribution System				
Year 1	2,000			0
Year 2	2,001			0
Year 3	2,002			0
Year 4	2,003			0
Year 5	2,004			0
Year 6	2,005			0
Year 7	2,006			0
Year 8	2,007			0
Year 9	2,008			0
Year 10	2,009			0
Year 11	-			0
Year 12	-			0
Year 13	-			0
Year 14	-			0
Year 15	-			0
5 Year Baseline - Water into Distribution System				
Year 1	2,006			0
Year 2	2,007			0
Year 3	2,008			0
Year 4	2,009			0
Year 5	2,010			0
2015 Compliance Year - Water into Distribution System				
2015				0

** Meter Error Adjustment - See guidance in Methodology 1, Step 3 of Methodologies Document*

NOTES:

SB X7-7 Table 4-A: Volume Entering the Distribution

Name of Source		Source 10		
This water source is:				
☐	The supplier's own water source			
☐	A purchased or imported source			
Baseline Year *Fm SB X7-7 Table 3*		Volume Entering Distribution System	Meter Error Adjustment* *Optional* *(+/-)*	Corrected Volume Entering Distribution System
10 to 15 Year Baseline - Water into Distribution System				
Year 1	2,000			0
Year 2	2,001			0
Year 3	2,002			0
Year 4	2,003			0
Year 5	2,004			0
Year 6	2,005			0
Year 7	2,006			0
Year 8	2,007			0
Year 9	2,008			0
Year 10	2,009			0
Year 11	-			0
Year 12	-			0
Year 13	-			0

Year 14	-			0
Year 15	-			0
5 Year Baseline - Water into Distribution System				
Year 1	2,006			0
Year 2	2,007			0
Year 3	2,008			0
Year 4	2,009			0
Year 5	2,010			0
2015 Compliance Year - Water into Distribution System				
2015				0

** Meter Error Adjustment - See guidance in Methodology 1, Step 3 of Methodologies Document*

NOTES:

SB X7-7 Table 4-A: Volume Entering the Distribution

Name of Source	Source 11
This water source is:	
☐	The supplier's own water source
☐	A purchased or imported source

Baseline Year *Fm SB X7-7 Table 3*		Volume Entering Distribution System	Meter Error Adjustment* *Optional* *(+/-)*	Corrected Volume Entering Distribution System
10 to 15 Year Baseline - Water into Distribution System				
Year 1	2,000			0
Year 2	2,001			0
Year 3	2,002			0
Year 4	2,003			0
Year 5	2,004			0
Year 6	2,005			0
Year 7	2,006			0
Year 8	2,007			0
Year 9	2,008			0
Year 10	2,009			0
Year 11	-			0
Year 12	-			0
Year 13	-			0
Year 14	-			0
Year 15	-			0
5 Year Baseline - Water into Distribution System				
Year 1	2,006			0
Year 2	2,007			0
Year 3	2,008			0
Year 4	2,009			0
Year 5	2,010			0
2015 Compliance Year - Water into Distribution System				
2015				0

** Meter Error Adjustment - See guidance in Methodology 1, Step 3 of Methodologies Document*

NOTES:

SB X7-7 Table 4-A: Volume Entering the Distribution

Name of Source	Source 12
This water source is:	
☐	The supplier's own water source
☐	A purchased or imported source

Baseline Year *Fm SB X7-7 Table 3*	Volume Entering Distribution System	Meter Error Adjustment* *Optional* *(+/-)*	Corrected Volume Entering Distribution System

10 to 15 Year Baseline - Water into Distribution System				
Year 1	2,000			0
Year 2	2,001			0
Year 3	2,002			0
Year 4	2,003			0
Year 5	2,004			0
Year 6	2,005			0
Year 7	2,006			0
Year 8	2,007			0
Year 9	2,008			0
Year 10	2,009			0
Year 11	-			0
Year 12	-			0
Year 13	-			0
Year 14	-			0
Year 15	-			0
5 Year Baseline - Water into Distribution System				
Year 1	2,006			0
Year 2	2,007			0
Year 3	2,008			0
Year 4	2,009			0
Year 5	2,010			0
2015 Compliance Year - Water into Distribution System				
2015				0

** Meter Error Adjustment - See guidance in Methodology 1, Step 3 of Methodologies Document*

NOTES:

SB X7-7 Table 4-A: Volume Entering the Distribution

Name of Source: Source 13

This water source is:

☐ The supplier's own water source

☐ A purchased or imported source

Baseline Year *Fm SB X7-7 Table 3*		Volume Entering Distribution System	Meter Error Adjustment* *Optional* *(+/-)*	Corrected Volume Entering Distribution System
10 to 15 Year Baseline - Water into Distribution System				
Year 1	2,000			0
Year 2	2,001			0
Year 3	2,002			0
Year 4	2,003			0
Year 5	2,004			0
Year 6	2,005			0
Year 7	2,006			0
Year 8	2,007			0
Year 9	2,008			0
Year 10	2,009			0
Year 11	-			0
Year 12	-			0
Year 13	-			0
Year 14	-			0
Year 15	-			0
5 Year Baseline - Water into Distribution System				
Year 1	2,006			0
Year 2	2,007			0
Year 3	2,008			0
Year 4	2,009			0
Year 5	2,010			0
2015 Compliance Year - Water into Distribution System				
2015				0

** Meter Error Adjustment - See guidance in Methodology 1, Step 3 of Methodologies Document*
NOTES:

SB X7-7 Table 4-A: Volume Entering the Distribution

Name of Source	Source 14			
This water source is:				
☐	The supplier's own water source			
☐	A purchased or imported source			
Baseline Year *Fm SB X7-7 Table 3*		Volume Entering Distribution System	Meter Error Adjustment* *Optional* *(+/-)*	Corrected Volume Entering Distribution System
10 to 15 Year Baseline - Water into Distribution System				
Year 1	2,000			0
Year 2	2,001			0
Year 3	2,002			0
Year 4	2,003			0
Year 5	2,004			0
Year 6	2,005			0
Year 7	2,006			0
Year 8	2,007			0
Year 9	2,008			0
Year 10	2,009			0
Year 11	-			0
Year 12	-			0
Year 13	-			0
Year 14	-			0
Year 15	-			0
5 Year Baseline - Water into Distribution System				
Year 1	2,006			0
Year 2	2,007			0
Year 3	2,008			0
Year 4	2,009			0
Year 5	2,010			0
2015 Compliance Year - Water into Distribution System				
2015				0
** Meter Error Adjustment - See guidance in Methodology 1, Step 3 of Methodologies Document*				
NOTES:				

SB X7-7 Table 4-A: Volume Entering the Distribution

Name of Source	Source 15			
This water source is:				
☐	The supplier's own water source			
☐	A purchased or imported source			
Baseline Year *Fm SB X7-7 Table 3*		Volume Entering Distribution System	Meter Error Adjustment* *Optional* *(+/-)*	Corrected Volume Entering Distribution System
10 to 15 Year Baseline - Water into Distribution System				
Year 1	2,000			0
Year 2	2,001			0
Year 3	2,002			0
Year 4	2,003			0
Year 5	2,004			0
Year 6	2,005			0
Year 7	2,006			0
Year 8	2,007			0
Year 9	2,008			0

Year 10	2,009			0
Year 11	-			0
Year 12	-			0
Year 13	-			0
Year 14	-			0
Year 15	-			0
5 Year Baseline - Water into Distribution System				
Year 1	2,006			0
Year 2	2,007			0
Year 3	2,008			0
Year 4	2,009			0
Year 5	2,010			0
2015 Compliance Year - Water into Distribution System				
2015				0
** Meter Error Adjustment - See guidance in Methodology 1, Step 3 of Methodologies Document*				
NOTES:				

SB X7-7 Table 4-B: Indirect Recycled Water Use Deduction *(For use only by agencies that are deducting indirect recycled water)*

Baseline Year *Fm SB X7-7 Table 3*		Surface Reservoir Augmentation					Groundwater Recharge			**Total Deductible Volume of Indirect Recycled Water Entering the Distribution System**
		Volume Discharged from Reservoir for Distribution System Delivery	Percent Recycled Water	Recycled Water Delivered to Treatment Plant	Transmission/ Treatment Loss	Recycled Volume Entering Distribution System from Surface Reservoir Augmentation	Recycled Water Pumped by Utility*	Transmission/ Treatment Losses	Recycled Volume Entering Distribution System from Groundwater Recharge	
10-15 Year Baseline - Indirect Recycled Water Use										
Year 1	2000			-		-			-	-
Year 2	2001			-		-			-	-
Year 3	2002			-		-			-	-
Year 4	2003			-		-			-	-
Year 5	2004			-		-			-	-
Year 6	2005			-		-			-	-
Year 7	2006			-		-			-	-
Year 8	2007			-		-			-	-
Year 9	2008			-		-			-	-
Year 10	2009			-		-			-	-
Year 11	0			-		-			-	-
Year 12	0			-		-			-	-
Year 13	0			-		-			-	-
Year 14	0			-		-			-	-
Year 15	0			-		-			-	-
5 Year Baseline - Indirect Recycled Water Use										
Year 1	2006			-		-			-	-
Year 2	2007			-		-			-	-
Year 3	2008			-		-			-	-
Year 4	2009			-		-			-	-
Year 5	2010			-		-			-	-
2015 Compliance - Indirect Recycled Water Use										
2015				-		-			-	-

**Suppliers will provide supplemental sheets to document the calculation for their input into "Recycled Water Pumped by Utility". The volume reported in this cell must be less than total groundwater pumped - See Methodology 1, Step 8, section 2.c.*

NOTES:

SB X7-7 Table 4-C: Process Water Deduction Eligibility

(For use only by agencies that are deducting process water) Choose Only One

☐	**Criteria 1**- Industrial water use is equal to or greater than 12% of gross water use. Complete SB X7-7 Table 4-C.1
☐	**Criteria 2** - Industrial water use is equal to or greater than 15 GPCD. Complete SB X7-7 Table 4-C.2
☐	**Criteria 3** - Non-industrial use is equal to or less than 120 GPCD. Complete SB X7-7 Table 4-C.3
☐	**Criteria 4** - Disadvantaged Community. Complete SB x7-7 Table 4-C.4

NOTES:

SB X7-7 Table 4-C.1: Process Water Deduction Eligibility

Criteria 1

Industrial water use is equal to or greater than 12% of gross water use

Baseline Year *Fm SB X7-7 Table 3*		Gross Water Use Without Process Water Deduction	Industrial Water Use	Percent Industrial Water	**Eligible for Exclusion Y/N**
10 to 15 Year Baseline - Process Water Deduction Eligibility					
Year 1	2000	13,792		0%	NO
Year 2	2001	13,344		0%	NO
Year 3	2002	12,879		0%	NO
Year 4	2003	12,223		0%	NO
Year 5	2004	13,073		0%	NO
Year 6	2005	12,528		0%	NO
Year 7	2006	12,860		0%	NO
Year 8	2007	14,106		0%	NO
Year 9	2008	14,432		0%	NO
Year 10	2009	13,576		0%	NO
Year 11	0	-			NO
Year 12	0	-			NO
Year 13	0	-			NO
Year 14	0	-			NO
Year 15	0	-			NO
5 Year Baseline - Process Water Deduction Eligibility					
Year 1	2006	12,860		0%	NO
Year 2	2007	14,106		0%	NO
Year 3	2008	14,432		0%	NO
Year 4	2009	13,576		0%	NO
Year 5	2010	13,276		0%	NO
2015 Compliance Year - Process Water Deduction Eligiblity					
2015		10,725		0%	NO

NOTES:

SB X7-7 Table 4-C.2: Process Water Deduction Eligibility

Criteria 2

Industrial water use is equal to or greater than 15 GPCD

Baseline Year *Fm SB X7-7 Table 3*		Industrial Water Use	Population	Industrial GPCD	**Eligible for Exclusion Y/N**
10 to 15 Year Baseline - Process Water Deduction Eligibility					
Year 1	2000		91,908	-	NO
Year 2	2001		92,249	-	NO
Year 3	2002		92,543	-	NO
Year 4	2003		92,191	-	NO
Year 5	2004		92,040	-	NO
Year 6	2005		91,311	-	NO
Year 7	2006		90,144	-	NO
Year 8	2007		90,046	-	NO
Year 9	2008		90,748	-	NO
Year 10	2009		90,661	-	NO
Year 11	0		-		NO
Year 12	0		-		NO
Year 13	0		-		NO
Year 14	0		-		NO
Year 15	0		-		NO
5 Year Baseline - Process Water Deduction Eligibility					
Year 1	2006		90,144	-	NO
Year 2	2007		90,046	-	NO
Year 3	2008		90,748	-	NO
Year 4	2009		90,661	-	NO
Year 5	2010		91,114	-	NO
2015 Compliance Year - Process Water Deduction Eligibility					
2015			93,532	-	NO

NOTES:

SB X7-7 Table 4-C.3: Process Water Deduction Eligibility

Criteria 3
Non-industrial use is equal to or less than 120 GPCD

Baseline Year *Fm SB X7-7 Table 3*		Gross Water Use Without Process Water Deduction *Fm SB X7-7 Table 4*	Industrial Water Use	Non-industrial Water Use	Population *Fm SB X7-7 Table 3*	Non-Industrial GPCD	**Eligible for Exclusion Y/N**
10 to 15 Year Baseline - Process Water Deduction Eligibility							
Year 1	2000	13,792		13,792	91,908	134	NO
Year 2	2001	13,344		13,344	92,249	129	NO
Year 3	2002	12,879		12,879	92,543	124	NO
Year 4	2003	12,223		12,223	92,191	118	YES
Year 5	2004	13,073		13,073	92,040	127	NO
Year 6	2005	12,528		12,528	91,311	122	NO
Year 7	2006	12,860		12,860	90,144	127	NO
Year 8	2007	14,106		14,106	90,046	140	NO
Year 9	2008	14,432		14,432	90,748	142	NO
Year 10	2009	13,576		13,576	90,661	134	NO
Year 11	0	-		-	-		NO
Year 12	0	-		-	-		NO
Year 13	0	-		-	-		NO
Year 14	0	-		-	-		NO
Year 15	0	-		-	-		NO
5 Year Baseline - Process Water Deduction Eligibility							
Year 1	2006	12,860		12,860	90,144	127	NO
Year 2	2007	14,106		14,106	90,046	140	NO
Year 3	2008	14,432		14,432	90,748	142	NO
Year 4	2009	13,576		13,576	90,661	134	NO
Year 5	2010	13,276		13,276	91,114	130	NO
2015 Compliance Year - Process Water Deduction Eligiblity							
2015		10,725		10,725	93,532	102	YES

NOTES:

SB X7-7 Table 4-C.4: Process Water Deduction Eligibility

Criteria 4

Disadvantaged Community

Use IRWM DAC Mapping tool http://www.water.ca.gov/irwm/grants/resources_dac.cfm

California Median Household Income		Service Area Median Household Income	Percentage of Statewide Average	**Eligible for Exclusion? Y/N**
2015 Compliance Year - Process Water Deduction Eligibility				
2010	$53,046		0%	YES

A "Disadvantaged Community" is a community with a median household income less than 80 percent of the statewide average.

NOTES:

SB X7-7 Table 4-D: Process Water Deduction - Volume

Complete a separate table for each industrial customer with a process water exclusion

Name of Industrial Customer	*Industrial Customer 1*

Baseline Year *Fm SB X7-7 Table 3*		Industrial Customer's Total Water Use	Total Volume Supplied by Water Agency	% of Water Supplied by Water Agency	Customer's Total Process Water Use	Volume of Process Water Eligible for Exclusion for this Customer
10 to 15 Year Baseline - Process Water Deduction						
Year 1	2000					-
Year 2	2001					-
Year 3	2002					-
Year 4	2003					-
Year 5	2004					-
Year 6	2005					-
Year 7	2006					-
Year 8	2007					-
Year 9	2008					-
Year 10	2009					-
Year 11	0					-
Year 12	0					-
Year 13	0					-
Year 14	0					-
Year 15	0					-
5 Year Baseline - Process Water Deduction						
Year 1	2006					-
Year 2	2007					-
Year 3	2008					-
Year 4	2009					-
Year 5	2010					-
2015 Compliance Year - Process Water Deduction						
2015						-

NOTES:

SB X7-7 Table 4-D: Process Water Deduction - Volume

Complete a separate table for each industrial customer with a process water exclusion

Name of Industrial Customer	*Industrial Customer 2*

Baseline Year *Fm SB X7-7 Table 3*	Industrial Customer's Total Water Use	Total Volume Supplied by Water Agency	% of Water Supplied by Water Agency	Customer's Total Process Water Use	Volume of Process Water Eligible for Exclusion for this Customer

10 to 15 Year Baseline - Process Water Deduction						
Year 1	2000					-
Year 2	2001					-
Year 3	2002					-
Year 4	2003					-
Year 5	2004					-
Year 6	2005					-
Year 7	2006					-
Year 8	2007					-
Year 9	2008					-
Year 10	2009					-
Year 11	0					-
Year 12	0					-
Year 13	0					-
Year 14	0					-
Year 15	0					-
5 Year Baseline - Process Water Deduction						
Year 1	2006					-
Year 2	2007					-
Year 3	2008					-
Year 4	2009					-
Year 5	2010					-
2015 Compliance Year - Process Water Deduction						
2015						-
NOTES:						

SB X7-7 Table 4-D: Process Water Deduction - Volume

Complete a separate table for each industrial customer with a process water exclusion

Name of Industrial Customer *Industrial Customer 3*

Baseline Year *Fm SB X7-7 Table 3*		Industrial Customer's Total Water Use	Total Volume Supplied by Water Agency	% of Water Supplied by Water Agency	Customer's Total Process Water Use	Volume of Process Water Eligible for Exclusion for this Customer
10 to 15 Year Baseline - Process Water Deduction						
Year 1	2000					-
Year 2	2001					-
Year 3	2002					-
Year 4	2003					-
Year 5	2004					-
Year 6	2005					-
Year 7	2006					-
Year 8	2007					-
Year 9	2008					-

Year 10	2009					-
Year 11	0					-
Year 12	0					-
Year 13	0					-
Year 14	0					-
Year 15	0					-
5 Year Baseline - Process Water Deduction						
Year 1	2006					-
Year 2	2007					-
Year 3	2008					-
Year 4	2009					-
Year 5	2010					-
2015 Compliance Year - Process Water Deduction						
2015						-
NOTES:						

SB X7-7 Table 4-D: Process Water Deduction - Volume

Complete a separate table for each industrial customer with a process water exclusion

Name of Industrial Customer: *Industrial Customer 4*

Baseline Year *Fm SB X7-7 Table 3*		Industrial Customer's Total Water Use	Total Volume Supplied by Water Agency	% of Water Supplied by Water Agency	Customer's Total Process Water Use	Volume of Process Water Eligible for Exclusion for this Customer
10 to 15 Year Baseline - Process Water Deduction						
Year 1	2000					-
Year 2	2001					-
Year 3	2002					-
Year 4	2003					-
Year 5	2004					-
Year 6	2005					-
Year 7	2006					-
Year 8	2007					-
Year 9	2008					-
Year 10	2009					-
Year 11	0					-
Year 12	0					-
Year 13	0					-
Year 14	0					-
Year 15	0					-
5 Year Baseline - Process Water Deduction						
Year 1	2006					-
Year 2	2007					-
Year 3	2008					-

Year 4	2009					-
Year 5	2010					-
2015 Compliance Year - Process Water Deduction						
2015						-
NOTES:						

SB X7-7 Table 4-D: Process Water Deduction - Volume

Complete a separate table for each industrial customer with a process water exclusion

Name of Industrial Customer *Industrial Customer 5*

Baseline Year *Fm SB X7-7 Table 3*		Industrial Customer's Total Water Use	Total Volume Supplied by Water Agency	% of Water Supplied by Water Agency	Customer's Total Process Water Use	Volume of Process Water Eligible for Exclusion for this Customer
10 to 15 Year Baseline - Process Water Deduction						
Year 1	2000					-
Year 2	2001					-
Year 3	2002					-
Year 4	2003					-
Year 5	2004					-
Year 6	2005					-
Year 7	2006					-
Year 8	2007					-
Year 9	2008					-
Year 10	2009					-
Year 11	0					-
Year 12	0					-
Year 13	0					-
Year 14	0					-
Year 15	0					-
5 Year Baseline - Process Water Deduction						
Year 1	2006					-
Year 2	2007					-
Year 3	2008					-
Year 4	2009					-
Year 5	2010					-
2015 Compliance Year - Process Water Deduction						
2015						-
NOTES:						

SB X7-7 Table 4-D: Process Water Deduction - Volume

Complete a separate table for each industrial customer with a process water exclusion

Name of Industrial Customer *Industrial Customer 6*

Baseline Year *Fm SB X7-7 Table 3*		Industrial Customer's Total Water Use	Total Volume Supplied by Water Agency	% of Water Supplied by Water Agency	Customer's Total Process Water Use	Volume of Process Water Eligible for Exclusion for this Customer
10 to 15 Year Baseline - Process Water Deduction						
Year 1	2000					-
Year 2	2001					-
Year 3	2002					-
Year 4	2003					-
Year 5	2004					-
Year 6	2005					-
Year 7	2006					-
Year 8	2007					-
Year 9	2008					-
Year 10	2009					-
Year 11	0					-
Year 12	0					-
Year 13	0					-
Year 14	0					-
Year 15	0					-
5 Year Baseline - Process Water Deduction						
Year 1	2006					-
Year 2	2007					-
Year 3	2008					-
Year 4	2009					-
Year 5	2010					-
2015 Compliance Year - Process Water Deduction						
2015						-
NOTES:						

SB X7-7 Table 4-D: Process Water Deduction - Volume

Complete a separate table for each industrial customer with a process water exclusion

Name of Industrial Customer		*Industrial Customer 7*				
Baseline Year *Fm SB X7-7 Table 3*		Industrial Customer's Total Water Use	Total Volume Supplied by Water Agency	% of Water Supplied by Water Agency	Customer's Total Process Water Use	Volume of Process Water Eligible for Exclusion for this Customer
10 to 15 Year Baseline - Process Water Deduction						
Year 1	2000					-
Year 2	2001					-

Year 3	2002					-
Year 4	2003					-
Year 5	2004					-
Year 6	2005					-
Year 7	2006					-
Year 8	2007					-
Year 9	2008					-
Year 10	2009					-
Year 11	0					-
Year 12	0					-
Year 13	0					-
Year 14	0					-
Year 15	0					-
5 Year Baseline - Process Water Deduction						
Year 1	2006					-
Year 2	2007					-
Year 3	2008					-
Year 4	2009					-
Year 5	2010					-
2015 Compliance Year - Process Water Deduction						
2015						-
NOTES:						

SB X7-7 Table 4-D: Process Water Deduction - Volume

Complete a separate table for each industrial customer with a process water exclusion

Name of Industrial Customer *Industrial Customer 8*

Baseline Year *Fm SB X7-7 Table 3*		Industrial Customer's Total Water Use	Total Volume Supplied by Water Agency	% of Water Supplied by Water Agency	Customer's Total Process Water Use	Volume of Process Water Eligible for Exclusion for this Customer
10 to 15 Year Baseline - Process Water Deduction						
Year 1	2000					-
Year 2	2001					-
Year 3	2002					-
Year 4	2003					-
Year 5	2004					-
Year 6	2005					-
Year 7	2006					-
Year 8	2007					-
Year 9	2008					-
Year 10	2009					-
Year 11	0					-
Year 12	0					-

Year 13	0					-
Year 14	0					-
Year 15	0					-
5 Year Baseline - Process Water Deduction						
Year 1	2006					-
Year 2	2007					-
Year 3	2008					-
Year 4	2009					-
Year 5	2010					-
2015 Compliance Year - Process Water Deduction						
2015						-
NOTES:						

SB X7-7 Table 4-D: Process Water Deduction - Volume *Complete a separate table for each industrial customer with a process water exclusion*

Name of Industrial Customer		*Industrial Customer 9*				
Baseline Year *Fm SB X7-7 Table 3*		Industrial Customer's Total Water Use	Total Volume Supplied by Water Agency	% of Water Supplied by Water Agency	Customer's Total Process Water Use	Volume of Process Water Eligible for Exclusion for this Customer
10 to 15 Year Baseline - Process Water Deduction						
Year 1	2000					-
Year 2	2001					-
Year 3	2002					-
Year 4	2003					-
Year 5	2004					-
Year 6	2005					-
Year 7	2006					-
Year 8	2007					-
Year 9	2008					-
Year 10	2009					-
Year 11	0					-
Year 12	0					-
Year 13	0					-
Year 14	0					-
Year 15	0					-
5 Year Baseline - Process Water Deduction						
Year 1	2006					-
Year 2	2007					-
Year 3	2008					-
Year 4	2009					-
Year 5	2010					-
2015 Compliance Year - Process Water Deduction						

2015					-
NOTES:					

SB X7-7 Table 4-D: Process Water Deduction - Volume

Complete a separate table for each industrial customer with a process water exclusion

Name of Industrial Customer *Industrial Customer 10*

Baseline Year *Fm SB X7-7 Table 3*		Industrial Customer's Total Water Use	Total Volume Supplied by Water Agency	% of Water Supplied by Water Agency	Customer's Total Process Water Use	Volume of Process Water Eligible for Exclusion for this Customer
10 to 15 Year Baseline - Process Water Deduction						
Year 1	2000					-
Year 2	2001					-
Year 3	2002					-
Year 4	2003					-
Year 5	2004					-
Year 6	2005					-
Year 7	2006					-
Year 8	2007					-
Year 9	2008					-
Year 10	2009					-
Year 11	0					-
Year 12	0					-
Year 13	0					-
Year 14	0					-
Year 15	0					-
5 Year Baseline - Process Water Deduction						
Year 1	2006					-
Year 2	2007					-
Year 3	2008					-
Year 4	2009					-
Year 5	2010					-
2015 Compliance Year - Process Water Deduction						
2015						-
NOTES:						

SB X7-7 Table 5: Gallons Per Capita Per Day (GPCD)

Baseline Year *Fm SB X7-7 Table 3*		Service Area Population *Fm SB X7-7 Table 3*	Annual Gross Water Use *Fm SB X7-7 Table 4*	Daily Per Capita Water Use (GPCD)
10 to 15 Year Baseline GPCD				
Year 1	2000	91,908	13,792	134
Year 2	2001	92,249	13,344	129
Year 3	2002	92,543	12,879	124
Year 4	2003	92,191	12,223	118
Year 5	2004	92,040	13,073	127
Year 6	2005	91,311	12,528	122
Year 7	2006	90,144	12,860	127
Year 8	2007	90,046	14,106	140
Year 9	2008	90,748	14,432	142
Year 10	2009	90,661	13,576	134
Year 11	0	-	-	
Year 12	0	-	-	
Year 13	0	-	-	
Year 14	0	-	-	
Year 15	0	-	-	
10-15 Year Average Baseline GPCD				**130**

5 Year Baseline GPCD

Baseline Year *Fm SB X7-7 Table 3*		Service Area Population *Fm SB X7-7 Table 3*	Gross Water Use *Fm SB X7-7 Table 4*	Daily Per Capita Water Use
Year 1	2006	90,144	12,860	127
Year 2	2007	90,046	14,106	140
Year 3	2008	90,748	14,432	142
Year 4	2009	90,661	13,576	134
Year 5	2010	91,114	13,276	130
5 Year Average Baseline GPCD				**135**
2015 Compliance Year GPCD				
2015		93,532	10,725	**102**

NOTES:

SB X7-7 Table 6: Gallons per Capita per Day *Summary From Table SB X7-7 Table 5*	
10-15 Year Baseline GPCD	130
5 Year Baseline GPCD	135
2015 Compliance Year GPCD	102
NOTES:	

SB X7-7 Table 7: 2020 Target Method

Select Only One

Target Method		Supporting Documentation
☐	Method 1	SB X7-7 Table 7A
☐	Method 2	SB X7-7 Tables 7B, 7C, and 7D *Contact DWR for these tables*
☑	Method 3	SB X7-7 Table 7-E
☐	Method 4	Method 4 Calculator

NOTES:

SB X7-7 Table 7-A: Target Method 1
20% Reduction

10-15 Year Baseline GPCD	**2020 Target GPCD**
130	**104**

NOTES:

SB X7-7 Table 7-B: Target Method 2 Target Landscape Water Use

Tables for Target Method 2 (SB X7-7 Tables 7-B, 7-C, and 7-D) are not included in the SB X7-7 Verification Form, but are still required for water suppliers using Target Method 2. These water suppliers should contact Gwen Huff at (916) 651-9672 or gwen.huff@water.ca.gov

SB X7-7 Table 7-C: Target Method 2

Target CII Water Use

Tables for Target Method 2 (SB X7-7 Tables 7-B, 7-C, and 7-D) are not included in the SB X7-7 Verification Form, but are still required for water suppliers using Target Method 2. These water suppliers should contact Gwen Huff at (916) 651-9672 or gwen.huff@water.ca.gov

SB X7-7 Table 7-D: Target Method 2 Summary

Tables for Target Method 2 (SB X7-7 Tables 7-B, 7-C, and 7-D) are not included in the SB X7-7 Verification Form, but are still required for water suppliers using Target Method 2. These water suppliers should contact Gwen Huff at (916) 651-9672 or gwen.huff@water.ca.gov

SB X7-7 Table 7-E: Target Method 3

Agency May Select More Than One as Applicable	Percentage of Service Area in This Hydrological Region	Hydrologic Region	"2020 Plan" Regional Targets	Method 3 Regional Targets (95%)
☐		North Coast	137	130
☐		North Lahontan	173	164
☐		Sacramento River	176	167
☐		San Francisco Bay	131	124
☐		San Joaquin River	174	165
☑	100%	Central Coast	123	117
☐		Tulare Lake	188	179
☐		South Lahontan	170	162
☐		South Coast	149	142
☐		Colorado River	211	200
Target *(If more than one region is selected, this value is calculated.)*				**117**

NOTES:

SB X7-7 Table 7-F: Confirm Minimum Reduction for 2020 Target

5 Year Baseline GPCD *From SB X7-7 Table 5*	Maximum 2020 Target[1]	Calculated 2020 Target[2]	**Confirmed 2020 Target**
135	128	117	**117**

[1] Maximum 2020 Target is 95% of the 5 Year Baseline GPCD *[2] 2020 Target is calculated based on the selected Target Method, see SB X7-7 Table 7 and corresponding tables for agency's calculated target.*

NOTES:

SB X7-7 Table 8: 2015 Interim Target GPCD

Confirmed 2020 Target *Fm SB X7-7 Table 7-F*	10-15 year Baseline GPCD *Fm SB X7-7 Table 5*	**2015 Interim Target GPCD**
117	130	**123**

NOTES:

SB X7-7 Table 9: 2015 Compliance

Actual 2015 GPCD	2015 Interim Target GPCD	Optional Adjustments *(in GPCD)*					2015 GPCD *(Adjusted if applicable)*	**Did Supplier Achieve Targeted Reduction for 2015?**
		Enter "0" if Adjustment Not Used			TOTAL Adjustments	Adjusted 2015 GPCD		
		Extraordinary Events	Weather Normalization	Economic Adjustment				
102	123	*From Methodology 8 (Optional)*	*From Methodology 8 (Optional)*	*From Methodology 8 (Optional)*	-	102	102	**YES**

NOTES:

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Appendix J: SB X7-7 Compliance Forms

SB X7-7 Table 0: Units of Measure Used in 2020 UWMP* *(select one from the drop down list)*
Acre Feet
**The unit of measure must be consistent throughout the UWMP, as reported in Submittal Table 2-3.*
NOTES:

SB X7-7 Table 2: Method for 2020 Population Estimate	
Method Used to Determine 2020 Population (may check more than one)	
☑	**1. Department of Finance** (DOF) or **American Community Survey** (ACS)
☐	**2. Persons-per-Connection Method**
☐	**3. DWR Population Tool**
☐	**4. Other** DWR recommends pre-review
NOTES:	

SB X7-7 Table 3: 2020 Service Area Population

2020 Compliance Year Population	
2020	96,027

NOTES:

SB X7-7 Table 4: 2020 Gross Water Use

Compliance Year 2020	2020 Volume Into Distribution System *This column will remain blank until SB X7-7 Table 4-A is completed.*	2020 Deductions					2020 Gross Water Use
		Exported Water *	Change in Dist. System Storage* (+/-)	Indirect Recycled Water *This column will remain blank until SB X7-7 Table 4-B is completed.*	Water Delivered for Agricultural Use*	Process Water *This column will remain blank until SB X7-7 Table 4-D is completed.*	
	9,860			-		-	**9,860**

*** Units of measure (AF, MG , or CCF)** must remain consistent throughout the UWMP, as reported in SB X7-7 Table 0 and Submittal Table 2-3.

NOTES:

SB X7-7 Table 4-A: 2020 Volume Entering the Distribution System(s), Meter Error Adjustment

Complete one table for each source.

Name of Source	Cachuma		
This water source is *(check one)* **:**			
☑	The supplier's own water source		
☐	A purchased or imported source		
Compliance Year 2020	Volume Entering Distribution System [1]	Meter Error Adjustment [2] *Optional* *(+/-)*	Corrected Volume Entering Distribution System
	1,834	-	1,834

[1] ***Units of measure (AF, MG , or CCF)*** *must remain consistent throughout the UWMP, as reported in SB X7-7 Table 0 and Submittal Table 2-3.* [2] ***Meter Error Adjustment*** *- See guidance in Methodology 1, Step 3 of Methodologies Document*

NOTES

SB X7-7 Table 4-A: 2020 Volume Entering the Distribution System(s) Meter Error Adjustment

Complete one table for each source.

Name of Source	Gibraltar		
This water source is *(check one)* **:**			
☑	The supplier's own water source		
☐	A purchased or imported source		
Compliance Year 2020	Volume Entering Distribution System [1]	Meter Error Adjustment [2] *Optional* *(+/-)*	Corrected Volume Entering Distribution System
	3,836		3,836

[1] ***Units of measure (AF, MG , or CCF)*** *must remain consistent throughout the UWMP, as reported in SB X7-7 Table 0 and Submittal Table 2-3.* [2] ***Meter Error Adjustment*** *- See guidance in Methodology 1, Step 3 of Methodologies Document*

NOTES:

SB X7-7 Table 4-A: 2020 Volume Entering the Distribution System(s), Meter Error Adjustment

Complete one table for each source.

Name of Source	Devil's Canyon
This water source is *(check one)* **:**	

☑	The supplier's own water source
☐	A purchased or imported source

Compliance Year 2020	Volume Entering Distribution System [1]	Meter Error Adjustment [2] *Optional* *(+/-)*	Corrected Volume Entering Distribution System
	100		100

[1] ***Units of measure (AF, MG , or CCF)*** *must remain consistent throughout the UWMP, as reported in SB X7-7 Table 0 and Submittal Table 2-3.* [2] ***Meter Error Adjustment*** *- See guidance in Methodology 1, Step 3 of Methodologies Document*

NOTES:

SB X7-7 Table 4-A: 2020 Volume Entering the Distribution System(s), Meter Error Adjustment

Complete one table for each source.

Name of Source	Mission Tunnell
This water source is *(check one)* **:**	
☑	The supplier's own water source
☐	A purchased or imported source

Compliance Year 2020	Volume Entering Distribution System [1]	Meter Error Adjustment [2] *Optional* *(+/-)*	Corrected Volume Entering Distribution System
	1,128		1,128

[1] ***Units of measure (AF, MG , or CCF)*** *must remain consistent throughout the UWMP, as reported in SB X7-7 Table 0 and Submittal Table 2-3.* [2] ***Meter Error Adjustment*** *- See guidance in Methodology 1, Step 3 of Methodologies Document*

NOTES:

SB X7-7 Table 4-A: 2020 Volume Entering the Distribution System(s), Meter Error Adjustment

Complete one table for each source.

Name of Source	Groundwater
This water source is *(check one)* **:**	
☐	The supplier's own water source
☐	A purchased or imported source

Compliance Year 2020	Volume Entering Distribution System [1]	Meter Error Adjustment [2] *Optional* *(+/-)*	Corrected Volume Entering Distribution System
	199		199

[1] ***Units of measure (AF, MG , or CCF)*** *must remain consistent throughout the UWMP, as reported in SB X7-7 Table 0 and Submittal Table 2-3.* [2] ***Meter Error Adjustment*** *- See guidance in Methodology 1, Step 3 of Methodologies Document*

NOTES:

SB X7-7 Table 4-A: 2020 Volume Entering the Distribution System(s), Meter Error Adjustment

Complete one table for each source.

Name of Source Desalination

This water source is *(check one)* **:**

☑ The supplier's own water source

☐ A purchased or imported source

Compliance Year 2020	Volume Entering Distribution System [1]	Meter Error Adjustment [2] *Optional* *(+/-)*	Corrected Volume Entering Distribution System
	2,763		2,763

[1] ***Units of measure (AF, MG , or CCF)*** *must remain consistent throughout the UWMP, as reported in SB X7-7 Table 0 and Submittal Table 2-3.* [2] ***Meter Error Adjustment*** *- See guidance in Methodology 1, Step 3 of Methodologies Document*

NOTES:

SB X7-7 Table 4-A: 2020 Volume Entering the Distribution System(s), Meter Error Adjustment

Complete one table for each source.

Name of Source Enter Name of Source 7

This water source is *(check one)* **:**

☐ The supplier's own water source

☐ A purchased or imported source

Compliance Year 2020	Volume Entering Distribution System [1]	Meter Error Adjustment [2] *Optional* *(+/-)*	Corrected Volume Entering Distribution System
			0

SB X7-7 Table 5: 2020 Gallons Per Capita Per Day (GPCD)

2020 Gross Water ***Fm SB X7-7 Table 4***	**2020 Population** ***Fm SB X7-7 Table 3***	**2020 GPCD**
9,860	96,027	**92**

NOTES:

SB X7-7 Table 9: 2020 Compliance

Actual 2020 GPCD[1]	Optional Adjustments to 2020 GPCD					2020 Confirmed Target GPCD [1, 2]	**Did Supplier Achieve Targeted Reduction for 2020?**
	Enter "0" if Adjustment Not Used			TOTAL Adjustments[1]	Adjusted 2020 GPCD [1] *(Adjusted if applicable)*		
	Extraordinary Events[1]	Weather Normalization[1]	Economic Adjustment[1]				
92	-	-	-	-	92	117	**YES**

[1] *All values are reported in GPCD*

[2] ***2020 Confirmed Target GPCD*** *is taken from the Supplier's SB X7-7 Verification Form Table SB X7-7, 7-F.*

NOTES:

Appendix K: 2021 Water Shortage Contingency Plan

City of Santa Barbara

2021 Water Shortage Contingency Plan

FINAL

June 2021

Prepared by Water Systems Consulting, Inc. (WSC), and
the City of Santa Barbara, Water Resources Division,
pursuant to California Water Code, Section 10631

Adopted by the Santa Barbara City Council on
June 28, 2021 as Agenda Item No. 14

City Council:

Cathy Murillo, Mayor
Oscar Gutierrez, Mayor Pro Tempore
Eric Friedman, Councilmember, Liaison to Water Commission
Alejandra Gutierrez, Councilmember
Meagan Harmon, Councilmember
Mike Jordan, Councilmember
Kristen Sneddon, Councilmember, Liaison to Water Commission

Board of Water Commissioners:

Arturo Keller, Chair
Dave Davis, Vice-Chair
Jeffrey Young, Commissioner
Lindsey Coony, Commissioner
[Vacant], Commissioner

Plan preparation was coordinated by Dakota Corey, Water Resources Analyst, who can be reached by email at DCorey@SantaBarbaraCA.gov or by phone at (805) 564-5369.

REGISTERED PROFESSIONAL ENGINEER
ROBERT A. MORROW
NO. 68916
Exp. 9/30/21
STATE OF CALIFORNIA

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List of Abbreviations and Acronyms

Act	California Urban Water Management Planning Act
AF	acre-feet
AFY	acre-feet/year
City	City of Santa Barbara
COMB	Cachuma Operation and Maintenance Board
CWC	California Water Code
DWR	California Department of Water Resources
LTWSP	Long-Term Water Supply Plan
SBMC	Santa Barbara Municipal Code
SCADA	supervisory control and data acquisition
SWP	California State Water Project
USBR	United States Bureau of Reclamation
USGS	United States Geological Survey
UWMP	Urban Water Management Plan
WSCP	Water Shortage Contingency Plan

1 Water Shortage Contingency Plan

This Water Shortage Contingency Plan (WSCP) is a detailed plan for how the City of Santa Barbara (City) intends to respond to water shortages. The WSCP is used to provide guidance to the City's Water Commission and City Council, staff, and the public by identifying response actions to allow for efficient and equitable management of water shortages.

Water shortages can be triggered by a hydrologic limitation in supply (i.e., a prolonged period of below-normal precipitation and runoff); limitations or failure of supply, treatment, and/or conveyance infrastructure; or both. Hydrologic or drought limitations tend to develop and abate more slowly, whereas infrastructure failure tends to happen quickly and relatively unpredictably. Water supplies may be interrupted or reduced significantly in several ways, such as during a drought that limits supplies; a catastrophic event, such as an earthquake, that damages water delivery or storage facilities; a regional power outage; or a toxic spill that affects water quality.

The WSCP describes the following:

1. **Water Supply Reliability Analysis:** Summarizes the City's water supply analysis and reliability, and identifies any key issues that may trigger a shortage condition.
2. **Annual Water Supply and Demand Assessment Procedures:** Describes the key data inputs, evaluation criteria, and methodology for assessing the system's reliability for the coming year, and the steps to formally declare any water shortage levels and response actions.
3. **Standard Shortage Stages:** Establishes water shortage levels to clearly identify and prepare for shortages.
4. **Shortage Response Actions:** Describes the response actions that may be implemented or considered for each stage to reduce gaps between supply and demand and to minimize social and economic impacts to the community
5. **Communication Protocols:** Describes communication protocols under each stage to ensure that customers, the public, and government agencies are informed of shortage conditions and requirements
6. **Compliance and Enforcement:** Defines compliance and enforcement actions available to administer demand reductions
7. **Legal Authority:** Lists the legal documents that grant the City the authority to declare a water shortage and implement and enforce response actions
8. **Financial Consequences of WSCP Implementation:** Describes the anticipated financial impact of implementing water shortage stages and identifies mitigation strategies to offset financial burdens
9. **Monitoring and Reporting:** Summarizes the monitoring and reporting techniques to evaluate the effectiveness of shortage response actions and overall WSCP implementation; results determine if additional shortage response actions should be activated or if efforts are successful and response actions should be reduced
10. **WSCP Refinement Procedures:** Describes the factors that may trigger updates to the WSCP and outlines how to complete an update
11. **Special Water Features Distinctions**: Defines ponds, lakes, fountains, pools, and spas, etc.
12. **Plan Adoption, Submittal, and Availability:** Describes the process for the WSCP adoption, submittal, and availability after each revision

This WSCP was prepared in conjunction with the City's 2020 Urban Water Management Plan (UWMP) and is a stand-alone document that can be modified as needed. This document is compliant with the California Water Code (CWC) Section 10632 and incorporates guidance from the State of California Department of Water Resources (DWR) UWMP Guidebook.

The plan is intended to provide guidance, rather than absolute direction, for City action in response to water shortages and provide the City with options to responsibly manage water shortages.

1.1 Water Supply Reliability Assessment

Chapter 7 of the City's 2020 UWMP describes the reliability of the City's water supply by comparing supply and demand projections through 2050 for normal, single dry, and multiple dry years. The chapter also assesses the drought risk over the next five years (2021–2025) assuming the driest five-year period is repeated over the next five years. Water supply reliability reflects the City's ability to meet the water needs of its customers with available water supplies under varying conditions. The analysis considers plausible hydrological and regulatory variability, climate conditions, and other factors that affect the City's water supply and demand. The following is a concise narrative of the assessment. Refer to the City's 2020 Enhanced UWMP for the full assessment.

1.1.1 Supply Characterization

The diversity of the City's water supply portfolio is an important factor in assessing the reliability of the water supply under a variety of hydrologic conditions as well as the ability to store multiple years of demand in Lake Cachuma. In normal conditions, the City's primary water supply is surface water from the Santa Ynez River stored in both Lake Cachuma and Gibraltar Reservoir, including carryover storage from unused Cachuma allocations, and desalination. These supplies are augmented with limited groundwater production (which is typically preserved by the City for droughts and emergencies), State Water Project (SWP) deliveries, and recycled water. These additional supplies typically offset any reduced inflows into Lake Cachuma and Gibraltar Reservoir that would occur in a single year of below-average rainfall conditions.

A single dry year has little effect on availability of Cachuma supplies, because the multiyear reservoir typically has storage available from previous years. However, because Gibraltar is a much smaller reservoir than Cachuma, available supply from Gibraltar Reservoir could potentially be significantly reduced, depending on how dry the year is. In this situation, the City's annual water supply assessment will determine whether to offset the supply deficiency with added State Water deliveries, increased groundwater pumping, or additional use of Cachuma supplies.

The critical drought period for the City's water supply occurs when there are multiple consecutive years of below-average rainfall. This is due to the hydrology of the Santa Ynez River, where little or no inflow to Cachuma Reservoir occurs until there is at least a year of average rainfall. When the condition of average or less rainfall continues for multiple years in succession, the storage level of Cachuma Reservoir drops and shortages in deliveries occur.

1.1.2 Supply and Demand Assessment

For the water service reliability analysis, the following supply availability assumptions were applied for the normal, single-dry-year, and multiple-dry-year conditions for each of the City's supplies:

- **Normal Year**: Average supply availability during the entire 1942–2019 simulation
- **Single Dry Year**: The year with the lowest water supply available to the City (2016)
- **Multiple Dry Year**: The five-year historical sequence with the lowest precipitation at Lake Cachuma (2012–2016)

As shown in Table 1, the City has sufficient supplies to meet demands in a normal year, a single dry year, and multiple dry years, with the need for 20% extraordinary conservation[1] above and beyond the City's regular water conservation program in the fifth year of a five-year drought. As shown in the table, in normal years, the City has roughly an excess of 7,000 acre-feet per year (AFY) of available supplies that can be used to prepare for dry periods. For example, unused Cachuma Project water could be stored for use in future years as carryover water. This approach is shown in a single dry year with no Cachuma Project allocations or Gibraltar Reservoir supplies; the City can meet demands through the use of carryover water storage at Lake Cachuma. In multiple dry years, due to limited supplies and assuming no Cachuma carryover water availability, demands are assumed to be reduced by 20% through extraordinary conservation[1] measures in the fifth year. During the recent extended drought, City customers achieved 40% conservation by 2016, which is the fifth year in the multiple-year drought plan, so the City is confident extraordinary conservation can be achieved during an extended drought, if necessary.

Table 1. Supply and Demand Comparison Summary (AFY)

Year	Item[1]	2025	2030	2035	2040	2045	2050
Normal Year	Supply Totals	20,820	22,680	22,660	22,640	22,620	22,620
	Demand Totals	13,890	14,600	14,580	14,720	14,910	15,160
	Difference	6,930	8,080	8,080	7,920	7,710	7,460
Single Dry Year	Supply Totals[2]	13,890	14,600	14,580	14,720	14,910	15,160
	Demand Totals	13,890	14,600	14,580	14,720	14,910	15,160
	Difference[2]	**0**	**0**	**0**	**0**	**0**	**0**
Multiple Dry Years							
First Year (2012)	Supply Totals	23,050	24,930	24,930	24,930	24,930	24,930
	Demand Totals	13,890	14,600	14,580	14,720	14,910	15,160
	Difference	**9,160**	**10,330**	**10,350**	**10,210**	**10,020**	**9,770**
Second Year (2013)	Supply Totals	22,350	24,220	24,220	24,220	24,220	24,220
	Demand Totals	13,890	14,600	14,580	14,720	14,910	15,160
	Difference	**8,460**	**9,620**	**9,640**	**9,500**	**9,310**	**9,060**
Third Year (2014)	Supply Totals	20,680	22,560	22,560	22,560	22,560	22,560
	Demand Totals	13,890	14,600	14,580	14,720	14,910	15,160
	Difference	**6,790**	**7,960**	**7,980**	**7,840**	**7,650**	**7,400**
Fourth Year (2015)	Supply Totals	16,300	18,170	18,170	18,170	18,170	18,170
	Demand Totals	13,890	14,600	14,580	14,720	14,910	15,160
	Difference	**2,410**	**3,570**	**3,590**	**3,450**	**3,260**	**3,010**
Fifth Year (2016)	Supply Totals	12,020	13,900	13,900	13,900	13,900	13,900
	Demand Totals[3]	11,110	11,680	11,660	11,770	11,930	12,120
	Difference	**910**	**2,220**	**2,240**	**2,130**	**1,970**	**1,780**

1. Refer to supply assumptions in the text above the table. Values are rounded to the nearest 10.
2. Cachuma Project carryover water is used to meet demand remaining after other available supplies.
3. Extraordinary conservation measures, which are above and beyond the City's adopted conservation program, are assumed to be implemented to reduce demand by 20% in Year 5.

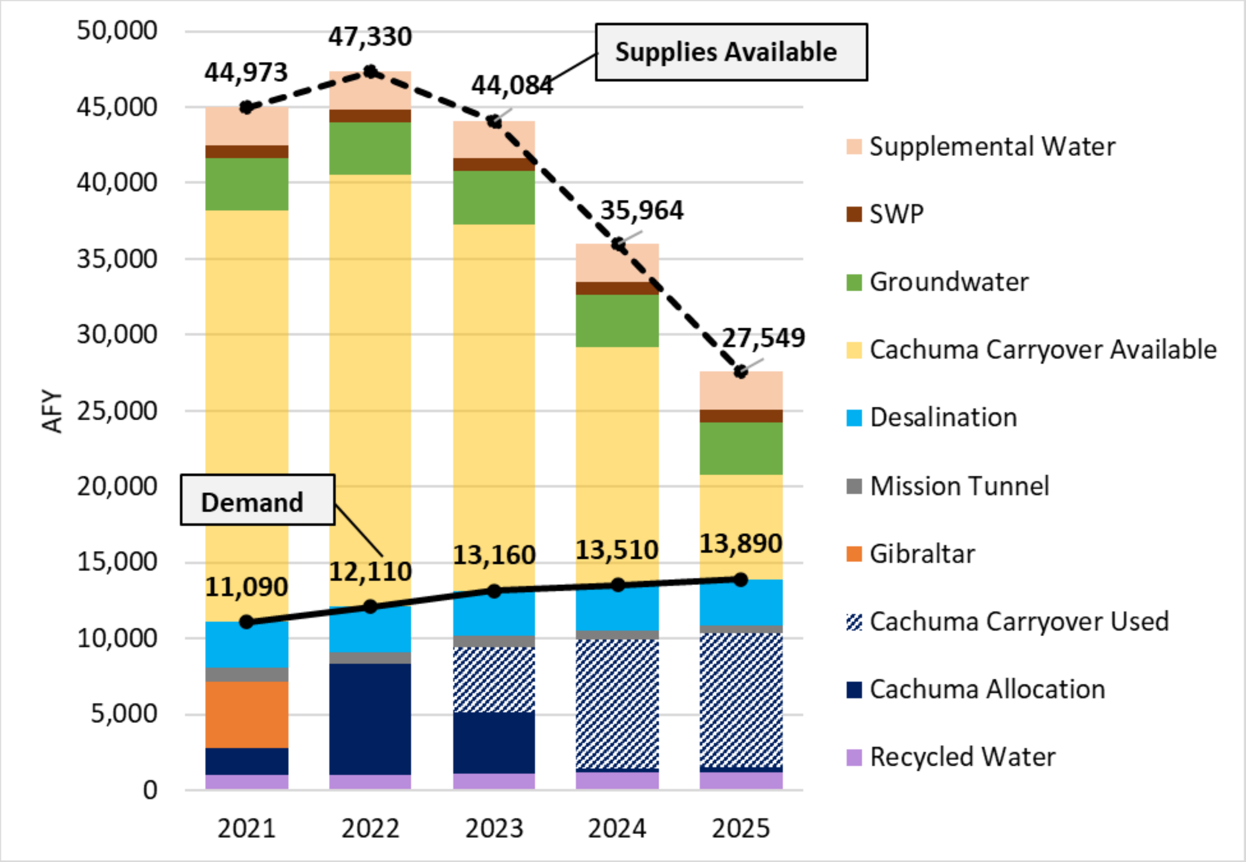
---

[1] Extraordinary conservation is additional conservation measures above and beyond the City's regular water conservation program that are required to enable the City to meet water demands using available supplies.

1.1.3 2021–2025 Drought Risk Assessment

The Drought Risk Assessment for the upcoming five years (2021–2025) is based on the five driest years on record (2012–2016). Based on the projected demands and available supplies, Figure 1 presents the projected supplies used to meet demands and the remaining available supply each year. As shown, Cachuma carryover water is used starting in 2023 as Cachuma allocations decrease, and the City still has supplies available at the end of the five-year drought. Note that these projections contrast with the need to implement extraordinary conservation measures during the previous drought due to the addition of desalination, which adds a drought-proof supply and allows the City to accumulate carryover storage in Cachuma for use in future years. The City did not have Cachuma carryover storage at the beginning of the last drought because Lake Cachuma spilled in 2011, which resulted in all carryover storage being lost, and the desalination plant did not produce water until 2017.

Figure 1. 2021–2025 Drought Risk Assessment, Supply and Demand Projections



Note: Supply projections assume drought conditions extend through 2025. Refer to the City's 2020 UWMP Chapter 7 for supply and demand assumptions.

1.1.4 Water Supply Reliability Risks

A range of issues could lead to supply shortages. However, extended drought conditions are the most likely threat. The 2021 Long-Term Water Supply Plan (LTWSP) (1) analyzed the most impactful risks associated with the City's supply projections, shown in Table 2. The topics listed in the table were analyzed by comparing supply and demand with risk-adjusted supplies to understand reliability under potential future conditions. Also, resilience scenarios, such as temporary loss of one or more supplies from an earthquake, were analyzed. The result of the analysis was a series of recommendations and an Adaptive Management Plan for the City to implement when supply or demand conditions change in the future.

Table 2. Supply Risks

Risk	Description
Climate Variability	More extreme droughts, increased irrigation demand, reduced yield, more intense rainfall/flooding, and higher variability from surface water supplies.
Lake Cachuma Increased Releases	Potential reduction in Cachuma supplies from an update to the 2000 Biological Opinion, which impacts current Cachuma operations.
Gibraltar Reservoir High Sedimentation	Increased rate of sedimentation due to wildfires, which reduces the Gibraltar Reservoir storage volume and annual Gibraltar yield. Obtaining a Warren Act Contract, as specified in the Pass-Through Agreement, with the United States Bureau of Reclamation (USBR) would shift lost Gibraltar storage capacity to Lake Cachuma.
Megadrought[1]	A prolonged drought lasting two decades or longer.
Surface Water Quality Degradation	Surface water quality degradation due to wildfires and warmer temperatures impact Cachuma and Gibraltar, making them susceptible to algae blooms, which negatively impact water quality.
Ocean Water Quality Degradation	Ocean water quality degradation scenarios from algae blooms, debris flows, oil spills, and sewage spills would temporarily prevent intake of seawater for desalination.
Desalination Regulations	Permanent loss or reduction of desalination supply due to changes in law or regulatory policy would return the City to supply conditions prior to the desalination plant activation in 2017.
SWP Yield	SWP annual allocations are highly variable, and average yield projections have declined with each successive Delivery Capability Report from DWR. The City does not benefit from average and wet supplies due to lack of storage beyond carryover water in San Luis Reservoir. Delta Conveyance Project construction would further reduce the reliability of SWP water, because San Luis Reservoir will spill more frequently and the City loses this carryover water after spill events.

1. Per Williams, et al (2020) (2), "Global warming has pushed what would have been a moderate drought in southwestern North America into megadrought territory. Williams et al. used a combination of hydrological modeling and tree-ring reconstructions of summer soil moisture to show that the period from 2000 to 2018 was the driest 19-year span since the late 1500s and the second driest since 800 CE. This appears to be just the beginning of a more extreme trend toward megadrought as global warming continues."

1.2 Annual Water Supply and Demand Assessment

As established by CWC Section 10632.1, urban water suppliers must conduct annual water supply and demand assessments and submit an annual water shortage assessment report to DWR with information on anticipated shortages, triggered shortage response actions, and compliance and enforcement actions consistent with the WSCP. Beginning in 2022, the City must prepare an annual water supply and demand assessment and submit an Annual Water Shortage Assessment Report to DWR. The Annual Water

Shortage Assessment Report will be due by July 1 of every year (July 1, 2022, is the first due date). Per CWC, the annual assessment must include:

- The written decision-making process that the City will use each year to determine its water supply reliability
- The key data inputs and assessment methodology used to evaluate the supplier's water supply reliability for the current year and one dry year[2], including:
    - Current-year unconstrained demand
    - Available supply in the current year and one dry year
    - Existing infrastructure capabilities and plausible constraints
    - A defined set of locally applicable evaluation criteria that are consistently relied on for each annual water supply and demand assessment
    - A description and quantification of each source of water supply

The City has an existing annual assessment process in place that goes beyond the CWC annual assessment requirements. The City's process comprises an **Annual Water Supply Management Report** and **Annual Water Supply Outlook**, which are separate activities that are often presented to the City's Water Commission and City Council in conjunction with each other.

The City's Annual Water Supply Management Report is a backward-looking analysis that summarizes water supplies and issues for the previous water year, which extends from October 1 to September 30. The report summarizes the following information:

- The status of water supplies at the end of the water year (September 30)
- Drought outlook
- Water conservation and demand
- Major capital projects that improve the City's ability to provide safe and reliable water
- Significant issues that affect the security and reliability of the City's water supplies

The Annual Water Supply Outlook provides an overview of the City's water supplies at the beginning of each water year and includes an analysis of whether the City's available water supplies are sufficient to meet demands over the next three years. The analysis takes a conservative approach, assuming the next three years will be drought years. This conservative planning approach allows staff to evaluate if the City has sufficient water to meet demands under three additional years of drought and, if not, what level of shortage is anticipated. Assumptions used to compile the Annual Water Supply Outlook include:

- Next three water years to be dry — no new inflows to Cachuma or Gibraltar
- Current Cachuma storage and projected storage for the next three years (source: Cachuma Operation and Maintenance Board [COMB])
    - Reduced Cachuma allocations based on projected Cachuma storage
- 35% SWP allocation
- Assumes drought-impacted Mission Tunnel intrusion (44 AF/month)
- Current supply availability
    - Cachuma carryover plus Cachuma allocation (source: monthly COMB reports)
    - Gibraltar storage (source: monthly Upper Santa Ynez River Operations Agreement Reports [City])

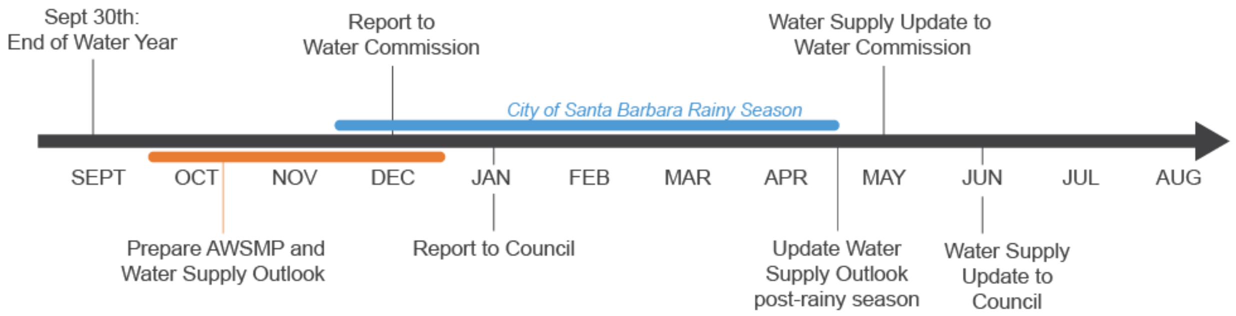
---

[2] The City can consider more than one dry year

  - Groundwater storage and pumping capacity (source: USGS water-level data and City well-pumping-capacity data)
  - SWP carryover and SWP allocation (source: Central Coast Water Authority Water Delivery Status Report)
  - Desal production capacity (source: City data)
- Demands as projected in the UWMP or as adjusted to meet real-time demands

Figure 2 presents a typical annual timeline for preparation and submittal of the Annual Water Supply Management Report and Annual Water Supply Outlook in relation to the water year. If the City is actively engaged in drought response, water supply updates are provided to the Water Commission monthly and the Council as frequently as monthly, as needed. The Water Commission can recommend, and the Council can adopt, new ordinances to change the City's water shortage condition, as described in Section 1.7.

Figure 2. City of Santa Barbara Annual Water Assessment Timeline



1.3 Standard Water Shortage Stages

The City's water shortage planning addresses supply shortages ranging from a slowly developing drought to sudden and potentially catastrophic interruptions, such as earthquakes and/or failure of major system components. Consistent with past plans and experience with severe droughts, including the most recent record drought, this plan uses four stages to structure the City's response to water shortages. It reflects the City's experience that each shortage situation is different and that flexibility is needed to respond to developing water conditions. This is especially important with the increasing diversity of the City's water supply portfolio and the need to comply with State mandates regarding water reduction targets and water use regulations.

The City's water shortage stages and corresponding demand reductions and a description of the corresponding water supply conditions are included in Table 3 and described further in separate sections. The potential reduction measures for each stage are described in Section 1.4.1.

Table 3. Water Shortage Contingency Plan Levels (UWMP Table 8-1)

Stage	Percent Supply Reduction	Category	Water Supply Condition
Normal Supply	0%		Full Cachuma entitlement is projected for the coming water year, and there are no extraordinary shortages in other City supplies.
1	0%–15%	Water Shortage Watch	A Cachuma entitlement reduction is projected for the coming water year, assuming continued dry weather, or an extraordinary reduction in other City supplies has been identified.
2	15%–25%	Water Shortage Alert	Continuing conditions of average or less rainfall have resulted in continued decline in Cachuma storage following a reduction in entitlement, or an extraordinary reduction in other City supplies has been identified.
3	25%–50%	Water Shortage Emergency	Cachuma supplies are projected to be exhausted during the coming water year, or a catastrophic interruption to City water supplies has occurred.
4	>50%	Catastrophic Water System Emergency	Catastrophic interruption to City water supplies has occurred.

1.3.1 Normal Supply Stage

Supplies are considered normal when a 100% Cachuma allocation is projected for the coming water year and there are no extraordinary shortages in other City supplies. While in the normal supply condition stage, the City will:

- Continue efforts to preserve water supply sources, such as management of watersheds to minimize siltation, banking of water as feasible to firm up deliveries through the SWP, and development of optimal groundwater pumping capacity.
- Continue implementation of the City's conservation program with the goal of encouraging water conservation as a way of life, including high-efficiency plumbing retrofits, low-water-using landscaping, efficient irrigation practices, public information regarding water awareness, and tiered rate pricing.
- Extend and expand the use of recycled water where feasible and cost effective.
- Monitor water demands in terms of actual versus projected consumption and cumulative commitments to serve.
- Water use restrictions are limited to prohibition of water waste.

1.3.2 Stage 1 Water Shortage Condition: Water Shortage Watch

A Stage 1 Water Shortage Condition is defined as a short-term water shortage condition declared by Resolution of the City Council upon being advised that a Cachuma entitlement reduction is projected for the coming water year, assuming continued dry weather. A Stage 1 Water Shortage Condition is also defined as the identification of an extraordinary reduction in other City supplies. During a Stage 1 Water Shortage Condition, the City will take the following actions:

- Staff prepares a report to the Water Commission and City Council addressing:
    - Status of surface water supplies
    - Status of the City's groundwater resources and pumping capability
    - Status of the City's desalination facility and any related cost and permitting issues
    - Projected deliveries of SWP entitlement
    - Anticipated availability of banked water and one-time purchase of water via short-term transfers
    - Possible reduction in Cachuma deliveries to City in excess of reductions agreed to by member units to allow build-up of City carryover at Cachuma
    - A range of water supply scenarios based on various levels of assumed rainfall
- Water Commission and City Council consider staff recommendation regarding adoption of a resolution declaring a Stage 1 Water Shortage Condition
- Public advised of the City's water supply situation; the need for voluntary reductions in water use is expected to range from 0% to 15% at this stage
- Water use restrictions limited to prohibition of water waste

1.3.3 Stage 2 Water Shortage Condition: Water Shortage Alert

A Stage 2 Water Shortage Condition is defined as a short-term water shortage condition declared by Resolution of Council upon being advised that continuing conditions of average or less rainfall have resulted in continued decline in Cachuma storage following a reduction in entitlement. A Stage 2 Water Shortage Condition is also defined as the identification of an extraordinary reduction in other City supplies. During a Stage 2 Water Shortage Condition, the City will take the following actions:

- Staff prepares a report to the Water Commission and City Council addressing:
    - Updated water supply scenarios based on various levels of assumed rainfall or other applicable metrics
    - Need for:
        - Demand reduction by the public
        - Water use restrictions
        - Design and permitting work associated with temporary water supply augmentations
    - Revenue projections and changes in water rates
- City Council considers staff and Water Commission recommendation regarding adoption of a resolution declaring a Stage 2 Water Shortage Condition
- Public advised of need for mandatory water conservation savings in the range of 15%–25%
- City determines the need for water use restrictions pursuant to Santa Barbara Municipal Code (SBMC) Section 14.20.215 (Attachment 1) and incorporates appropriate exemptions into the water shortage resolution
- Public information effort is aimed at advising the public regarding:
    - The City's water supply situation
    - Efforts being made by the City to minimize impacts of the water shortage
    - The public's role in achieving demand reductions
    - Enforcement of water use restrictions, pursuant to Council direction

  - Review of revenue projections and implementation of rate changes, if necessary, pursuant to Council direction

1.3.4 Stage 3 Water Shortage Condition: Water Shortage Emergency

A Stage 3 Water Shortage Condition is defined as a short-term water shortage condition declared by Resolution of Council upon being advised that Cachuma supplies are projected to be exhausted during the coming water year. A Stage 3 Water Shortage Condition is also defined as the imminence or occurrence of a catastrophic interruption to City water supplies. During a Stage 3 Water Shortage Condition, the City will take the following actions:

- Staff prepares a report to the Water Commission and City Council addressing:
  - Updated water supply scenarios based on various levels of assumed rainfall or other applicable metrics
  - Need for:
    - Further demand reduction by the public
    - Increased water use restrictions, including potential prohibition on uses other than drinking water and sanitation
    - Accelerated design, permitting, and construction work associated with temporary water supply augmentations
  - Evaluation of potential increased supply from desalination facility and from purchases of supplemental water
- City Council considers staff and Water Commission recommendations regarding adoption of a resolution declaring a Stage 3 Water Shortage Condition pursuant to CWC, Chapter 3
- Public advised of need for mandatory water conservation savings in the range of 25%–50%
- Revised demand reduction target announced to public, accompanied by information about how to achieve required reductions and efforts being made by the City to resolve the water shortage condition
- Water use restrictions adjusted as necessary pursuant to SBMC Section 14.20.215.B (Attachment 1)
- Evaluate revenues and the need for rate changes; staff implements changes pursuant to Council direction
- Suspension of development project approvals considered
- Water use restrictions enforced by staff pursuant to Council direction
- Success in meeting reduction targets measured by tracking monthly production of water into the distribution system and by targeted water use analysis of specific water use sectors

While the City's long-term supply planning is based on a maximum planned shortage of 15%, unforeseen circumstances can result in the need to respond to shortages of up to 50%. The City's customers achieved 40% conservation during the most recent drought, and the City still had water shortage response measures that could achieve short-term demand reductions up to 50%, carefully tailored to the situation at hand. Flexible application of water use regulations, development restrictions, allocations, and public information will be used to meet the required demand reduction target.

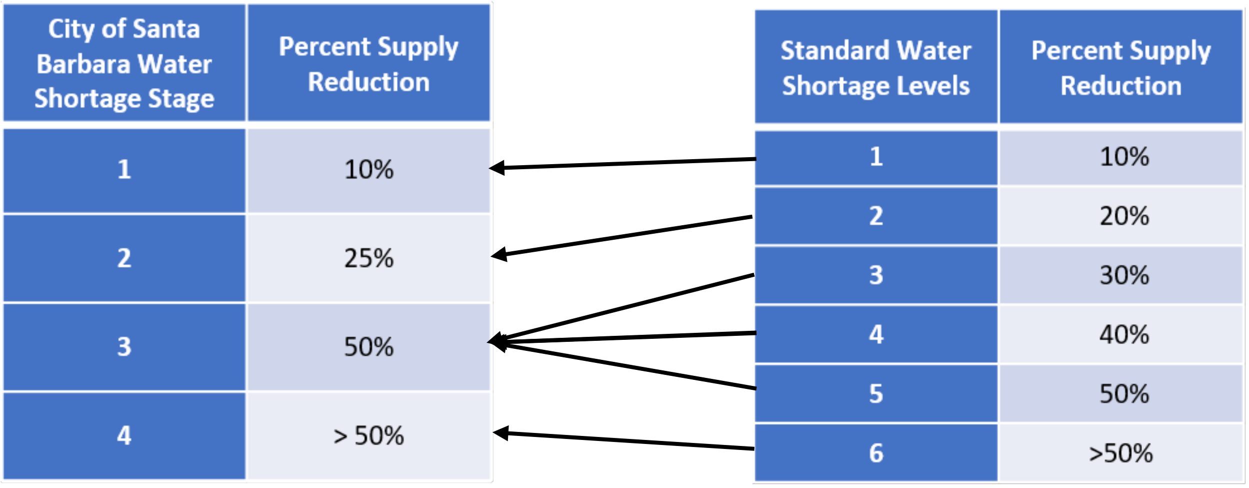
1.3.5 Stage 4 Water Shortage Condition: Catastrophic Water System Emergency

A Stage 4 Water Shortage Condition is defined as a short-term water service emergency declared by the City Council following a catastrophic event that substantially reduces the City's ability to provide potable water to its customers. The condition may be activated following a major earthquake or other natural disaster that could restrict the City's water service abilities. During a Stage 4 Water Shortage Condition, the City would implement its Emergency Response Plan, which is described in Section 1.4.5.

1.3.6 Standard Water Level Crosswalk

CWC Section 10632(a)(3)(A) includes six standard water shortage levels, corresponding to progressive ranges of up to 10%, 20%, 30%, 40%, and 50% shortages and greater than a 50% shortage. If the supplier's water shortage levels do not correspond with the six standard levels, then a crosswalk between the supplier's stages and the standard levels is required for compliance. The crosswalk between the City's four stages and the standard water shortage levels is shown in Figure 3.

Figure 3. Water Shortage Stages Crosswalk



City of Santa Barbara Water Shortage Stage	Percent Supply Reduction
1	10%
2	25%
3	50%
4	> 50%

Standard Water Shortage Levels	Percent Supply Reduction
1	10%
2	20%
3	30%
4	40%
5	50%
6	>50%

1.4 Shortage Response Actions

This WSCP identifies various actions to be considered by the City Council during the various water shortage stages, including public information, water conservation assistance, supply augmentation, water use regulations, development approvals, and demand tracking. In the event of a water shortage emergency, the City will evaluate the cause of the emergency to help inform which response actions should be implemented. Depending on the nature of the water shortage, the City can elect to implement one or several response actions to mitigate the shortage and reduce gaps between supply and demand. It should be noted that all actions listed for Stage 1 apply to Stages 2, 3, and 4. Likewise, Stage 2 actions apply to Stages 3 and 4, while Stage 3 actions apply to Stage 4. If necessary, the City may adopt additional actions not listed here in extreme circumstances. SBMC Chapter 14.20 (Attachment 1) provides standing authorization for water use restrictions and prohibitions to become effective upon adoption of a Water Shortage Resolution at any regular meeting of the City Council. An example water shortage resolution is included in Attachment 2.

1.4.1 Demand Reduction

Whether during normal supply or water shortage conditions, the City implements a comprehensive water conservation program pursuant to the 2021 LTWSP (1). Public information, building code standards, workshops, rebates, and tiered rates are ongoing during normal supply conditions and adjusted to target needed reductions during water shortage conditions. Table 4 identifies demand reduction methods that are considered during water shortage conditions. These methods were effective in providing substantial reductions in demand during the drought of the late 1980s and the recent record drought that commenced in 2012.

Table 4. Demand Reduction Actions (UWMP Table 8-2)

Shortage Level	Demand Reduction Actions	How much is this going to reduce the shortage gap?[1]	Additional Explanation or Reference	Penalty, Charge, or Other Enforcement
All	Expand Public Information Campaign	0%–5%	Community outreach includes increased advertising, presentations to community groups, workshops, and enhanced website resources.	No
All	Offer Water Use Surveys	0%–1%	Indoor and outdoor water checkups are available to all customer classes.	No
All	Provide Rebates on Plumbing Fixtures and Devices	0%–1%	Offer or expand rebates on a variety of plumbing fixtures that are high efficiency such as washers, toilets, and urinals.	No
All	Provide Rebates for Landscape Irrigation Efficiency	0%–1%	Offer or expand rebates for drip irrigation conversions, smart irrigation controllers, water-wise plants, and rain sensors to improve efficiency.	No
All	Provide Rebates for Turfgrass Replacement	0%–1%	Offer or expand rebates for community members who wish to replace their turfgrass with a water-wise garden.	No
All	Decrease Line Flushing or Pursue Zero Discharge Flushing Methods	0%–1%	The City uses zero-discharge water recycling trucks for water main and wastewater collection system cleaning.	No
All	Other — Leaky device	0%–1%	Customers are required to repair any leaky or malfunctioning devices within 72 hours of notification of leak.	Yes
All	Landscape — Runoff	0%–1%	Landscape irrigation in excess leading to runoff onto nearby surfaces is prohibited.	Yes
All	Other — Post-rainfall prohibition	0%–1%	Prohibit irrigation with potable water during and within 48 hours after measurable rainfall.	Yes
1	Reduce System Water Loss	0%–1%	The City increases efforts to correct water system losses, including repairing leaks and eliminating illicit connections.	No

Shortage Level	Demand Reduction Actions	How much is this going to reduce the shortage gap?[1]	Additional Explanation or Reference	Penalty, Charge, or Other Enforcement
2	Increase Water Waste Patrols	0%–1%	Patrols discourage water wasting and correct water wasting practices in the community.	Yes
2	Other — Nozzles	0%–1%	Only hoses with automatic shutoff nozzle fixtures are permitted.	Yes
2	Other — Prohibit vehicle washing	0%–1%	Prohibit washings cars, boats, trailers, aircraft, or other vehicles except with hose shutoff nozzle or at commercial or fleet vehicle washing facilities using water recycling equipment.	Yes
2	Landscape — Limit landscape irrigation to specific times	0%–5%	Prohibit irrigation during the hours when evaporation is highest.	Yes
2	CII — Lodging linen service	0%–1%	Hotels/motels must provide guests with option to reuse towels and linens for more than one day.	Yes
2	CII — Restaurants serve water upon request	0%–1%	No restaurant, hotel, café, cafeteria, or other public place where food is served shall serve drinking water to any customer unless expressly requested.	Yes
2	Other	0%–1%	Require posting of water shortage notice at restaurants, hotels/motels, and commercial showering and car washing facilities.	Yes
2	Pools and Spas — Require covers for pools and spas	0%–1%	Require covers for swimming pools and spas when not in use.	Yes
3	Other — Prohibit use of potable water for washing hard surfaces	0%–1%	Prohibit use of potable water to wash sidewalks, walkways, driveways, parking lots, open ground, or other hard-surfaced areas except where necessary for public health or safety.	Yes
3	Landscape — Limit landscape irrigation to specific days	5%–10%	Limit to assigned watering days, which may depend on seasonal changes, such as summer and winter.	Yes

Shortage Level	Demand Reduction Actions	How much is this going to reduce the shortage gap?[1]	Additional Explanation or Reference	Penalty, Charge, or Other Enforcement
3	Water Features — Restrict water use for decorative water features	0%–1%	Prohibit use of potable water to fill or maintain decorative fountains and water features unless located indoors or are home to aquatic life.	Yes
3	Other water feature or swimming pool restriction	0%–1%	Restrict draining and refilling of pools by more than one-third of the pool volume.	Yes
3	Other	0%–1%	Limit the use of potable water hydrant meters.	Yes
4	Landscape — Other landscape restriction or prohibition	5%–10%	Restrict irrigation to high-efficiency methods.	Yes
4	Landscape — Other landscape restriction or prohibition	5%–20%	Restrict irrigation to watering by hand only.	Yes
4	Landscape — Other landscape restriction or prohibition	5%–20%	Prohibit/restrict irrigation of turfgrass.	Yes
4	Other	20%–40%	Prohibit all outdoor water use.	Yes
4	Other	20%–70%	Institute water rationing.	Yes
4	Moratorium or Net Zero New Demand	0%–1%	The City may temporarily limit or ban new water service connections within the service area.	No

1. Reduction in the shortage gap is estimated and can vary significantly.

1.4.2 Supply Augmentation

The SWP conveyance infrastructure provides the City with the ability to convey supplemental water purchases to augment drought-year supplies. During the recent drought, the City purchased supplemental water through Central Coast Water Authority. Refer to the 2020 UWMP Section 6.5.2 for more information on supplemental water purchases. Supply augmentation actions are described in Table 5. These augmentations represent short-term management objectives triggered during a water shortage and do not overlap with long-term new water supply development or supply reliability enhancement projects.

Table 5. Supply Augmentation and Other Actions (UWMP Table 8-3)

Shortage Level	Supply Augmentation Action and Other Actions by Water Supplier	How much is this going to reduce the shortage gap?	Additional Explanation or Reference
All	Groundwater	Varying	Groundwater is pumped from drought storage volume. The amount is dependent on diminished quantity from City's supply portfolio.
All	Water Purchases	Varying	The amount of water purchased is dependent on diminished quantity from City's supply portfolio.

1.4.3 Operational Changes

To address water shortages on a short- and long-term basis, operational changes within the City occur to ensure an efficient and meaningful response. During a time of water shortage, the City will convene a series of task forces, including:

- **Executive Drought Team:** composed of the City Administrator, City department heads, and the Water Resources Manager. This team discusses plans and strategies for responding to the persistent drought conditions.
- **Intra-City Drought Team:** composed of representatives from Parks and Recreation Department, Airport Department, Fire Department, Fleet Services Division, Facilities Division, Planning Division, Building and Safety Division, Waterfront Department, Office of Emergency Services, Streets Division, and Water Resources Division. This team identifies immediate and long-term water-saving actions that can be implemented throughout the City organization and facilities, with support from Water Resources staff.
- **Water Resources Operational Drought Team:** composed of management and operational staff from water treatment, water distribution, wastewater treatment, wastewater collections, and water supply management work groups. This team identifies operational opportunities to conserve water as well as practices to implement at water treatment facilities and/or throughout the water and wastewater system.
- **Core Drought Team:** composed of water supply management staff to assess changing water supply shortage conditions and implement the WSCP.

These teams work to facilitate internal City coordination. For example, during the previous drought, the Parks and Recreation Department instituted a successful 2014 Strategic Drought Response Plan (3) that detailed department actions to prioritize potable water use for certain facilities and sensitive/historic resources. The majority of the City's parks are irrigated with recycled water, and increased messaging about the benefits and use of recycled water was also implemented. Similar measures may be considered in the future. Other internal operational changes that may be implemented by the City include:

- Display messaging highlighting water-saving actions in City facilities, including communal staff areas and public areas such as restrooms, kitchens, and break rooms.
- Limit vehicle washing, in coordination with Fleet Services Division.
- Evaluate frequency of items laundered by laundering contractor.
- Equip field staff with public information material about the drought and water use regulations and educate staff on how to report water waste to enforcement staff.
- Reduce reservoir cleaning.
- Use secondary wastewater effluent as process water for wastewater treatment.
- Reuse plant processing water at water treatment plant.
- Evaluate suspending capital improvement projects that are water intensive and cannot use the water recycler vehicles.
- Require the use of recycled water for dust control for all applicable City projects.

During the previous drought, the City researched, piloted, and invested in two new technologies to reduce the amount of water used in operational practices. The water distribution team purchased a vehicle that flushes water mains by filtering and recycling potable water in the system between two fire hydrants, rather than discharging the water into a nearby storm drain. The wastewater collection team purchased a vehicle that initially fills with recycled water and proceeds to clean the wastewater mains by continuing to recycle the water in the system, rather than using additional recycled or potable water. Use of these vehicles has now become standard practice for the City, and they will continue to be used during normal supply conditions, as well as during a water shortage condition.

1.4.4 Emergency Response Plan

Besides drought, the City water supply may experience a catastrophic interruption as a result of natural disasters such as an earthquake, a tsunami, a wildfire, a mudslide, a regional power outage, or terrorism. Emergency administrative procedures are detailed and periodically updated in the City's Emergency Operations Center Manual.

Planning and response measures in the event of an interruption to the City's water supply include the following:

- A diverse portfolio of supplies provides redundancy that increases the likelihood of being able to meet emergency needs even under catastrophic conditions.
- In advance of a known threat to the City's water system, such as a wildfire, distribution reservoirs will be filled to full capacity, and any reservoir out of service will be put back into service.
- Primary water supply sources and the main treatment plant will supply water to the City via gravity to reduce normal operating costs and minimize disruption during disasters.
- A groundwater production system has been developed and maintained to augment supplies to the distribution system or provide direct emergency drinking water supplies should the

distribution system be put out of service. In the event of a prolonged power outage, power can be provided by portable generators to more than half of the City's major production wells.

- Backup power supplies with automatic transfer switching and supervisory control and data acquisition (SCADA) capability have been installed at the primary water treatment plant and critical distribution pump stations.
- Portable generators will be deployed to critical facilities lacking emergency backup power.
- SCADA is used throughout the distribution system to monitor system problems, whether minor day-to-day problems or major disruptions.
- An ongoing program of water main replacement targets sections of the distribution system with the highest history of breaks.
- Upgraded security, including more secure fencing, video monitoring, and alarms, is being installed at all water supply facilities.
- Public access to water supply facilities has been limited for security reasons.
- City distribution system crews are trained in pipe repair and replacement as a part of their normal duties and are continually ready to perform such work in emergencies.
- All City employees are designated as emergency service workers and would be activated to do damage assessment and repairs and to fill gaps left by staff who live out of town and may be unable to get to Santa Barbara during a disaster.
- The City's emergency response program includes emergency communication procedures that would be used for notifying the public about emergency water use restrictions, potential need to boil tap water before drinking, and locations where drinking water is available in the event of widespread distribution system failure.

Given the diversity of the City's water supply, there is a range of catastrophic supply interruption scenarios that may occur. At the extreme end of the range, a catastrophic seismic event could include failure of both Gibraltar Dam and Bradbury Dam (Lake Cachuma), also impacting State Water deliveries, or failure of Tecolote and/or Mission Tunnels, which convey surface water supplies from Lake Cachuma and Gibraltar Dam, respectively, to the City's treatment plant. Damage to groundwater wells would also be expected. Table 6 summarizes some foreseeable interruptions of higher probability but lesser magnitude. In an actual event, detailed analysis would be conducted to assess the extent and duration of interruption and the alternatives for short-term replacement of lost supplies.

Table 6. Catastrophic Interruption Scenarios

Damage limited to distribution system: Main breaks in various parts of the City	
Anticipated Duration:	*Ranging from days to months, depending on extent of damage*
	• Valve off damaged sections. • Inventory customers without service and provide access to emergency drinking water as necessary. • Prioritize repair efforts based on health, safety, and sanitation.
Collapse of Mission Tunnel: Supplies from Gibraltar Reservoir and Mission Tunnel infiltration interrupted	
Anticipated Duration:	*Ranging from months to a year or more*
	• Assess extent of remaining tunnel flow. • Restrict irrigation uses. • Impose water usage restrictions and notify public to reduce water use to targeted level based on actual circumstances. • Consider increases in SWP delivery requests. • Initiate emergency design and construction process for tunnel repair.
Collapse of Tecolote Tunnel: Supplies from Lake Cachuma, tunnel infiltration, and SWP interrupted	
Anticipated Duration:	*Ranging from months to a year or more*
Responses:	• Assess extent of remaining tunnel flow. • Curtail most or all irrigation uses. • Impose water usage restrictions and notify public to reduce water use to targeted level based on actual circumstances. • Consider extent to which supplies are available to assist neighboring agencies affected by loss of Cachuma deliveries. • Participate with COMB and USBR in emergency design and construction process for repair of tunnel.
Regional Power Outage	
Anticipated Duration:	*Ranging from hours to weeks*
Responses:	• Initiate contact with City Emergency Operations Center. • Activate and monitor backup generators at Cater Treatment Plant and key distribution pumping stations. • Assess supplies of generator fuel and develop a schedule of prioritized fuel needs. • Identify optimal sites for deployment of portable generators (wells, pump stations, treatment system). • Prepare to issue a consumer alert about potential for: 1) low system pressure, 2) need to curtail water use, and 3) need to boil water before drinking. • Evaluate the need for water quality sampling. • Consider increasing disinfectant residual as a precaution against potential system contamination. • Isolate any segments of known contamination; issue notice not to drink water in the affected areas.

In the occurrence of a catastrophic event, City employees are prepared to mobilize to respond to emergent issues, including taking the following actions:

- Assemble supervisors at Public Works Yard, 630 Garden Street.
- Determine which staff are present and which need to be contacted.
- Contact absent staff and direct them to report once families are safe.
- Check status of all equipment, refuel, and restock supplies on vehicles.
- Mobilize Water Resources Laboratory staff at City lab and prepare for anticipated water quality test requests.

- Contact local contractors to be at the ready to provide support.

Dispatch crews will be sent to inspect, patrol, and report on condition of facilities and distribution piping in designated areas of the system based on Table 7.

Table 7. Area Inspection Groups after a Catastrophic Interruption Scenario

Group A - Water Facilities
Vic Trace Reservoir & La Coronilla Pump Station
La Mesa Reservoir
Escondido Reservoir & Pump Station
Hope (Calle Las Caleras) Pump Station
Hope Reservoir
Campanil Hill Pump Station

Group B - Water Facilities
Reservoir No. 1
East Reservoir & Bothin Pump Station
El Cielito Reservoir & Skofield Pump Station
Skofield Reservoir
La Vista Reservoir
Northridge Pump Station

Group C – Water Facilities
Reservoir No. 2
Sheffield Reservoirs No. 1 & No. 2; El Cielito Pump Station
South Portal of Mission Tunnel
Rocky Nook Pump Station
Sheffield Pump Station
Tunnel Road Reservoir & Pump Station
Cater Cross-Tie Pump Station

Group D - Wastewater Lift Stations
Campanil
Braemar
Cliff Drive
Linda Road
El Camino De la Luz

Group E - Wastewater Lift Stations
Skofield
La Colina
Via Lucero
Tallant Road
Miradero Lane
Andante
Vista Elevada

Additional actions to be implemented during a catastrophic event include:

- Assign qualified staff to monitor the SCADA telemetry system, to the extent it is still functional, to determine the extent of system damage and the most critical points on the distribution system.
- Conduct a complete inspection of the Cater Water Treatment Plant, Ortega Groundwater Treatment Plant, and Desalination Plant to determine status and extent of damage.
- Contact Cachuma Project operators (USBR and COMB) to determine condition of Bradbury Dam, Tecolote Tunnel, and related facilities.
- Contact the City's dam caretaker at Gibraltar Reservoir to determine condition of Gibraltar Dam and related facilities.
- Contact the City's Water Treatment Superintendent to determine if Mission Tunnel has experienced a disruption of water conveyance.
- Assess condition of City groundwater wells by measuring water levels and well depths and taking water samples for analysis of water quality.
- Assign qualified staff to use the City's hydraulic computer model to simulate identified field deficiencies and run scenarios to identify the most efficient repair, isolation, or reconstruction

recommendations.

- Prioritize distribution system repairs to best meet critical needs, including water for firefighting and health and safety needs; identify a portion of available potable supply to be reserved for drinking water purposes in the event of prolonged interruption.
- Develop materials list for treatment plant and distribution system repairs, and contact California Water/Wastewater Agency Response Network for mutual aid support.
- Allocate available portable generators and pumps according to highest need for groundwater wells, sanitation, firefighting, or powering emergency facilities.
- Develop a clear message for information dissemination to the public that includes:
    - Nature of the catastrophic event
    - Status of distribution system
    - Water use prohibitions
    - Allowable water uses
    - Potential need to boil drinking water before consumption
    - Location and availability of emergency drinking water, in the event of distribution system failure

For more information on actions during an emergency, refer to the 2020 City of Santa Barbara Water System Risk and Resilience Assessment Report (5) and the City of Santa Barbara Emergency Response Plan (6), currently under development.

1.4.5 Seismic Risk Assessment and Mitigation Plan

Refer to the 2017 Santa Barbara County Multi-Jurisdictional Hazard Mitigation Plan with City of Santa Barbara Local Hazard Mitigation Plan Annex (Attachment 3) for general seismic risk assessment and the 2020 City of Santa Barbara Water System Risk and Resilience Assessment Report (5) for seismic risk assessment specifically related to the City's water system. An updated City of Santa Barbara Emergency Response Plan (3) is currently under development but will detail processes for mitigation. Refer to the previous Section 1.4.5 for an overview of the City's post-catastrophic-event mitigation process.

1.4.6 Shortage Response Action Effectiveness

Measuring reductions in water use is part of regular procedures, whether during normal or water shortage conditions. Water is produced and introduced into the distribution system in response to customer demand and is tracked monthly as an indicator of overall demand. For demand analysis by customer class, geographic area, and usage level, the City's billing system provides standardized reports on monthly metered sales by bill code, as well as customized reports for specific areas of analysis.

During water shortage conditions, savings are measured in comparison to what is considered to be a normal-year demand (i.e., current customer base with approximately average rainfall) or in reference to a specific base year as may be dictated by statewide requirements.

1.5 Communication Protocols

This WSCP includes a staged plan to communicate the declaration of a shortage stage and provide updates during a water shortage emergency. A summary of actions the City could potentially take during a specific shortage stage is outlined in Table 8. As water supply conditions worsen, but before a water shortage is declared, the City increases public outreach on the current water supply conditions, the plans for water shortage response, and the importance of water efficiency to stretch current supplies.

Table 8. Communication Protocol During Water Shortage Conditions

Shortage Level	City Action
1	Information posted on the City's website and regional water efficiency website, WaterWiseSB.org
1	Press releases to local media (online and print newspapers, TV, radio, etc.)
1	Increased messaging with the utility bill (message printed on front and back of bill, flyer insert with bill, message printed on front and back of envelope)
1	Articles in the weekly City e-newsletter
1	Articles in the quarterly water e-newsletter
1	Social media posts (Facebook, Twitter, and Nextdoor)
2-3	"Weekly Water Conservation Message" emailed weekly to partner organizations to share in their own messaging/newsletters, posted on City social media, sent in City weekly e-newsletter
2-3	Increased paid advertising — print, online, radio, TV, streaming, social media, movie theaters, buses, etc.
2-3	Signage in all City public facilities to reduce water usage, such as kitchens and bathrooms
2-3	Signage on City fountains that are turned off, City turfgrass that is deficit watered or stressed, and sites that use recycled water for irrigation or fountains
2-3	Letters, postcards, and flyers mailed to residents and businesses impacted by water use regulations
2-3	Outreach materials and drought notices mailed to the hospitality industry, including restaurants and lodging
2-3	Flyers posted in public places such as libraries and neighborhood centers or distributed to targeted areas
2-3	Targeted outreach and technical assistance to highest water users in each classification
2-3	Coordination with school district to send messaging to parents/guardians
2-3	Assembly and promotion of the speaker's bureau for water shortage presentations for neighborhood associations, gardening clubs, HOAs, churches, senior centers, business associations, community groups, property management companies, etc.
2-3	Creation and promotion of videos through City TV and rotation scrolls to display on City TV between programs
4	Signage posted at nurseries and irrigation supply stores, possibly to include receipt attachments
4	Increased outreach to the certified Green Gardeners email and mailing list
4	Increased coordination with the local landscaping industry, including water shortage information in their newsletters, publications, and facilities: California Landscape Contractors Association Channel Islands Chapter, Santa Barbara Botanic Garden, UCCE Master Gardeners, the Permaculture Guild, local wholesale and retail nurseries, and irrigation supply stores

Note: If a water shortage progresses through multiple stages, all measures in the previous stage(s) are implemented in addition to current stage actions.

1.6 Compliance and Enforcement

With the exception of irrigation system standards for new homes and buildings, which are administered and enforced through the Building Permit process, all of the prohibitions in Table 4 are subject to the "Penalties and Charges" provisions of SBMC Section 14.20. 226–227, as summarized below:

Violations of SBMC Chapter 14.20:

1. First violation within the past year: Written "Notice of Violation" sent to the accountholder and serves as a warning
2. Second violation within the past year: Penalty of up to $250 applied to the accountholder's bill
3. Third violation within the past year: Penalty of up to $250, plus possible installation of a flow restrictor
4. Fourth and subsequent violations within the past year: Penalty of up to $250, plus possible installation of a flow restrictor or possible service shutoff

Accountholders are provided an opportunity for a hearing before the Public Works Director. See Attachment 1 for the complete text of SBMC Chapter 14.20.

1.7 Legal Authorities

SBMC Section 14.20 (Attachment 1) establishes authority for the City Council to adopt resolutions declaring water shortage conditions and adopt appropriate restrictions and prohibitions on water use. Although the SBMC does not apply to water service areas outside City limits, the County of Santa Barbara will adopt the water shortage resolution when necessary, allowing the City to enforce the regulations in those parts of the County located within the City's water service area. Such resolutions can be adopted at any weekly meeting of the City Council. Attachment 1 contains the full text of SBMC Section 14.20. Attachment 2 contains an example water shortage resolution from the most recent drought.

1.8 Financial Consequences of WSCP

As the City activates different stages of response to water supply conditions, the financial position of the water utility is impacted both in revenues and expenses. The operating cost structure of the utility is largely fixed and independent of the level of customer demands. However, the City's water rates are structured such that approximately 30% of rate revenues are collected from fixed monthly service charges and 70% are collected from consumption-related charges. This type of rate structure, combined with tiered pricing, promotes conservation and the efficient use of water and allows customers to considerably change their monthly water bill by using more or less water. As a result of this rate structure, however, when the utility experiences decreasing demand, as is expected when the City activates shortage response actions, there is an immediate impact on revenues, as the majority of revenue comes from volumetric charges. In contrast, the City's operating costs are only slightly reduced because many of the operating costs are fixed.

Although there are some reductions in operating costs related to treatment and delivery of drinking water, the total revenue requirement of the utility generally increases during water shortages. Primarily, this increase is related to the procurement or development of additional water supplies, which can be expensive and have long-term financial impacts on the water enterprise. The Charles E. Meyer Desalination Plant, for example, was originally constructed during a drought in the early 1990s and was financed through debt obligations that were paid over many years. Similarly, the desalination plant was reactivated during the most recent drought of record, and again the City took on debt to finance design and construction of the reactivation. These debt payments will be paid by customers in their water bills over the next 20 years. To a lesser extent, there is an increased need in staff resources to implement and manage a water shortage condition. In the past, the City has increased staffing to provide additional public outreach and support professional staff as their workloads become focused on managing water supplies and communicating with decision makers.

The City has used tiered rates to encourage water conservation since 1989. Fiscal Year 2021 rates and allotments are shown in Attachment 4 . The tiered system provides standardized allotments for residential customers based on the type of building (single family vs. multifamily) and number of dwelling units. Commercial and industrial allotments are based on historical off-peak usage because appropriate usage rates vary widely for customers in these classes. Irrigation billing provides a first-tier allotment that is a weather-based water budget sufficient for landscapes that are compliant with the City's landscape design standards (4). Usage in excess of the budget is billed at a higher rate.

The tiered rate system worked well during the 1987–1992 drought when tier allotments and prices were modified as necessary to ensure adequate revenue. The system proved to be workable even for the 50% shortages experienced. The City's experience has been that tiered prices and allotments are best determined based on actual circumstances rather than trying to determine appropriate values in advance of the drought based on hypothetical situations. During drought, the City moves to an annual rate setting cycle to allow rates to be more responsive to current demands and the financial environment. The City has a comprehensive water rate model used to balance water system revenues and costs under normal and water shortage conditions. A tiered rate system presents challenges with revenue stability under normal conditions and even more so during water shortages. The rate model enables the City to identify costs of service for the various water supply sources and system components and apply them in accordance with Proposition 218 to identify suitable water rates to meet revenue requirements.

As described above, the City's water utility typically experiences increasing costs and decreasing revenues during water shortage events. All things being equal, this type of situation will lead to significant increases in customer rates without mitigating measures. The water utility may choose to use reserves to cover any gaps between operating revenues and expenditures and buffer potential rate increases for customers.

For the City Water Fund, the policies include the following targets for reserve balances:

- Disaster Reserve: 15% of operating budget
- Contingency Reserve: 10% of operating budget
- Capital Reserve: 5% of Water Fund asset value, or the lesser of the three-year and five-year average annual capital program budget

In addition, it may be necessary to defer certain noncritical capital expenditures to further alleviate rate pressure. However, the long-term deferral of water system infrastructure maintenance leads to increased maintenance costs in the future.

1.9 Monitoring and Reporting

As described in Section 1.2, the City intends to track its supplies and project demands on an annual basis, and if supply conditions described in Table 3 are projected, the City will enact its WSCP. Monitoring demands is essential to ensure the WSCP response actions are adequately meeting reductions and decreasing the supply and demand gap. This will help analyze the effectiveness of the WSCP or identify the need to activate additional response actions.

In 2019, the City deployed a pilot project for advanced metering infrastructure (AMI) technology to improve customer service with granular water usage data and customer leak notifications. The City is currently in the vendor selection process to implement AMI systemwide to monitor usage patterns, detect leaks, and manage water use.

Once AMI is online, the City can also use the detailed water usage data to monitor customers' response and demand reduction due to restrictions for each stage in the WSCP. The many restrictions and prohibitions assigned to each stage in Table 4 are inherently flexible so the City can implement certain restrictions, monitor customer usage, and implement additional restrictions if the demand reductions are not sufficient to close the supply and demand gap. The City also intends to provide reporting to the State based on forthcoming regulations for monthly reporting of water production and other water uses, along with associated enforcement metrics.

1.10 WSCP Refinement Procedures

The City intends to use this WSCP as an adaptive management plan to respond to foreseeable and unforeseeable water shortages. The WSCP is used to provide guidance to City Council, staff, and the public by identifying response actions to allow for efficient management of any water shortage with predictability and accountability. The WSCP will be revised during the UWMP update cycle to incorporate updated and new information. For example, new supply augmentation actions will be added, and actions that are no longer applicable for reasons such as program expiration will be removed. However, if revisions to the WSCP are warranted before the UWMP is updated, the WSCP will be updated outside of the UWMP update cycle.

1.11 Special Water Feature Distinction

As listed in Table 4, there are separate demand reduction actions for decorative water features, including decorative fountains, lakes, or ponds, and for pools and spas. The City has separate response actions, enforcement actions, and monitoring programs for both decorative water features and pools and spas. According to SBMC Section 22.82.020, a swimming pool is defined as any structure intended to contain water over 18 inches deep, and a water feature is any structure intended to contain water over 18 inches deep, including ponds and fountains. Fountains are further defined and regulated in SBMC Sections 22.04.060 and 22.04.030 as residential or nonresidential decorative bodies of water of any depth with a requirement of a recirculating system designed to operate without a continuous supply of water. Non-pool or non-spa water features may use or be able to use recycled water, whereas pools and spas must use potable water for health and safety considerations. Limitations to pools and spas may require different considerations compared to non-pool or non-spa water features.

1.12 Plan Adoption, Submittal, and Availability

Per Water Code Section 10632 (a)(c), the City provided notice of the availability of the Draft 2021 WSCP and notice of the public hearing to consider adoption of the 2021 WSCP. The public review drafts of the 2021 WSCP were posted prominently on the City's website, www.SantaBarbaraCA.gov/WaterVision, on May 3, 2021, more than 14 days in advance of the public hearing. Public hearing notifications were also published in local newspapers. Copies of the hearing notifications are included in Attachment 5.

The Draft 2021 WSCP was discussed with the Board of Water Commissioners on May 20, 2021. The Commission supported the Plan content and recommendations. A public hearing, with public notice, was held before the City Council and reviewed on May 25, 2021. The Council approved and adopted the 2021

WSCP at its June 29, 2021, meeting after the public hearing. See Attachment 6 for the resolution approving the WSCP.

By July 1, 2021, the adopted 2021 WSCP was sent to the office of the Clerk of the Board, County of Santa Barbara, and the California State Library and DWR. There are no other cities in which the City of Santa Barbara provides water. Once the plan has been adopted, a hard copy will be made available for public review during normal business hours at the City Water Resources Division offices (located at 630 Garden Street). Additionally, an electronic copy will be uploaded to the City's website within 30 days of the filing date and will be available for public reference.

Based on DWR's review of the WSCP, the City will make any amendments in its adopted WSCP, as required and directed by DWR. If the City revises its WSCP after the UWMP is approved by DWR, then an electronic copy of the revised WSCP will be submitted to DWR within 30 days of its adoption.

2 References

1. **WSC.** *City of Santa Barbara Long-Term Supply Plan.* 2021.

2. **A. Park Williams, et al.** *Large Contribution from Anthropogenic Warming to an Emerging North American Megadrought.* s.l. : Science, Apr 17 2020. pp. 314-318.

3. **City of Santa Barbara Parks and Recreation Department.** *2014 Strategic Drought Response Plan.* 2014.

4. **Brown and Caldwell.** *City of Santa Barbara Risk and Resilience Assessment .* 2020.

5. **City of Santa Barbara Office of Emergency Services.** *Emergency Response Plan.* In progress.

6. **City of Santa Barbara.** *Landscape Design Standards for Water Conservation.* 2008. Ordinance.

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Attachment 1: Santa Barbara Municipal Code Chapter 14.20

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Chapter 14.20 WATER REGULATIONS

14.20.005 Use of Water.

The use of all water obtained by or through the distribution facilities of the City shall be governed and controlled by the provisions of this chapter. (Ord. 4558, 1989)

14.20.007 Prohibition Against Waste of Water.

It shall be a violation of this chapter for any consumer or account holder to waste any water obtained from or through the distribution facilities of the City. (Ord. 4558, 1989)

14.20.010 Wasting Water - Repairs - Temporary Shut-Off.

Property owners are required to repair water pipes, faucets, valves, plumbing fixtures, irrigation systems, or any other devices, to eliminate leaks and prevent waste of water. Upon reasonable notice or attempted notice to the occupant, the City may, but has no duty to, temporarily shut off service to any lot where the City reasonably believes there is a leak or other plumbing failure that is resulting in waste of water as demonstrated by water flowing off the property, excessive flow through the meter, or other facts indicating a leak or other plumbing failure. The City shall post a notice on the property stating that the service has been temporarily shut off to prevent further waste of water and advising the customer how to contact the City for restoration of service. Service will be restored upon determination by the Director that the condition that resulted in the disconnection has been corrected. The City will not charge a service fee for temporary shut off or restoration of service. (Ord. 5847, 2018;

Ord. 2931 §2, 1963; prior code §44.30)

14.20.040 City’s Relation to Seepage, Etc. - Damage on Private Property.

The City is not responsible for damage to property or injury to persons arising from the installation, maintenance, condition, or use of pipes, plumbing systems, fixtures and other devices located on private property. (Ord. 5847, 2018; Ord. 2931 §2, 1963; prior code §44.33)

14.20.050 Protection of City Water System - Prohibited Activity.

No person shall operate, tamper with, connect to, damage, or modify in any manner any meter, valve, pipe, pump, or other component of the City water system unless the person has obtained a written permit from the Director issued in accordance with this title. This section does not apply to work by City employees or contractors in the performance of their official duties. (Ord. 5847, 2018; Ord. 2931 §2, 1963; prior code §44.34)

14.20.060 Preventing Access to Water System Facilities Prohibited.

No person shall place upon or about a fire hydrant, curbcock, meter, valve, pump, water gate, or other City water facility any vegetation, object, material, debris or structure of any kind that obstructs or prevents free access by City employees or contractors. The City may remove any vegetation, object, material, debris, or structure placed in violation of this section. (Ord. 5847, 2018; Ord. 2931 §2, 1963; prior code §44.42)

14.20.070 Consumer Precautions in Case of Fire.

In case of fire, consumers shall be required to shut off all irrigation or any steady flow of water being used when the fighting of any fire reasonably necessitates the same. (Ord. 2931 §2, 1963; prior code §44.43)

14.20.080 Right of Access to Water Meters.

Any duly authorized representative of the City shall at all times have the right of ingress to and egress from any water meter located upon a consumer’s premises by way of such easement, license or right-of-way, if any, as the City may own and for such purposes as are permitted by the easement, license or right-of-way. (Ord.4558, 1989; Ord. 4250, 1984; Ord. 2931 §2, 1963; prior code §44.44)

14.20.090 Access to Meters Inside Premises.

Where a water meter is placed inside the premises of a consumer, provision shall be made for convenient meter reading and repairing by representatives of the City, for shutting off or turning on water service, and for installation or removal of flow restricters. (Ord. 4558, 1989; Ord. 4250, 1984; Ord. 2931 §2, 1963; prior code §44.45)

14.20.100 Shutting Off Water for Repairs, Etc., and Notice.

The City reserves the right to shut off the water from any premises, or from any part of the distribution system, as long as necessary, without notice to the consumer, at any time when the exigencies of the occasion may require it; but in all cases of extension or connections the Department shall notify consumers of the necessity of shutting off water and the probable length of time the water shall be shut off before taking such action. (Ord. 2931 §2, 1963; prior code §44.46)

14.20.105 Shutting Off Irrigation Meters.

The City shall have the right to shut off water service to meters restricted to irrigation uses temporarily and as necessary to determine that the use of such meters is limited to irrigation. Any person applying for service through a meter restricted to irrigation uses shall be informed of such conditions of use at the time he or she applies for such a meter. (Ord. 4558, 1989)

14.20.108 Place of Use of Water.

Except as otherwise provided in this title or as specifically authorized by the Director, water received from or through a meter may be used only on and for the property served by that meter. (Ord. 4558, 1989)

14.20.110 Tanks Required for Steam Boilers.

No stationary steam boiler shall be connected directly with the water distribution system of the City but in each and every case, a suitable tank of storage capacity, sufficient for 12 hours supply for such boiler, shall be provided and the service pipe supplying such tank shall discharge directly into the top of such tank. (Ord. 2931 §2, 1963; prior code §44.47)

14.20.130 Unlawful Use of Water and Meter Removal.

It is unlawful:

A. For a person or entity that is not an Account Holder to use water through a Meter, unless such person or entity is authorized by agreement with the Account Holder to use such water through such Meter;

B. For a person or entity to use water from a fire hydrant, except as authorized by a permit issued by the Public Works Director;

C. For a person or entity to use water from a dedicated fireline except in response to a fire or in the minimum amount needed to perform maintenance of such fireline, or as authorized by the Public Works Director;

D. For a person or entity to use water from a Connection that does not have a Meter, except as expressly authorized by the Public Works Director;

E. For a person or entity to use water from a Meter for which there is no active Account Holder; and

F. For any person or entity to remove a Meter from a Water Service, except as authorized by the Public Works Director. (Ord. 5653, 2014)

14.20.140 Illegal Consumption Shown by Meter.

When a meter shows a consumption of water after service has been officially discontinued, the owner of the property served shall be held responsible for such consumption, in addition to which he or she shall pay to the City a service restoration fee and the water shall not again be turned on for either owner or tenant until such illegal consumption has been fully paid for. (Ord. 4250, 1984; Ord. 2931 §2, 1963; prior code §44.50)

14.20.150 Reconnection.

A. After water service has been discontinued to any premises, it shall not be restored except by the Department. Service may not be restored until a written application signed by the account holder, upon forms furnished by the Department, has been filed with the Department and approved by the Director.

B. The Director may approve a service restoration upon the Director's determination that the connection complies with the requirements of this chapter and the applicant has paid all required reconnection fees in an amount established by City Council resolution. (Ord. 5847, 2018; Ord. 4250, 1984; Ord. 2931 §2, 1963; prior code §44.51)

14.20.170 Notice Upon Vacating Premises - Required.

Prior to vacating any premises connected to the City water supply system, the consumer shall request that the City terminate service and prepare a final billing. (Ord. 4250, 1984; Ord. 2931 §2, 1963; prior code §44.53)

14.20.180 Department to Read Meter on Receipt and Stop Service.

Within two working days of receipt of the notice required by Section 14.20.170, the City shall read the water meter and shut off the water to the premises. (Ord. 4250, 1984; Ord. 2931 §2, 1963; prior code §44.54)

14.20.215 Water Use Regulations During Water Shortage Conditions.

A. WATER SHORTAGE CONDITIONS. A Stage One Water Shortage Condition, a Stage Two Water Shortage Condition and a Stage Three Water Shortage Condition are defined as short-term conditions declared by resolution of the City Council upon being advised by staff that projected water supply conditions warrant response measures consistent with those associated with corresponding stages in the City's adopted Water Shortage Contingency Plan. The Council resolution may identify and refer to such short-term conditions in terms or titles specific to the current water shortage.

B. REGULATIONS DURING WATER SHORTAGE CONDITIONS. Upon adoption by the City Council of a resolution declaring a Stage One Water Shortage Condition, a Stage Two Water Shortage Condition or a Stage Three Water Shortage Condition, or such other titles as may be selected by Council pursuant to subsection A, the City Council may adopt a resolution containing such rules and regulations as necessary to restrict and regulate use of water from the City's water supply system in order to protect the public health and safety. Failure of any person or entity to comply with such rules and regulations as adopted by resolution of the City Council is a violation of this code subject to the remedies and penalties provided herein and as provided by Chapter 1.28 and as otherwise provided by law.

C. EXEMPTIONS. Exemptions to the water use regulations set forth by City Council resolution during a declared Stage One, Stage Two or Stage Three Water Shortage Condition may be granted by the Public Works Director for specific uses of water on the basis of factually demonstrated need or undue hardship and in accordance with guidelines for exemptions as may be determined by the Public Works Director. If the Public Works Director denies a request for an exemption for a specific water use, a written request for reconsideration may be made to the Board of Water Commissioners. The decision of the Water Commission shall be final.

D. Upon the declaration of and during a Water Shortage Condition, the failure of a mobilehome park owner to introduce water into a swimming pool or spa located in a mobilehome park, in accordance with the City Council resolution, shall not be considered an increase in "rent" for purposes of Municipal Code Section 26.08.030.N. (Ord. 5653, 2014; Ord. 4558, 1989)

14.20.225 Violations.

A. Any failure to comply with a provision of this chapter shall constitute a violation of this code, regardless of whether the failure to comply is caused by an Account Holder, a Consumer or any other person or entity.

B. Where the failure to comply with this chapter is continuing and reasonably preventable by the person or entity failing to comply, each successive hour of such failure to comply shall be a separate and distinct violation. (Ord. 5653, 2014; Ord. 4558, 1989)

14.20.226 Penalties and Charges.

A. In addition to the penalties and other methods of enforcement provided in Chapter 1.28, the following penalties may also be applied to any violation of any provision of this chapter:

1. For the first violation within the preceding 12 calendar months, the Director shall issue a written notice of the fact of such violation.
2. For a second violation within the preceding 12 calendar months, the Director shall impose a penalty on the bill of the Account Holder for the property where the violation occurred or is occurring, in an amount not to exceed $250.00.
3. For a third violation within the preceding 12 calendar months, the Director:
    a. Shall impose a penalty on the bill of the Account Holder for the property where the violation occurred or is occurring, in an amount not to exceed $250.00; and
    b. May install a flow restricter on the service where the violation occurred or is occurring, for a period to be determined by the Director.
4. For a fourth and any subsequent violation within the preceding 12 calendar months, the Director:
    a. Shall impose a penalty on the bill of the Account Holder for the property where the violation occurred or is occurring, in an amount not to exceed $250.00; and
    b. May install a flow restricter on or shut off water service to the property where the violation occurred or is occurring, for a period to be determined by the Director.

B. If a flow restricter is installed or water service shut off pursuant to subsection A of this section, prior to restoration of normal water service the Account Holder whose service is affected shall be required to reimburse the City for all costs it has incurred and will incur in installing and removing a flow restricter and in shutting off and turning on water service.

C. Any penalty imposed pursuant to this section shall be added to the account of the Account Holder for the property where the violation occurred or is occurring and shall be due and payable on the same terms and subject to the same conditions as any other charge for regular water service. (Ord. 5653, 2014; Ord. 4558, 1989)

14.20.227 Notice of Violation - Hearing.

A. For each violation of this chapter, the Director shall give notice as follows:

1. By sending written notice through the U.S. mail to the Account Holder for the property where the violation occurred or is occurring, at the current billing address shown in the City's water billing records; and

2. By personally giving written notice thereof to the person who committed the violation or by leaving written notice with some person of suitable age and discretion at the property where the violation occurred or is occurring; or

3. If neither the person who committed the violation nor a person of suitable age and discretion can be found, then by affixing written notice in a conspicuous place on the property where the violation occurred or is occurring.

B. Any written notice given under this section shall contain a statement of:

1. The time, place and nature of the violation;

2. The person(s) committing the violation, if known;

3. The provision(s) of this chapter violated;

4. The possible penalties for each violation;

5. The Account Holder's right to request a hearing on the violation and the time within which such a request must be made; and

6. The Account Holder's loss of the right to a hearing in the event the Account Holder fails to request a hearing within the time required.

C. Any Account Holder provided a notice of violation in accordance with the provisions of this chapter shall have the right to request a hearing. The request must be made in writing and must be received by the Director within 10 calendar days of the date of the notice of violation. The Director shall conduct the hearing, at which both written and oral evidence may be presented, and shall decide whether a violation occurred and the appropriate penalty. In determining the appropriate penalty, the Director shall consider whether the Account Holder knew of the violation at the time it occurred and whether he or she took reasonable action to correct the violation upon notification of it. In addition, the Director shall exercise his or her discretion in accordance with such guidelines as the City Council may adopt by resolution.

1. For a first, second or third violation within a 12 month period, the decision of the Director shall be final.

2. For a fourth or subsequent violation within a 12 month period, the Account Holder shall have the right to appeal the decision of the Director by requesting a hearing before the Board of Water Commissioners ("Board"). The request for hearing before the Board shall be in writing and shall be delivered to the Director not later than seven calendar days after the date of the decision of the Director. At the hearing, the Board may receive and hear both written and oral evidence and shall have the authority to affirm, reverse, or modify the decision of the Director. The decision of the Board shall be final.

D. If an Account Holder fails to request a hearing before the Director or the Board within the period(s) provided in this section, the action of the Director shall be deemed final.

E. Water service shall not be shut off until a notice of violation has become final or there is a final decision of the Director or the Board ordering the shut-off of water service. (Ord. 5653, 2014; Ord. 4558, 1989)

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Attachment 2: Water Shortage Resolution

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RESOLUTION NO. 17-017

A RESOLUTION OF THE COUNCIL OF THE CITY OF SANTA BARBARA ESTABLISHING A REVISED WATER CONSERVATION TARGET AND UPDATED WATER USE REGULATIONS EFFECTIVE DURING A STAGE THREE DROUGHT EMERGENCY, AND REPEALING RESOLUTION NO. 16-173

WHEREAS, the City of Santa Barbara, along with the rest of the State of California, has experienced the driest five-year period on record and such conditions have resulted in the depletion of surface water resources that are the City's primary water supply;

WHEREAS, the City's 2010 Urban Water Management Plan, which was updated in 2015, sets forth the City's Water Shortage Contingency Plan;

WHEREAS, pursuant to the Water Shortage Contingency Plan, on February 11, 2014, the City Council adopted resolution No. 14-009 declaring a Stage One Drought Condition and on May 20, 2014, the City Council adopted Resolution No. 14-027 declaring a Stage Two Drought Condition and imposing water use regulations;

WHEREAS, due to the continued lack of sufficient rainfall, on May 12, 2015, the City Council adopted Resolution No. 15-036 declaring a Stage Three Drought Condition, updating and augmenting water use regulations, and requiring a twenty-five percent (25%) reduction from calendar year 2013 normal citywide water use;

WHEREAS, on April 26, 2016, the City Council adopted Resolution No. 16-023 to increase the required citywide reduction from normal citywide water use to thirty-five percent (35%);

WHEREAS, on December 6, 2016, the City Council adopted Resolution No. 16-173 to increase the required citywide reduction from normal citywide calendar year 2013 water use to forty percent (40%) and to establish a lawn watering moratorium in response to continuing dry weather;

WHEREAS, while recent rainfall has been sufficient to make a modest improvement to the City's water supply and allow minor adjustments to current water use regulations, the drought remains severe and concern remains regarding entitlement limits from Lake Cachuma, depleted groundwater resources, and the potential return of dry weather during the current and subsequent years, thereby making it necessary to continue to conserve existing water supplies to protect the public health, safety and welfare if the current drought continues

WHEREAS, the Water Shortage Contingency Plan provides that, when the City determines that the water supply for the current or impending water year is projected to be more than 10 percent below projected normal demand, a Stage Three Water Shortage

Emergency shall be declared, and such conditions continue to exist;

WHEREAS, Santa Barbara Municipal Code Section 14.20.215 provides for the establishment, by resolution of the City Council, of water use rules and regulations necessary to restrict and regulate the use of water provided by the City's water distribution system during drought, and provides for exemptions to such regulations;

WHEREAS, it is the intent of the City Council to minimize inequities resulting from the implementation of water use regulations;

WHEREAS, on May 9, 2016, the Governor issued Executive Order B-37-16, Making Water Conservation a California Way of Life in California permanently prohibiting practices that waste potable water and extending emergency water conservation regulations through the end of January 2017;

WHEREAS, on February 8, 2017, the State Water Board adopted an emergency water conservation regulation to amend and extend the May 18, 2016 regulation that implemented Executive Order B-37-16;

WHEREAS, the City Council desires to preserve the substantial long-term investment in the community's trees and shrubs and to reserve the remaining amount of available irrigation water for use on trees and shrubs; and

WHEREAS, despite the elimination of the City's regulation prohibiting irrigation of lawns resulting from the adoption of this Resolution, customers of the City water system are urged to voluntarily forego lawn irrigation to the maximum extent feasible throughout the remainder of the drought.

NOW, THEREFORE, BE IT RESOLVED BY THE COUNCIL OF THE CITY OF SANTA BARBARA AS FOLLOWS:

SECTION 1. Since February 11, 2014, there has existed within the City of Santa Barbara a continually worsening Drought Condition, improving slightly with recent rainfall, such that a thirty percent (30%) water use reduction from normal citywide calendar year 2013 water use is now required, based on the City's projected water supply.

SECTION 2. For the protection of public health and safety, the following drought water use regulations regarding use of potable water from the City's water system are hereby established and shall remain in effect for the duration of the Stage Three Drought Emergency, unless repealed or modified by resolution of the City Council:

a. Except as otherwise prohibited by these regulations, any outdoor use of potable water through a hose, pipe, or faucet is permitted only if the water is delivered by use of a self-closing valve that requires operator pressure to activate the flow of water.

b. The outdoor use of potable water from a hose, pipe, or faucet (even if delivered by use of a self-closing valve as provided in Section 2 a) for the purpose of cleaning buildings, pavement, driveways, sidewalks, tile, wood, plastic, or other hard surfaces is prohibited.

Exceptions:

i. When such use is the only feasible means of correcting an immediate threat to health and safety.
ii. In preparation for painting or sealing, provided that such washing occurs immediately prior to such painting or sealing.

Water used pursuant to the above exceptions shall be applied only by use of a pressure washer, mop, bucket, brush, and/or other tools to limit the use of running water to the minimum necessary. A pressure washer is defined herein to be equipment that boosts incoming water pressure for the purpose of enhancing cleaning capability and minimizing the amount of water used;

c. Outdoor irrigation of vegetation is prohibited, except between the hours of 6:00 p.m. and 8:00 a.m. of the following day if automatically controlled and between the hours of 4:00 p.m. and 10:30 a.m. of the following day if manually controlled. Irrigation by hand-held hose is subject to the self-closing valve provision of Section 2.a.

Exceptions:

i. Irrigation accomplished by use of a water truck that delivers water by injection probe below mulch or below the soil surface;
ii. Irrigation devices such as tree watering bags and other similar devices that release water at a slow rate for the purpose of watering trees.

d. Irrigation with potable water that causes runoff onto adjacent property, non-irrigated areas, private and public walkways, roadways, parking lots, or parking structures is prohibited.

e. Irrigation with potable water during and within 48 hours after measurable rainfall is prohibited. Measurable rainfall is defined as a ¼ of an inch or more of precipitation in a 24-hour period.

f. Irrigation of turf on public street medians with potable water is prohibited.

g. The issuance of permits for use of potable water from fire hydrants is suspended. Applicants shall be directed to apply for a permit to use recycled water.

h. Washing of vehicles and boats is prohibited except at commercial car washing facilities equipped with water recycling equipment, or by use of a hose, subject to the self-closing valve provision of Section 2.a. Operators of commercial car washing facilities shall post a notice in a conspicuous place advising the public as to whether their operations conform to water recycling requirements.

i. Use of water in any fountain or other decorative water feature is prohibited.

Exceptions: Fountains or other decorative water features that are equipped with a recirculation system are permitted under any of the following circumstances:

- i. At indoor locations;
- ii. On residential properties;
- iii. When total water surface area is less than or equal to twenty five (25) square feet;
- iv. Where, since the May 20, 2014 adoption of Stage Two regulations, aquatic life has existed in the fountain or decorative water feature.

j. Swimming pools and spas must have a cover that conforms to the size and shape of the pool or spa and acts as an effective barrier to evaporation. The cover shall be in place during periods when use of the pool is not reasonably expected to occur.

k. Draining and refilling a pool in excess of one third of the volume per year is prohibited, except as authorized by the Public Works Director based on evidence from qualified maintenance personnel that such further draining is required to make needed repairs, or to prevent equipment damage or voiding of warranties.

l. All restaurants and other eating and drinking establishments shall post, in a conspicuous place, a Notice of Drought Condition as approved by the Public Works Director and shall not serve water except upon specific request by a customer.

m. Operators of hotels, motels and other commercial establishments offering lodging shall post in each room a Notice of Drought Condition as approved by the Public Works Director. Operators of hotels and motels shall provide guests with the option of choosing not to have towels and linens laundered daily. The hotel or motel shall prominently display notice of this option in each guestroom using clear and easily understood language.

n. Operators of pools, exercise facilities, and other similar commercial establishments providing showering facilities shall promote limitation of showering time and post a Notice of Drought Condition as approved by the Public Works Director in a conspicuous place.

SECTION 3. Violation of any regulation in Section 2 of this Resolution is subject to the penalties and charges set forth in Santa Barbara Municipal Code Section 14.20.226.

SECTION 4. Resolution Number 16-173 is hereby repealed in its entirety and of no further force and effect.

RESOLUTION NO. 17-017

STATE OF CALIFORNIA)
)
COUNTY OF SANTA BARBARA) ss.
)
CITY OF SANTA BARBARA)

I HEREBY CERTIFY that the foregoing resolution was adopted by the Council of the City of Santa Barbara at a meeting held on March 21, 2017, by the following roll call vote:

AYES: Councilmembers Gregg Hart, Frank Hotchkiss, Randy Rowse, Bendy White; Mayor Helene Schneider

NOES: Councilmembers Jason Dominguez and Cathy Murillo

ABSENT: None

ABSTENTIONS: None

IN WITNESS WHEREOF, I have hereto set my hand and affixed the official seal of the City of Santa Barbara on March 22, 2017.

Sarah P

Sarah P. Gorman, CMC
City Clerk Services Manager

I HEREBY APPROVE the foregoing resolution on March 22, 2017.

Helene Schneider
Mayor

Attachment 3: City of Santa Barbara Local Hazard Mitigation Plan Annex

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City of Santa Barbara

Local Hazard Mitigation Plan Annex to Santa Barbara County Multi-Jurisdictional Hazard Mitigation Plan – July 2017

City of Santa Barbara
Annex to Santa Barbara County
2017 Multi-Hazard Mitigation Plan

Contents

SECTION 1 INTRODUCTION

The plan was prepared in 2015-2016 as part of an update to the Santa Barbara City 2011 Hazard Mitigation Plan. The City of Santa Barbara participated in the County wide Mitigation Advisory Committee (MAC), reviewed all portions of the previous hazard mitigation plan pertaining to the City, and incorporated relevant components into this plan. This plan serves as a complete hazard mitigation planning tool for the City of Santa Barbara. It contains updated capability assessment information, a new vulnerability assessment, and an updated/revised mitigation strategy. The methodology and process for developing this annex is explained throughout the following sections.

Across the United States, natural and manmade disasters have led to increasing levels of death, injury, property damage, and interruption of business and government services. The impact on families and individuals can be immense and damages to businesses can result in regional economic consequences. The time, money and effort to respond to and recover from these disasters divert public resources and attention from other important programs and problems. Santa Barbara City, California recognizes the consequences of disasters and the need to reduce the impacts of natural hazards. The elected and appointed officials of the City also know that with careful selection, mitigation actions in the form of projects and programs can become a long-term, cost effective means for reducing the impact of natural hazards.

The Santa Barbara City Hazard Mitigation Plan (the Plan), was prepared and formulated with input and coordination from the Mitigation Advisory Committee (MAC), with support from Santa Barbara County, City Office of Emergency Services and City Departments. The process to develop the Plan included nearly a year of coordination with representatives from each City department. The Plan guides the City of Santa Barbara toward greater disaster preparedness and resistance in harmony with the character and needs of its community.

The City of Santa Barbara is located on the south coast of Santa Barbara County. Due to the Santa Ynez mountain range that blocks colder air from the north, Santa Barbara enjoys mild and pleasant weather. It sits at an elevation of roughly 50 feet above sea level and has a land area of 19 square miles. The city received its name when the California Mission Santa Barbara was founded there in 1786. The mission was known as the Queen of the Missions due to its beauty and the beauty of its surroundings. Attractions in Santa Barbara include the Waterfront, Downtown retail, entertainment and cultural districts, Santa Barbara Museums of Art and Natural History, the Santa Barbara Zoo, and special events such Old Spanish Days – Fiesta Santa Barbara. Santa Barbara is retail, tourism, government, education, and medical center of the County. It is home to the Santa Barbara Regional Airport, which provides commercial services for Ventura, Santa Barbara and San Luis Obispo Counties.

Mitigation is commonly defined as actions taken to reduce or eliminate risks to people and property from hazards and their effects. ***Hazard mitigation*** focuses attention and resources on actions that will reduce or eliminate long term risks to persons or property from natural hazards.
The impact of expected yet often unpredictable natural and human-caused events can be reduced through planning. History has demonstrated that it is less expensive to mitigate against disaster damage than to repeatedly repair damage in the aftermath. A mitigation plan states the aspirations and specific courses of action jurisdictions intend to follow to reduce vulnerability and exposure to future hazard events.

It is the City's hope the Plan continues to be used as a tool for all stakeholders to increase public awareness of local hazards and risks, while at the same time providing information about options and resources available to reduce those risks. Informing and instructing the public about potential hazards will help the City protect themselves against the effects of the hazards, and will enable informed decision making on where to live, play and locate homes and businesses.

The emphasis of the Plan is on the assessment and avoidance of identified risks, implementing loss reduction measures for existing exposures and ensuring critical services and facilities survive a disaster. Hazard mitigation strategies and measures avoid losses by limiting new exposures in identified hazard areas, alter the hazard by eliminating or reducing the frequency of occurrence, divert the hazard by redirecting the impact by means of a structure or adapt to the hazard by modifying structures or standards.

Federal legislation has historically provided funding for disaster preparedness, relief, recovery, and mitigation. The Disaster Mitigation Act of 2000 (DMA 2000) is the latest legislation to improve the delivery of mitigation programs through sound and viable planning (Public Law 106-390). The new legislation reinforces the importance of mitigation planning and emphasizes planning for disasters before they occur. As such, DMA 2000 establishes a pre-disaster hazard mitigation program, as well as, outlines requirements for the national post-disaster Hazard Mitigation Grant Program (HMGP).

Section 322 of DMA 2000 specifically addresses mitigation planning at the state and local levels. It identifies new requirements that allow HMGP funds to be used for planning activities, and increases the amount of HMGP funds available to states that have developed a comprehensive, enhanced mitigation plan prior to a disaster. State, County, and local jurisdictions must have an approved mitigation plan in place prior to receiving post-disaster HMGP funds. These mitigation plans must demonstrate that their proposed projects are based on a sound planning process that accounts for the risk to and the capabilities of the individual communities.

State governments have certain responsibilities for implementing Section 322, including:

- Preparing and submitting a local mitigation plan;
- Reviewing and updating the plan every five years; and
- Monitoring Projects.

DMA 2000 is intended to facilitate cooperation between state and local authorities, prompting them to work together. It encourages and rewards local and state pre-disaster planning and promotes sustainability as a strategy for disaster resistance. This enhanced planning network is intended to enable local and state governments to articulate accurate needs for mitigation, resulting in faster allocation of funding and more effective risk reduction projects.

The Plan has been prepared to meet FEMA and Cal OES requirements thus continuing the County's eligibility for funding and technical assistance from state and federal hazard mitigation programs, such as HMGP, Pre-Disaster Mitigation-Competitive, and Flood Mitigation Assistance programs.

SECTION 2 PLAN PURPOSE AND AUTHORITY

Authority to create this Plan is derived from the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Public Law 93-288), as amended by the Disaster Mitigation Act of 2000 (DMA

2000). The requirements and procedures for mitigation plans are found in the Code of Federal Regulations (CFR) at Title 44, Chapter 1, Part 201 and the associated Interim Final Rule changes of February 26, 2002; October 1, 2002; October 28, 2003; September 13, 2004; October 31, 2007; September 16, 2009; April 25, 2014; December 19, 2014; and October 2, 2015. This federal law and associated rule changes and regulations establishes planning and funding criteria for states and local communities.

- *Enhance Public Awareness and Understanding* – to help residents of the County better understand the natural hazards that threaten safety and welfare; economic vitality; and the operational capability of critical infrastructure;
- *Create a Decision Tool for Management* – to provide information that managers and leaders of local government, business and industry, community associations, and other key institutions and organizations need to take action to address vulnerabilities to future disasters;
- *Promote Compliance with State and Federal Program Requirements* – to ensure that Santa Barbara County and its incorporated cities can take full advantage of state and federal grant programs, policies, and regulations that encourage or mandate that local governments develop comprehensive hazard mitigation plans;
- *Enhance Local Policies for Hazard Mitigation Capability* – to provide the policy basis for mitigation actions that should be promulgated by participating jurisdictions to create a more disaster-resistant future; and
- Provide *Inter-Jurisdictional Coordination of Mitigation-Related Programming* – to ensure that proposals for mitigation initiatives are reviewed and coordinated among the participating jurisdictions within the County.
- Achieve *Regulatory Compliance* – To qualify for certain forms of federal aid for pre- and post-disaster funding, local jurisdictions must comply with the federal DMA 2000 and its implementing regulations (44 CFR Section 201.6). DMA 2000 intends for hazard mitigation plans to remain relevant and current. Therefore, Local plans (including Santa Barbara County's) are updated every five years. This means that the Hazard Mitigation Plan for Santa Barbara County uses a "five-year planning horizon". It is designed to carry the County through the next five years, after which its assumptions, goals, and objectives will be revisited and the Plan resubmitted for approval. Section 7 details specific goals and objectives with regard to implementing mitigation activities over the life of this Plan. In Section 8, Santa Barbara County has outlined a more aggressive approach to ensuring the Plan is implemented, evaluated, monitored and updated.

On the following pages are the resolutions that adopted the 2016 Plan.

RESOLUTION NO. 17-089

A RESOLUTION OF THE COUNCIL OF THE CITY OF SANTA BARBARA ADOPTING THE 2017 CITY OF SANTA BARBARA ANNEX OF THE SANTA BARBARA COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN

WHEREAS, The Federal Disaster Mitigation Act of 2000 (Act), as described in 44 CFR Section 201.6 mandates local governments to submit and maintain a Federal Emergency Management Agency (FEMA) approved local hazard mitigation plan;

WHEREAS, The City of Santa Barbara has participated in a county-wide multi-jurisdictional Hazard Mitigation plan with Santa Barbara County Office of Emergency Management as the Operational Area and lead agency;

WHEREAS, The Multi-Jurisdictional Hazard Mitigation Plan identifies each jurisdiction's risk assessment and mitigation strategies to reduce the impacts of natural, technological, or intentional disasters on the public and local government;

WHEREAS, Identification of hazards in the City assists with response planning, exercise development, public education, and awareness, and other emergency management functions;

WHEREAS, the City's Local Hazard Mitigation Plan will be an Annex to the City's Emergency Operations Plan and a resource for the Safety Element of the City's General Plan in accordance with California Government Code Sections 8685.9 and 65302.6;

WHEREAS, FEMA approved the Santa Barbara County Multi-Jurisdictional Hazard Mitigation Plan, of which the City's Local Hazard Mitigation Plan is incorporated; and

WHEREAS, The Federal Disaster Mitigation Act of 2000 requires the Plan to be formally adopted by the City Council or governing agency.

NOW, THEREFORE, BE IT RESOLVED by the Council of the City of Santa Barbara, California, as follows:

1. The City Council approves and adopts the 2017 Local Hazard Mitigation Plan five (5) year update in accordance with the Disaster Mitigation Act of 2000.
2. The City Council adopts the Santa Barbara County Multi-Jurisdictional Hazard Mitigation Plan.
3. This Resolution is effective upon its adoption.

PASSED AND ADOPTED at a regular meeting of the City Council of the City of August 15, 2017.

____
Mayor

ATTEST:

____
City Clerk

RESOLUTION NO. 17-089

STATE OF CALIFORNIA)
)
COUNTY OF SANTA BARBARA) ss.
)
CITY OF SANTA BARBARA)

I HEREBY CERTIFY that the foregoing resolution was adopted by the Council of the City of Santa Barbara at a meeting held on August 15, 2017, by the following roll call vote:

AYES: Councilmembers Jason Dominguez, Gregg Hart, Frank Hotchkiss, Cathy Murillo, Randy Rowse, Bendy White; Mayor Helene Schneider

NOES: None

ABSENT: None

ABSTENTIONS: None

IN WITNESS WHEREOF, I have hereto set my hand and affixed the official seal of the City of Santa Barbara on August 16, 2017.

Sarah P. Gorman, CMC
City Clerk Services Manager

I HEREBY APPROVE the foregoing resolution on August 16, 2017.

Helene Schneider
Mayor

SECTION 3 PLANNING PROCESS

Overview

The planning process implemented for updating the Santa Barbara County *Multi-Jurisdictional Hazard Mitigation Plan* (HMP) utilized two (2) different planning teams. The first team is the Mitigation Advisory Committee (MAC) and the second is the Local Planning team. All eight (8) incorporated cities (City of Buellton, City of Carpinteria, City of Goleta, City of Guadalupe, City of Lompoc, City of Santa Barbara, City of Santa Maria, and City of Solvang) joined the County of Santa Barbara in the preparation of this *Multi-Jurisdictional Hazard Mitigation Plan*. Each of the participating jurisdictions had representation on the MAC and was responsible for the administration of their Local Planning Team.

The planning process followed the concepts and principles outlined in the Comprehensive Preparedness Guide (CPG) 101. Both the MAC and the Local Planning teams focused on these underling philosophies:

- *Focus on the mitigation strategy*
  The mitigation strategy is the plan's primary purpose. All other sections contribute to and inform the mitigation strategy and specific hazard mitigation actions.
- *Process is as important as the plan itself*
  In mitigation planning, as with most other planning efforts, the plan is only as good as the process and people involved in its development. The plan should also serve as the written record, or documentation, of the planning process.
- *This is the community's plan*
  To have value; the plan must represent the current needs and values of the community and be useful for local officials and stakeholders. Develop the mitigation plan in a way that best serves your community's purpose and people.
- *Intent is as important as Compliance*
  Plan reviews will focus on whether the mitigation plan meets the intent of the law and regulation; and ultimately that the plan will make the community safer from hazards.

The planning process for the Santa Barbara County *Multi-jurisdictional Hazard Mitigation Plan (*HMP) incorporated the following steps:

- *Plan Preparation*
    - Form/Validate planning team members
    - Establishing common project goals
    - Setting expectations and timelines
- *Plan Development*
    - Validate and revise the existing conditions/situation within planning area; the *Capabilities Assessment and Hazard Assessment Sections* in the HMP
    - Develop and review the risk to hazards (exposure and vulnerability) within the planning area; the *Vulnerability Assessment Section* in the HMP
    - Review and identify mitigation actions and projects within the planning area; the Mitigation Strategy in the HMP
- *Finalize the Plan*
    - Review and revise the plan
    - Approve the plan

- Adopt and disseminate the plan

Throughout this process, and though other standard practices, opportunities for public involvement was offered and encouraged.

The MAC team was guided through the planning process; and as material was shared and decisions were made, it was the MAC team's responsibility to bring these findings back to their Local Planning Team. Below is a summary of the collaborative planning process of the MAC and Local Planning team.

Mitigation Advisory Committee (MAC)

MAC Members

The Mitigation Advisory Committee (MAC), formed in 2004, is a standing committee that works together throughout the year to discuss and provide input on a variety of activities. The MAC is led by Santa Barbara County Public Works Department and Santa Barbara County Fire, Office of Emergency Services and has representation from all of the local jurisdictions.

The MAC was utilized for the updating of the Santa Barbara County *Multi-Jurisdictional Hazard Mitigation Plan.* To assist with this effort Santa Barbara County Fire, Office of Emergency Services hired a consultant to support and assist each jurisdiction to update their Local Hazard Mitigation Plan; contained as an annex in the Santa Barbara County *Multi-Jurisdictional Hazard Mitigation Plan*. The table below (**Table 0.1**) lists the members of the MAC.

Table 0.1 Members of the Mitigation Advisory Committee 2016

Names	Organization	MAC Member Status
Michael Dyer	Santa Barbara County – Emergency Manager	New Member
Shannon McCrone	Santa Barbara County – Emergency Services Planner	New Member
Robert Troy	Santa Barbara County – Deputy Director Emergency Management	New Member
Tylor Headrick	Santa Barbara County- GIS/Emergency Services Planner	New Member
Steve Oaks	Santa Barbara County Fire – Battalion Chief	New Member
Rob Hazard	Santa Barbara County Fire – Captain	New Member
Rudy Martel	Santa Barbara County Agricultural Commissioner	New Member
Joyce Tromp	Santa Barbara County Flood Control	New Member
Jon Frye	Santa Barbara County Flood	New Member
Tom Fayram	Santa Barbara County Public Works Deputy Director	Returning Member
Matthew Schneider	Santa Barbara County Planning and Development Deputy Director-Long Range Planning	New Member
Marc Bierdzinski	City of Buellton – City Manager/Planning Director	Returning Member
Mimi Audelo	City of Carpinteria – Program Manager	New Member
Claudia Dato	City of Goleta – Senior Project Manager (Public Safety)	Returning Member
Gary Hoving	City of Guadalupe – Public Safety Director	New Member
Kurt Latipow	City of Lompoc – Fire Chief	New Member
Yolanda McGlinchey	City of Santa Barbara – Emergency Services Manager	Returning Member
Roy Dugger	City of Santa Maria – Emergency Preparedness Coordinator	Returning Member
Bridget Elliott	City of Solvang – Associate Engineer	New Member

Names	Organization	MAC Member Status
Jim Caesar	UCSB – Emergency Manager	Returning Member
Lindsey Stanley	Cal OES – Emergency Services Coordinator	New Member
Andrew Petrow	Consultant	New Member

Overview of MAC Meetings

The MAC meetings were arranged and scheduled to follow the planning process steps outlined in Section 3.1. Each meeting was designed to walk the MAC members through sections of the Santa Barbara County *Multi-Jurisdictional Hazard Mitigation Plan* and annexes. In addition to reviewing and validating material, the intent was to also educate MAC members on the planning process and purpose of each section. By taking this step it will help ensure that each MAC member could bring this knowledge back to their Local Planning Teams. The table below (Table 3.2) provides a list and the main purpose of each of the MAC meetings.

Table 0.1 Mitigation Advisory Committee (MAC) Meetings Summary

Date	Purpose
April 2015	**Kick Off (in person)** • Reviewed and discussed the hazards in the Plan; including initial ranking. • Each jurisdiction was asked to review their previous goals and objectives with a local planning team.
December 2015	**MAC Meeting (in person)** • Recap of previous MAC meeting • Goal of the project • Understanding of HMP update requirements • Validation of team members • Proposed Planning Process • Review of Capabilities Assessment Section
January 2016	**MAC Meeting (conference call)** • Recap of previous MAC meeting • Review of Capabilities Assessment Section • Discussion of public outreach efforts • Preparation for next MAC meeting
February 2016	MAC Meeting (in person) • Recap of previous MAC meeting • Review of Hazard Assessment Section • Presentation of Vulnerability Assessment results • Discussion of public outreach efforts • Preparation for next MAC meeting
March 2016	MAC Meeting (conference call) • Recap of previous MAC meeting • Review of Capabilities Assessment and Vulnerability Assessment Sections • Preparation for next MAC meeting
April 2016	MAC Meeting (in person) • Recap of previous MAC meeting

Date	**Purpose**
	• Initial discussion of mitigation projects and actions
May 2016	MAC Meeting (conference call) • Recap of previous MAC meeting • Discussion of mitigation actions and projects • Discussion of update process • Preparation for next MAC meeting
June 2016	MAC Meeting (in person) • Recap of previous MAC meeting • Discussion of mitigation actions and projects • Discussion of update process

See Appendix 3A for sign-in sheets and presentations, where applicable.

City Local Hazard Mitigation Planning Team

Local Hazard Mitigation Planning Team Planning Process

Although plans are reviewed yearly by the Emergency Managers Task Team; the formally assembled it's Local Hazard Mitigation Planning Team (LHMP) in 2015 to begin the process of revising the City's portion of Local Hazard Mitigation Plan. The LHMP was developed utilizing key personnel from various departments within the City. The LHMP held meetings to review the all Sections of the Hazard Mitigation Plan and determine appropriate mitigation project and engage the public. The LHMP followed the same process as the County and MAC to keep consistency throughout the planning process.

The LHMP planning process was, 1) Plan Preparation by developing a team, establishing goals and setting priorities; 2) Plan Development by revising the existing *Capabilities Assessment and Hazard Assessment Sections* in the HMP, reviewed risks and hazards, reviewed and identified any additional mitigation actions and projects, and 3) Finalized the Plan in conjunction with the County's Multi-Jurisdictional Hazard Mitigation Plan.

As mentioned above, the City of Santa Barbara participated in the Mitigation Advisory Committee (MAC). Information and discussion topics raised at the MAC meetings were brought to the City's LHMP Team for discussion of relevance within the City limits and for this annex. Yolanda McGlinchey, Emergency Services Manager, served as the City's liaison on the MAC and coordinated the collaboration of the Local Hazard Mitigation Planning Team.

Local Hazard Planning Team Members

The following table lists the City of Santa Barbara Local Hazard Mitigation Planning Team members.

Table 0.1 City Planning Committee 2016

Name	Department	Title
Todd Stoney	Police	Captain
Adam Nares	Community Development	GIS Technician

Name	Department	Title
Ann Marx	Fire	Wildland Specialist
Rosemary Dyste	Community Development	Project Planner
Mick Kronman	Waterfront	Operations Manager
John Ewasiuk	Public Works – Engineering	Principal Engineer
Andrew Stuffler	Community Development	Chief Building Officer
Jeff Brent	Public Works – Streets	Maintenance Supervisor
Santos Escobar	Parks & Recreation	Parks Manager
Rick Fulmer	Public Works – Streets	Streets Manager
Tracy Lincoln	Airport	Operations Manager
Rob Badger	Administration –IS	Information Systems Manager
Joe Poire	Fire	Fire Marshal
Liliana Encinas	Fire	Public Education Specialist
Yolanda McGlinchey	Fire/OES	Emergency Services Manager

Overview of Local Planning Team Meeting

The City of Santa Barbara Local Hazard Mitigation Planning Team (LHMP) met regularly during the planning process. The City's Emergency Services Manager served as liaison to the County's Mitigation Advisory Committee (MAC) to discuss updates to this plan and provide comments on review drafts. The table below summarizes the meetings held by the City's LHMP Team.

Table 0.2 County Planning Committee Meetings Summary

Meeting Dates	Summary of Discussions
September 23, 2015	Initial meeting of Planning Team to review current plan and determine who needs to be part of the planning process.
October 20, 2015	Second Planning Team Meeting • Mitigation Strategies o Review old projects o Discuss new projects • Mapping – Which ones need updating • Next steps
December 8, 2015	Third Planning Meeting • Update on Mitigation Strategies • Update by GIS Team • Revisions to Schedule
December 10, 2015	Fourth Planning Meeting – Map Team Only • Progress on Maps • Mapping Questions • What is still needed from County

Meeting Dates	Summary of Discussions
March 1, 2016	Fifth Planning Team Meeting • Introductions • Review of MAC meeting • Discussion of Maps – Next Steps • Hazard Assessment
May 11, 2016	Sixth Planning Team Meeting • Review of 04-28-16 MAC meeting • Review Section Drafts • Maps • Critical Facilities • Vulnerability Assessments • Next Steps
July 26, 2016	Seventh Planning Team Meeting • Review information from July 15, 2015 Public Outreach • Review Sections 1,2,3,4 5, 6, 7 and 8 • Review Maps • Discuss Critical Facilities • Determine media for public outreach and comment

See Appendix 3B for sign-in sheets and presentations, where applicable.

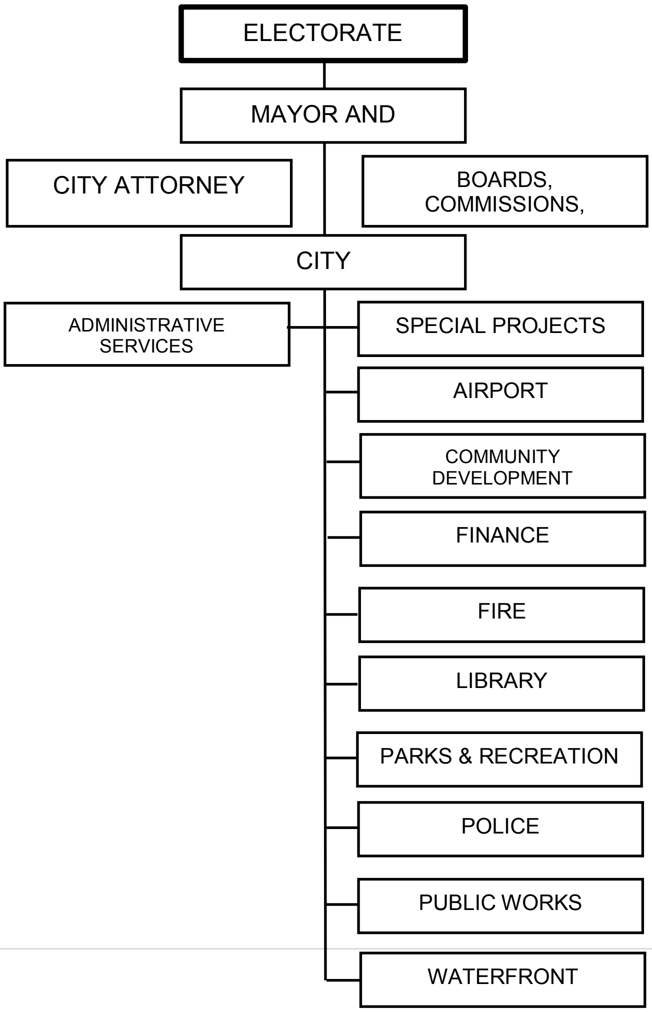
SECTION 4 CAPABILITY ASSESSMENT

The City of Santa Barbara Local Hazard Mitigation Planning Group identified current capabilities available for mitigation projects, activities and planning. This section outlines Santa Barbara's capabilities as it relates to governance; each city department's responsibility; the City of Santa Barbara Emergency Services Organization; an analysis of the City's capabilities and policies as they relate to hazard mitigation, Fiscal Resources, and the City's planning mechanisms.

Governance

The City of Santa Barbara employs a Manager-Council form of governance. Santa Barbara City Council is comprised of one Mayor and six Council Members, all of whom are elected officials each serving a four year term. The City of Santa Barbara's organization is comprised of thirteen departments. These departments are Administrative Services; Airport; City Administrator; City Attorney; Community Development; Finance; Fire; Library; Mayor and Council; Parks and Recreation; Police; Public Works; and Waterfront. In addition, Santa Barbara has 29 Advisory Boards, Commissions, and Committees whose job is to advise the City Council on a wide variety of subjects.

CITY OF SANTA BARBARA ORGANIZATION CHART



Departmental Responsibilities, Plans, and Capabilities

City Administrator's Office

The City Administrator's Office provides leadership, direction, and oversight to City departments to accomplish goals and objectives approved by the City Council, in accordance with the City Charter. The City Administrator manages all departments, provides training and development for all City employees, reviews the performance of all City departments, and assists the Council in prioritizing goals. The City Administrator's Office also provides oversight to City TV on Channel 18.

In response to natural disasters, the City Administrator's Office serves as the primary point of contact to coordinate the entire flow of public information. This is accomplished through the use of media releases, press conferences, website updates, the City TV scroll, public information kiosks and all other social media outlets. The Office works in conjunction with other emergency personnel to coordinate the public release of accurate, timely, and consistent information.

Administrative Services Department

The Administrative Services Department consists of three divisions: City Clerk, Human Resources, and Information Systems. Each division has multiple programs to best define, budget, and administer services. The Department provides important services to over 1,000 city employees and the community.

The City Clerk's Office provides agendas, staff reports, and minutes of City Council meetings; maintains and processes all City Council-approved ordinances, resolutions, deeds, agreements, and contracts; administers municipal elections; recruits and maintains membership records for advisory groups; and provides staff for the City Hall reception area and telephone system.

Human Resources provides a centralized program of personnel administration for over 1,039 regular positions. The division recruits and tests applicants for City positions; establishes job descriptions and compensation levels for over 365 classifications; conducts classification studies; provides staff support to the Civil Service Commission, coordinates disciplinary actions and assists managers on performance issues; administers benefit programs including health insurance, deferred compensation and retirement; in-processes new employees; provides new employee orientation; manages the computerized Financial Management System (FMS) in relationship to job titles, positions, compensation (COLAs, merit increases, status changes, etc.), and employee benefit selections.

Information Systems provides Infrastructure support, Financial and Enterprise Applications, and Centralized GIS. Infrastructure Support provides technical leadership, maintenance and user support for computing and networking services to City staff by operating and maintaining the City's 40+ Local Area Networks; providing maintenance and support to over 750 desktop computers; establishing and maintaining standards for hardware and software; coordinating the City's computer training program; establishing standards and providing oversight of the City's local Intranet and public Website; and performing systems analysis, system integration and system implementation. Financial and Enterprise Applications Support provides financial management systems and related services; maintains enterprise wide applications such as maintenance management, SQL reporting services, and data exportation to support the analysis and inquiry needs of City staff; provides consulting services to all departments in areas of business problems, implementing solutions. Centralized GIS provides a standards and rules based central database of GIS data; provides tools to update and display GIS data; and provides detailed maps, drawings and other GIS services.

Santa Barbara Airport

The Santa Barbara Airport is one of the region's most important and visible assets. A recent University of California, Santa Barbara Economic Forecast Project study found that the Airport has a $500 million annual impact on the County. Since the 1930s it has been the region's primary air transportation facility. More than 755,000 passengers used the Airport in 2010; making it the busiest airport on the California coast between San Jose and Los Angeles. Consistent with national trends, air travel through the Santa Barbara Airport declined during the recent recession. However, upsizing of aircraft, and additional flights a have increased travel over the past year and airline forecast studies show the passenger volume will grow over the next 10 years.

The Airport is currently preparing a new master plan for development through 2025. The plan will identify Airport facility and capacity needs and prescribe improvements. It is vital that the Airport remain open during natural disaster situations to serve as a transportation point for the ingress and egress of personnel, equipment and supplies during the recovery phase of a disaster. The Airport completed a master drainage plan to address flooding issues, and several of the recommended projects from plan have been completed. The remaining flood control projects are listed in this document as potential projects for funding.

Approximately 400 of the 430 acres of the Goleta Slough Ecological Reserve are within Airport boundaries. As a steward of the slough, the Airport has made significant environmental improvements with plans for further restoration in the future.

In 2008 the Airport completed its airfield safety projects which brought the runway safety areas up to federal standard and reduced the commercial runway flood hazard.

As mitigation for the Airfield Safety Projects, the Airport has spent nearly $9 million to improve or restore 40 acres of wetland habitat in the Goleta Slough. Ten of those acres were completed in 2010 after a 3-year study of bird behavior in tidal wetlands. The results of this study show that the restoration of tidal circulation has improved habitat for wildlife while reducing the risk of wildlife strikes on or near the airfield. This study has national significance as other airports may follow in Santa Barbara's footsteps. Each restoration site is overseen in a 7-year maintenance and monitoring program to ensure success.

City Attorney Department

The City Attorney's Office is responsible for legal representation and advice to the City Council, Boards, Commissions and all City officers and staff. These responsibilities include advising the City Council and Planning Commission, as well as City staff, on thousands of matters each year. The office is also responsible for all City code enforcement and litigation services. The office is staffed by six attorneys and five support and paraprofessional staff.

Community Development Department

The Community Development Department is responsible for planning and zoning, building and safety, and housing and redevelopment for the City of Santa Barbara. The department has three divisions: Administration, Housing & Human Services; Building & Safety; and Planning.

The Housing & Human Service Division is responsible for a number of programs including: Successor Agency to the Redevelopment Agency, Affordable Housing Development, Housing Rehabilitation Loans, Community Development Block Grant (CDBG), Administration & Human Services Grants, Rental Housing Mediation, and Fair Housing Enforcement for the City of Santa Barbara. This division contributes to disaster mitigation through the funding of the housing rehabilitation and community improvement programs as well as capital improvement projects.

The Building & Safety Division is responsible for three programs: Building Inspection and Code Enforcement; Building Counter and Plan Review; and Records, Archives and Clerical Services. One of the primary functions of this division is to ensure all new and remodeled structures as well as additions to existing structures are constructed to current health and safety codes, thus lessening the potential impact of future disasters.

The Planning Division is responsible for four programs: Long Range Planning and Special Studies; Zoning Ordinance Information and Enforcement; Development / Environmental Review; and Design Review and Historical Preservation. This division mitigates natural and man-made hazards through the implementation of the General Plan, Zoning Ordinance, California Environmental Quality Act (CEQA), the Local Coastal Plan, the Subdivision Map Act, and a variety of other California planning statutes.

The primary responsibilities of this division in mitigating disasters is through: 1) the development of General Plan goals and policies, e.g. the Safety Element, 2) the permitting of proposed projects to ensure all development is consistent with hazard risk reduction and community resilience related goals and polices, and 3) the enforcement of existing development to ensure continued compliance with existing goals and policies through the Zoning Ordinance. In addition, all three divisions of the Community Development Department are regularly trained to respond to disasters and assist with the recovery efforts.

Fire Department

The mission of the Fire Department is to serve and protect the community from the perils of fires, medical emergencies, environmental emergencies, and natural disasters. This will be accomplished through education, code enforcement, planning, prevention, emergency response, and disaster recovery. The Fire Department is responsible for managing the following programs, Fire Administration; Fire Prevention; Wildland; Office of Emergency Services; and Fire Operations.

Fire Administration provides leadership, policy direction and administrative support to the entire department. Fire Prevention protects life, property and the environment from the perils of fire, hazardous materials, and other disasters through proactive code enforcement, modern fire prevention methods, fire and arson investigation and progressive public safety education, which provides fire and life safety education to the community to reduce the loss of life and property. Wildland ensures a safer community in the wildland-urban interface by assisting with and enforcing road clearance, defensible space and vegetation management, the Office of Emergency Services coordinates the City’s response to disaster, educates residents to prepare

and operates the City Emergency Operations Center, located at Fire Station 1; Fire Operations saves and protects lives, property, and the environment of the Santa Barbara community by preventing the impact of future events through proactive planning, public education, and occupancy fire code inspections.
In 2004, the City adopted the Wildland Fire Plan, a comprehensive approach to mitigating the wildland fire hazard in the wildland- urban interface. The policies and actions developed for the Plan cover a wide range of areas. They include re-designation of the City's high fire hazard area, public education programs, evacuation preplanning, and changes to City codes, fire protection services, biomass utilization, and vegetation management programs on both private and public lands. The plan has recently been designated as the City's Community Wildfire Protection Plan. In an effort to implement elements of that plan the City adopted the Wildland Fire Suppression Assessment District (WFSAD) in 2006. In cooperation with residents of the district, the program has removed hundreds of tons of flammable vegetation, reducing the threat of wildfire and enhancing evacuation routes throughout the district.

The City of Santa Barbara's Manager of the Office of Emergency Services is a non-sworn management position within the Fire Department. The Emergency Services Manager is responsible for the development and maintenance of emergency plans, organization and coordination of emergency programs and training.

Public Library System

The Library System provides information services, reading materials and educational resources to residents of all ages from the Santa Ynez Valley through Carpinteria. The largest components of the department are areas of public service in the Central Library including circulation, reference, and youth services. The system includes seven branches, five of which are owned and funded by the County of Santa Barbara and administered under an agreement with the City. The Goleta Library is owned by the City of Goleta and administered under an agreement with the City. Additional activities include access to the Internet via public computers, an Adult Literacy program, interlibrary loan and borrowing, acquisition of materials, cataloging and processing of materials, and maintenance of the Library's catalog and users database.

Parks and Recreation Department

The City of Santa Barbara Parks and Recreation Department maintains 59 parks totaling nearly 1800 acres. The Parks Division is responsible for all aspects of park, open space, street tree and beach management and during emergencies provides logistical support such as personnel and supply transportation. The Recreation Division provides numerous recreational and cultural opportunities as well as community services. During emergencies the Department manages community buildings and recreation facilities as shelters and staging areas. The Golf Division manages the city's municipal golf course, which is a second staging area for emergency operations. The mission of the Creeks Restoration and Water Quality Improvement Division is to improve creek and ocean water quality and restore natural creek systems with the implementation of storm water and urban runoff pollution reduction, creek restoration and community education programs. The water quality program focuses on creek clean-up, street sweeping and storm water projects. Creek restoration programs improve creek health and water quality. Objectives include reducing erosion by bank stabilization and providing access where feasible. The Creeks Division has prepared Watershed Action Plans for Santa Barbara's three major watersheds and has held community forums for public input into these plans.

Police Department

The mission of the Santa Barbara Police Department, through the philosophy of community oriented policing, is to create a safe community where all people can live in peace without the fear of crime.

This commitment will ensure a professional quality of service and accountability to the citizens of the City of Santa Barbara.

While the primary mission of the Santa Barbara Police Department is law enforcement, the Police Department plays a pivotal role in general public safety as it relates to disaster preparedness. In addition, the Police Department has created some mitigation strategies that is included in their Unusual Occurrence Manual (UOM). The UOM is a guide for how officers will respond during a major incident or disaster.

The City's dispatch center was recently relocated to the Granada Garage facility at 1219 Anacapa Street. The move was due to the substandard condition of the current Police Department. In many emergency situations, police officers are among the first responders, assisting with traffic control, effecting evacuations and monitoring potentially life threatening situations.

Public Works Department

The City's largest department is Public Works. The department's total annual budget of over $93 million represents approximately 31% of the City's total budget and its 299 full time employees is approximately 14% of the City's permanent work force. The Department is responsible for operating the City's El Estero Wastewater Treatment Facility on Yanonali Street and the Cater Water Treatment Facility on San Roque Road. The Department's mission is to provide for the public's needs relative to the City's transportation system, water and wastewater services, refuse collection, construction and maintenance of all City facilities, automotive equipment communications equipment and repair and maintenance of all streets, sidewalks, and street lights throughout the City.

The Public Works Department is divided into five divisions: Administrative Services, Engineering, Facilities Maintenance, Transportation and Water Resource. The Engineering Division is responsible for contract engineering; construction; land development; real property; sewer design; surveying; and water design. The Facilities Maintenance Division is responsible for building maintenance; communications; custodial services; and motor pool. The Transportation Division is responsible for alternative transportation; parking; streets maintenance; transportation operations; and transportation planning. The Water Resources Division is responsible for water and wastewater administration; water supply management; water treatment; water distribution; wastewater collection; wastewater treatment; laboratory and environmental services.

The Department is responsible for the following emergency activities and areas:

- Recovery operations in all types of disasters.
  - Coordinating with Public Utilities companies in the repair of utilities essential to the life, health and welfare of the community.
  - Coordinating and furnishing of transportation to all emergency agencies of the City

and providing maintenance for disaster vehicles and equipment throughout the State of Emergency.

- Assuring of an adequate supply of water for emergency requirements and an adequate supply of potable water for human consumption.
- Assuring that sanitary facilities are operational or that alternate emergency facilities are provided.
- Assisting in and providing for traffic controls (signs, barricades, and signalization) and warning signs.
- Providing personnel to assist in EOC operations (office and field). Setting up and operating the Public Works Department Operating Center.

The Public Works Engineering Division is very involved in hazard mitigation activities. It manages the City's Capital Improvement Program and provides professional engineering services for planning, designing, surveying, inspecting and managing public works improvements. Long-range master planning to support the City's street, water, wastewater, transportation and parking infrastructures is also provided. The Division also provides the Airport, Waterfront, and all General Fund departments with engineering services. Services include in-house design, construction management and inspection of the annual water, sewer replacement and street capital improvement programs, plus contract administration of Airport, Waterfront, and Parks and Recreation capital projects.

Waterfront Department

The mission of the Waterfront Department is to provide the community with a quality Waterfront for recreation and commercial use, along with mooring and landside services for boating. The Waterfront Department manages approximately 252 acres of tidelands and submerged lands encompassing the Harbor and Stearns Wharf. These lands belong to the State and are held in trust by the City of Santa Barbara. The Waterfront Department consists of three Divisions: Business Services, Harbor Operations and Facilities Management.

Harbor Operations oversees the Santa Barbara Harbor Patrol. The mission of the Santa Barbara Harbor Patrol is to enforce laws, educate the public and provide emergency fire, medical and ocean response services to facilitate the safe and orderly use of the Waterfront area. In many instances, Harbor Patrol Officers are the first emergency personnel on scene to a critical incident. The Waterfront Department’s Operations Division is also responsible for coordinating the Department’s Tsunami response and is researching warning systems and evacuation plans.

The Waterfront Department’s Facilities Division is responsible for maintenance of the breakwater, Stearns Wharf City Pier, and all of the marinas, providing clean and safe commercial and recreational facilities for tenants and visitors. They take the lead on the projects in the waterfront, including sediment management plans, structure remodels and marina reconfigurations.

The Business Division’s Financial Management Section supports the Waterfront Department by staying within budget and processing revenue and expenditure accurately. The Property Management Section manages waterfront leases to ensure that the public receives quality services and that the Department collects market value rents. The Parking Services Section provides competitively price parking that is convenient, clean and customer friendly to the community and the City's visitors.

In response to a natural disaster, the Waterfront Department, during a hazardous or disaster event, immediately transforms into an emergency response organization that includes the first responders, maintenance and finance sections. Preparation, mitigation and response plans are contained in the Waterfront's Department's Emergency Response Plan (2009).

A local base of operations called a Disaster Operating Center (DOC) located in the Waterfront Administration Building is established in order to effectively coordinate personnel and resources in order to immediately respond to hot spots as they are identified by the Incident Commander, local agencies and/or the public. The DOC becomes a base of operations and collection center for information, inspection/damage reports, and response strategies as they are developed. In addition, monitoring with the City's Emergency Operations Center (EOC) is coordinated with the Operations Section for public information, dispatch to the law enforcement, and dispatch to maintenance staff for any channel or road closures; as needed. Staff are deployed to mitigate hazards and inspect critical structures, as well as oversee any contracted clean-up or construction crews.

The Waterfront Department has a pre-planned routine for emergency response, to assure FEMA reimbursement by using the correct reporting techniques with pre-assigned teams responsible for inspecting critical facilities and to perform as flexible response units, all the disaster locations identified and numbered and called into the EOC (if opened).

City of Santa Barbara Emergency Services Organization

The City of Santa Barbara's Office of Emergency Services (OES) is a Division of the Fire Department. The purpose of OES is to develop and implement plans for the protection of persons and property within the City of Santa Barbara in the event of a disaster, and to coordinate Emergency Services functions of the City with all other public agencies and affected private persons, corporations and organizations.

The City of Santa Barbara's Emergency Services Organization is managed by the Emergency Services Council (ESC). The City Administrator serves as the Director of Emergency Services and acts as chair of the ESC. Other members of the ESC include: the Police Chief; Fire Chief; Public Works Director; and representatives of departments, service, or divisions designated by the City Administrator. The Emergency Services Manager is responsible for the development and maintenance of emergency plans, organization and coordination of emergency programs and training, and is also a member of the ESC.

The City of Santa Barbara's Emergency Services Organization is comprised of all officers and employees of the City, together with those volunteer forces enrolled to aid the City during a disaster, and all groups, organizations and persons who may by agreement or operation of law, including persons pressed into service under the provisions of Section 9.116.060(3) of the Santa Barbara Municipal Code be charged with duties incident to the protection of life and property in the City during such disaster. This includes, but is not limited to: School Districts; Santa Barbara Community College District; Santa Barbara Metropolitan Transit District; American Red Cross; and the Amateur Radio Emergency Services (ARES).

The City of Santa Barbara revised their Standardized Emergency Management System Emergency Management Plan (SEMS EMP) in January 2013 to ensure the most effective and economical allocation of resources for the maximum benefit and protection of the civilian population in time of emergency. The EMP was developed in conjunction with the Santa Barbara County Operational Area, as part of the California Standardized Emergency Management System (SEMS) and the National Incident Management System (NIMS). The EMP addresses emergency responses associated with natural disasters, technological incidents, and national security. The objective of the plan is to establish an effective organization capable of responding to potential large-scale emergency situations using all appropriate facilities and personnel in the City. The SEMS EMP assigns tasks and specifies policies and procedures for coordination of emergency staff and service elements. The SEMS EMP identifies emergency response actions associated with the large-scale emergencies through standard operation procedures.

The plan states that hazard mitigation is a year round effort and encourages all entities to prepare hazard mitigation plans. The following activities are identified by the plan as potential mitigation activities: improving structures and facilities at risk; identifying hazard-prone areas and developing standards for prohibited or restricted use; recovery and relief from loss; and providing hazard warning.

Fiscal Resources

The fiscal year 2016 adopted budget includes a total operating budget of $293.4 million and a citywide capital program of $105.8 million. The General Fund, which includes traditional local government services, is composed of a $124.3 million operating budget and a $2.7 million capital program.

In addition to the General Fund, the City has a number of other funds used to account for various activities. Special revenue funds, totaling $33.7 million are used to account for revenues legally restricted for a specific purpose. Enterprise funds, totaling $117.6 million are used to account for the activities of the City operating in a manner similar to the private sector, including water, wastewater, airport, golf, downtown parking, and waterfront operations. Finally, internal service funds, totaling $27.2 million are used to account for services provided internally to City departments and programs, such as Information Systems and Risk Management Services.

In 1996, the City Council established minimum reserve levels for all operating funds, including the General Fund. Pursuant to the adopted resolution, the General Fund currently maintains two separate reserves:

- Emergency Reserve – Set at 15% of the adopted operating budget, established to respond to natural disasters, such as floods, earthquakes, etc.
- Economic Contingency Reserve – Set at 10% of the adopted operating budget, established to respond to provide for unique one-time costs and maintenance of City services, and to permit orderly adjustments during periods of reductions.

The following Table shows specific financial and budgetary tools available to the City of Santa Barbara such as community development block grants; capital improvements project funding; authority to levy taxes for specific purposes; fees for water, sewer, building impact fees for homebuyers or developers for new development; ability to incur debt through general obligations bonds; and the withholding spending in hazard-prone areas.

City of Santa Barbara: Fiscal Capability

Financial Resources	Accessible or Eligible to Use (Yes/No)
A. Community Development Block Grants (CDBG)	Yes
B. Capital improvements project funding	Yes
C. Limited authority to levy taxes for specific purposes	Yes
D. Fees for services	Yes
E. Impact fee for homebuyers or developers for new developments/homes	Yes
F. Incur debt through general obligation bonds	Yes
G. Incur debt through general obligation bonds	Yes
H. Incur debt through private activity bongs	Yes
I. Withhold spending in hazard-prone areas	Yes
J. Local, state and federal grant funds	Yes

Relevant Plans, Policies, and Ordinances

The City of Santa Barbara has a range of guidance documents and plans for each of its departments. These include a general plan, public works and public utilities plans, capital improvement plans, emergency management plans, Local Coastal Program (LCP), Master Environmental Assessment (MEA), Circulation Element, Mission Creek Project, Conejo Slide Area Program, Airport plans, flood response guidelines, Tsunami Response Guidelines, Watershed Response Guidelines and slough programs. The City uses building codes, fire codes, zoning ordinances, subdivision ordinances, and various planning strategies to address how and where development occurs. One of the essential ways the City guides its future is through policies laid out in the General Plan, Plan Santa Barbara.

It is important to note that during the Local Hazard Mitigation Plan update planning process these plans, programs, codes and policies were evaluated to determine their effectiveness in risk education and reduction efforts, as well as, its usefulness to implement mitigation measures. Any shortfalls or areas where the plans, programs, codes, and policies could be improved or expanded were identified and captured under annual review, the annual planning process and Mitigation Chapters of this plan. If no mitigation actions were identified, then it can be assumed that the Planning Team determined that no shortfalls or areas for improvement are needed.

The General Plan

The City of Santa Barbara General Plan was first adopted in the 1960’s and was last updated in 2011. The 2011 General Plan is comprised of eight reorganized elements, including the seven state mandated elements, as well as optional elements of Economy and Fiscal Health and Historic Resources.

Santa Barbara is a mature city, and not much vacant land remains for residential or nonresidential development. The remaining vacant land is generally found in areas of steep topography where development potential is constrained. Over 60 percent of the land is in residential use, excluding the residential portion of mixed-use development in the Downtown or other commercial areas. To encourage infill development and due to concern over resources limitations, the General Plan has a Growth Management program to limit nonresidential growth. Conversely, one of the top priorities of the General Plan is to encourage workforce and affordable housing in the City's multi-family and commercial zones. Institutional and public facilities are mainly found all over the City while most of the City's government facilities are found in the historical center of the community. There are approximately 1,086 acres of land dedicated open space and parks (not including beaches).

Zoning Ordinance

Local land use controls also include the Zoning Ordinance, which shapes the form and intensity of residential development. Consistent with the General Plan, the City's Zoning Ordinance allows a range of zones and dwelling unit densities from one unit per acre (single-family) to 27 units per acre (studio units with variable density). These zones also allow mobile home and emergency shelter units.

Zoning ordinance regulations related to hazard mitigation include Development Along Creeks, which provides controls on development adjacent to Mission Creek to prevent undue damage or destruction of development from flood water; a prohibition of residential second units and mobile homes in designated high fire hazard areas; and a slope density regulation that increases the minimum lot area where the average slope from 10 to over 30 percent.

The Environmental Policy and Construction section of the Municipal Code includes regulations and general requirements for hazardous waste generators, seismic safety, flood plain management, erosion and sedimentation control for construction, and construction prohibited in the vicinity of the Conejo Road landslide due to special geologic hazard conditions.

Starting in 2015, the City is updating its Zoning Ordinance to bring it up to date to reflect current uses and practices. The City's goal is that this project will result in a new Zoning Ordinance that is:

- Restructured, simple and user friendly
- Modern and current
- Clear in decision making processes
- More flexible in administering the code
- Aligned with historic interpretations
- Responsive to nonconforming situations.

Floodplain Management

The City of Santa Barbara does not participate in the National Flood Insurance Program (NFIP). The City purchases property insurance on the commercial market that provides coverage for loss related to flood. However, Flood Insurance Rate Maps (FIRMs) were developed through the NFIP and were last updated in September 2005 and have been made available in GIS format as Digital Flood Insurance Rate Maps. These are on file with the Santa Barbara Operational Area Office of Emergency Services, County Flood Control, and the Santa Barbara City Public Library that identify floodplains, along with evacuation routes and locations of public shelters.

Safety Element

The Safety Element is a required component of the City's General Plan and is element most relevant to hazard mitigation and emergency response. The Safety Element was updated in 2013 and includes specific items as prescribed by the California Government Code as well as other relevant safety issues that are considered important. Hazard maps provided in the Safety Element depict the general locations and possible severity of various hazards and are important tools in identifying and reducing the potential effects of hazards and for hazard response planning. The Safety Element provides information to guide the evaluation of hazard-related effects, provides policies to protect the community from hazard-related risk, and supports the implementation of programs intended to enable and expedite the recovery of a community after a disaster occurs.

SECTION 5 HAZARD ASSESSMENT

Overview

The purpose of this section is to review, update and/or validate the identified and profiled hazards in 2016 City Santa Barbara Multi-Hazard Mitigation Plan (HMP). The intent is to confirm the list of hazards facing the city and determine if the current information and material is current and accurate. The importance of this is to ensure that all hazards are being considered and decisions are based on the most up-to-date information. Another purpose of this section is to screen the hazards; providing an understanding of the significance by ranking higher priority hazards in the community.

As part of this effort the City liaisoned with the Mitigation Advisory Committee (MAC) and as well as the City's local planning team. The MAC group assessed information at the county-level, while the City's planning team assessed the information relating our jurisdiction.

As part of process both groups leveraged other planning efforts and documents, including the State of California Multi-Hazard Mitigation Plan, the Santa Barbara County Comprehensive Plan Seismic Safety and Safety Element, the City's 2013 Emergency Management Plan, and the Santa Barbara County 2016 HMP; as well as other various City plans.

Local Hazard Mitigation Planning Team Hazard Assessment

Utilizing the information and material from the State of California Multi-Hazard Mitigation Plan, the Santa Barbara County Comprehensive Plan Seismic Safety and Safety Element, and the City of Santa Barbara 2011 HMP, the City's 2013 Emergency Management Plan, the Local Hazard Mitigation Planning team, the Santa Barbara County Mitigation Advisory Committee (MAC) reviewed and revised: 1) the list of hazards in the geographic area, 2) the information and material presented for each hazard, and, 3) the prioritization of the hazards. The following sections provide a summary of the work.

Hazard Identification

Based on the review of the Santa Barbara City 2016 HMP and incorporating information from other documents (i.e., the California State Multi-Hazard Mitigation Plan) and local experience and knowledge, the LHMP team identified the following hazards as being relevant to City of Santa Barbara (**Table 5.1**).

Table 0.1 Relevant Hazards in the City of Santa Barbara

List of City Hazards
Earthquake
Wildfire
Landslide and other Earth Movements
Flood
Climate-Related Hazards
Sea Level Rise
Drought and Water Shortage
Severe Weather
Energy Shortage
Oil Spills
Dam Failure
Agricultural Pests
Epidemic/Pandemic/Vector Borne Disease
Hazardous Materials Release
Terrorism
Cyber Threats
Airline Crashes
Train Accidents
Tsunami
Civil Disturbance
Marine Invasive Species

Hazard Screening/Prioritization

The intent of screening hazards is to help prioritize which hazard creates the greatest concern in the community. Because the original process used to rank hazards in the Santa Barbara City 2011

HMP is not being utilized, an alternative approach is being recommended. A summary of the process and the results of the revised hazard ranking for the 2016 HMP update are discussed below:

Ranking Tool Design

The ranking tool prioritizes hazards on two (2) separate factors:

- Probability of the hazard affecting the community
- Potential impacts of the hazard on the community

To further assist with the process, the following definition of “High”, “Medium”, and “Low” probability and impacts were utilized:

Probability

High-	Highly Likely/Likely
Medium-	Possible
Low-	Unlikely

Impact

High-	Catastrophic/Critical: Major loss of function, downtime, and/or evacuations
Medium-	Limited: Some loss of function, downtime and/or evacuations
Low-	Negligible: Minimal loss of function, downtime and/or evacuations

Based on the revised list of hazards and utilizing the alternative approach, the LHMP team screened the hazards. The results of the assessment are in **Table 5.2**. The shading of the matrix boxes indicate the priority level: red = tier 1; green = tier 2; and gray = tier 3.

Table 0.2 Hazard Screening and Ranking

Rank	High Impact	Medium Impact	Low Impact
High Probability		• Drought/Water Shortage • Energy Shortage • Flooding • Landslide/Other Earth Movements • Oil Spill • Sea Level Rise/Coastal Flooding • Severe Weather • Wildfire	• Agricultural Pests/Disease • Train Accident
Medium Probability	• Earthquake	• HazMat Release • Terrorism	• Commercial/Military Aircraft Crash • Cyber Threat
Low Probability	• Dam Failure	• Civil Disturbance • Marine Invasive Species • Natural Gas Pipeline/Shortage • Tsunami	

Hazard Profiles

The following sections represents work done by the MAC and confirmed by the LHMP team. The information provided below is relevant to the City of Santa Barbara. In other words, if the LHMP team considered a particular hazard not a threat it was not included in the HMP. The following material is intended to be an overview of the hazards; more information may be found in the State of California Multi-Hazard Mitigation Plan, the Santa Barbara County Comprehensive Plan Seismic Safety and Safety Element, City's 2013 Emergency Management Plan and other documents.

5.1.1 Earthquake

5.1.1.1 Description of Hazard

An earthquake is caused by a release of strain, within or along the edge of the Earth's tectonic plates, which produces ground motion and shaking, surface fault rupture, and secondary hazards, such as ground failure. The severity of the motion increases with the amount of energy released, decreases with distance from the causative fault or epicenter, and is amplified by soft soils. After just a few seconds, earthquakes can cause massive damage and extensive casualties.

The effect of an earthquake on the Earth's surface is called the intensity. The intensity scale consists of a series of certain key responses such as people awakening, movement of furniture, damage to chimneys, and finally, total destruction. The scale currently used in the United States is the Modified Mercalli Intensity (MMI) Scale. It was developed in 1931 by the American seismologists Harry Wood and Frank Neumann. This scale, composed of 12 increasing levels of intensity that range from imperceptible shaking to catastrophic destruction, is designated by Roman numerals. It does not have a mathematical basis; instead it is an arbitrary ranking based on observed effects.

Most people are familiar with the Richter scale, a method of rating earthquakes based on strength using an indirect measure of released energy (**Table 5.3**). The Richter scale is logarithmic. Each one-point increase corresponds to a 10-fold increase in the amplitude of the seismic shock waves and a 32-fold increase in energy released. An earthquake registering 7.0 on the Richter scale releases over 1,000 times more energy than an earthquake registering 5.0.

Table 0.3 Richter Scale

Richter Magnitudes	Earthquake Effects
Less than 3.5	Generally not felt, but recorded.
3.5-5.4	Often felt, but rarely causes damage.
Under 6.0	Slight damage to well-designed buildings. Can cause major damage to poorly constructed buildings over small regions.
6.1-6.9	Can be destructive in areas up to about 100 kilometers across residential areas.
7.0-7.9	Can cause serious damage over larger areas.
8 or greater	Can cause serious damage in areas several hundred kilometers across.

Peak ground acceleration (PGA) is a measure of the strength of ground shaking. Larger peak ground accelerations result in greater damage to structures. PGA is used to depict the risk of damage from future earthquakes by showing earthquake ground motions that have a specified probability (10%, 5%, or 2%) of being exceeded in 50 years return period. These values are often used for reference in construction design, and in assessing relative hazards when making economic and safety decisions.

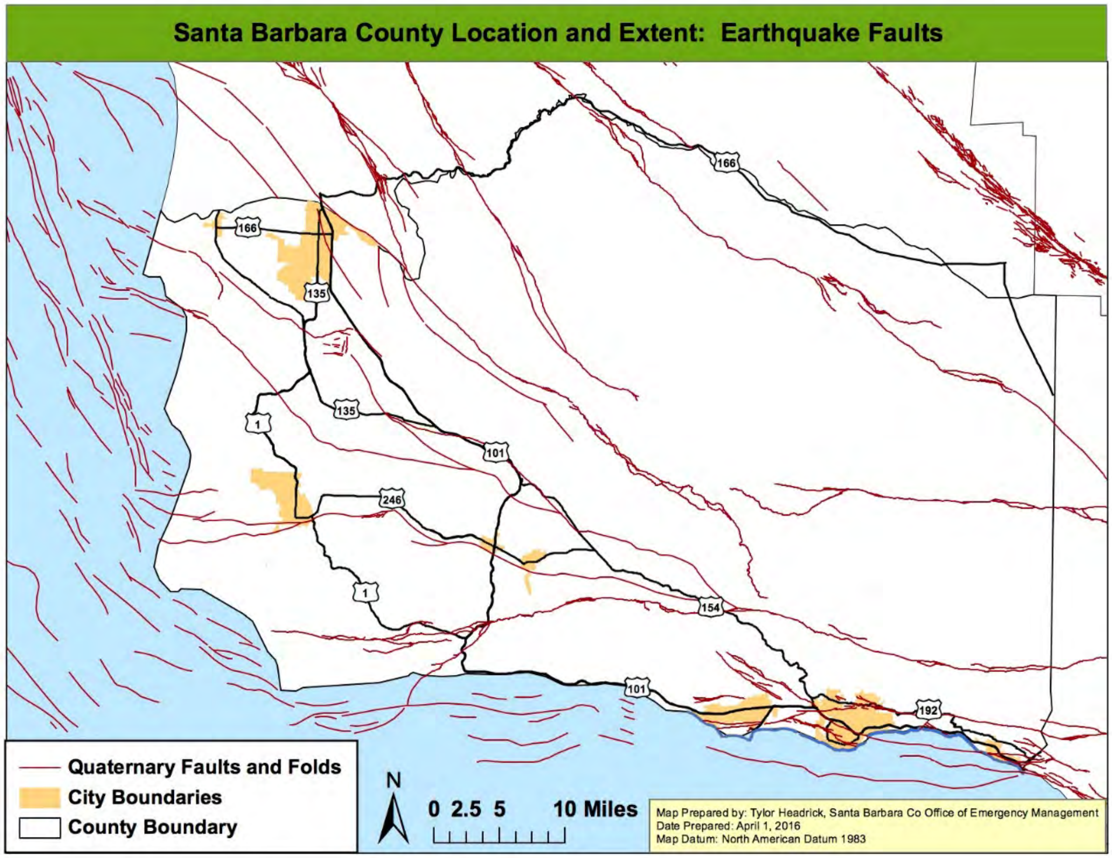
Liquefaction is the phenomenon that occurs when ground shaking causes loose, saturated soils to lose strength and act like viscous fluid. Liquefaction causes two types of ground failure: lateral spread and loss of bearing strength. Lateral spreads develop on gentle slopes and entail the sidelong movement of large masses of soil as an underlying layer liquefies. Loss of bearing strength results when the soil supporting structures liquefies and causes structures to settle, resulting in damage and in some cases, collapse.

5.1.1.2 Location and Extent of Hazard in Santa Barbara

As previously mentioned, Santa Barbara County, including the City of Santa Barbara, is located in a high seismic activity zone. The County is located in the Transverse Range geologic province. Movement of continental plates manifest primarily along the San Andreas Fault system. The San Andreas fault is situated 7 miles northeast of Santa Barbara County; active faults in the San Andreas Fault system that fall within Santa Barbara County include the Nacimiento, Ozena, Suey, and Little Pine faults. Other active faults in the region include the Big Pine, Mesa, Santa Ynez, Graveyard-Turkey Trap, More Ranch, Pacifico, Santa Ynez, and Santa Rose Island faults. The Santa Barbara County Comprehensive Plan Seismic Safety and Safety Element provides descriptions of all faults in Santa Barbara County, including historically active, active, potentially active and inactive, as well as their location and fault length. A map of faults in the Santa Barbara County region is located below (**Figure 5.1**).

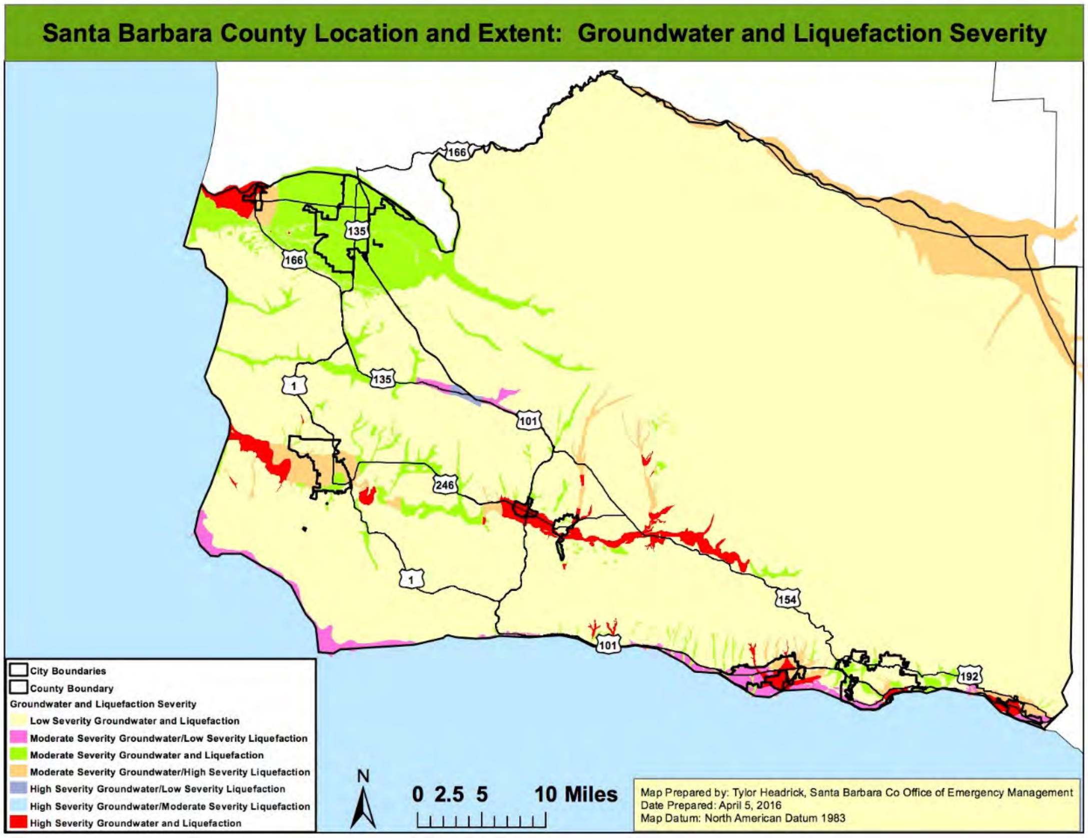
The City has areas of liquefaction that would cause severe damage in the downtown and lower eastside areas.

Figure 0.1 Earthquake Faults in Santa Barbara County



After earthquakes, some regions may be prone to liquefaction. On level ground, liquefaction results in water rising to the ground surface. On sloping ground, liquefaction will usually result in slope failure such as occurred at the Sheffield Dam in the 1925 Santa Barbara earthquake. Liquefaction risk is considered high if there were soft soils (Types D or E) present. The National Earthquake Hazards Reduction Program (NEHRP) rates soils from hard to soft, and gives the soils ratings from Type A through Type E, with the hardest soils being Type A, and the softest soils rated at Type E. The majority of the soils in Santa Barbara County are types A-C, with some areas having type D. There have been no Type E soils identified. (NOTE: A further discussion of soils can be found in the Santa Barbara County Comprehensive Plan Seismic Safety and Safety Element, along with maps of the expansive soils and collapsible soils problems ranking.) Liquefaction risk is also determined by depth to groundwater. Most of the low coastal plan and valley bottoms are underlain by alluvium and given a moderate rating with respect to liquefaction potential. Based on this information and work conducted as part of the Santa Barbara County Comprehensive Plan a map was generated indicating groundwater and liquefaction severity (**Figure 5.2**).

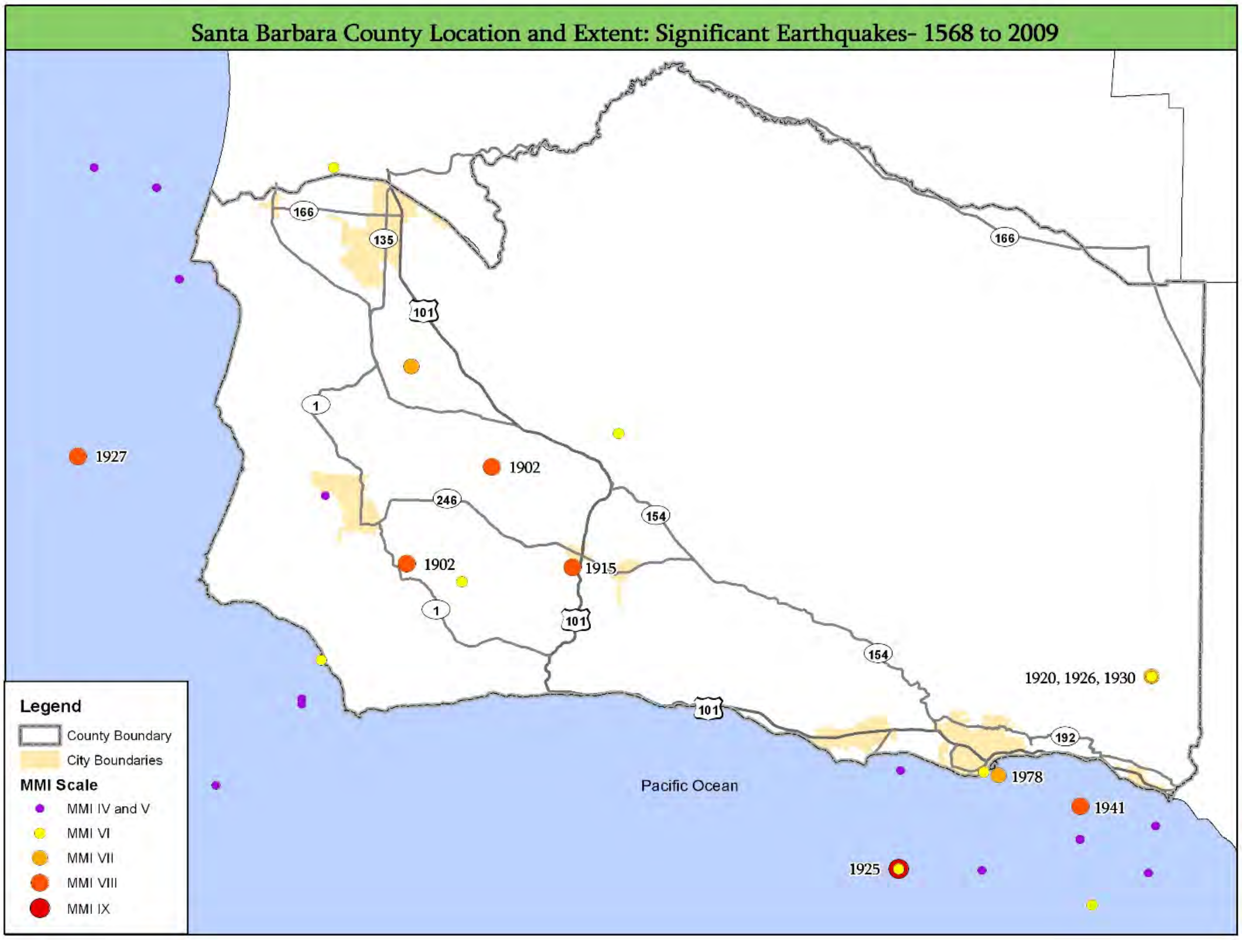
Figure 0.2 Groundwater and Liquefaction Severity



5.114 *History of Hazard in City of Santa Barbara*

City of Santa Barbara is located in a high seismic activity zone and as such has a long history of earthquakes. Although most seismic activity in California occurs along the San Andreas Fault system, most historic seismic events in the City of Santa Barbara region have been centered offshore on an east-west trending fault between Santa Barbara and the Channel Islands. The below map (**Figure 5.3**) displays historical epicenters of earthquakes located in the Santa Barbara County from 1568 to 2009. The dates of the more significant earthquake events are provided adjacent to the epicenters.

Figure 0.3 Significant Earthquakes 1568 to 2009



While more extensive discussion of previous earthquakes in Santa Barbara County is available in the Seismic and Safety Element of the Santa Barbara County Comprehensive Plan, the following information provides an overview of the more recent, significant events:

In June of 1925, the City experienced this destructive earthquake that caused property damage estimated at $8 million and killed 13 people. Most of the damage occurred at Santa Barbara and nearby towns along the coast, but the earthquake caused moderate damage at many points north of the Santa Ynez Mountains, in the Santa Ynez and Santa Maria River valleys. North of Santa Barbara, the earth dam of the Sheffield Reservoir was destroyed, but the water released caused little damage.

In Santa Barbara, few buildings on State Street escaped damage. Because parts of the main business district and the area near the seashore were built on land fill, many of the structures there were demolished, and others were so shattered that they had to be razed. In general, however, buildings of reinforced concrete were damaged little, except where workmanship was poor; frame buildings covered with stucco, sheathing, or lath also withstood the shock well. Loss to the sewage system was heavy only in areas of land fill, but the disposal plant was destroyed above the surface of the ground.

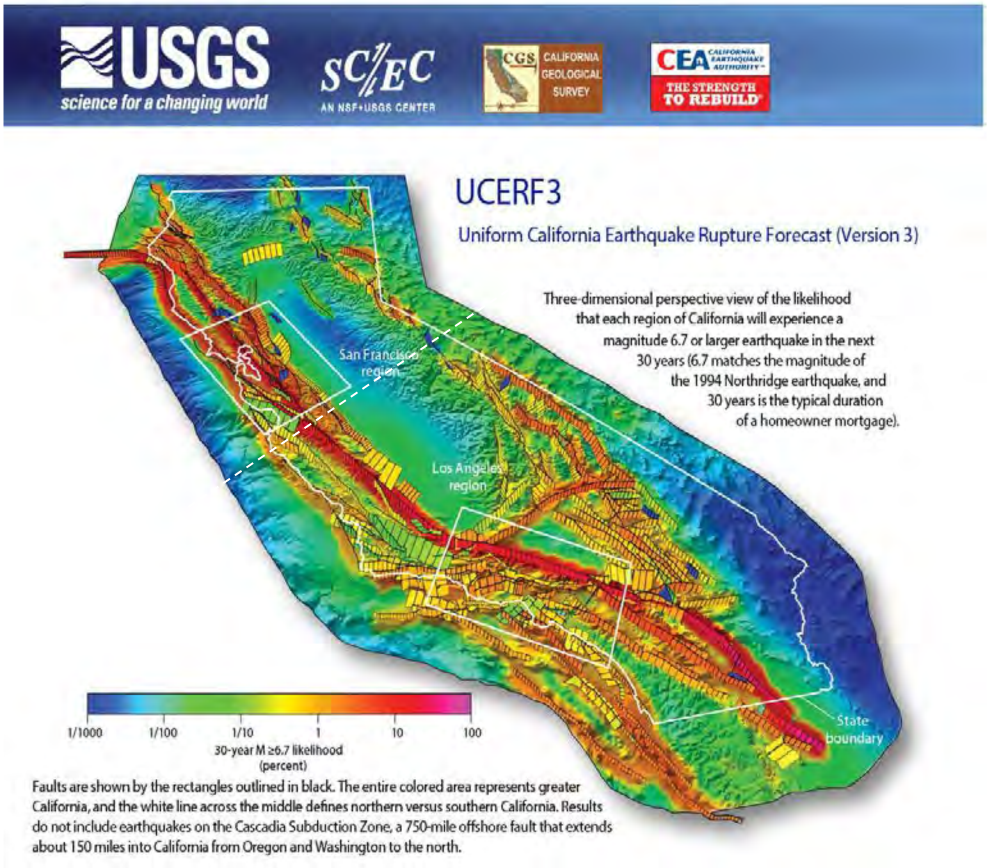
In March of 1978, and continuing sporadically through July of 1978, a swarm of small earthquakes, called micro-earthquakes occurred underneath the northeastern end of the Santa Barbara Channel. Toward the end of the micro-earthquake swarm, in July and early August of 1978, an unusually large amount of oil and tar was reported on local beaches in Santa Barbara. A common occurrence for the Santa Barbara area, the oil from these natural seeps was considered only a minor nuisance. On August 13, 1978, an earthquake occurred just to the southwest of the City of Santa Barbara, about 5 miles beneath the Santa Barbara Channel. There was minimal damage in the City. There were sixty-five people were treated for injuries at local hospitals. No deaths were reported.

On December 22, 2003 at 11:15 a.m. a magnitude 6.5 earthquake struck the central California coast. The event, known as the San Simeon Earthquake, was located 11 kilometers northeast of San Simeon, and 39 kilometers west/northwest of Paso Robles. Although the San Simeon Earthquake was felt in parts of the City there was no damage.

5.1.1.4 Probability of Occurrence

The United States Geological Survey (USGS) and their partners, as part of the latest Uniform California Earthquake Rupture Forecast Version 3 (UCERF3; 2015), have estimated the chances of having large earthquakes throughout California over the next 30 years (**Figure 5.4**).

Figure 0.4 Rates for Earthquake of Magnitude 6.7 or Larger in the Next 30 years (USGS, 2015)



Three-dimensional perspective view of the likelihood that each region of California will experience a magnitude 6.7 or larger earthquake in the next 30 years (6.7 matches the magnitude of the 1994 Northridge earthquake, and 30 years is the typical duration of a homeowner mortgage).

Faults are shown by the rectangles outlined in black. The entire colored area represents greater California, and the white line across the middle defines northern versus southern California. Results do not include earthquakes on the Cascadia Subduction Zone, a 750-mile offshore fault that extends about 150 miles into California from Oregon and Washington to the north.

Statewide, the rate of earthquakes around Magnitude 6.7 (the size of the 1994 Northridge earthquake) has been estimated to be one per 6.3 years (more than 99% likelihood in the next 30 years); in southern California, the rate is one per 12 years (93% likelihood in the next 30 years). Southern California's rates are given in **Table 5.4**.

Table 5.4 Southern California Region Earthquake Likelihoods (UCERF3, 2015)

Magnitude (greater than or equal to)	Average Repeat Time (years)	30-year likelihood of one or more events
5	0.24	100%
6	2.3	100%
6.7	12	93%
7	25	75%
7.5	87	36%
8	522	7%

5.1.1.5 Climate Change Considerations

To date, no credible evidence has been provided that links climate to earthquakes; however, climate and weather does play a significant role in the response and recovery from earthquakes. Effects from climate change could create cascading complications and impacts.

5.1.2 Wildfire

5.1.2.4 Description of Hazard

Wildfires can be classified as either a wildland fire or a wildland-urban interface (WUI) fire. The former involves situations where wildfire occurs in an area that is relatively undeveloped except for the possible existence of basic infrastructure such as roads and power lines. A WUI fire includes situations in which a wildfire enters an area that is developed with structures and other human developments. In WUI fires, the fire is fueled by both naturally occurring vegetation and the urban structural elements themselves. According to the National Fire Plan issued by the U.S. Departments of Agriculture and Interior, the wildland-urban interface is defined as "…*the line, area, or zone where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuels.*"

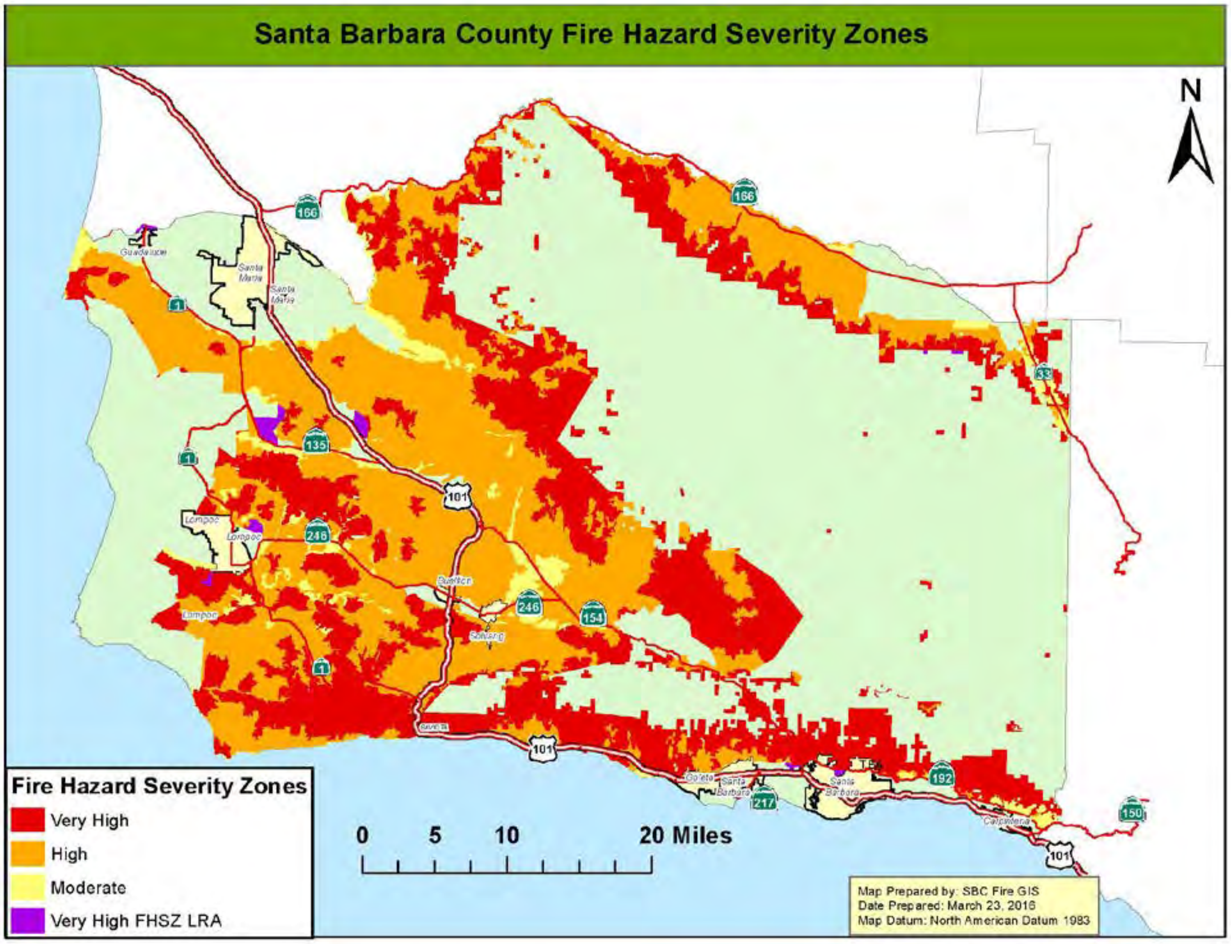
The WUI fire can be subdivided into three categories (NWUIFPP, 1998): The *classic wildland-urban interface* exists where well-defined urban and suburban development presses up against open expanses of wildland areas. The *mixed wildland-urban interface* is characterized by isolated homes, subdivisions, and small communities situated predominantly in wildland settings. The *occluded wildland-urban interface* exists where islands of wildland vegetation occur inside a largely urbanized area. Generally, many of the areas at risk within the Santa Barbara County fall into the classic wildland-urban interface category.

Certain conditions must be present for a wildfire hazard to occur; a large source of fuel must be present, the weather must be conducive (generally hot, dry, and windy), and fire suppression sources must not be able to easily suppress and control the fire. The cause of a majority of wildfires is human-induced or lightning; however, once burning, wildfire behavior is based on three primary factors: fuel, topography, and weather. Fuel will affect the potential size and behavior of a wildfire depending on the amount present, its burning qualities (e.g. level of moisture), and its horizontal and vertical continuity. Topography affects the movement of air, and thus the fire, over the ground surface. The terrain can also change the speed at which the fire travels, and the ability of firefighters to reach and extinguish the fire. Weather as manifested in temperature, humidity and wind (both short and long term) affect the probability, severity, and duration of wildfires.

5.1.2.5 Location and Extent of Hazard in Santa Barbara

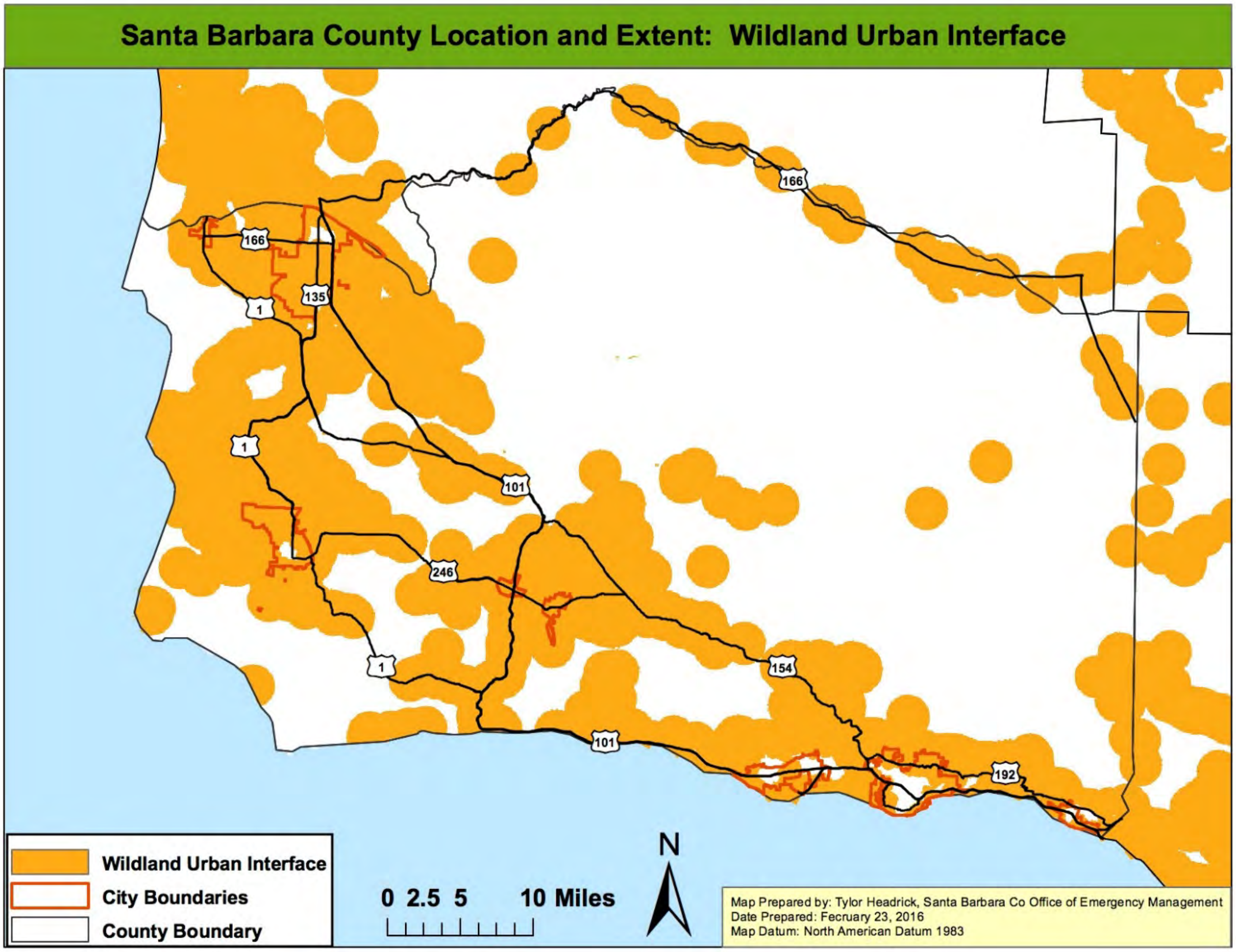
The climate, topography, and vegetation in Santa Barbara County is conducive to wildfires. California Department of Forestry and Fire Protection, Fire and Resource Assessment Program (CDF-FRAP) were mandated to map areas of significant fire hazards based on fuels (vegetation), terrain, weather, and other relevant factors. These zones, referred to as Fire Hazard Severity Zones, define the application of various mitigation strategies to reduce risk associated with wildland fires. The most current mapping efforts by CDF-FRAP were conducted in 2007. The map below shows the Fire Hazard Severity Zones located in Santa Barbara County (**Figure 5.5**).

Figure 5.5 Fire Hazard Severity Zones



CDF-FRAP developed data that displays the relative risk to areas of significant population density from wildfire. This data is created by intersecting residential housing unit density with proximate fire threat, to give a relative measure of potential loss of structures and threats to public safety from wildfire. The map (**Figure 5.6**) was generated using this data but shows only the wildland-urban interface (WUI) in Santa Barbara County. The WUI map depicts areas where potential fuels treatments will be prioritized to reduce wildland fire threats.

Figure 5.6 Wildland-Urban Interface (WUI)



Fire representative on the LHMP team acknowledged that the WUI data shown in Figure 5.6 was developed on a statewide basis and does not consider the placement of local neighborhoods within the geography. Santa Barbara City Fire has created data at a more local level to convey communities at risk. Due to the threat, the City developed a ‘Ready, Set, Go’ guide for residents within the high fire area.

A list containing the federally regulated (communities which adjoin federal lands) communities at risk are within the Santa Barbara County’s Hazard Mitigation Plan, which includes the City of Santa Barbara

The figure (**Figure 5.7**) below provides an overview of the location of the Communities at Risk.

Figure 0.7 Communities at Risk

5.1.2.6 *History of Hazard in Santa Barbara*

Because Santa Barbara County and the City are prone to wildfires. Because there are many areas in which the County and City intersect there is a long history of wildfires in the County that have affected the City (see shaded incidents). **Table 5.5** lists the major wildfires in Santa Barbara County from 1922-2015.

Table 0.5 Major Wildfires in Santa Barbara County

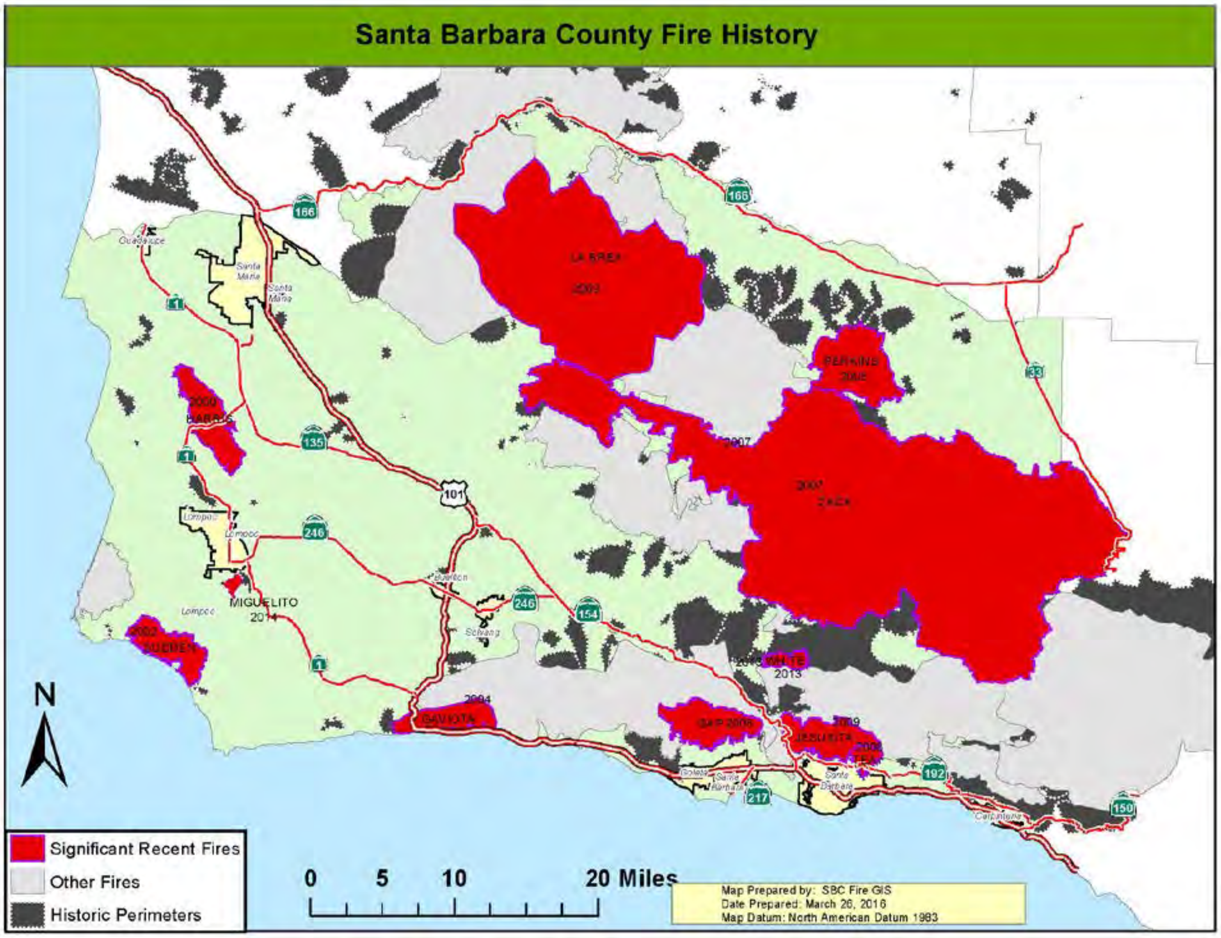
Year	Fire Name	Acres Burned
1922	Kellye Ranch	59,600
1923	Oso Canyon	70,000
1928	Aliso Canyon	42,880
1933	Indian Canyon	30,800
1950	San Marcos	9,500
1953	Big Dalton	73,450
1955	Refugio	84,770
1964*	Coyote	67,000
1966	Wellman	93,600

1971	Romero	14,538
1977*	Sycamore Canyon	805
1977	Hondo Canyon	8,087
1979	Spanish Ranch	1,190
1979	Eagle Canyon	3,765
1990*	Paint	4,424
1993	Marre	43,864
1994	Oak Hill	2,130
1997	Santa Rosa	3,074
1999	Spanish Ranch	22,296
1999	Camuesa	180
2000	Harris	8,684
2002	Sudden	7,500
2004	Gaviota	7,197
2006	Perkins	14,923
2007	Zaca	240,807
2008	Gap	9,443
2008*	Tea	1,940
2009*	Jesusita	8,733
2009	La Brea	89,489
2010	Bear Creek	1,252
2011	Figueroa	698
2013	White	1,984
2015	Miguelito	632

***Fires effecting the City of Santa Barbara**

The CDF-FRAP compiles fire perimeters of wildfires and has established an on-going fire perimeter data capture process. The map below (**Figure 5.8**) shows historic, significant wildfire perimeters in Santa Barbara County. Fire perimeters provide a reasonable view of the spatial distribution of past large fires.

Figure 5.8 Santa Barbara County Fire History



Map Prepared by: SBC Fire GIS
Date Prepared: March 26, 2016
Map Datum: North American Datum 1983

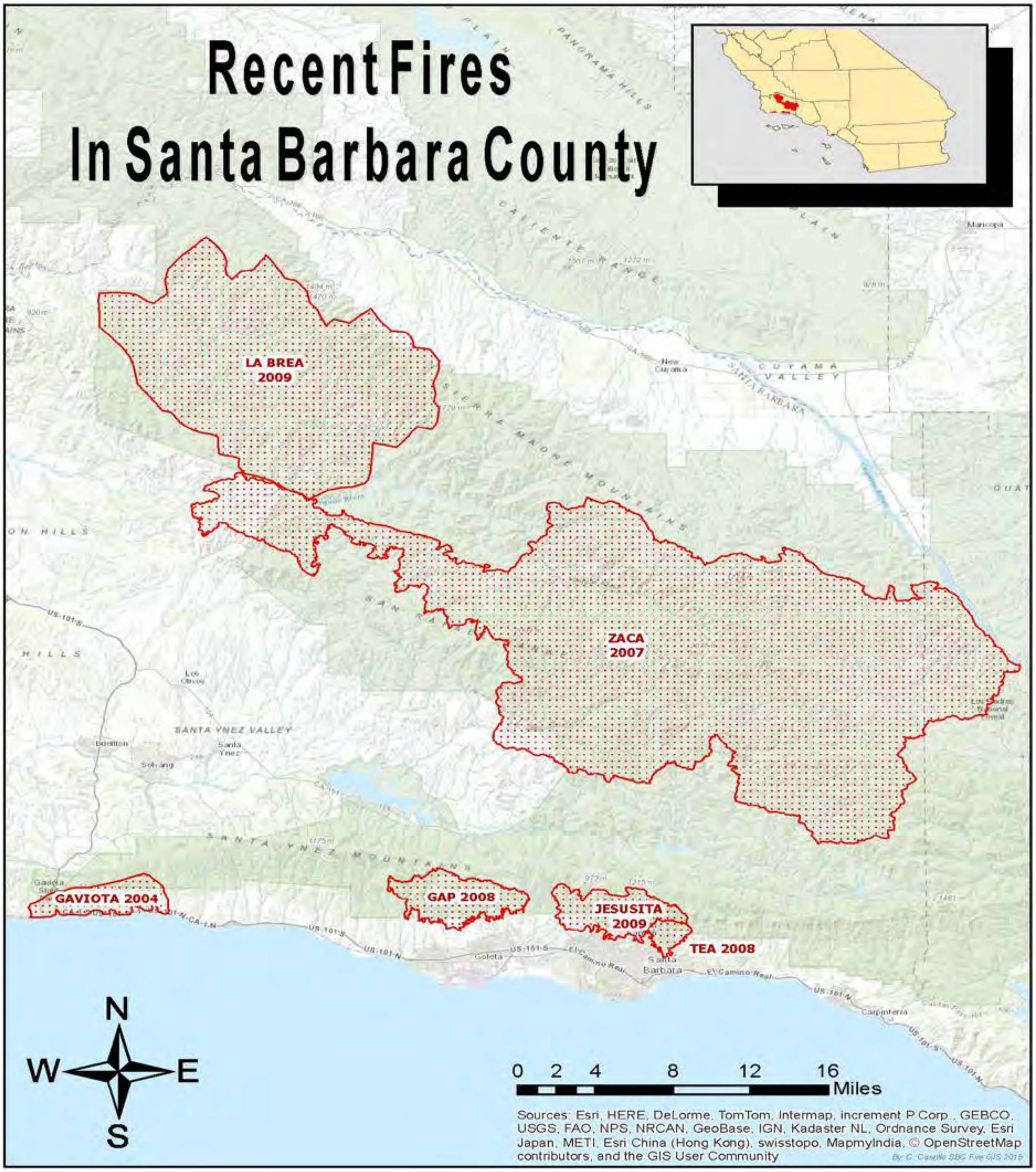
Over the last ten years, Santa Barbara County has experienced seven (7) major fires. Three of these fires; Gap, Tea, and Jesusita; directly threatened the heavily populated Santa Barbara Front Country and areas of the City of Santa Barbara. Two of these fires, Tea and Jesusita, destroyed close to three hundred structures and burned a total 16 ½ square miles. Combined, the La Brea Fire and the Zaca Fire burned a total of 518 square miles, predominately in backcountry areas of the County. Although these two fires did not directly threaten urban areas, the smoke and ash produced created air quality issues for hundreds of miles. Recently the Miguelito and the Mesa fires threatened the Lompoc area (2015). While more extensive discussion of previous wildfires in Santa Barbara County is available, the following information provides an overview and the location (**Figure 5.9**) of the more recent, significant events:

- The Zaca Wildfire burned 240,207 acres, making the Zaca Fire one of the largest wildfires in California history. The total cost of suppression was over $119 million.
- The Gap Wildfire charred 9,443 acres of forest in the Los Padres National Forest. The fire was located in the Santa Ynez Mountains north of the community of Goleta.
- The Jesusita Fire burned over 8,700 acres in the hills above the City of Santa Barbara. This wildfire was driven by a combination of a large dead fuel bed and sundowner winds gusting over 60 miles per hour. The damage, as a result of this fire, was significant, with

80 homes destroyed and another 15 homes badly damaged. No deaths were reported, but at least 30 firefighters were injured battling the fire.

- The La Brea Wildfire burned over 89,000 acres in the Los Padres National Forest in the County of Santa Barbara. The fire was fueled by very hot temperatures, low relative humidity and significant heavy fuels.

Figure 5.9 Recent Fires in Santa Barbara County



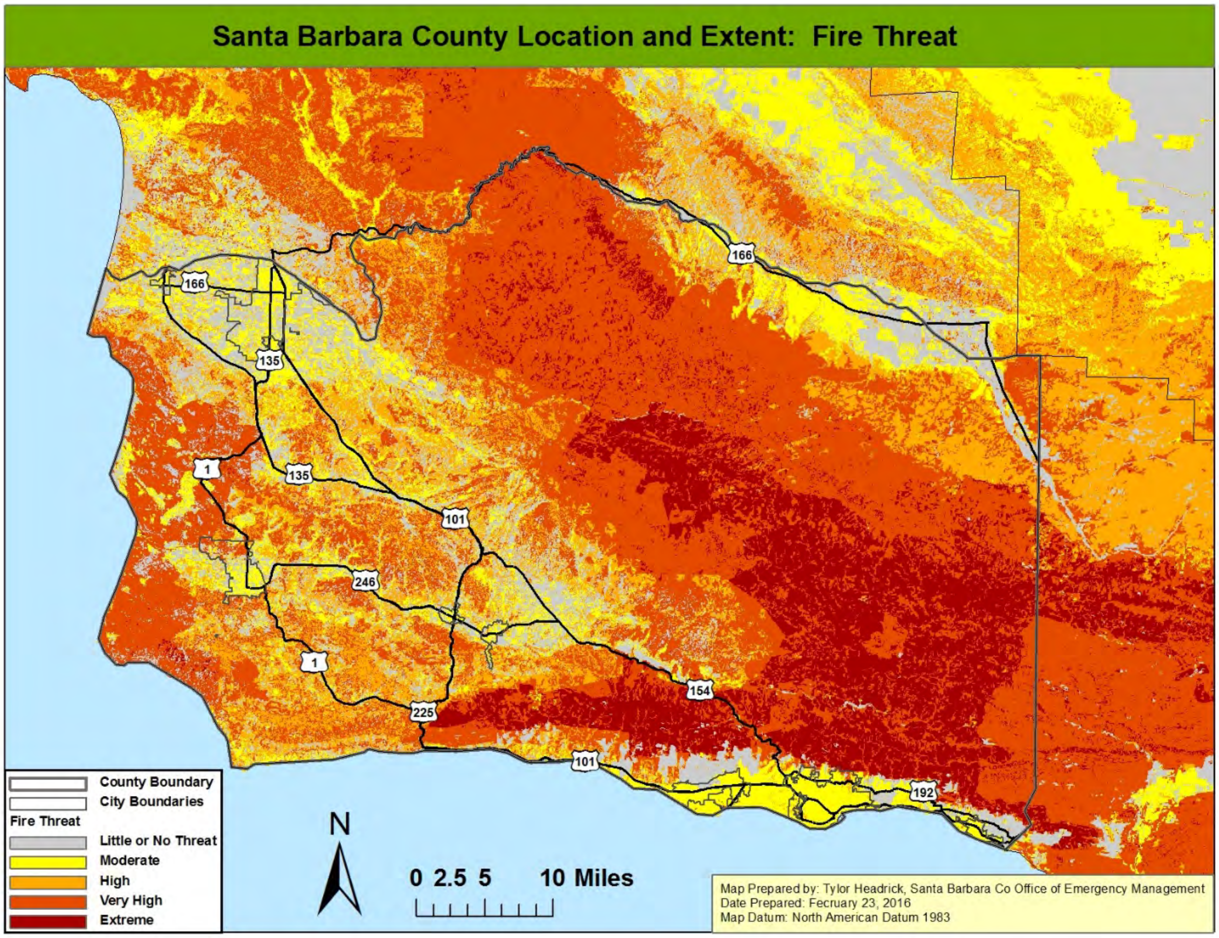
Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

5.1.2.7 Probability of Occurrence

Vegetation and topography were the significant elements in the identification of the fire threat zones. A substantial amount of the vegetation in Santa Barbara is commonly called chaparral, it is a dense and scrubby bush that has evolved to persist in a fire-prone habitat. Chaparral plants will eventually age and die; however, they will not be replaced by new growth until a fire rejuvenates the area. Chamise, manzanita and ceanothus are all examples of chaparral which are quite common in Santa Barbara County.

Santa Barbara County was subject to 29 major wildfires over 88 years, resulting in a 33% chance of occurrence in any given year. In addition, the map below (**Figure 5.10**) shows the threat of fire to Santa Barbara County. Fire threat is a combination of two (2) factors: 1) fire frequency or the likelihood of a given area burning, and 2) potential fire behavior. These two factors are combined to create four (4) threat classes ranging from moderate to extreme.

Figure 5.10 Fire Threat



Map Prepared by: Tylor Headrick, Santa Barbara Co Office of Emergency Management
Date Prepared: Fecruary 23, 2016
Map Datum: North American Datum 1983

5.1.2.8 Climate Change Considerations

Climate change plays a significant role in wildfire hazards. The changing conditions from wet to dry can create more fuel; the increased possibility of high winds increase risk and present a challenge, and drought conditions could hinder ability to contain fires. Large wildfires also have several indirect effects beyond those of a smaller, local fire. These may include air quality and health issues, road closures, business closures, and other forms of losses. Furthermore, large wildfires increase the threat of other disasters such as landslide and flooding.

5.1.3 Landslide and other Earth Movements

5.1.3.4 Description of Hazard

Landslides can be defined as the movement of a mass of rock, debris, or earth down an incline. Types of landslides include: rock falls, rock slides, deep slope failures, shallow debris flows, and mud flows.

- Slope failure occurs when there is erosion of slopes by surface-water runoff. The intensity of slope wash is dependent on the discharge and velocity of surface runoff and on the resistance of surface materials to erosion.
- Mudflows are defined as flows or rivers of liquid mud down a hillside on the surface of normally dry land. They occur when water saturates the ground, usually following long and heavy rain falls, or rapid snow melt. Mud forms and flows down slope if there is no ground cover such as brush or trees to hold the soil in place.
- Debris Flow is defined when water begins to wash material from a slope or when water sheets off of a newly burned stretch of land. Chaparral land is especially susceptible to debris flows after a fire. The flow will pick up speed and debris as it descends the slope. As the system gradually picks up speed it takes on the characteristics of a basic river system, carrying everything in its path along with it.

The most common cause of a landslide is an increase in the down slope gravitational stress applied to slope materials, also known as over-steepening. Over-steepening can be caused by natural processes or by man-made activities. Undercutting of a valley wall by stream erosion or of a sea cliff by wave erosion are ways in which over-steeping may occur naturally.

5.1.3.5 Location and Extent of Hazard in Santa Barbara

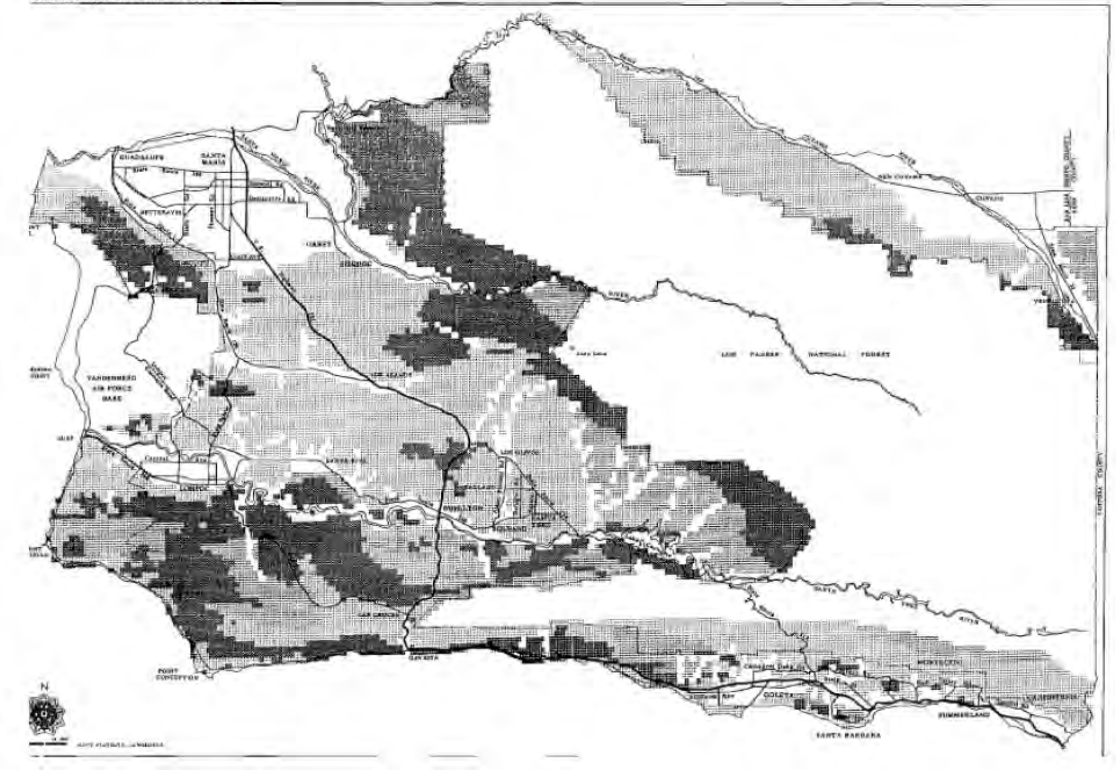
The location and extent of landslides are extremely difficult to predict consistently for a planning area the size of Santa Barbara County. Landslides and landslide prone sedimentary formations are present throughout the coastal plain of western Santa Barbara County (**Figure 5.11**). Landslides also occur in the granitic mountains of East Santa Barbara County, although they are less prevalent. Many of these landslides are thought to have occurred under much wetter climatic conditions than at present. Recent landslides are those with fresh or sharp geomorphic expressions suggestive of active (ongoing) movement or movement within the past several decades. Reactivations of existing landslides can be triggered by disturbances such as heavy rainfall, seismic shaking and/or grading. Many recent landslides are thought to be reactivations of ancient landslides.

Santa Barbara County
Slope Stability, Landslides

	Problem Rating	Possible Variation from Assigned Rating
☐	1. Low	1. No Variation
░	1. Low	4. +2 (High)
▒	2. Moderate	6. ±1 (Low, High)
▓	3. High	5. -2 (Low)
█	3. High	3. -1 (Moderate)

Figure 0.11 Slope Stability, Landslides

SLOPE STABILITY, LANDSLIDES
SANTA BARBARA COUNTY



The Santa Barbara County Comprehensive Plan Seismic Safety and Safety Element lists the areas in Santa Barbara County, that include a small portion of the City, where there is fairly severe land sliding and associated geologic formations. The areas are as follows:

- Foothills in the Summerland area
- Foothills of the South Coast – from Santa Barbara west to Gaviota Pass
- Hope Ranch area – west of Lavigia Hill to Goleta
- Sea cliffs along the coast from Santa Barbara to Gaviota, particularly those with out-of-slope dips
- Solvang area south of the Santa Ynez River in the vicinity of, and east of Alisal Ranch
- Areas east and northeast of Los Olivos near the Los Padres National Forest boundary
- Lompoc area south of Santa Ynez River
- Mountains south of Guadalupe and east of Point Sal
- Sycamore Canyon Road area between Alameda Padre Serra and Stanwood Drive; although in the county had a big effect on the City in regards to fire response and mutual aid in that area.

5.1.3.6 History of Hazard in Santa Barbara

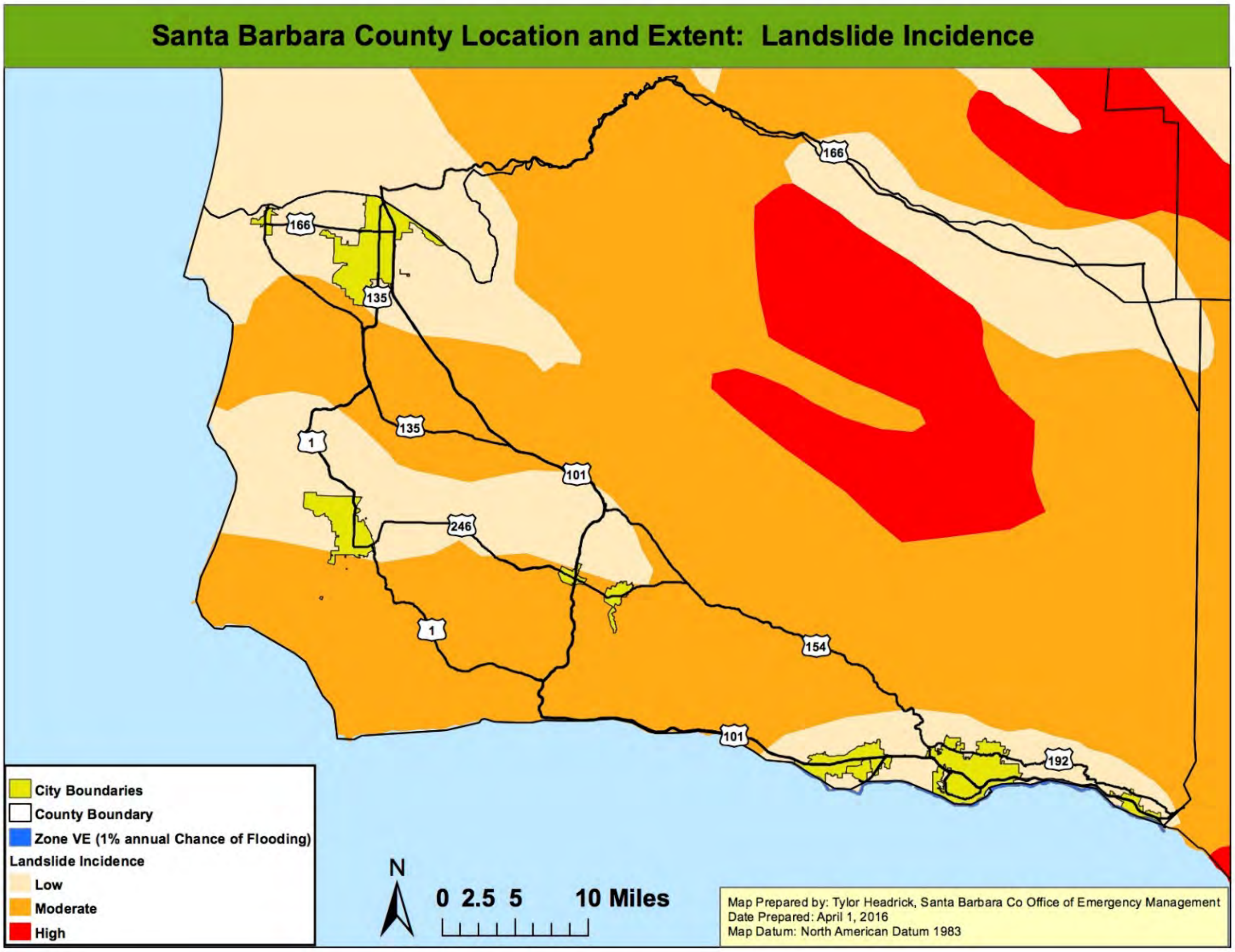
As previously mention, Santa Barbara County is prone to landslides; however the City has not experience any significant slides. However, some slides within the county has affected a few transportation corridors and hampered first responders

5.1.3.7 Probability of Occurrence

Figure 5.13 shows the general locations of high and moderate landslide risk in Santa Barbara County These areas are considered to have a higher probability of landslide occurrence than the low landslide risk areas in Santa Barbara County.

In order for landslides to occur, the correct geological conditions, which include unstable or weak soil or rock, and topographical conditions, such as steep slopes, are necessary. Heavy rain often triggers these hazards, as the water adds extra weight that the soil cannot bear. Over irrigating has the same affect. Earthquakes can also affect soil stability, causing enough weakening to favor gravitational forces.

Figure 0.13 Landslide Incidence



5.1.3.8 Climate Change Consideration

Climate change can increase the frequency and/or intensity of landslides. Changes in precipitation, specifically the increased frequency of intense precipitation, can result in a water content the ground cannot tolerate, and may cause landslides. These landslides may happen more frequently due to the increased number of heavy rainfall events. Also, the increased heavy precipitation events may cause instability in areas where landslides we not as likely before. Therefore, resulting landslides may be larger or more widespread.

5.1.4 Flood

5.1.4.4 *Description of Hazard*

A flood is a general and temporary condition of partial or complete inundation on land that is normally dry. Several factors determine the severity of floods, including rainfall intensity and duration, antecedent moisture conditions, surface permeability, and geographic characteristics of the watershed such as shape and slope. Other causes can include a ruptured dam or levee, rapid ice or snow melting in the mountains, under-engineered infrastructure, or even a poorly placed beaver dam can overwhelm a river or channel and send water spreading over adjacent land or floodplains.

A large amount of rainfall in a short time can result in flash flood conditions, as can a dam failure or other sudden spill. The National Weather Service's definition of a flash flood is a flood occurring in a watershed where the time of travel of the peak of flow from one end of the watershed to the other is less than six hours.

Another form of flooding occurs when coastal storms produce large ocean waves that sweep across coastlines making landfall. Storm surges inundate coastal areas, destroy dunes, and cause flooding. If a storm surge occurs at the same time as high tide, the water height will be even greater. The County historically has been vulnerable to storm surge inundation associated with tropical storms and El Nino.

5.1.4.5 *Location and Extent of Hazard in Santa Barbara*

The geographical location, climate, and topography of Santa Barbara City and County make it prone to flooding. In regions such as Santa Barbara, without extended periods of below-freezing temperatures, floods usually occur during the season of highest precipitations or during heavy rainfalls after long dry spells. Additionally, due to the Mediterranean climate and the variability of rainfall, stream flow throughout the County is highly variable and directly impacted from rainfall with little snowmelt or base flow from headwaters. Watercourses can experience a high amount of sedimentation during wet years and high amounts of vegetative growth during dry and moderate years.

The drainages in the City of Santa Barbara are characterized by high intensity, short duration runoff events, due to the relatively short distance from the top of the Santa Ynez Mountains to the Pacific Ocean. Runoff from high intensity, short duration storm events can cause inundation of over bank areas, debris including sediment, rock, downed trees in the water that can plug culverts and bridges, erosion and sloughing of banks, and loss of channel capacity due to sedimentation.

Another contributing factor to flooding is the City's location along the Pacific Ocean. With its six (6) miles of coastline, the City is susceptible to storm surge events following storms off the coast. Additionally, portions of the City's subject to flooding due to flash flooding, urban flooding, watershed channel overflow, and downstream flooding.

5.1.4.6 *History of Hazard in Santa Barbara*

Flooding has been a major problem in the City of Santa Barbara. The City has several watershed areas that have different types of flooding problems, including over bank riverine flooding, flash floods, tidal flooding/tsunamis, and dam failure. The most common flooding in Santa Barbara is due to watershed channel flooding and flash flood events.

Between 1862 and the 2014, Santa Barbara City and County experienced 19 significant floods. Eight of these floods received Presidential Disaster Declarations. **Table 5.6** lists these floods, as well as information concerning the nature of the flooding and the extent of the damages. Shaded events occurred in the City of Santa Barbara.

Table 0.6 Historical Records of Large Floods in Santa Barbara County

Date	Damages	Source of Estimate	Comments
1862	Not available	1993 Precipitation Report	Largest discharges ever in California
1907	Significant damage to structures, crops	1993 Precipitation Report	4 straight days of rain, entire Lompoc Valley engulfed
1914	Twelve houses and six bridges lost	County of Santa Barbara Sanitation and Flood Control	Destroyed 2 dams, 22 deaths
1952	50+ homes inundated, large-scale evacuations	EIR, 1993 Precipitation Report	Propagated the formation of the Flood Control District
1964	Millions of dollars	Floodplain Information Montecito Streams Vicinity of Montecito, SB County	Relatively light rain fell on recently burned areas. 20' walls of water, mud, boulders, and trees
1969	$4.5 million	Floodplain Information Montecito Streams Vicinity of Montecito, SB County	Highest flows in 2900 years on Santa Ynez River, 16" of rain in 24 hours at Juncal Dam
1971	Federal Disaster Declaration	Floodplain Information Montecito Streams Vicinity of Montecito, SB County	High flows and flooding along Romero Canyon Creek, Garrapata Creek, and Toro Canyon Creek
1978	Millions of dollars, Presidential Disaster Declaration	1993 Precipitation Report and Hydrology Methods	Inundation of agricultural areas and mudslides.
1980	Presidential Disaster Declaration	n/a	Severe flooding, mudslides, and high tides throughout County
1982-1983	2 Presidential Disaster Declarations	n/a	Parts of southern California received over 200% of normal rainfall
1993	$1.4 million in disaster recovery funds received from FEMA	1993 Precipitation Report and Hydrology Methods	180%-209% of normal rainfall, with highest-ever intensity for the County recorded at Buellton Fire Station: 1$^1/_4$ inches in 15 minutes.
January 1995	$50 million, Presidential Disaster Declaration	1995 Floods	Flooding on most major channels in Goleta, Santa Barbara, Montecito, and Carpinteria
March 1995	$30 million, Presidential Disaster Declaration	1995 Floods	Major flooding in Goleta, Santa Barbara, and Montecito, many of the same structures flooded in January were flooded again

Date	Damages	Source of Estimate	Comments
1998	$15 million, Presidential Disaster Declaration	1998 Flood Report	21.36" of rainfall that month in Santa Barbara, many areas at 600% of normal February rainfall
February 2005	$2 million	NCDC	In Santa Barbara county, flash flooding and mudslides closed down Highway 101 at Bates Road.
January 26, 2011	Total Individual Assistance: $1,909,557 Total Public Assistance: $75,414,223 Countywide per capita impact: Santa Barbara County- $9.43, Presidential Disaster Declaration	FEMA	Severe winter storms, flooding, and debris and mudflows occurred from December 17, 2010 to January 4, 2011. The counties affected include: Inyo, Kern, Kings, Orange, Riverside, San Bernardino, San Diego, San Luis Obispo, Santa Barbara, and Tulare.
March 2011	$1.7 Million	County Insurance Claims	A severe winter storm occurred in March 2011 that included flooding, debris and mudflows flows throughout Santa Barbara County
March 1, 2014	$500k	Television Reports	A strong winter storm caused significant damage to coastal properties on the south coast of Santa Barbara County. Coastal Damage; Goleta Pier partially closed
December 12, 2014	<$100k	County Flood Control District	A brief but intense rainfall, portions of which covered a limited area that exceeded a 200-year return period, caused damage county-wide, mostly in the form of downed trees, bank erosion and sediment and debris deposition.

While there is extensive detailed documentation of historical flood events in Santa Barbara County, the following section provides a summary of the more recent significant flood events:

1992 Flood- The 1992 – 1993 rainy season was one of the wettest recorded in Santa Barbara County, areas of the County received 180% to 209% normal rainfall. One of the County's highest short-duration rainfall intensities was recorded during 1993; 1-¼-inches fell in fifteen minutes at the Buellton Fire Station. Following a 25-year storm event that occurred in late March, Santa Barbara was declared a federal disaster area with 12 creeks substantially damaged along with several detention basins and residences. Santa Barbara County received approximately $1.4 million in disaster recovery funds from FEMA. (1993 Precipitation Report and Hydrology Methods) (Presidential Disaster Declaration)

1995 Flood- The floods of 1995 brought widespread flooding to Santa Barbara County. The most severe flooding occurred on the South Coast while the rest of the County was largely spared from serious damages. On the South Coast, the 1995 Flood was more severe and wide spread than either the 1969 or 1967 floods. Flooding occurred on most major streams from Goleta to Montecito. Estimated public and private damages were around $100 million and the area was declared a federal disaster area. (1995 Floods)

January 1995- Flooding occurred on most major channels in Goleta, Santa Barbara, Montecito, and Carpinteria. Approximately 510 structures were reported flooded and/or damaged along the South Coast, with a total cost resulting from public and private damages of approximately $50,000,000. All modes of transportation in and out of the South Coast were cut off for several hours; some modes of transportation were not restored for several days. (1995 Floods) (Presidential Disaster Declaration)

March 1995- During the March 10th 1995 storm, major flooding occurred again in the areas of Goleta, Santa Barbara, and Montecito. More than 300 structures were reported flooded and/or damaged; many of the same structures flooded or damaged during the January 1995 storm event. Approximately 30 million dollars of public and private property were damaged during the storm. There was also one death due to this storm in the Sycamore Canyon area of the City. Once again, all modes of transportation in and out of the South Coast were cut off for several hours. (1995 Floods) (Presidential Disaster Declaration)

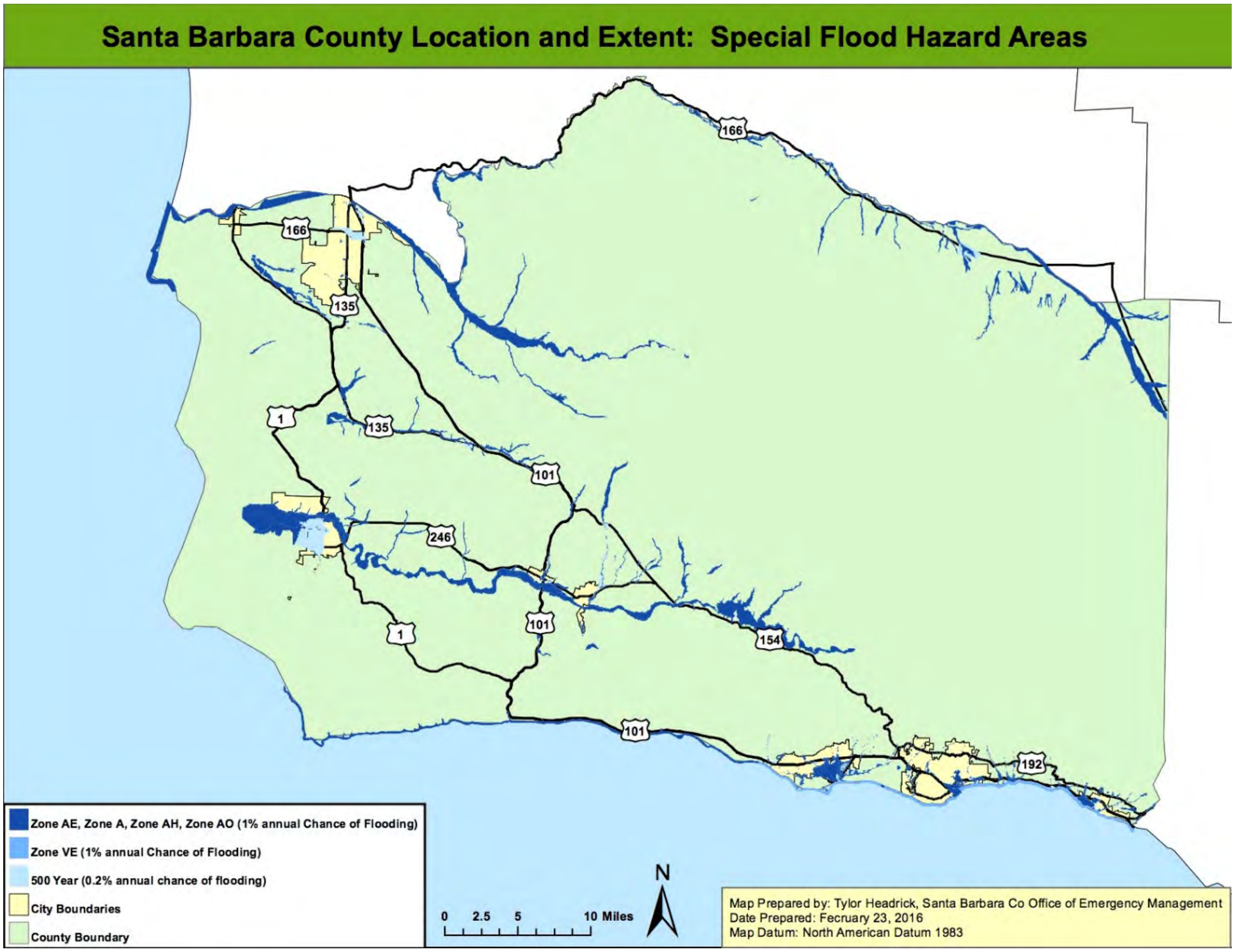
1998 Flood– February 1998 brought several record-breaking rainfalls with 50-year storm event intensities. The City of Santa Barbara recorded its wettest month in history, 21.36-inches of rainfall. By the end of the month, many areas in the County had received 600% of normal February rainfall. Flood related damages within Santa Barbara occurred during three major storm periods: February 1-4, February 6-9, and February 22-24. The cost to repair extensive flood damage to public and private property was estimated at $15 million. Just like in 1995, transportation throughout the County was disrupted through closures of roads, the Santa Barbara Airport, and train service. Flood damage was spread throughout the County and the County was declared a Federal Disaster Area on February 9. (Presidential Disaster Declaration)

Although the February storms had higher annual rainfalls, flooding in 1998 was considered less severe than other historical events due to flood control improvements, such as Cachuma Reservoir, and channel and debris dam maintenance performed by the County. (1998 Flood Report)

5.1.4.7 Probability of Occurrence

The probability of flooding in Santa Barbara County, which includes the City of Santa Barbara, is shown in **Figure 5.14**. The map shows the location of the special flood hazard zones in Santa Barbara County. The flood hazard zones depicted on the map are derived from FEMA’s Flood Insurance Rate Maps (FIRM) and indicate the probability of flooding happening over a given period of time. Flood zones are geographic areas that defined varying levels of flood risk. Each zone reflects the severity or type of flooding in the area. The FIRM boundaries are developed by FEMA to convey flood risk.

Figure 5.14 Special Flood Hazard Area



Within the coastal special flood hazard area, there are two primary flood zones: Zone VE and Zone AE. Zone VE, also known as the Coastal High Hazard Area, has a wave component that is greater than three feet in height. Coastal Zone AE has a wave component of 0-3 feet in height.

The Federal Emergency Management Agency is conducting a coastal flood study for Santa Barbara County as part of the California Coastal Analysis and Mapping Project. Results from this Open Pacific Coast Study will produce flood and wave data for the National Flood Insurance Program, Flood Insurance Study reports, and regulatory Flood Insurance Rate Map panels. [1]

This coastal study will result in floodplain mapping that is anticipated to become effective in 2018. Current indications are that the resulting base flood elevations will be several feet higher than the current flood mapping.

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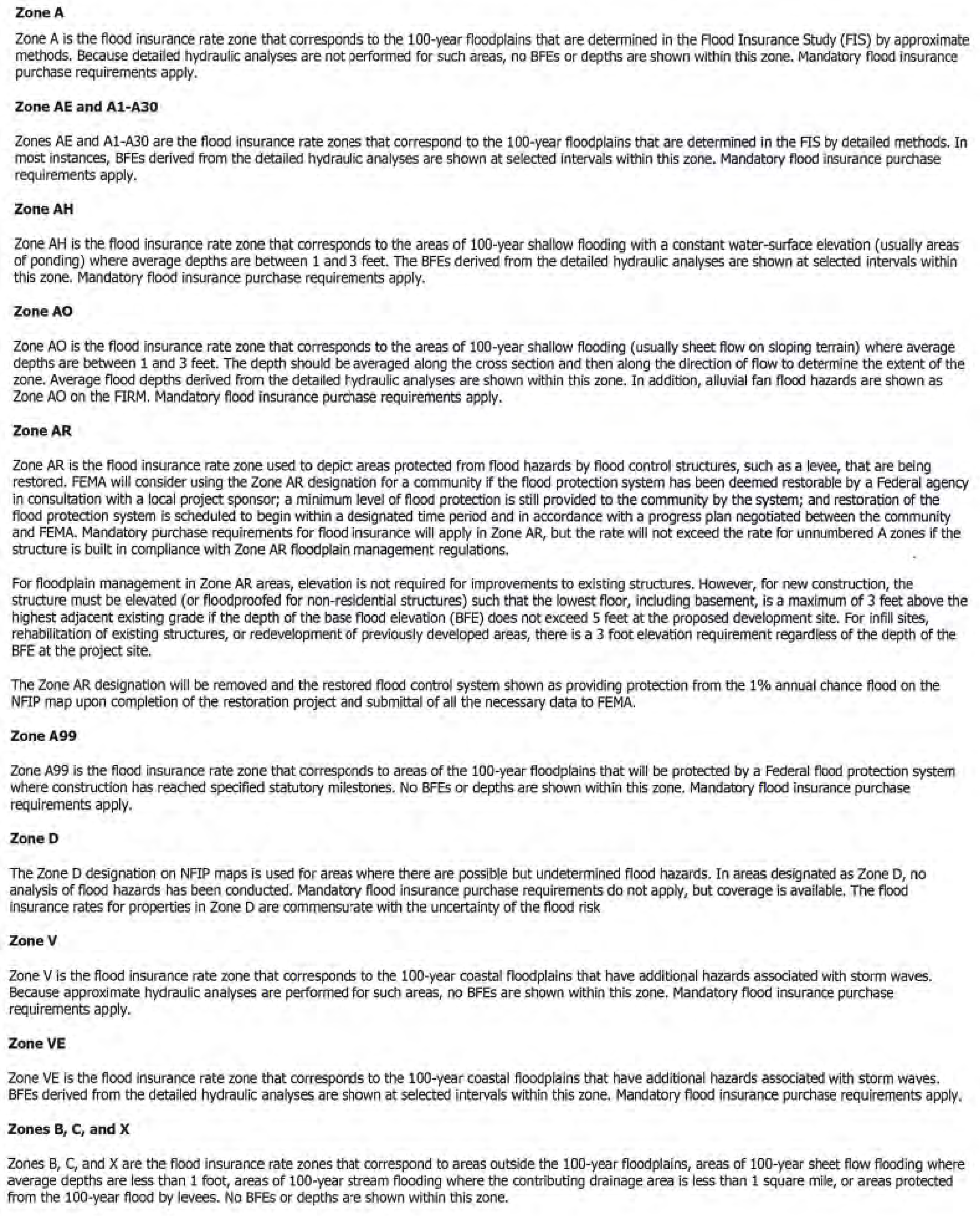
[1] Source: FEMA; Santa Barbara, California Open Pacific Coast Study, California Coastal Analysis and Mapping Project, April 2016

The following below describes the different flood hazard zones and their associated probabilities.



Zone A

Zone A is the flood insurance rate zone that corresponds to the 100-year floodplains that are determined in the Flood Insurance Study (FIS) by approximate methods. Because detailed hydraulic analyses are not performed for such areas, no BFEs or depths are shown within this zone. Mandatory flood insurance purchase requirements apply.

Zone AE and A1-A30

Zones AE and A1-A30 are the flood insurance rate zones that correspond to the 100-year floodplains that are determined in the FIS by detailed methods. In most instances, BFEs derived from the detailed hydraulic analyses are shown at selected intervals within this zone. Mandatory flood insurance purchase requirements apply.

Zone AH

Zone AH is the flood insurance rate zone that corresponds to the areas of 100-year shallow flooding with a constant water-surface elevation (usually areas of ponding) where average depths are between 1 and 3 feet. The BFEs derived from the detailed hydraulic analyses are shown at selected intervals within this zone. Mandatory flood insurance purchase requirements apply.

Zone AO

Zone AO is the flood insurance rate zone that corresponds to the areas of 100-year shallow flooding (usually sheet flow on sloping terrain) where average depths are between 1 and 3 feet. The depth should be averaged along the cross section and then along the direction of flow to determine the extent of the zone. Average flood depths derived from the detailed hydraulic analyses are shown within this zone. In addition, alluvial fan flood hazards are shown as Zone AO on the FIRM. Mandatory flood insurance purchase requirements apply.

Zone AR

Zone AR is the flood insurance rate zone used to depict areas protected from flood hazards by flood control structures, such as a levee, that are being restored. FEMA will consider using the Zone AR designation for a community if the flood protection system has been deemed restorable by a Federal agency in consultation with a local project sponsor; a minimum level of flood protection is still provided to the community by the system; and restoration of the flood protection system is scheduled to begin within a designated time period and in accordance with a progress plan negotiated between the community and FEMA. Mandatory purchase requirements for flood insurance will apply in Zone AR, but the rate will not exceed the rate for unnumbered A zones if the structure is built in compliance with Zone AR floodplain management regulations.

For floodplain management in Zone AR areas, elevation is not required for improvements to existing structures. However, for new construction, the structure must be elevated (or floodproofed for non-residential structures) such that the lowest floor, including basement, is a maximum of 3 feet above the highest adjacent existing grade if the depth of the base flood elevation (BFE) does not exceed 5 feet at the proposed development site. For infill sites, rehabilitation of existing structures, or redevelopment of previously developed areas, there is a 3 foot elevation requirement regardless of the depth of the BFE at the project site.

The Zone AR designation will be removed and the restored flood control system shown as providing protection from the 1% annual chance flood on the NFIP map upon completion of the restoration project and submittal of all the necessary data to FEMA.

Zone A99

Zone A99 is the flood insurance rate zone that corresponds to areas of the 100-year floodplains that will be protected by a Federal flood protection system where construction has reached specified statutory milestones. No BFEs or depths are shown within this zone. Mandatory flood insurance purchase requirements apply.

Zone D

The Zone D designation on NFIP maps is used for areas where there are possible but undetermined flood hazards. In areas designated as Zone D, no analysis of flood hazards has been conducted. Mandatory flood insurance purchase requirements do not apply, but coverage is available. The flood insurance rates for properties in Zone D are commensurate with the uncertainty of the flood risk

Zone V

Zone V is the flood insurance rate zone that corresponds to the 100-year coastal floodplains that have additional hazards associated with storm waves. Because approximate hydraulic analyses are performed for such areas, no BFEs are shown within this zone. Mandatory flood insurance purchase requirements apply.

Zone VE

Zone VE is the flood insurance rate zone that corresponds to the 100-year coastal floodplains that have additional hazards associated with storm waves. BFEs derived from the detailed hydraulic analyses are shown at selected intervals within this zone. Mandatory flood insurance purchase requirements apply.

Zones B, C, and X

Zones B, C, and X are the flood insurance rate zones that correspond to areas outside the 100-year floodplains, areas of 100-year sheet flow flooding where average depths are less than 1 foot, areas of 100-year stream flooding where the contributing drainage area is less than 1 square mile, or areas protected from the 100-year flood by levees. No BFEs or depths are shown within this zone.

5.1.4.8 Climate Change Consideration

Climate change is both a present threat and a slow-onset disaster. It acts as an amplifier of existing hazards. Extreme weather events have become more frequent over the past 40 to 50 years and this trend is projected to continue. Rising sea levels, changes in rainfall distribution and intensity are expected to have a significant impact on coastal communities, including portions of Santa Barbara County. This section presents a discussion of how climate change might impact the frequency, intensity and distribution of flood hazards.

5.1.5 Climate-related Hazards

This section assesses hazards that are related to climate and weather. NASA defines weather as the way the atmosphere is behaving, mainly with respect to its effects upon life and human activities. The difference between weather and climate is that weather consists of the short-term (minutes to months) changes in the atmosphere. Most people think of weather in terms of temperature, humidity, precipitation, cloudiness, brightness, visibility, wind, and atmospheric pressure, as in high and low pressure. In most places, weather can change from minute-to-minute, hour-to-hour, day-to-day, and season-to season. Climate, however, is the average of weather over time and space. Fifty-eight long-term changes in the climate, especially those driven by the accumulation of anthropogenic greenhouse gases in the atmosphere, are expected to change short-term weather patterns and thus change weather-related impacts, both short- and long-term. Most prominently, climate change is warming the average global temperatures, which will result in more frequent and intense extreme events related to changes in temperature and precipitation, such as heat waves, flooding.

In the State Hazard Mitigation Plan, climate change is treated as a condition that will change and potentially exacerbate the impact of other hazards rather than being treated as a distinct hazard with unique impacts. For example, extreme heat and heat waves is an existing hazard that will be exacerbated by climate change. Impacts of climate change on the frequency, timing, and magnitude of flooding varies with the geography throughout the state. Areas that experience early run off from snow melt coupled with intensified rain or coastal areas experiencing sea level rise may be more greatly impacted by flooding. Hazards that have the potential to be affected by climate change are grouped in this subsection.

The following section are the relevant climate-related hazards in Santa Barbara.

5.1.5.4 Sea Level Rise and Erosion

5.1.5.4.1 Description of Hazard

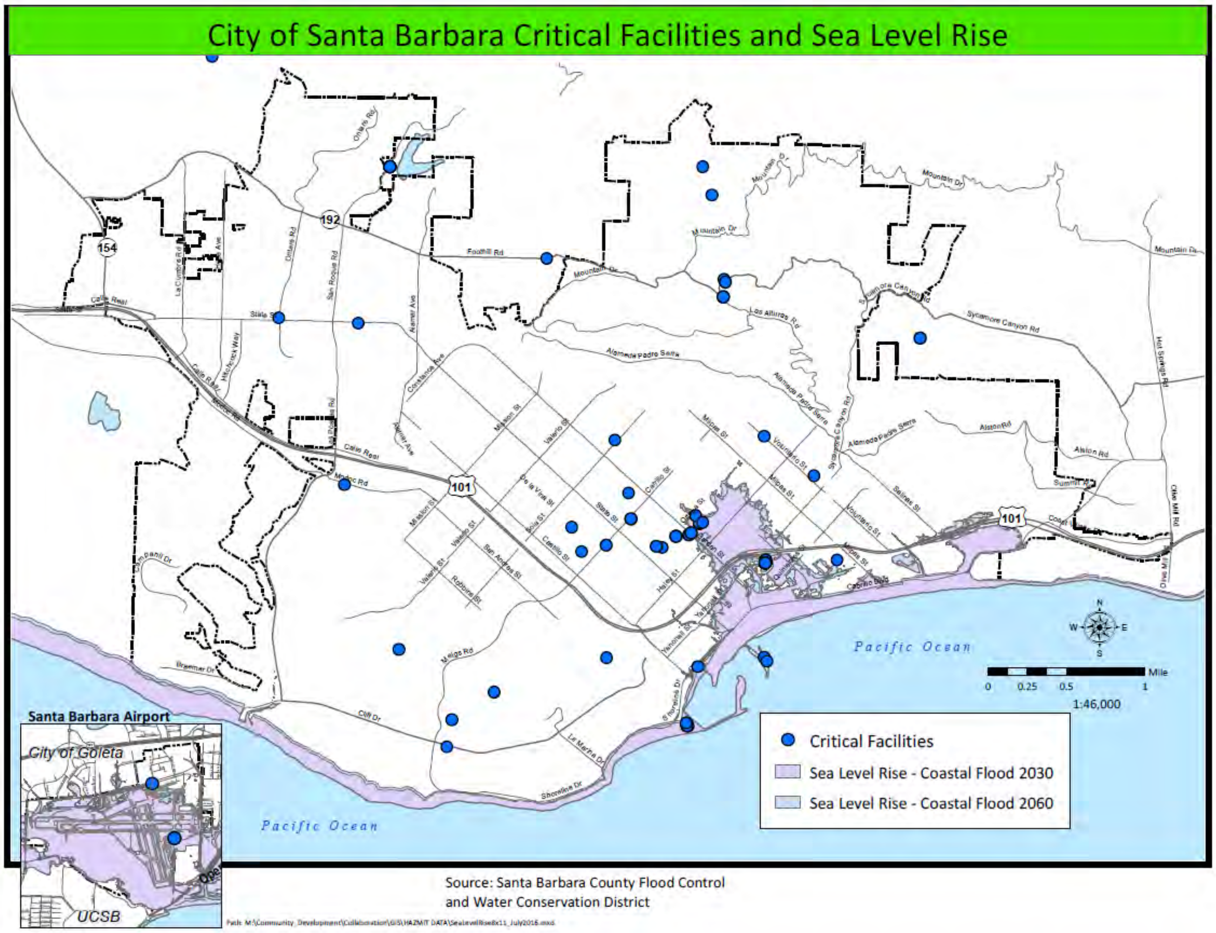
Sea level rise (SLR) is defined as the rising of the level of the sea as a result of the so-called greenhouse effect or global warming. SLR can occur through one or more of three (3) processes that include eustasy, isostasy, or thermal expansion. Erosion is a natural process which alters existing geomorphic features. Erosion can occur due to a number of factors, including winter storms, tidal action, wind-generated high surf, wave action, and rising sea levels.

In 2014, the City received a grant from the CCC to update the LUP, not including the Airport. The primary goals are to update and clarify LUP text, policies, and maps and to amend a targeted portion of the IP to include climate change adaption actions. The draft LUP update and targeted IP amendment are scheduled to be completed in spring 2016, followed by Planning Commission and City Council adoption and Coastal Commission certification.

One of the grant tasks was to conduct a sea level rise vulnerability assessment for the City. This task was fulfilled by a team of University of California Santa Barbara Bren School Master degree candidates. The <u>City of Santa Barbara Sea Level Rise Vulnerability Assessment (March 2015)</u> is being used to inform policy development and the development of practical short term measures for the targeted IP amendment.

5.1.5.4.2 Location and Extent of Hazard in Santa Barbara

The impacts from SLR and erosion in Santa Barbara City will be felt along its six (6) mile long coastline. SLR coupled with increased frequency, severity, and duration of high tide and storm events related to climate change will result in more frequent and severe extreme events along the coast. These events could expose the coast to severe flooding and erosion, damage to coastal structures and real estate, and salinity intrusion into delta areas and coastal aquifers (Projecting Future Sea Level, A Report from the California Climate Change Center, 2006).



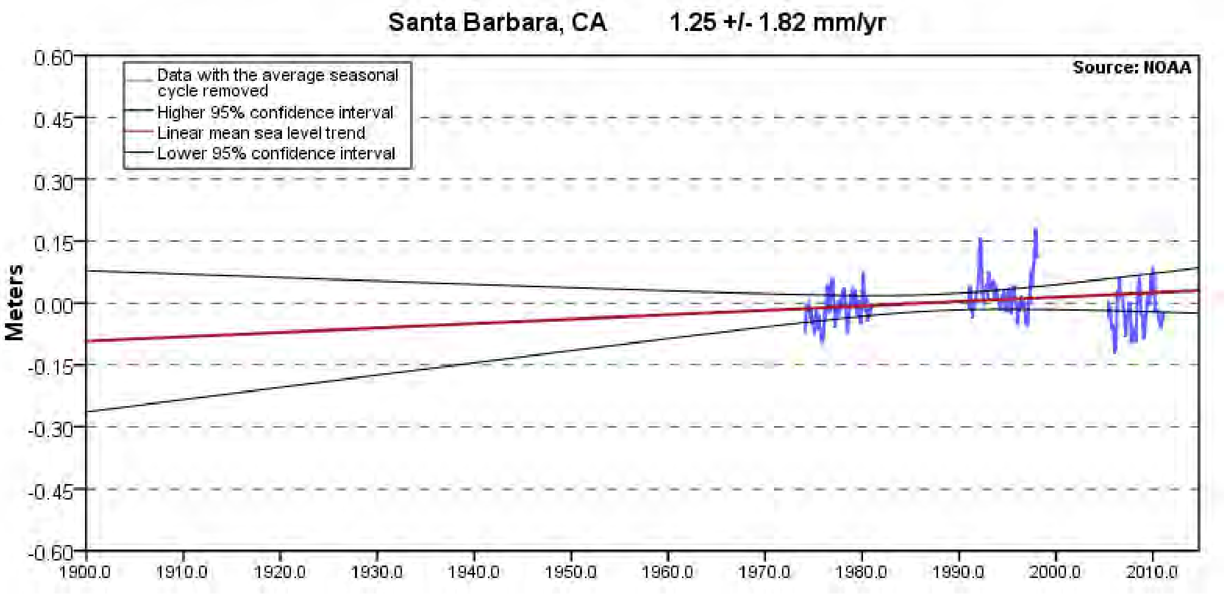
Source: Santa Barbara County Flood Control and Water Conservation District

5.1.5.4.3 History of Hazard in Santa Barbara

Typically, the highest sea level readings along California's coastline occur during periods of heavy rain that coincide with high tides, causing coastal flooding, coastal bluff erosion, and landslides such as were experienced during the 1998 El Nino storms. Sea levels are already rising along the Santa Barbara County and City coastlines as is evident in long term tidal gauge records from

Station 9411340 since 1973, where the rate of rise has been approximately 0.41 feet per century[2] (**Figure 5.15**).

Figure 0.15 Mean Sea Level Trend in Santa Barbara



5.1.5.4.4 Probability of Occurrence

As discussed above, the potential impacts of global warming and climate change include increased opportunities for severe weather that may result in sea level rise and erosion. Santa Barbara County's land mass includes more than 110 miles of coastline, which includes six (6) miles in the City of Santa Barbara, with varying geologic features including steep coastal bluffs, beaches, wetlands, bays, and deltas. It also supports varying levels of development and land use, including recreational, agricultural, industrial, commercial, and residential.

A growing consensus of scientists believes that sea level rise will continue and the rate of rise will increase. The Intergovernmental Panel on Climate Change (IPCC) suggests that global SLR on the order of 0.2 m (0.66 ft.) and 0.6 m (1.97 ft.) is possible by 2100 with other scientists indicating this rise could be over 1 meter (3.28 ft.). [3] **Figure 5.16** depicts areas (dark blue along and near the Santa Barbara County coastline that may be vulnerable to sea level rise in a 1.4 meter sea level rise scenario. [4] From the figure, it is apparent that a considerable number of buildings and infrastructure may be impacted.

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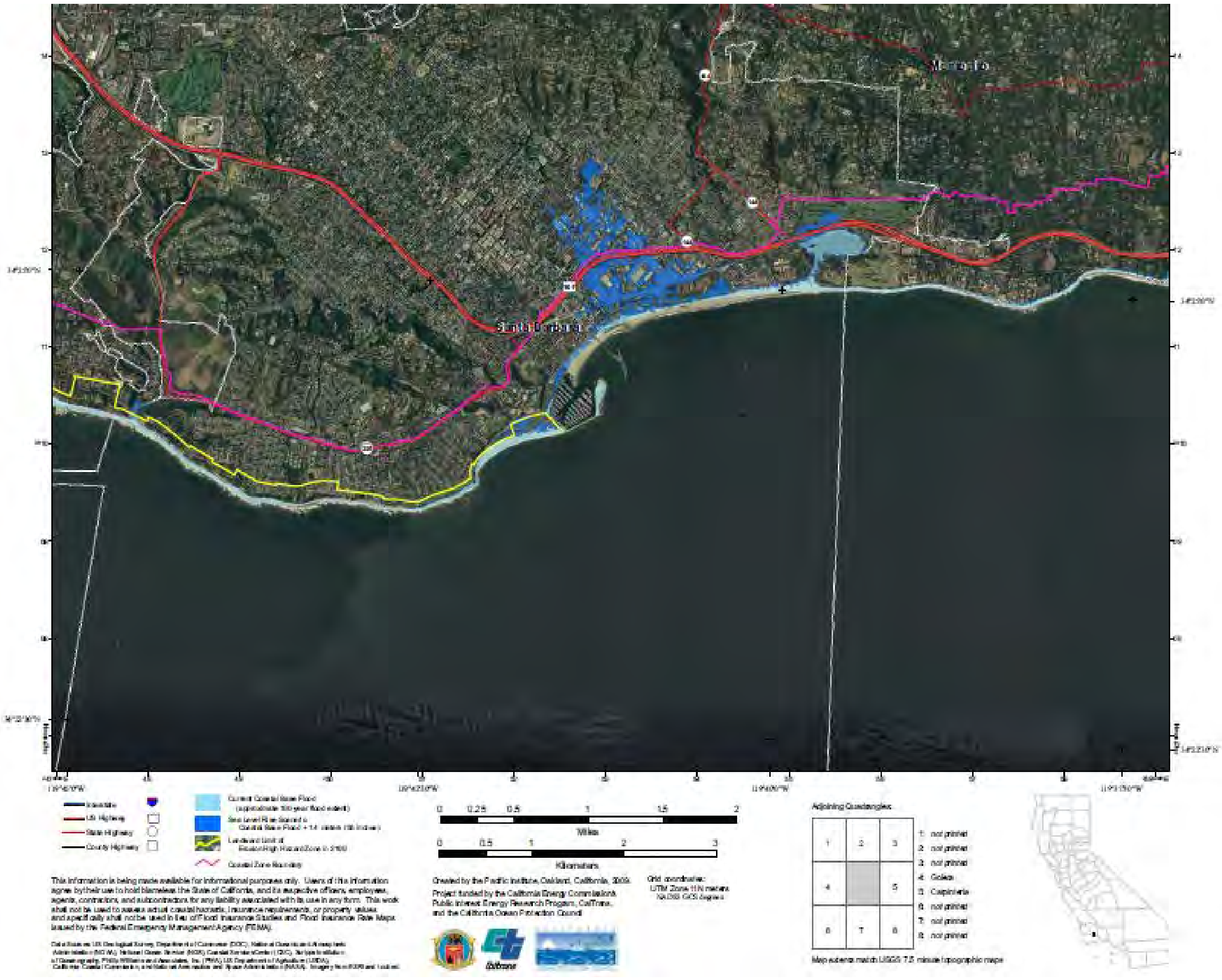
[2] NOAA: http://tidesandcurrents.noaa.gov/sltrends/sltrends_station.shtml?stnid=9411340; retrieved April 6, 2011.

[3] M. Vermeer and S. Rahmstorf. 2009. Global sea level linked to global temperature. Proceedings of the National Academy of Sciences, USA.

[4] M. Heberger, H. Cookley, P. Herrera, The Pacific Institute, May 2009. The Impacts of Sea-Level Rise on The California Coast.

Figure 0.16 Sea Level Rise Santa Barbara Quadrangle



5.1.5.4.5 Climate Change Considerations

This entire section is dedicated to climate change hazards, and as such, is focused on climate change's effects on the community. However, it is important to highlight climate change's potential direct impact.

As mentioned above, SLR can be caused by three (3) different processes. Two (2) of which, melting of ice sheets and/or thermal expansion of water, are a result of climate change and/or global warming.

Erosion can be increased by climate change in two (2) ways. First, sea level rise, over time, will cause more rapid erosion of more inland areas than in previous years. This will be chronic erosion, however it will reach new, more inland areas, in the future due to higher average sea levels. Secondly, while the topic of increased frequency of storms is up in debate, if more severe or frequent storms do occur, it will increase coastal erosion events. More frequent storms will impact how frequently acute coastal erosion events occur, while more intense events will cause the erosion to extend further inland than before.

5.1.5.5 Drought and Water Shortages

5.1.5.5.1 Description of Hazard

Drought and water shortages are a gradual phenomenon and generally are not signified by one or two dry years. California's and Santa Barbara's extensive system of water supply infrastructure (reservoirs, groundwater basins, and interregional conveyance facilities) generally mitigates the effects of short-term dry periods for most water users. However, drought conditions are present when a region receives below-average precipitation, resulting in prolonged shortages in its water supply, whether atmospheric, surface, or ground water. A drought can last for months or years, or may be declared after as few as 15 days.

5.1.5.5.2 Location and Extent of Hazard in Santa Barbara

The entire county is subject to drought conditions and water shortages.

5.1.5.5.3 History of Hazard in Santa Barbara

Santa Barbara County has had three (3) State and/or Federally declared drought disasters since 1950; in 1990, 1991, and 2001. The State of California and Santa Barbara are currently in a drought. The average rainfall in downtown Santa Barbara City is 18.25 inches; however, since 2016, Santa Barbara has experienced significantly less than normal rainfall. The effects of the drought are most visible when looking at the current capacity and maximum storage of the two main water reservoirs in the county, Lake Cachuma and Twitchell. On February 16, 2016, Cachuma was reported to be at 14.9% capacity, and Twitchell was at 0.2% capacity.

5.1.5.5.4 Probability of Occurrence

In any given year, Santa Barbara County, which includes the City of Santa Barbara, can be subject to drought conditions and water shortages. For this reason, the City is currently in the process of building a desalination plant which should be operational in the fall of 2016. Click here for updated information on the progress of the plant.

5.1.5.5.5 Climate Change Considerations

This entire section is dedicated to climate change hazards, and as such, is focused on climate change's effects on the community. However, it is important to highlight climate change's potential direct impact.

Climate change has the potential to make drought events more common in the West, including California. Extreme heat creates conditions more conducive for evaporation of moisture from the ground, thereby increasing the possibility of drought. A warming planet could lead to earlier melting of winter snow packs, leaving lower stream flows and drier conditions in the late spring and summer. Snow packs are important in terms of providing water storage and ensuring adequate supply in the summer, when water is most needed. Changing precipitation distribution and intensity have the potential to cause more of the precipitation that does fall to run-off rather than be stored. The result of these processes is an increased potential for more frequent and more severe periods of drought.

5.1.5.6 Severe Weather and Storms

5.1.5.6.1 Extreme Heat

5.1.5.6.1.1 Description of Hazard

Extreme Heat is a function of heat and relative humidity. A Heat Index describes how hot the heat-humidity combination makes the air feel. As relative humidity increases, the air seems warmer than it actually is because the body is less able to cool itself via evaporation of perspiration. As the Heat Index rises, so do health risks such as heat exhaustion, sunstroke, and heatstroke. Some Heat Index Program Alert procedures are implemented when the high temperature is expected to exceed 105° to 110° (depending on local climate) for at least two consecutive days.

5.1.5.6.1.2 Location and Extent of Hazard in Santa Barbara

The entire county, which includes the City of Santa Barbara, is subject to extreme heat conditions, particularly inland areas.

5.1.5.6.1.3 History of Hazard in Santa Barbara

Santa Barbara County and City has experienced several extreme heat events in the past; however, they are not well documented. One documented event occurred in September 1856 where a U.S. Coast Guard vessel recorded a record temperature of 135 degrees Fahrenheit during a sundowner event on the Santa Barbara coast.

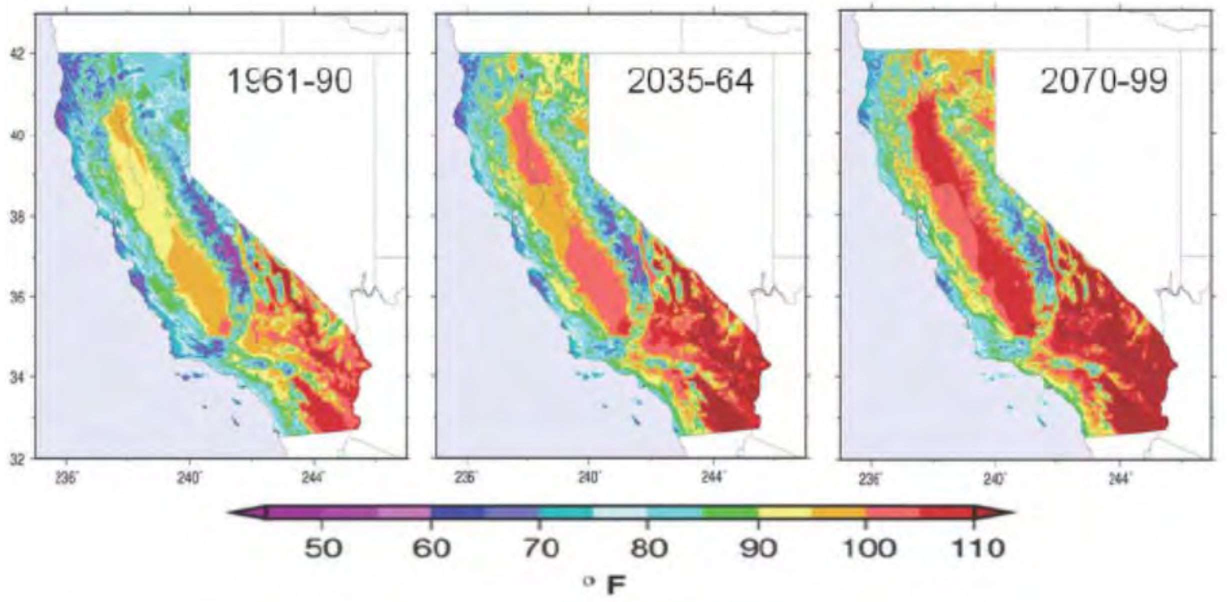
5.1.5.6.1.4 Probability of Occurrence

In any given year, Santa Barbara can be subject to extreme heat conditions.

5.1.5.6.1.5 Climate Change Considerations

As temperatures rise due to climate change, Californians will face greater risk of death from dehydration, heat stroke/exhaustion, heart attack, stroke, and respiratory distress caused by extreme heat. By mid-century, extreme heat events in urban centers could cause two to three times more heat-related deaths than occur today. By 2100, hotter temperatures are expected throughout the state, with an increase of 3 to 5.5°F under the lower emissions scenario and 8 to 10.5°F under the higher emissions scenario (**Figure 5.17**).

Figure 5.17 Comparison between Historic and Projected Temperature



5.1.6 Energy Shortage and Resiliency

5.1.6.4 Description of Hazard

Energy shortages (or disruptions) are considered a form of lifeline system failure. Disruptions can be the consequence of another hazard, or can be a primary hazard, absent of an outside trigger. A failure could involve one, or a combination of the potable water system, power system, natural gas system, wastewater system, communication system, or transportation system. Most power blackouts are not human caused. They are the result of situations involving unintended events, such as an overwhelming need for power due to weather conditions, equipment failure, or accidents. They may also fail due to natural hazards such as earthquakes, floods, and landslides. These outages can last anywhere from a few minutes to several weeks.

Santa Barbara County has two service providers. Pacific Gas and Electric (PG&E) provides electricity in the northern part of the County, with termination of services north of the Gaviota area. Southern California Edison (SCE) provides power to the Southern parts of the County, with termination of services in Gaviota. The two systems are not connected. Thus, is there is a major interruption of service in the Santa Barbara area, then all serviced could be denied in either direction.

Both power companies are well aware of the restrictions on their systems and are making planned systematic changes to address the shortcomings. SCE has temporarily deployed several portable generators in the Goleta Valley to mitigate any problems that may occur during the El Nino rain season.

The City of Santa Barbara is served by the Southern California Edison Company. There are two lines that serve the southern portion of the County that includes the City.

5.1.6.5 Location and Extent of Hazard in Santa Barbara

The entire county, which includes the City of Santa Barbara, is subject to energy shortages.

5.1.6.6 History of Hazard in Santa Barbara

Energy disruptions on a small scale have occurred on a regular basis in Santa Barbara City; especially during strong wind / storm events.

5.1.6.7 Probability of Occurrence

In any given year, Santa Barbara City can be subject to energy shortages. A large disruption due to a power failure or rotating brown out a highly likely during strong storm events or during times of extreme heat.

5.1.6.8 Climate Change Considerations

With increased changes in weather and climate, the demands on energy will shift too. This shift in demand could have significant impacts on energy supply and demand.

5.1.7 Oil Spills

5.1.7.4 Description of Hazard

An oil spill is a release of liquid petroleum hydrocarbon into the environment due to human activity or technological error that results in pollution of land, water, and air. Oil releases also occur naturally through oil seeps either on land or under water. Marine oil spills, whether accidental or intentional, can result from the release of crude oil from offshore oil platforms, drilling rigs, wells, pipelines, tank trucks, and marine tank vessels (tankers). Refined petroleum products such as gasoline, diesel, and heavier fuels such as bunker fuel used by cargo ships are also sources of potential oil spill releases. Depending on the origin, size, and duration of the release, an oil spill can have serious impacts on air and water quality, public health, plant and animal habitat, and biological resources. Clean up and recovery is time and cost consuming, and dependent on weather conditions such as wind and rain. Tidal and Current conditions may also make the spill more dynamic.

5.1.7.5 Location and Extent of Hazard in Santa Barbara

This hazard can occur in any part of Santa Barbara City where existing oil & gas operations are located, including off shore where there are several platforms and undersea pipelines.

5.1.7.6 History of Hazard in Santa Barbara

Santa Barbara City has experienced the following large oil spills

- January 28, 1969 Platform A - 80,000 to 100,000 barrels
- May 19, 2015 Plains All American Pipeline at Refugio - 3,400 barrels

5.1.7.7 Probability of Occurrence

In any given year, Santa Barbara City could be subject to oil spills offshore.

5.1.7.8 Climate Change Considerations

With increased changes in weather, climate, and economics, the demands for oil & gas production may shift. This shift in demand could increase production, distribution, and transportation of oil products; thus increasing the potential oil spill occurrences.

5.1.8 Dam Failure

5.1.8.4 Description of Hazard

Dams fail due to old age, poor design, structural damage, improper siting, landslides flowing into a reservoir, or terrorist actions. Structural damage is often a result of a flood, erosion, or earthquake. A catastrophic dam failure could inundate the area downstream. The force of the water is large enough to carry boulders, trees, automobiles, and even houses along a destructive path downstream. The potential for casualties, environmental damage, and economic loss is great. Damage to electric generating facilities and transmission lines could impact life support systems in communities outside the immediate hazard area.

5.1.8.5 History of Hazard in Santa Barbara

The State of California and the federal government have a rigorous Dam Safety Program. This is a proactive program that ensure proper planning in the event of failure but also sets standards for dam design and maintenance. Because of this, many potential issues have been addressed and/or resolved. Prior to the implementation of this program Santa Barbara did experience a dam related incident.

Built in 1917, the Sheffield Dam only survived for eight years, failing catastrophically during an earthquake in 1925 in the City of Santa Barbara. It was built on sandy soil which liquefied during the event. The center 300-feet of the 720-feet long dam broke off and was carried away on the liquefied soil, spilling 30 million gallons of water. Damage estimates are unavailable.

5.1.8.6 Location and Extent of Hazard in Santa Barbara

There are two (2) dams in the City; of these one is owned and operated by the City of Santa Barbara; Gibraltar Dam. These dams range in purpose from water supply to flood control. Dam failure inundation zones mapped by the State of California indicate areas that would be inundated should a dam fail catastrophically. The inundation mapping is considered confidential by the State of California.

Gibraltar Dam and reservoir are located on the Santa Ynez River in Santa Barbara County, about 9 miles north of the City and upstream from Lake Cachuma. The City owns and operates the dam and reservoir pursuant to a Notice of Appropriation posted on October 11, 1904. Stored water is diverted through Mission Tunnel to the Cater Water Treatment Plant. The dam is a constant radius, concrete arch dam constructed in 1920 with an original capacity of 14,500 AF; it was raised to current elevation in 1949 and strengthened in 1991.Gibraltar Reservoir is the source of about one-third of the City of Santa Barbara’s water supply. Loss of storage capacity due to siltation has been an issue since the dam was constructed. To monitor changes in capacity, and pursuant to the requirements of the Upper Santa Ynez River Operations Agreement, the City commissions a bathymetric survey of Gibraltar Reservoir at approximately three year intervals.

The other dam and reservoir in the City is Lauro Dam, which is owned and operated by the Bureau of Reclamation. Lauro Dam and Reservoir are located on Diablo Creek near Santa Barbara. The dam is an earth fill structure with a crest length of 540 feet and a height of 137 feet. The reservoir has a capacity of 640 acre-feet.

(**Figure 5.18**).

Figure 5.19 displays the dam failure inundation areas along with the location of major dams in the County.

Figure 0.18 Dam Locations

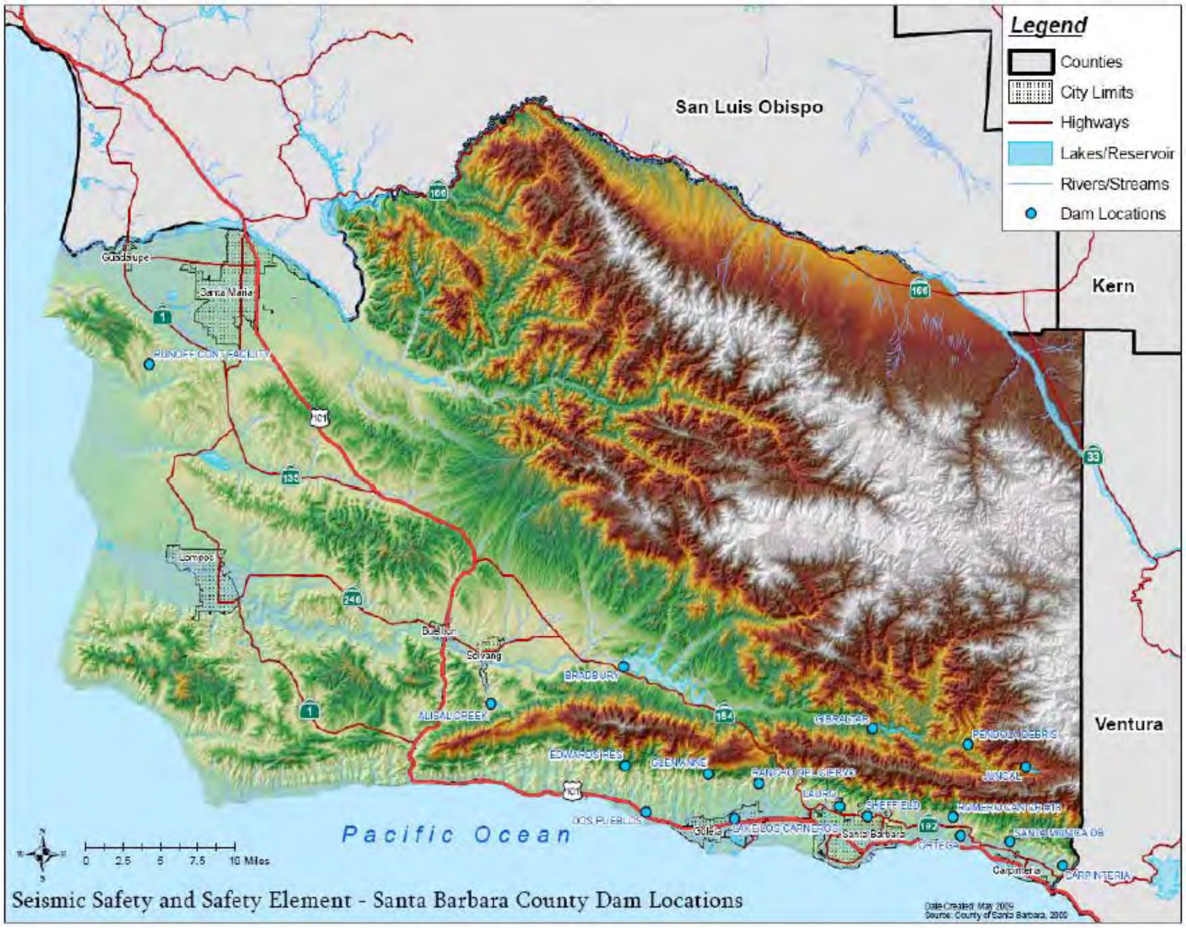


Figure 0.19 Dam Inundation Zones

NEED MAP

5.1.8.7 Probability of Occurrence

Dam failure events are infrequent and usually coincide with the events that cause them, such as earthquakes, landslides and excessive rainfall and snowmelt. There is a "residual risk" associated with dams; residual risk is the risk that remains after safeguards have been implemented. For dams, the residual risk is associated with events beyond those that the facility was designed to withstand.

However, the probability of occurrence of any type of dam failure event is considered to be low in today’s regulatory and dam safety oversight environment.

5.1.8.8 Climate Change Considerations

Increased rainfall from changing climate conditions could present a risk to dams in Santa Barbara County if volume of runoff is greater than the dam’s capacity. This could cause the County to release stored water into the downstream water courses in order to ensure the integrity of the dam.

5.1.9 Agricultural Pests

5.1.9.4 Description of Hazard

Agricultural pests and disease infestation occur when an undesirable organism inhabits an area in a manner that causes serious harm to agriculture crops, livestock or poultry, and wild land vegetation or animals. Countless insects and diseases live on, in, and around plants and animals in all environments. Most are harmless, while some can cause significant damage and loss. Under some conditions, insects and diseases that have been relatively harmless can become hazardous. For example, severe drought conditions can weaken trees and make them more susceptible to destruction from insect attacks than they would be under normal conditions.

5.1.9.5 History of Hazard in Santa Barbara

The City of Santa Barbara does not have any historical record regarding agricultural pests that have caused any type of incident

5.1.9.6 Location and Extent of Hazard in Santa Barbara

The County’s agricultural emergency events does effect the city except in regard to loss revenue.

Figure 5.20 shows land that, under the Williamson Act, has been zoned as agricultural, open space, or recreational. These lands are susceptible to agricultural pests and diseases. **Figure 5.21** portrays crop land. These areas are also susceptible to agricultural pests and diseases.

Figure 0.20 Agricultural Preserves, 2010

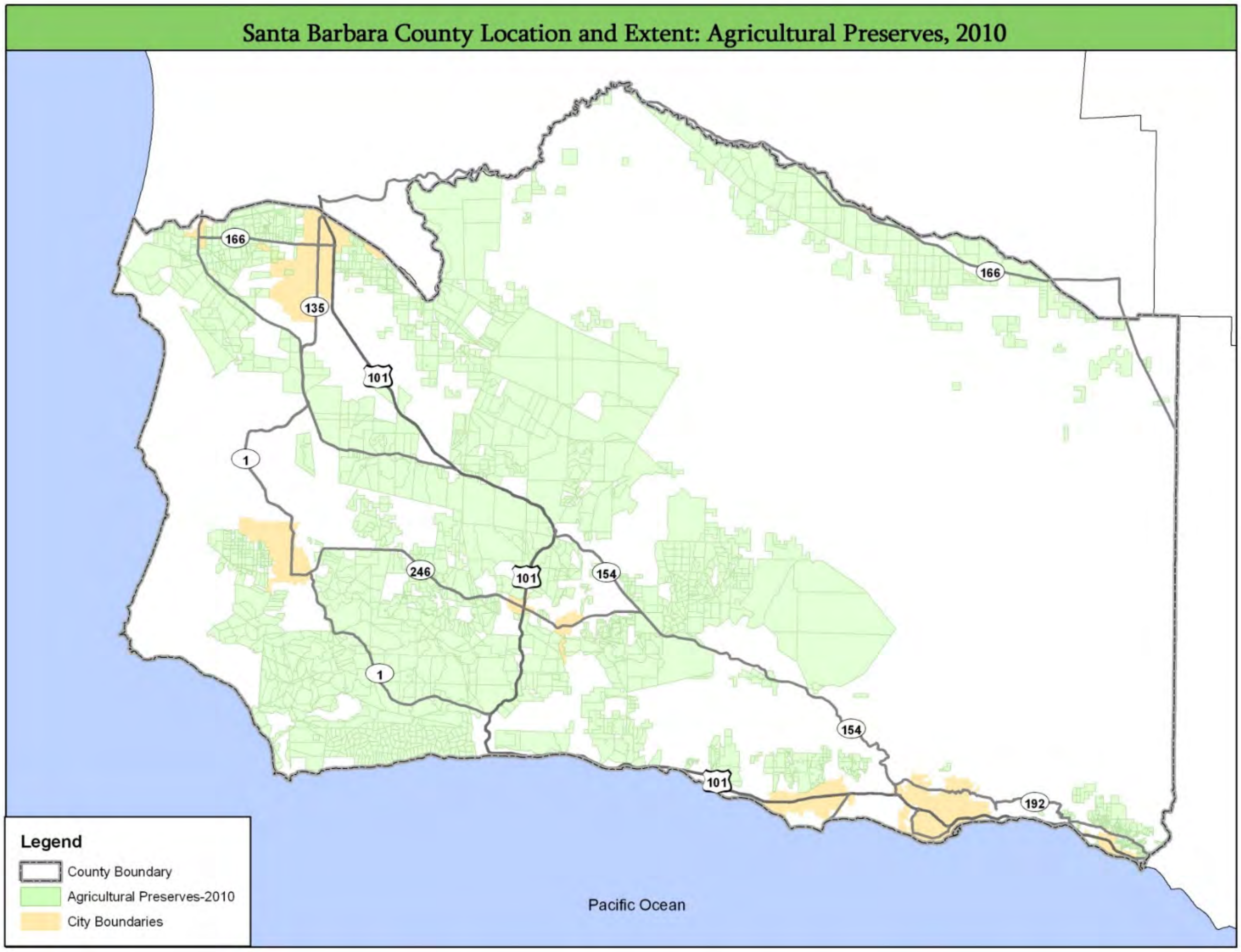
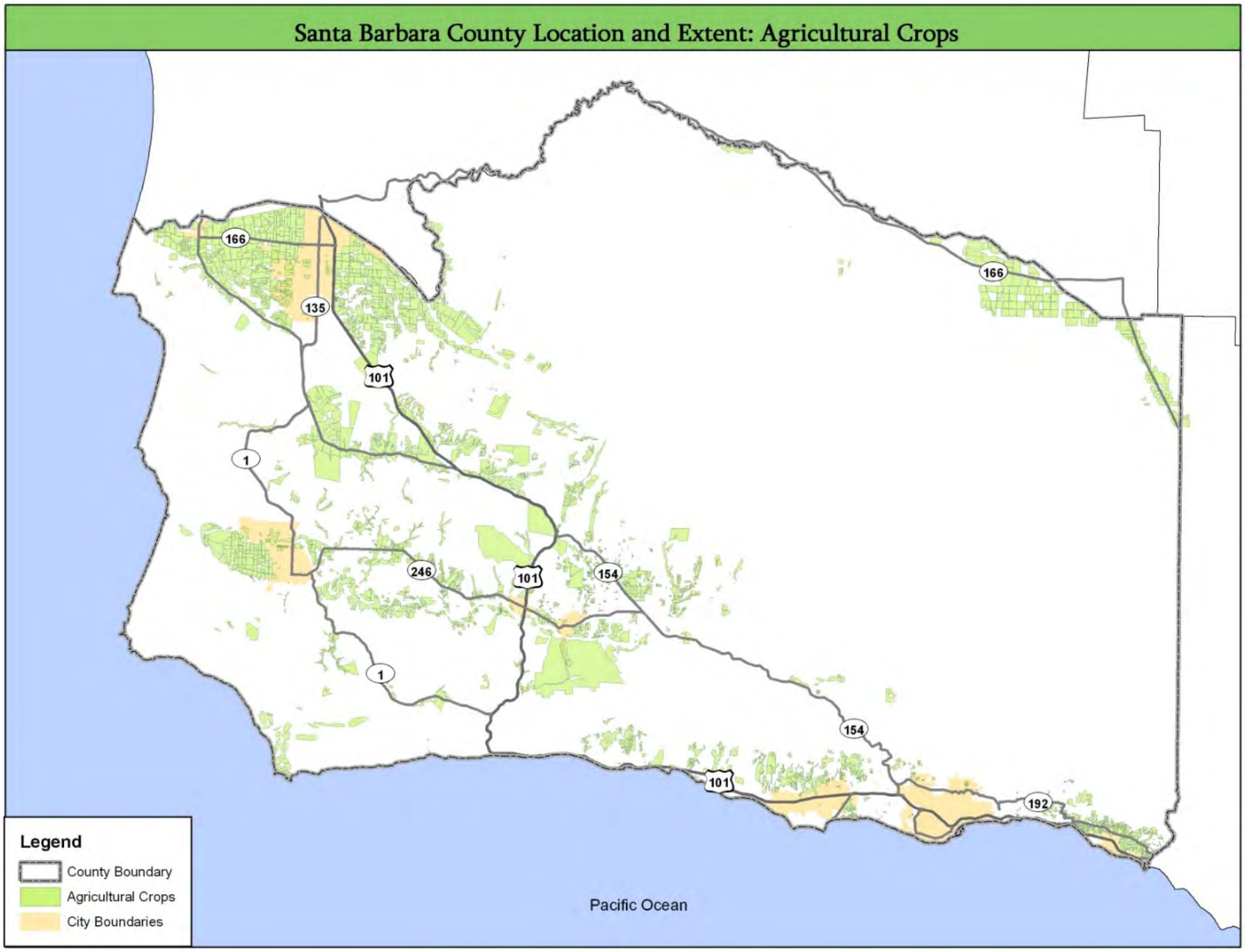


Figure 0.21 Agricultural Crops



5.1.9.7 *Probability of Occurrence*

Due to its interaction with the global economy, its mild Mediterranean climate, and its diversified agricultural and native landscape, Santa Barbara County currently experiences and will continue to experience periodic losses due to agricultural pests and diseases. The probability in the City of Santa Barbara is low; but the City would feel loss as it does interact with the County in regards to economics.

5.1.9.8 *Climate Change Consideration*

California farmers contend with a wide range of crop-damaging pests and pathogens. Continued climate change is likely to alter the abundance and types of many pests, lengthen pests’ breeding season, and increase pathogen growth rates. For example, the pink bollworm, a common pest of cotton crops, is currently a problem only in southern desert valleys because it cannot survive winter frosts elsewhere in the state. However, if winter temperatures rise 3 to 4.5°F, the pink bollworm’s range would likely expand northward, which could lead to substantial economic and ecological consequences for the state.

Temperature is not the only climatic influence on pests. For example, some insects are unable to cope in extreme drought, while others cannot survive in extremely wet conditions. Furthermore, while warming speeds up the lifecycles of many insects, suggesting that pest problems could increase, some insects may grow more slowly as elevated carbon dioxide levels decrease the protein content of the leaves on which they feed (California Climate Change Center 2006).

5.1.10 Epidemic/Pandemic/Vector Borne Disease

5.1.10.4 Description of Hazard

Infectious disease emergencies are circumstances caused by biological agents, including organisms such as bacteria, viruses or toxins, with the potential for significant illness or death in the population.

Infectious disease emergencies may be caused by:

- Naturally occurring diseases spread person to person (e.g., measles, mumps, meningococcal disease, tuberculosis)
- Foodborne (e.g.: salmonella, E.coli, botulinum toxin, etc.)
- Vectors such as a mosquito that spread disease (e.g.: West Nile virus, dengue, Zika, malaria).
- Newly emerging infectious diseases (e.g.: Ebola, Zika, SARS, MERS, avian influenza).
- Intentionally caused spread of disease or toxins known as bioterrorism. Past bioterrorism events include the contamination of restaurant food with E.coli in Oregon (1984) and the release of Sarin gas in the Tokyo subway (1995).

The impact of infectious disease emergencies on the local community and its critical infrastructure will depends on:

- The type of biological agent and availability of treatment for victims
- The availability of prophylaxis for responders and the public
- The scale of exposure and ongoing exposure
- The mode of transmission and whether transmission can be interrupted
- Whether the event is affecting staffing for critical infrastructure within and outside of the county such as transportation, law enforcement, health care, and the medical and food supply chains.

Outbreaks, Epidemics, and Pandemics

An **outbreak** is when there are more cases than would be normally expected, often suddenly, of an infectious disease in a community or facility.
An **epidemic** is when there are more cases than would be normally expected of an infectious disease, often suddenly, in a population of a large geographic area.
A **pandemic** refers to an epidemic that has spread over several countries or continents, usually affecting a large number of people. Examples include pandemic influenza and Severe Acute Respiratory Syndrome or "SARS".

Outbreaks, epidemics, or pandemics can occur when a new virus emerges to which the population has little immunity. The 20th century saw three such pandemics, the most notable of which was the 1918 Spanish influenza pandemic that was responsible for 20 million deaths throughout the world. Secondary impacts include significant economic disruption to a community's infrastructure due to loss of employee work time, essential services and products, and costs of treating or preventing spread of the disease.

Public health measures are used to control outbreaks, epidemics, or pandemics of infectious diseases, and are especially important for diseases with high morbidity or mortality and limited medical prophylaxis and/or rapid treatment.

Measures to control disease include:

- Legal measure such as isolation and quarantine of persons or products, and legal closure of food establishments.
- Control of contaminated food or water through recall of product or, for water, “Do Not Use”, “Do Not Drink” or “Boil Water” orders issued by state or local health departments.

Vector control to eliminate vectors such as mosquitos that carry the disease from person to person. The Vector Borne Disease Section of the California Department of Public Health identifies the following types of diseases:

• *Africanized Honeybees*	• *Bed Bugs*	• *Body Lice*
• *Cat Scratch Disease*	• *Conenose Bugs*	• *Hantavirus Cardiopulmonary Syndrome*
• *Head lice*	• *Lyme Disease*	• *Mosquitoes*
• *Murine Typhus*	• *Plague*	• *Ticks*
• *West Nile Virus*	• *Red Imported Fire Ants*	• *Scabies*
• *Swimmer’s Itch*	• *Tularemia*	• *Zike Virus*

5.1.10.5 Location and Extent of Hazard in Santa Barbara

An infectious disease hazard can occur throughout the entire County, which would include the City of Santa Barbara.

5.1.10.6 History of Hazard in Santa Barbara

1. Foodborne outbreaks occur every year in Santa Barbara County, which includes the City, commonly the result of Norovirus, and have sickened up to 100 individuals at a single facility.
2. 2009 H1N1 “Swine Flu” pandemic required rationing and prioritization of influenza vaccine. Public was given 27,000 vaccinations at large and small scale clinics. One hundred thirty-two thousand (132,000) doses of vaccine were distributed Countywide through response partners. The Santa Barbara Public Health Department Operations Center was activated for more than three months.

5.1.10.7 Probability of Occurrence

Disease outbreaks and flu epidemics occur on an ongoing basis. Occasionally these outbreaks require the initiation of the Santa Barbara County Public Health Department Infectious Disease Response Plan but have required little to no support from the City Emergency Operations Center.

There is a continued threat from a novel influenza virus or other emerging epidemic or pandemic disease that would require a disaster response at the EOC level. The disease could affect the city infrastructure, and the ability of the EOC and other city departments to respond due to disease related loss of staff.

5.1.10.8 Climate Change Consideration

- While many vector born and zoonotic diseases (VBZD), such as malaria, yellow fever, dengue, and murine typhus, are rarely seen in the United States, we are directly susceptible to VBZD that are found in warmer climates and vulnerable due to global trade and travel.
- Many VBZD are climate sensitive and ecological shifts associated with climate change are expected to impact the distribution and incidences of these diseases.
- Changes in temperature and precipitation directly affect vector born disease transmission through pathogen-host interaction, and indirectly through ecosystem changes and species composition.
- As temperatures increases vectors can spread into new areas that were previously too cold. For example, two mosquito vectors that carry malaria are now found at the U.S.-Mexico border.

5.1.11 Hazardous Materials Release

5.1.11.4 Description of Hazard

Hazardous Waste/Materials are widely used or created at facilities such as hospitals, wastewater treatments plants, universities and industrial/manufacturing warehouses. Several household products such as cleaning supplies and paint are also considered hazardous materials. Hazardous materials include:

- Explosives;
- Flammable, non-flammable, and poisonous gases;
- Flammable liquids;
- Flammable, spontaneously combustible, and dangerous when wet solids;
- Oxidizers and organic peroxides;
- Poisons and infectious substances;
- Radioactive materials; and
- Corrosive materials.

Both mobile and external hazardous materials releases can spread and affect a wide area, through the release of plumes of chemical, biological, or radiological elements or leaks or spills. Conversely, internal releases are more likely to be confined to the structure the material is store in.

Chemical may be corrosive or otherwise damaging over time. A hazardous materials release could also result in fire or explosion. Contamination may be carried out of the immediate area of the incident by people, vehicles, wind, and water. Weather conditions can increase the size and intensity of the Hazardous Materials Release. Typography, such as hills and canyons, can increase the size of the release or make it more difficult to contain.

5.1.11.5 Location and Extent of Hazard in Santa Barbara

The locations and identity of facilities that store hazardous materials are reported to local and federal governments. Many facilities have their own hazardous materials guides and response plans, including transportation companies who transport hazardous materials.

The release of hazardous materials into the environment can cause a multitude of problems. Although these incidents can happen almost anywhere, certain areas of the City are at higher risk, such as near roadways that are frequently used to transport hazardous materials and locations with industrial facilities that use, store, and/or dispose of such materials. Areas crossed by railways, waterways, airways, and pipelines also have increased potential for mishaps.

5.1.11.6 History of Hazard in Santa Barbara

In 1984, there was a chemical release from a chemical disposal truck on Hwy 101 in Santa Barbara City. The truck held a mixture of chemicals that were to be delivered to the Casmalia Chemical Dump (currently closed) in Santa Barbara County. The chemical release not only caused a cloud, but it released some of the liquid into the Mission Creek watershed area. This caused the evacuation of over 200 residents in the Westside areas of the city. The incident closed the Highway 101 north and south, which cause surface street gridlock for several hours.

5.1.11.7 Probability of Occurrence

The release of hazardous materials can occur throughout the entire county. Incidences can occur during production, storage, transportation, use or disposal of hazardous materials. Communities can be at risk if a chemical is used unsafely or released in harmful amounts into the environment. Hazardous materials can cause death, serious injury, long lasting health effects, and damage to buildings, the environment, homes, and other property.

5.1.11.8 Climate Change Consideration

As mentioned above, weather can play a significant factor in hazardous material releases. While there is little evidence to link climate change increase occurrences of hazardous material releases, it could impact the response and recovery efforts.

5.1.12 Terrorism

5.1.12.4 Description of Hazard

The term terrorism refers to intentional, criminal malicious acts. There is no single, universally accepted definition of terrorism, and it can be interpreted in many ways. Terrorism is defined in the Code of Federal Regulations as "*...the unlawful use of force and violence against persons or property to intimidate or coerce a government, the civilian population, or any segment thereof, in furtherance of political or social objectives.*" (28 CFR, Section 0.85). For the purposes of this plan, terrorism refers to the use of weapons of mass destruction, including biological, chemical, nuclear, and radiological weapons; arson, incendiary, explosive, and armed attacks; industrial sabotage and intentional hazardous materials releases; and cyber terrorism. Conventional Attacks/Active Shooter incident is initiated by humans. It can be a well-planned coordinated attack with multiple suspects, or the result of a lone individual on a rampage.

5.1.12.5 Location and Extent of Hazard in Santa Barbara

Terrorism can occur throughout the entire city but due to its intended purpose would most likely happened in more populous urban areas where more devastation (and fear) will ensue.

5.1.12.6 History of Hazard in Santa Barbara

There has been no recorded history of terrorism in the City of Santa Barbara.

5.1.12.7 Probability of Occurrence

All City businesses and facilities are perceived as a soft target resulting in increased property crimes by criminals who live outside the City. Climate Change Consideration

While there is little evidence to link climate change increase occurrences of terrorism, depending on the type of attack, it could impact the response and recovery efforts.

5.1.13 Cyber Threats

5.1.13.4 Description of Hazard

A cyber security threat is a circumstance or event that has or indicates the potential to exploit vulnerabilities and to adversely impact organizational operations, organizational assets (including information and information systems), individuals, other organizations, or society. Critical infrastructure, such as utilities and telecommunications, are also potential targets. Examples of cyber threats include malware, phishing, denial of service attacks, ransomware, and state-sponsored hacking.

5.1.13.5 Location and Extent of Hazard in Santa Barbara

This hazard can happen anywhere within the County or City but will generally be targeted towards larger corporations or government.

5.1.13.6 History of Hazard in Santa Barbara

While there have been several smaller cyber threats and hacking, none have reached a level of significance.

5.1.13.7 Probability of Occurrence

Cyber threats are on the rise globally, national, and locally. The probability of occurrence of cyber threats is rapidly increasing, especially with increased reliance on the Internet and cloud-based computing.

5.1.13.8 Climate Change Consideration

While there is little evidence to link climate change to increase in occurrences of cyber threats, the target could be related to persons/groups with issues with individuals or companies they perceive to have effect on the climate (i.e., greenhouse gas producers).

5.1.14 Aircraft Crashes

5.1.14.4 Description of Hazard

Airline crashes are defined as any accident of private, commercial, or military aircraft on land or over sea. Airline crashes, like other transportation accidents, are less likely to lead to a state or federal disaster declaration, than other hazards previously and afore mentioned.

5.1.14.5 Location and Extent of Hazard in Santa Barbara

In addition to being within the flight pattern of many airports providing regional flights (i.e., Los Angeles International, San Francisco International, Oakland, San Jose International, Burbank Airport, John Wayne Airport, Long Beach Airport, Ontario International Airport), Santa Barbara has one (1) general aviation airport

The Santa Barbara Airport (SBA) is located near Goleta, west of Santa Barbara. On any given day, an average of 2,100 passengers arrive and depart from the airport. Santa Barbara is the busiest airport on the California coast, between Los Angeles and San Jose; serving more than 700,000 passengers annually. Five passenger airlines and one cargo carrier operate approximately 40 daily flight departures at the airport.

5.1.14.6 History of Hazard in Santa Barbara

Currently in the City of Santa Barbara there has not been a record of a large aircraft incident.

5.1.14.7 Probability of Occurrence

With the amount of general aviation operations, private flights, and its position between Los Angeles/San Diego and the Bay Area, there is a notable possibility of Santa Barbara City experiencing an airline crash.

5.1.14.8 Climate Change Consideration

There is no none linkage between climate change and airline crashes. Although bad weather does play a factor in some airline crashes, current technology does a good job of forecasting potential conditions.

5.1.15 Train Accidents

5.1.15.4 Description of Hazard

Train accidents are defined as any accidents involving public or private trains carrying passengers or cargo along the rail corridor. Train accidents, like other transportation accidents, are less likely to lead to a state or federal disaster declaration, than other hazards previously and afore mentioned.

5.1.15.5 Location and Extent of Hazard in Santa Barbara

Trains running through Santa Barbara City, and in close proximity to U.S. Highway 101, carry both commuters and commodities. Such commodities include hazardous materials, fuel (including oil), agriculture, meats, and non-consumables. A hazardous materials incident on the rails or roadway has the potential to shut down both rail and highway transportation routes where the two are within close proximity to another.

5.1.15.6 History of Hazard in Santa Barbara

In 1991 the Seacliff Incident, in neighboring Ventura County, occurred when a train released 440 gallons of aqueous hydrazine. The accident required the evacuation of the nearby Seacliff Community along with the shutting down of Highway 101, and took 5 days to cleanup. The City has not experienced this type of incident; but there is a history of many fatalities on the tracks running through Santa Barbara.

5.1.15.7 Probability of Occurrence

Train accidents are generally localized and the incidents result in limited impacts at the community level. However, if there are volatile or flammable substances on the train and the train is in a highly populated or densely forested area, death, injuries, and damage to homes, infrastructure, and the environment, including forest fires can occur.

5.1.15.8 Climate Change Consideration

There is no none linkage between climate change and train accidents; however, because of rail road track proximity along the Pacific Ocean, sea level rise could impact service. It is expected that conditions would be gradual in nature and would not create unforeseen problems or complications.

5.1.16 Tsunami

5.1.16.4 Description of Hazard

A tsunami is a series of long waves generated in the ocean by a sudden displacement of a large volume of water. Underwater earthquakes, landslides, volcanic eruptions, meteoric impacts, or onshore slope failures cause this displacement. Tsunami waves travel at speeds averaging 450 to 600 miles per hour. As a tsunami nears the coastline, its speed diminishes, its wavelength decreases, and its height increases. Depending on the type of event that creates the tsunami, as well the remoteness of the event, the tsunami could reach land within a few minutes or after several hours. Low-lying areas could experience severe inland inundation of water and deposition of debris more than 3,000 feet inland.

5.1.16.5 Location and Extent of Hazard in Santa Barbara

The City of Santa Barbara is located on or near several offshore geological faults, the more prominent faults being the Mesa Fault, the Santa Ynez Fault in the mountains, and the Santa Rosa Fault. There are other unnamed faults in the offshore area of the Channel Islands. These faults have been active in the past and can subject the entire area to seismic action at any time.

5.1.16.6 History of Hazard in Santa Barbara

The relative threat for local tsunamis in Santa Barbara can be considered low due to low recurrence frequencies. Large, locally-generated tsunamis are estimated to occur once every 100 years. Thirteen possible tsunamis have been observed or recorded from local earthquakes between 1812 and 1988. These tsunami events were poorly documented and some are very questionable. There is no doubt that earthquakes occurring along submarine faults off Santa Barbara could generate large destructive local tsunamis (http://www.drgeorgepc.com/Tsunami1812SantaBarbara.html). Internet research provides some documentation that two tsunamis were generated from two major earthquakes in the Santa Barbara City region in December of 1812. The size of these tsunamis may never be known with certainty, but there are unconfirmed estimates of 30-35 feet waves in Santa Barbara City. The estimates are found in various literature and based on anecdotal history only.

Major faults of the San Andreas zone, although capable of strong earthquakes, cannot generate any significant tsunamis. Only earthquakes in the Transverse Ranges, specifically the seaward extensions in the Santa Barbara Channel and offshore area from Point Arguello, can generate local tsunamis of any significance. The reason for this may be that earthquakes occurring in these regions result in a significant vertical displacement of the crust along these faults. Such tectonic displacements are necessary for tsunami generation.

Two separate events, occurring in 1877 and 1896, are listed in NOAA’s online database as having heights of 1.8 and 2.5 feet waves. However, tsunami heights from historical records are estimated and should not be regarded as exact. Other recorded tsunamis affecting Santa Barbara during the 20th century are in the 0.1 – 1.0 foot range.

On February 27, 2010, a magnitude 8.8 earthquake occurred along the central coast of Chile and produced a tsunami. For the coast of Southern California, it was one of the largest tsunami episodes since 1964. In general, tsunami waves between 2 and 4 feet were reported. Tsunami waves of around 3 feet were reported by tide gauges across the Santa Barbara Channel. At Santa Barbara Pier, significant beach erosion was reported along with displacement of buoys. The tsunami surge lasted in excess of 20 hours. The most significant damage occurred along the coasts of Ventura and southern Santa Barbara counties. Numerous reports of dock damage were reported along with beach erosion.

On March 11, 2011, a magnitude 9.0 earthquake occurred off the Pacific coast of Tohoku, Japan. This earthquake devastated many communities in Japan and caused tsunami effects across the ocean in Santa Barbara City. The only significant impact to Santa Barbara City was to the dredging contractor for the City of Santa Barbara harbor. The City harbor operations documented approximately $1,500 of damages (Public Assistance).

5.1.16.7 Probability of Occurrence

The University of Southern California (USC) Tsunami Research Group has modeled areas in Santa Barbara County, which include the City, which could potentially be inundated in the event of a tsunami. This model is based on potential earthquake sources and hypothetical extreme undersea, near-shore landslide sources. The data was mapped by Cal OES for the purpose of Tsunami Evacuation Planning. Extreme tsunami inundation areas were mapped and used to profile maximum potential exposure. The figure below (**Figure 5.24**) shows tsunami run up limits for Santa Barbara County. The tsunami inundation map helps to assist cities and counties in identifying their tsunami hazard areas. The inundation line represents the maximum considered tsunami run up from a number of extreme, yet realistic, tsunami sources.

Figure 0.25 Tsunami Inundation Area

Based on the tsunami inundation map above, several areas along the coast of Santa Barbara have the potential to be inundated by a tsunami. However, since the probability of an earthquake occurring is rare, the probability of a tsunami is also rare.

5.1.16.8 Climate Change Consideration

Tsunamis are created by earthquakes or other earth movements, to date, no relationship has been made between climate change and the occurrences of earthquakes or other earth movements.

5.1.17 Civil Disturbance

5.1.17.4 Description of Hazards

Civil Disturbance is a term generally used to describe disorderly conduct or a breakdown of orderly society by a large group of people. Civil Disturbance can range from a form protest against major socio-political problems to riots.

5.1.17.5 Location and Extent of Hazard in Santa Barbara

Civil Disturbance can occur in any part of Santa Barbara City; however, it will generally be located within larger metropolitan areas.

5.1.17.6 History of Hazard in Santa Barbara

There is no data in the City of Santa Barbara regarding civil disturbances.

5.1.17.7 Probability of Occurrence

There are no studies that predict the probability of civil disturbance occurrences.

5.1.17.8 Climate Change Consideration

While there is no direct linkage between climate change and civil disturbances, there could be indirect linkages. As climate change impacts are either felt or perceived to be felt it could ignite passions within people to demonstrate against possible causes or enablers.

5.1.18 Marine Invasive Species

5.1.18.4 Description of Hazard

The introduction of non-indigenous species (NIS) into coastal marine and estuarine waters can cause significant and enduring economic, human health, and environmental impacts. In coastal environments, commercial shipping is the most important vector for species introductions. Commercial ships transport organisms through two primary mechanisms (vectors): ballast water and vessel biofouling. Ballast water is taken on and released by a vessel during cargo loading and discharging operations to maintain the vessel’s trim and stability. Biofouling organisms are aquatic species attached to or associated with submerged or wetted hard surfaces. Ships transfer organisms to California waters from throughout the world. The transfer of ballast water from “source” to “destination” ports results in the movement of many organisms from one region to the next. Additionally, as vessels move from port to port, biofouling communities are transported along with their “host” structure. Once introduced, invasive species are likely to become a permanent part of an ecosystem and may flourish, creating environmental imbalances, presenting risks to human health, and causing significant economic problems. Examples include the zebra and quagga mussel infestations in the Colorado River Aqueduct System and California waterways, and the propagation of aquatic weeds, such as water hyacinth, in the California Delta.

5.1.18.5 Location and Extent of Hazard in Santa Barbara

All water bodies that are subject to recreational/commercial vessels and/or hydraulically connected to potential sources of infestation.

5.1.18.6 History of Hazard in Santa Barbara

In 2015, the start of crab-fishing was delayed for several month's due to a massive coastal algae bloom fueled by El Nino. The potentially fatal toxin delayed crab-fisheries to begin their trade, which caused several businesses to suffer economic loss.

5.1.18.7 Probability of Occurrence

There is always a potential for threat of indigenous species occurrence that is subject to many factors in the Santa Barbara City's coastal channel.

5.1.18.8 Climate Change Consideration

With the climate change water temperature can rise and fall; causing disruption to the ecosystem of the ocean. This can cause many instances of invasive marine life to cause ecological and economic devastation throughout the City's coastal channel.

SECTION 6 VULNERABILITY ASSESSMENT

6.1 Overview

The purpose of this section is to estimate the potential vulnerability (impacts) of hazards within the county and city on the built environment (residential, non-residential, critical facilities, etc.) and population. To accomplish this, three (3) different approaches will be used: 1) application of scientific loss estimation models; 2) analysis of exposure of critical facilities to hazards; and 3) a qualitative estimate of the impacts to hazards. It is important to note that the first two approaches can only be applied to hazards that have an exposure area (footprint). For those hazards where an exposure layer does not exist, a brief qualitative assessment of the potential vulnerability will be presented. This will be done for hazards that are within the city.

6.1.1 Scientific Loss Estimation Models

The scientific loss estimation modeling efforts will include the utilization of the Federal Emergency Management Agency (FEMA) Hazus-MH 3.0 model. Hazus-MH is a nationally applicable standardized methodology that estimates potential losses from earthquakes, hurricane winds and floods. Hazus-MH uses state-of-the-art Geographic Information Systems (GIS) software to map and display hazard data and the results of damage and economic loss estimates for buildings and infrastructure. It also allows users to estimate the impacts of earthquakes, hurricane winds and floods on populations. Estimating losses is essential to decision-making at all levels of government, providing a basis for developing mitigation plans and policies, emergency preparedness and response and recovery planning. This modeling will be done for Earthquake and Flood hazards only.

Hazus standard configuration allows for “out-of-the-box” regional or community-wide loss assessment using default (“Level 1) building inventory databases, aggregated to the census tract (earthquake) or census block (flood) level. A summary of Hazus default building inventory data for Santa Barbara County, and the unincorporated areas of the County, are given in **Table 6-1** (by general occupancy) and **Table 6-2** (by general building type). The distribution of buildings across the various construction classes given in Table 2 is estimated using Hazus default relationships (e.g., x percent of offices may be built of concrete frame, y% of offices may be built of reinforced masonry, etc.). The actual distribution of building across these construction types may be different. For example, the California Seismic Safety Commission (CSSC) published results of unreinforced masonry building surveys (CSSC, 2006), which indicate that the 23 URM buildings in Unincorporated Santa Barbara County have been retrofitted (vs. 185 URM buildings predicted by the default database).

Table 6-1: Hazus-MH 3.0 Default Building Inventory Data for Santa Barbara County by General Occupancy

Jurisdiction	General Occupancy	Building Replacement Value ($1,000)	Contents Replacement Value ($1,000)	Building Square Footage (1,000 Sq. Ft.)	Building Count
	Residential	$34,724,716	$17,364,871	231,312	116,304

Jurisdiction	General Occupancy	Building Replacement Value ($1,000)	Contents Replacement Value ($1,000)	Building Square Footage (1,000 Sq. Ft.)	Building Count
Santa Barbara County	Commercial	$6,387,442	$6,837,941	38,617	7,325
	Industrial	$1,307,134	$1,815,947	9,609	1,934
	Other	$1,805,563	$1,905,059	11,455	1,810
	TOTAL	**$44,224,855**	**$27,923,818**	**290,993**	**127,373**
City of Santa Barbara	Residential	$8,533,634	$4,267,361	54,637	24,775
	Commercial	$2,361,823	$2,512,267	14,116	2,320
	Industrial	$291,582	$392,884	2,169	580
	Other	$449,423	$479,574	2,582	452
	TOTAL	**$11,636,462**	**$7,652,086**	**73,503**	**28,127**
	%	**33.8%**	**31.9%**	**33.1%**	**35.2%**

Table 6-2: Hazus-MH 3.0 Default Building Inventory Data for Santa Barbara County by General Building Type

Jurisdiction	General Building Type	Building Replacement Value ($1,000)	Building Replacement Value (%)	Estimated Building Count	% of Building Count
Santa Barbara County	Concrete	$2,492,739	5.6%	2,396	2%
	Manufactured Housing	$415,023	0.9%	7,669	6%
	Precast Concrete	$1,556,413	3.5%	2,005	2%
	Reinforced Masonry	$3,088,459	7.0%	3,858	3%
	Steel	$2,461,502	5.6%	2,614	2%
	Unreinforced Masonry	$614,394	1.4%	727	1%
	Wood Frame (Other)	$1,733,790	3.9%	2,001	2%
	Wood Frame (Single-family)	$31,862,522	72.0%	106,108	83%
	TOTAL	**$44,224,842**		**127,378**	
City of Santa Barbara	Concrete	$796,670	6.8%	755	3%
	Manufactured Housing	$29,950	0.3%	492	2%
	Precast Concrete	$481,237	4.1%	613	2%
	Reinforced Masonry	$987,969	8.5%	1,108	4%
	Steel	$723,963	6.2%	796	3%

Jurisdiction	General Building Type	Building Replacement Value ($1,000)	Building Replacement Value (%)	Estimated Building Count	% of Building Count
	Unreinforced Masonry	$212,342	1.8%	232	1%
	Wood Frame (Other)	$659,422	5.7%	637	2%
	Wood Frame (Single-family)	$7,744,911	66.6%	23,489	84%
	TOTAL	**$11,636,464**		**28,122**	
	%	**33.8%**		**35.2%**	

Table 6-3 provides a summary of the Hazus-MH essential facilities default data (police stations and public schools) for anta Barbara County, and the unincorporated County Areas. The Hazus-MH essential facilities default data for fire station was augmented to account for a significant number of missing facilities for Santa Barbara County. Table 6-3 also indicates the construction type and design level assumed by Hazus-MH for these facilities; all are assumed to be wood frame of either High or Moderate code design level. A more accurate risk assessment could be conducted if additional facility information was collected, such as structural system, number of stories, year of construction/seismic code used for design, building square footage, building replacement value, and content replacement value. It should be noted that the Hazus-MH default database represents each school campus with a single building record of an assumed construction type. In reality, most public schools are multi-building campuses, built over a period of years (i.e., buildings may be designed to different seismic codes). To improve the risk assessment for public schools, information on each individual building would need to be collected.

Notes:
1) Totals may not match due to rounding
2) The distribution of buildings across the various construction classes is estimated using Hazus' default relationships. The actual distribution may be different. For example, the California Seismic Safety Commission published results of unreinforced masonry building surveys (2006), which indicated that there are 263 URM buildings in Santa Barbara (100% retrofitted) vs. 232 predicted by the default database.

Table 6-3: Hazus-MH 3.0 Default Essential Facilities Data for Santa Barbara County

Essential Facility Type	HAZUS-MH Default Structural Class and Design Level	Santa Barbara County	City of Santa Barbara
Fire Stations*	W1 (Wood Frame ≤ 5,000Sq.Ft.), Moderate Code Design Level	41	8
Police Stations	W1 (Wood Frame ≤ 5,000Sq.Ft.), Moderate Code Design Level	16	1

Public Schools	W1 (Wood Frame ≤ 5,000Sq.Ft.), High Code Design Level	123	13

* For the current assessment, the default fire station data has been revised to include missing stations.

The lifeline inventory within HAZUS-MH is divided between transportation and utility lifeline systems. There are seven transportation systems that include highways, railways, light rail, buses, ports, ferries and airports; and six utility systems that include potable water, wastewater, natural gas, crude & refined oil, electric power, and communications. The lifeline inventory data are provided in **Tables 6-4** and **Table 6-5**.

Table 6-4: Transportation System Lifeline Inventory

System	Component	# Locations/ # Segments	Replacement value (millions of dollars)
Highway	*Bridges*	*360*	***407.90***
	Segments	*270*	***3,299.40***
	Tunnels	*1*	***1.70***
		Subtotal	**3,709.10**
Railway	*Bridges*	*6*	***0.60***
	Facilities	*5*	***13.30***
	Segments	*157*	***263.90***
	Tunnels	*0*	***0.00***
		Subtotal	**277.80**
Light Rail	*Bridges*	*0*	***0.00***
	Facilities	*0*	***0.00***
	Segments	*0*	***0.00***
	Tunnels	*0*	***0.00***
		Subtotal	**0.00**
Bus	*Facilities*	*5*	***6.40***
		Subtotal	**6.40**
Ferry	*Facilities*	*3*	***4.00***
		Subtotal	**4.00**
Port	*Facilities*	*0*	***0.00***
		Subtotal	**0.00**
Airport	*Facilities*	*5*	***53.30***
	Runways	*8*	***303.70***
		Subtotal	**357.00**
		TOTAL	**4,354.30**

Table 6-5: Utility System Lifeline Inventory

System	Component	# Locations / Segments	Replacement value (millions of dollars)
Potable Water	*Distribution Lines*	*NA*	***323.20***
	Facilities	*0*	***0.00***
	Pipelines	*0*	***0.00***
		Subtotal	**323.20**
Waste Water	*Distribution Lines*	*NA*	***193.90***
	Facilities	*8*	***628.70***
	Pipelines	*0*	***0.00***
		Subtotal	**822.60**
Natural Gas	*Distribution Lines*	*NA*	***129.30***
	Facilities	*0*	***0.00***
	Pipelines	*0*	***0.00***
		Subtotal	**129.30**
Oil Systems	*Facilities*	*2*	***0.20***
	Pipelines	*0*	***0.00***
		Subtotal	**0.20**
Electrical Power	*Facilities*	*4*	***519.20***
		Subtotal	**519.20**
Communication	*Facilities*	*42*	***5.00***
		Subtotal	**5.00**
		TOTAL	**1,799.50**

6.1.2 Analysis of Exposure of Critical Facilities to Hazards

The City's Local Hazard Mitigation Planning Team (LHMP) reviewed its list of critical facilities and generated a summary of the facilities by major categories: Law, Fire, Public Works, Health and Human Services, Administrative, Communications, and Other (**Table 6-6**). This list of critical facilities presents the buildings and structures that are the City's primary concern for ensuring resiliency; they include City owned or operated facilities. Information for City owned or operated facilities (building replacement cost) were reviewed and updated as needed. However, available information for the privately owned or operated facilities will be a Mitigation Project for the LHMP Team.

Using Geographic Information Systems (GIS) software, each critical facilities was geolocated on maps to illustrate the geographic location of each facility. Based on each facility's geolocation, GIS software was then used to identify facilities within the hazard exposure area (footprint). The results were a map and a table summarizing the total number of exposed critical facilities by the major categories; and a total of the building replacement cost and building content costs for county owned or operated facilities. This approach was done for Wildfire, Dam Failure, Tsunami, Landslides/Earth Movements, and Climate-related (some).

Table 6-6 Critical Facilities in Santa Barbara County

Category of Facility	Total Structures	Total Worth	
Law	1	$8,339,233	
Fire	8	$6,291,348	
Public Works	8	$93,105,465	
Airport	3	55,245,587	
Administrative	1	$14,562,625	
Waterfront (does not include marina)	2	$548,754	
Total Value	**32**	**$460,213,034**	

6.1.3 Qualitative Estimate of Impacts

The approach used to complete this effort involves utilizing readily available data (i.e., Census) to extrapolate and estimate potential vulnerability. In some cases, the estimation will build upon historic events but it may also include projecting worst case potentials. The MAC and the LHMP Team summarized the remaining hazards which the City is vulnerable and assessed the amount and type of damage that could be expected. This approach was done for Droughts/Water Shortage, Energy Shortage, , Hazardous Material Release, Terrorism, Aircraft Crashes, Civil Disturbance, Climate-related (some) Oil Spill, Epidemic/Pandemic, Radiological Incident, Cyber Threat, Train Accident, , and Marine Invasive Species.

6.2 Scientific Loss Estimation Analysis

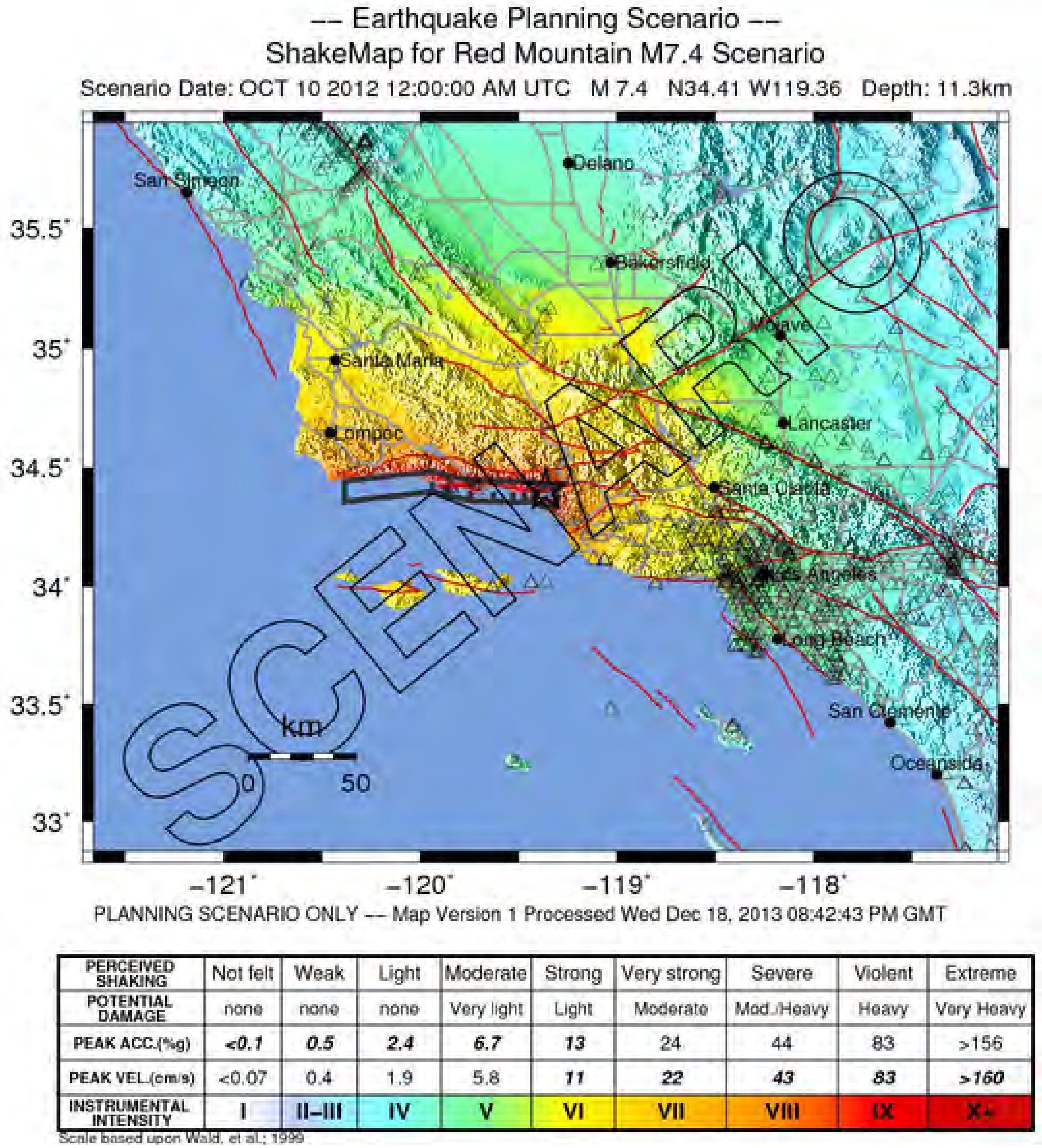
6.2.1 Earthquake and Liquefaction (High Impact/Medium Probability)

The entire geography of Santa Barbara County is exposed to some risk of shaking from an earthquake. The many fault lines, soil types, and construction types lead to a complicated assessment of vulnerability to earthquake. However, most of the land-based faults are either inactive or potentially active. Nearly all of the seismicity has been in the Santa Barbara Channel.

6.2.1.4 HAZUS-MH Earthquake Risk Assessment

Two earthquake scenarios developed by the United States Geological Survey (USGS), as shown in **Figure 6.1** and **Figure 6.2**, were selected to assess the range of impacts across the city. County-level maps of ground shaking for the same scenarios are shown in **Figure 6.3** and **Figure 6.4**.

Figure 6.1: Scenario 1 – M7.4 Earthquake on the Red Mountain Fault



-- Earthquake Planning Scenario --

ShakeMap for Red Mountain M7.4 Scenario

Scenario Date: OCT 10 2012 12:00:00 AM UTC M 7.4 N34.41 W119.36 Depth: 11.3km

PLANNING SCENARIO ONLY -- Map Version 1 Processed Wed Dec 18, 2013 08:42:43 PM GMT

PERCEIVED SHAKING	Not felt	Weak	Light	Moderate	Strong	Very strong	Severe	Violent	Extreme
POTENTIAL DAMAGE	none	none	none	Very light	Light	Moderate	Mod./Heavy	Heavy	Very Heavy
PEAK ACC.(%g)	<0.1	0.5	2.4	6.7	13	24	44	83	>156
PEAK VEL.(cm/s)	<0.07	0.4	1.9	5.8	11	22	43	83	>160
INSTRUMENTAL INTENSITY	I	II–III	IV	V	VI	VII	VIII	IX	X+

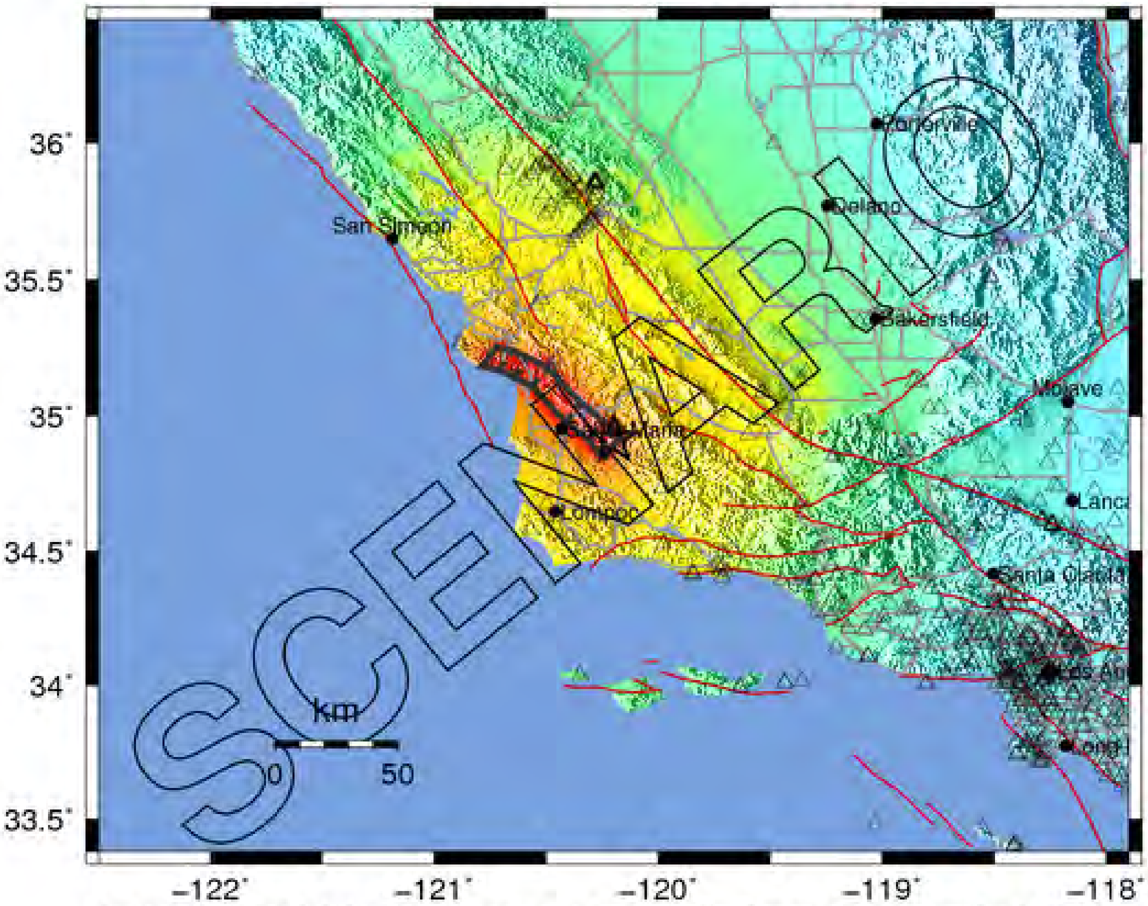
Scale based upon Wald, et al.; 1999

Figure 6-2 Scenario 2 M7.2 Earthquake on the San Luis Range Fault, South Margin

-- Earthquake Planning Scenario --

ShakeMap for San Luis Range So Margin M7.2 Scenario

Scenario Date: OCT 10 2012 12:00:00 AM UTC M 7.2 N34.91 W120.20 Depth: 7.9km



PLANNING SCENARIO ONLY -- Map Version 1 Processed Tue Dec 31, 2013 04:34:30 PM GMT

PERCEIVED SHAKING	Not felt	Weak	Light	Moderate	Strong	Very strong	Severe	Violent	Extreme
POTENTIAL DAMAGE	none	none	none	Very light	Light	Moderate	Mod./Heavy	Heavy	Very Heavy
PEAK ACC.(%g)	<0.1	0.5	2.4	6.7	13	24	44	83	>156
PEAK VEL.(cm/s)	<0.07	0.4	1.9	5.8	11	22	43	83	>160
INSTRUMENTAL INTENSITY	I	II-III	IV	V	VI	VII	VIII	IX	X+

Scale based upon Wald, et al.; 1999

Figure 6.3: USGS ShakeMap Ground Motions for Santa Barbara County for a M7.4 Earthquake on the Red Mountain Fault (Scenario 1) 1

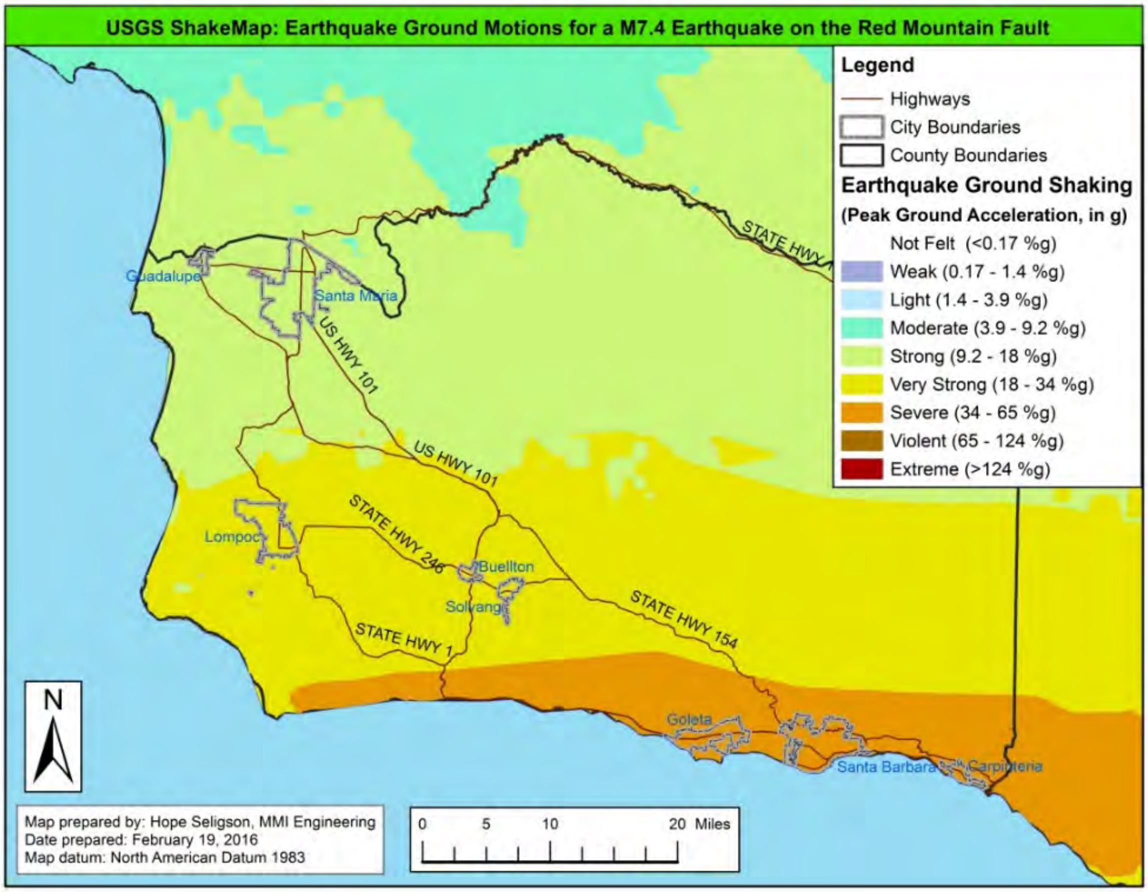
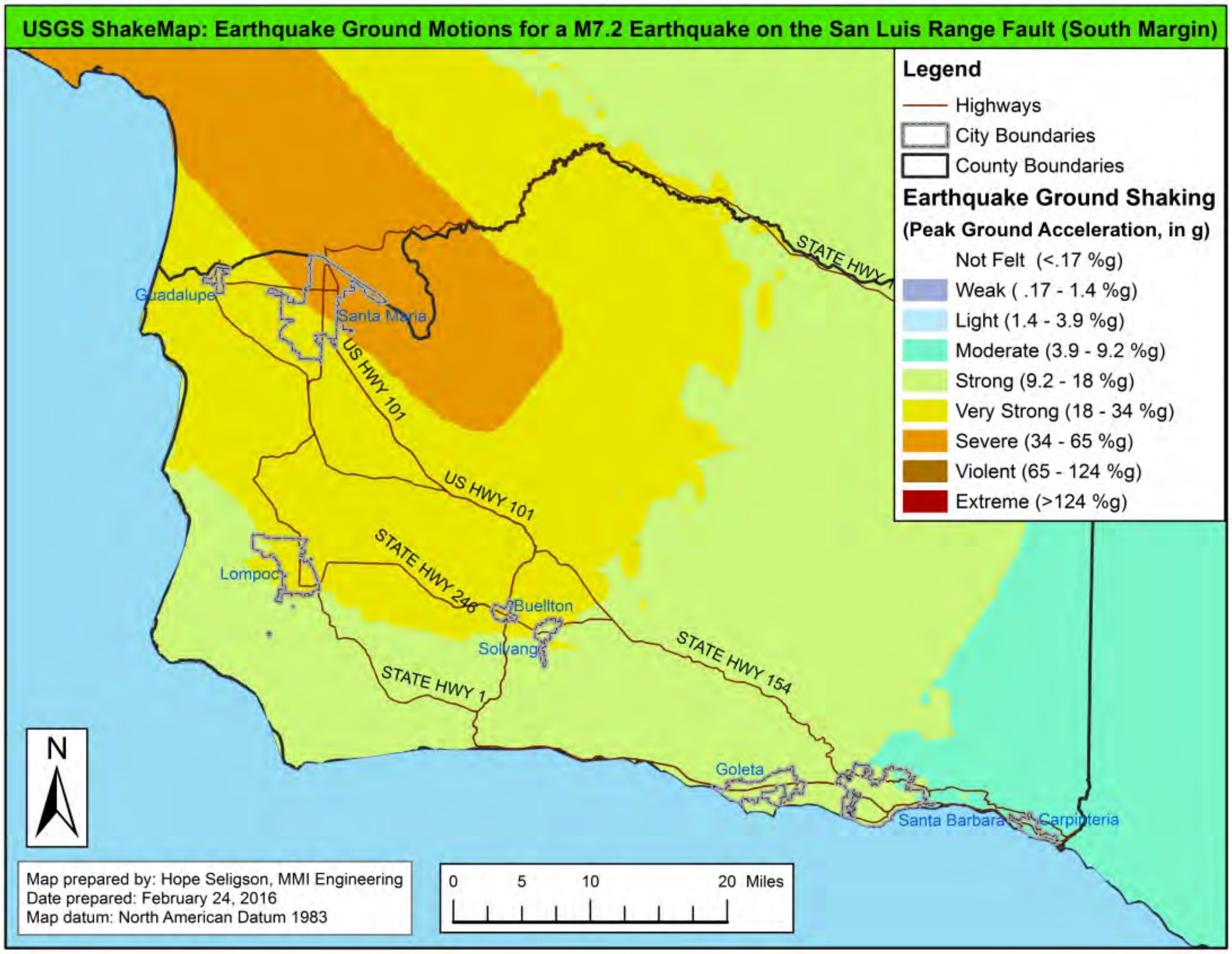


Figure 6.4: USGS Shake Map Ground Motions for Santa Barbara County for a M7.2 Earthquake on the San Luis Range Fault, South Margin (Scenario 2)



As noted above, the latest version of Hazus (Hazus 3.0, released in November, 2015) was used to conduct county-wide earthquake risk assessments. The Hazus results, computed at the census tract level, were aggregated to produce city-level impact summaries. An overview of the city-wide results for both scenarios is provided in **Table 6.7**, along with the sub-set of results that represent the unincorporated county areas. As shown, the M7.4 Red Mountain Fault earthquake scenario (which impacts the southern part of the county) generates more building damage and loss in the County and in the unincorporated county areas, than the M7.2 San Luis Range Fault earthquake scenario (which impacts the northern part of the County).

Table 6.8 provides a breakdown of estimated building damage (building count by Hazus damage state) by general building type, allowing for an understanding of the distribution of predicted damage in the modeled scenarios.

Functionality of essential facilities included in the Hazus default database (with additional fire station facilities added) in the two scenario earthquakes is summarized in **Table 6.9** for Santa Barbara County and the unincorporated county areas.

Table 6-7: Estimated Impacts for Two Earthquake Scenario Events Affecting the City of Santa Barbara

		Earthquake Scenario	
		M7.4 Red Mountain Scenario	**M7.2 San Luis Range South Margin Scenario**
Direct Economic Losses for Buildings ($1,000)			
	Total Building Exposure Value	**11,636,462**	
Capital Stock Losses	Cost of Structural Damage	218,144	750
	Cost of Non-Structural Damage	883,301	11,024
	Total Building Damage (Str. + Non-Str.)	**1,101,445**	**11,775**
	Building Loss Ratio %	9.5%	0.1%
	Cost of Contents Damage	334,401	5,887
	Inventory Loss	6,814	124
Income Losses	Relocation Loss	100,633	115
	Capital-Related Loss	78,502	106
	Rental Income Loss	69,218	193
	Wage Losses	96,347	126
	Total Direct Economic Loss	**1,787,360**	**18,325**
	% Of Countywide Loss	**50.9%**	**2.2%**
Casualties			
Day Casualties	**Casualties - 2 pm**		
	Level 1 - minor injuries, basic first aid	568	1
	Level 2 - hospital treat & release	150	0
	Level 3 - injuries requiring hospitalization	24	0
	Level 4 - fatalities	**45**	**0**
	Total Casualties	**787**	**1**
Night Casualties	**Casualties - 2 am**		
	Level 1 - minor injuries, basic first aid	193	1
	Level 2 - hospital treat & release	42	0
	Level 3 - injuries requiring hospitalization	6	0
	Level 4 - fatalities	**11**	**0**
	Total Casualties	**252**	**1**
Shelter			
Shelter	Number of Displaced Households	1,456	0
	Number of People Requiring Short-term Shelter	893	0
Debris (thousands of tons)			
Debris	Brick, Wood & Other (Light) Debris	112.5	0.6
	Concrete & Steel (Heavy) Debris	320.4	0.3

		Earthquake Scenario	
		M7.4 Red Mountain Scenario	M7.2 San Luis Range South Margin Scenario
	Total Debris	**432.9**	**0.9**

Table 6-8: Estimated Building Damage (Building Count by General Building type, by Damage State) for Two Earthquake Scenario Events Affecting the City Santa Barbara

		Earthquake Scenario	
		M7.4 Red Mountain Scenario	M7.2 San Luis Range South Margin Scenario
Concrete	None	73	740
	Slight	213	13
	Moderate	245	1
	Extensive	143	0
	Complete	80	0
	TOTAL	**754**	**754**
Manuf. Housing	None	0	439
	Slight	1	49
	Moderate	71	6
	Extensive	286	0
	Complete	136	0
	TOTAL	**494**	**494**
Precast Concrete	None	27	590
	Slight	113	18
	Moderate	273	2
	Extensive	148	0
	Complete	49	0
	TOTAL	**610**	**610**
Reinforced Masonry	None	165	1101
	Slight	301	9
	Moderate	420	1
	Extensive	166	0
	Complete	60	0
	TOTAL	**1,112**	**1,111**
Steel	None	26	776
	Slight	87	21
	Moderate	278	3

	Extensive	305	0
	Complete	103	0
	TOTAL	**799**	**800**
Unreinforced Masonry	None	5	220
	Slight	31	12
	Moderate	77	1
	Extensive	66	0
	Complete	53	0
	TOTAL	**232**	**233**
Wood Frame (Other)	None	64	627
	Slight	238	9
	Moderate	229	0
	Extensive	84	0
	Complete	21	0
	TOTAL	**636**	**636**
Wood Frame (Single-family)	None	5410	23260
	Slight	14555	228
	Moderate	3490	1
	Extensive	34	0
	Complete	0	0
	TOTAL	**23,489**	**23,489**
ALL BUILDING TYPES	None	5,770	27,753
	Slight	15,539	359
	Moderate	5,083	15
	Extensive	1,232	0
	Complete	502	0
	TOTAL	**28,126**	**28,127**

Notes:

1) Totals may not match due to rounding

Table 6-9: Predicted Essential Facility Functionality in Two Earthquake Scenario Events Affecting The City of Santa Barbara

		Earthquake Scenario	
	FACILITY TYPE	**M7.4 Red Mountain Scenario**	**M7.2 San Luis Range South Margin Scenario**
Fire Stations	**Santa Barbara Fire Department**		
	Total Number of Facilities in Hazus Default Database*	**8 (Stations 1-8)**	
	Default Structural Class and Design Level	**W1 (Wood Frame ≤ 5,000 SqFt), Moderate Code Design Level**	
	Damage:		
	# Facilities with >50% Probability of Moderate or Greater Damage	0	0

	# Facilities with >50% Probability of Complete Damage	0	0
	Functionality:		
	Functionality < 50 % on Day 1	8	0
	Functionality 50 - 75% on Day 1	0	0
	Functionality >75% Day 1	0	8
Police Stations	**Santa Barbara Police Department**		
	Total Number of Facilities in Hazus Default Database	**1**	
	Default Structural Class and Design Level	**W1 (Wood Frame ≤ 5,000 SqFt), Moderate Code Design Level**	
	Damage:		
	# Facilities with >50% Probability of Moderate or Greater Damage	0	0
	# Facilities with >50% Probability of Complete Damage	0	0
	Functionality:		
	Functionality < 50 % on Day 1	1	0
	Functionality 50 - 75% on Day 1	0	0
	Functionality >75% Day 1	0	1
Schools	**Santa Barbara Unified School District**		
	Total Number of Facilities in Hazus Default Database	**26 Schools ****	
	Default Structural Class and Design Level	**W1 (Wood Frame ≤ 5,000 SqFt), High Code Design Level**	
	Damage:		
	# Facilities with >50% Probability of Moderate or Greater Damage	0	0
	# Facilities with >50% Probability of Complete Damage	0	0
	Functionality:		
	Functionality < 50 % on Day 1	26	0
	Functionality 50 - 75% on Day 1	0	0
	Functionality >75% Day 1	0	26

** Note: The default fire station database was revised to include missing stations*

*** The Hazus default database includes 26 schools, but review of California Department of Education data indicate that 3 may be closed.*

Critical Facility	Potential Groundwater/ Liquefaction Severity
Public Works Buildings	Moderate/High
Public Yards	Moderate/High
Ortega treatment Well	Moderate/High
Main Desalination Plant	High/High
El Estero Wastewater Treatment Plan	High/High
Stearns Wharf	High/High
Airport Administration	High/High
Airport Terminal Museum	High/High

Critical Facility	Potential Groundwater/ Liquefaction Severity
New Airline Terminal	High/High
Harbor Patrol	High/High
Waterfront Operations	High/High
Marina 1	High/High
Marina 2	High/High
Marina 3	High/High
Marina 4	High/High
Navy Pier	High/High
City Hall	Moderate/High
Community Development	Moderate/High
Fire Station 3	Moderate/Moderate
Fire Station 2	Moderate/High
Fire Station 8	Moderate/Moderate
Police Department Headquarters	Moderate/High
Lower Westside Community Center	Moderate/Moderate
Franklin Community Center	Moderate/Moderate

6.2.2 Flood and Coastal Storm Surge (Medium Impact/High Probability)

Hazus 3.0 was used to develop a flood depth grid for the 1-percent annual chance (100-year) flood, using Hazus 3.0 built-in, basic (i.e., Level 1) flood depth estimation methodology. The Hazus 3.0 flood hazard assessment methodology uses available information and local river and floodplain characteristics, such as frequency, discharge and ground elevation to estimate flood elevation, and ultimately flood depth. Digital elevation model (DEM) data with 30-meter resolution, available from the USGS' National Elevation Dataset (see: http://nationalmap.gov/elevation.html) has been utilized in the current assessment.

It should be noted that the flood depth grid generated by Hazus 3.0 ***is not*** equivalent to regulatory floodplain data contained in FEMA's Digital Flood Insurance Rate Maps (DFIRMs), which are the result of extensive, detailed engineering study. The Hazus-generated flood depth grid is a hypothetical representation of a potential flooding scenario, intended for non-regulatory uses. Further, it should also be noted that the DEM data used in the default analysis do not reflect the presence of channels and levees. A more detailed assessment would utilize higher resolution DEM data, such as LIDAR-based DEM data, and/or would require GIS-based revisions to the DEM to better reflect local flood control structures. Given that the Hazus 3.0 Level 1 approach does not consider the presence of levees, Hazus 3.0 loss and damage estimates produced for areas with levees (e.g., along the Santa Maria River) should be considered "worst-case" flood losses, reflecting potential flood damage that could occur in the event that the levees fail. Hazus-estimated flood depths across Santa Barbara County are provided in **Figure 6.5**.

An overview of the county-wide Hazus results for the 100-year flood scenario is provided in **Table 6.10**, along with the sub-set of results that represent the unincorporated county areas. **Table 6.11** provides a breakdown of estimated building damage (building count by percent damage range) by general occupancy. As shown, most of the flood-damaged buildings are single family homes. Functionality of essential facilities included in the Hazus default database (with additional fire station facilities added) in the flood scenario is summarized in **Table 6.12** for Santa Barbara County.

Figure 6.5: Hazus-Estimated Flood Depths for a 1-percent Annual Chance (100-year) Flood

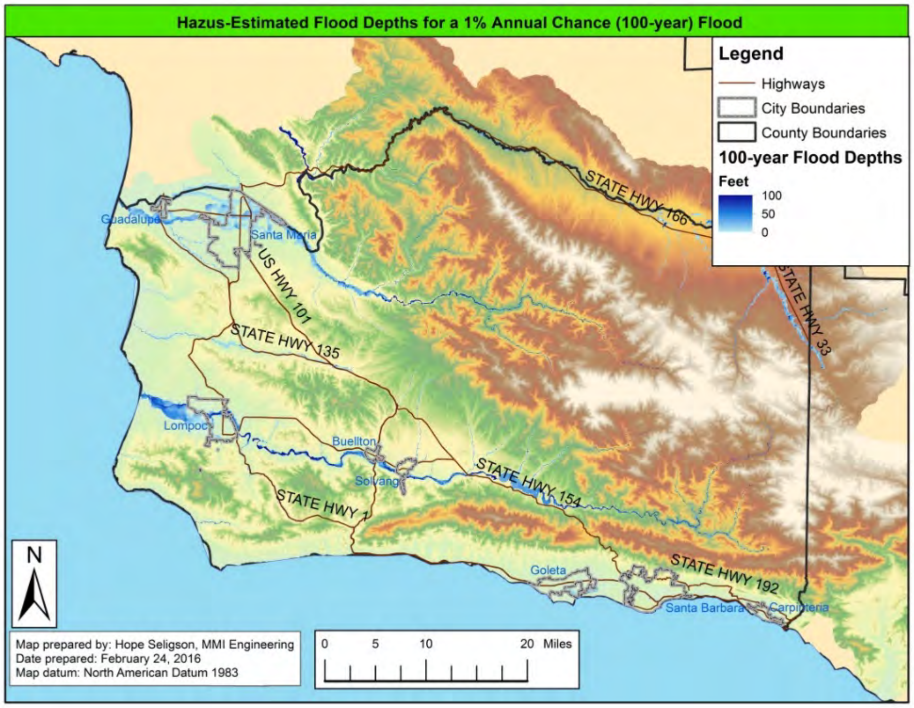


Table 6-10: Hazus -Estimated Impacts for the 1-Percent Annual Chance (100-Year) Flood Scenario Affecting the City of Santa Barbara

		Flood Scenario
		1-percent chance annual flood (100-year flood)
Direct Economic Losses for Buildings ($1,000)		
	Total Building Exposure Value	**11,636,462**
Capital Stock Losses	Total Building Damage	11,149
	Building Loss Ratio %	0.1%
	Cost of Contents Damage	7,790
	Inventory Loss	24
Income Losses	Relocation Loss	79
	Capital-Related Loss	268
	Rental Income Loss	50

		Flood Scenario
		1-percent chance annual flood (100-year flood)
	Wage Losses	158
	Total Direct Economic Loss	**19,518**
	% Of Countywide Loss	1.7%
Shelter		
Shelter	Number of Displaced Households	2,099
	Number of People Requiring Short-term Shelter	1,964
Debris (thousands of tons)		
Debris	Finishes	1.1
	Structures	0.4
	Foundations	0.4
	Total Debris	**2.0**

Table 6-11 Estimated Building Damage (Building Count by General Occupancy, by Percent Damage Range) for a 1-percent Annual Chance (100-year) Flood Scenario Affecting the City of Santa Barbara

		Flood Scenario
		1-percent chance annual flood (100-year flood)
Single Family Homes	None	106
	1 - 10%	37
	11 - 20%	33
	21 - 30%	2
	31 - 40%	3
	41 - 50%	1
	Substantial Damage	4
	TOTAL	**186**
Manufactured Housing	None	0
	1 - 10%	0
	11 - 20%	0
	21 - 30%	0
	31 - 40%	0
	41 - 50%	0

	Substantial Damage	0
	TOTAL	**0**
Other Residential	None	10
	1 - 10%	0
	11 - 20%	2
	21 - 30%	0
	31 - 40%	0
	41 - 50%	0
	Substantial Damage	0
	TOTAL	**12**
Commercial	None	6
	1 - 10%	1
	11 - 20%	0
	21 - 30%	0
	31 - 40%	0
	41 - 50%	0
	Substantial Damage	0
	TOTAL	**7**
Industrial	None	0
	1 - 10%	0
	11 - 20%	0
	21 - 30%	0
	31 - 40%	0
	41 - 50%	0
	Substantial Damage	0
	TOTAL	**0**
Other Occupancies	None	0
	1 - 10%	0
	11 - 20%	0
	21 - 30%	0
	31 - 40%	0
	41 - 50%	0
	Substantial Damage	0
	TOTAL	**0**
ALL OCCUPANCIES	None	122
	1 - 10%	38
	11 - 20%	35
	21 - 30%	2
	31 - 40%	3
	41 - 50%	1
	Substantial Damage	4
	TOTAL	**205**

Table 6-12 Predicted Essential Facility Functionality for a 1-percent Annual Chance (100-year) Flood Scenario Affecting the City of Santa Barbara

		Flood Scenario
	FACILITY TYPE	**1-percent chance annual flood (100-year flood)**
Fire Stations	**Santa Barbara Fire Department**	
	Total Number of Facilities in Hazus Default Database*	**8 (Stations 1-8)**
	Flood Exposure	
	# facilities located within flooded areas	0
	Damage:	
	# Facilities with Moderate or Greater Damage	0
	# Facilities with Substantial Damage	0
	Functionality:	
	# facilities expected to be non-functional on Day 1	0
Police Stations	**Santa Barbara Police Department**	
	Total Number of Facilities in Hazus Default Database	**1**
	Flood Exposure	
	# facilities located within flooded areas	0
	Damage:	
	# Facilities with Moderate or Greater Damage	0
	# Facilities with Substantial Damage	0
	Functionality:	
	# facilities expected to be non-functional on Day 1	0
Schools	**Santa Barbara Unified School District**	
	Total Number of Facilities in Hazus Default Database	**26 Schools ****
	Flood Exposure	
	# facilities located within flooded areas	0
	Damage:	
	# Facilities with Moderate or Greater Damage	0
	# Facilities with Substantial Damage	0
	Functionality:	
	# facilities expected to be non-functional on Day 1	0

** Note: The default fire station database was revised to include missing stations*

*** The Hazus default database includes 26 schools, but review of California Department of Education data indicate that 3 may be closed.*

6.3 Critical Facilities Analysis

6.3.1 Flood and Coastal Storm Surge (Medium Impact/High Probability)

Although Flood and Coastal Surge damage was well delineated in the previous section (Scientific Loss Estimation modeling), the County Planning Team and the MAC wanted to include additional vulnerability e data for the Critical Facilities. The exposure of the critical facilities to flood zones is summarized in **Table 6.13** and depicted on **Figure 6.6**.

Table 6-13 Critical Facilities by Category in Flood Zones

Critical Facilities
Public Works Yanonali Yard
Public Works Communications
Stearns Wharf
Airport Administration
Airport Runways
Airport Terminal Museum
New Airline Terminal
Stearns Wharf
Waterfront/Harbor Patrol
All Waterfront Marinas
Fire Station 2
Parks & Recreation Administration
Parks & Recreation Maintenance Yard
Ortega Well
El Estero Water Treatment Plant

Figure 6.6 Critical Facilities in 100 Year Flood Zone

MISSING FIGURE

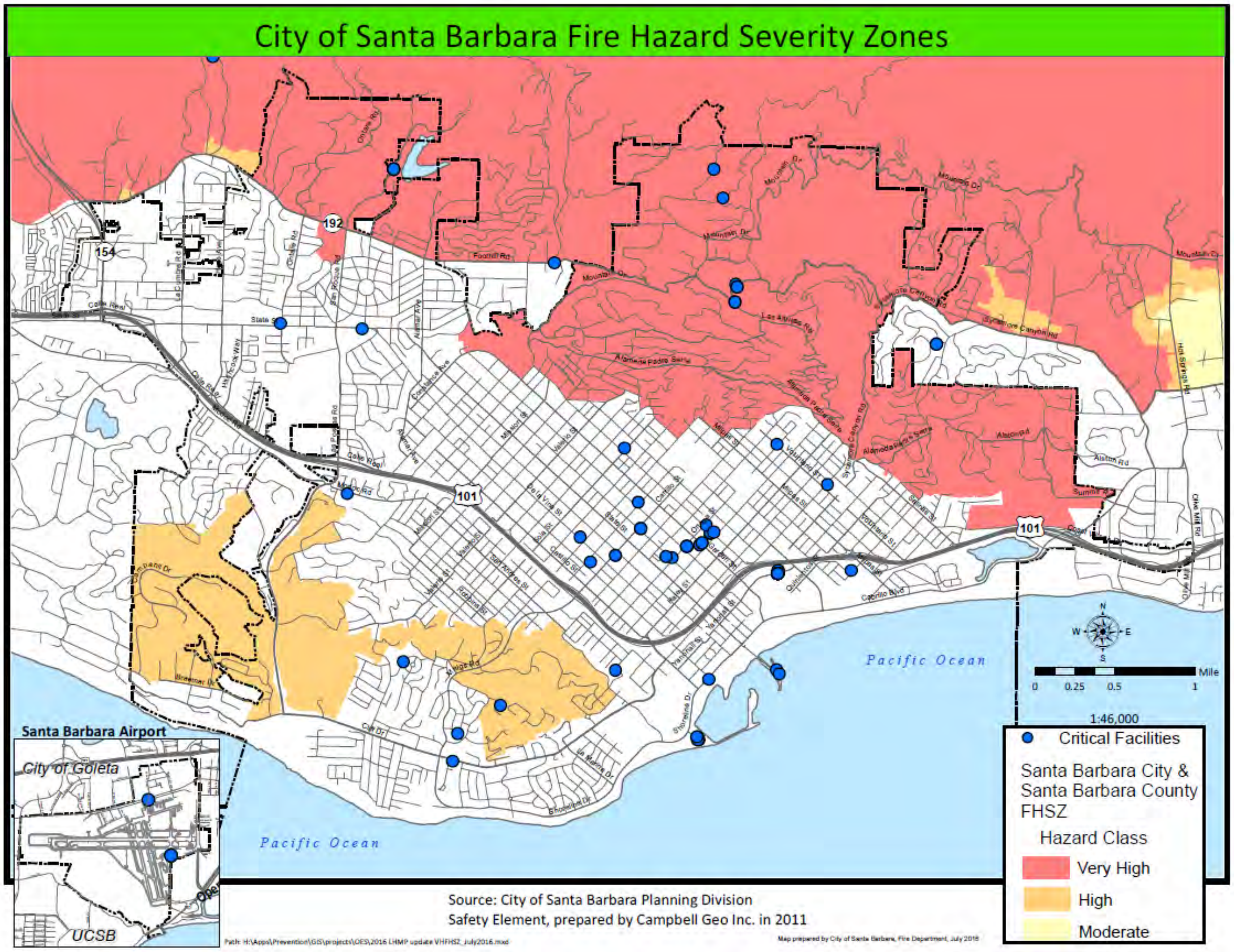
6.3.2 Wildfire *(Medium Impact/High Probability)*

In looking at critical facilities' vulnerability to wildfire, there were three measures that were evaluated. The first is whether a critical facility is within the Fire Severity Zone (FSZ). The FSZ is mapped by the CA Department of Forestry and Fire Protection. It shows the geographic extents for areas of significant fire hazards based on fuels, terrain, weather, and other relevant factors. The second measure for vulnerability is the Wildland Urban Interface which is the potential treatment zone where projects could be conducted to reduce wildland fire threats to people. For the purposes of this analysis, "within the WUI" represents those critical facilities that are in the geographical area where the three factors of "threat to people", "communities at risk", and “distance to developed areas” intersect. The final measure is that of “Fire Threat”. Fire Threat is a combination of the factors of fire frequency and potential fire behavior. The two factors are combined to create five (5) threat classes ranging from “Little or No Threat” to “Extreme”. The exposure of the critical facilities to these three measures is indicated in the tables (**Table 6.14**, **Table 6.15**, and **Table 6.16**) and figures (**Figure 6.7**. **Figure 6.8**, and **Figure 6.9**) below. It is worth noting that all critical facilities have at least some threat from one or more of the three measures. Because of this, the exposure has been color coded low too high in a yellow, orange, red scheme to make it easier for the reader to discern the different designations.

Table 6-14 Critical Facilities by Name in Fire Hazard Severity Zone

Critical Facility within the Wildland Urban interface Zone
Public Works Yard
Cater Treatment Plant
Sheffield Treatment Plant
Tunnell Reservoir
El Cielito
Hope Reservoir
Escondido Pump Station
Skofield Pump Station
Bothin Pump Station
Skofield Park
Fire Station 7
Fire Station 6
Franklin Community Center
Ortega Well
Franchesci Park – Communication Building

Figure 6.7 Critical Facilities in Fire Hazard Severity Zone



Source: City of Santa Barbara Planning Division
Safety Element, prepared by Campbell Geo Inc. in 2011

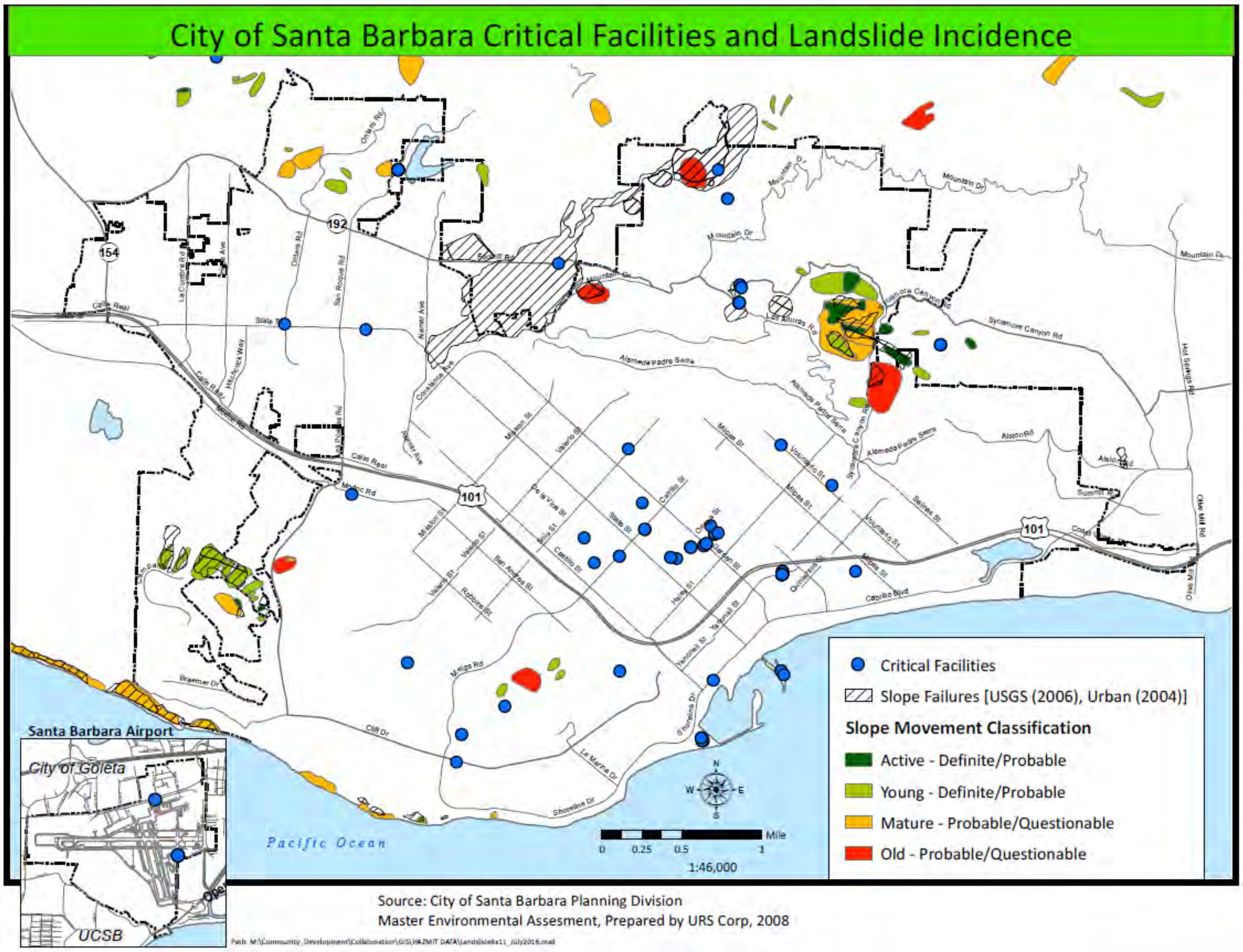
6.3.3 Landslide and other Earth Movement *(Medium Impact/High Probability)*

In an effort to assess vulnerability for landslides, data was collected from the United States Geological Survey (USGS) that represents landslide incidence and susceptibility. The geographies impacted are categorized into low, moderate, and high zones. These layers were intersected with the critical facilities to estimate exposure and show that there is approximately $14.4 million in structure value and just under $4 million in contents with at least moderate risk to landslides. The table below (**Table 6-17**) summarizes the total exposure and **Figure 6-10** depicts the location of those facilities that fall into a moderate risk. None of the County's critical facilities have a high risk of landslide vulnerability. All facilities not shown fall into the low risk category.

Table 6-17 Critical Facilities by Category in Landslide Zones

Currently in the Santa Barbara City there are no impacts to critical facilities in the landslide areas identified. The City continues to assess its vulnerabilities with the continued collection of data. This will assist in improving the City's risk assessment process in order to direct planning and mitigation decisions.

Figure 6.10 Critical Facilities and Landslide Incidence



Source: City of Santa Barbara Planning Division
Master Environmental Assesment, Prepared by URS Corp, 2008

6.3.4 Sea Level Rise, Coastal Storm Surge and Erosion *(Medium Impact/High Probability)*

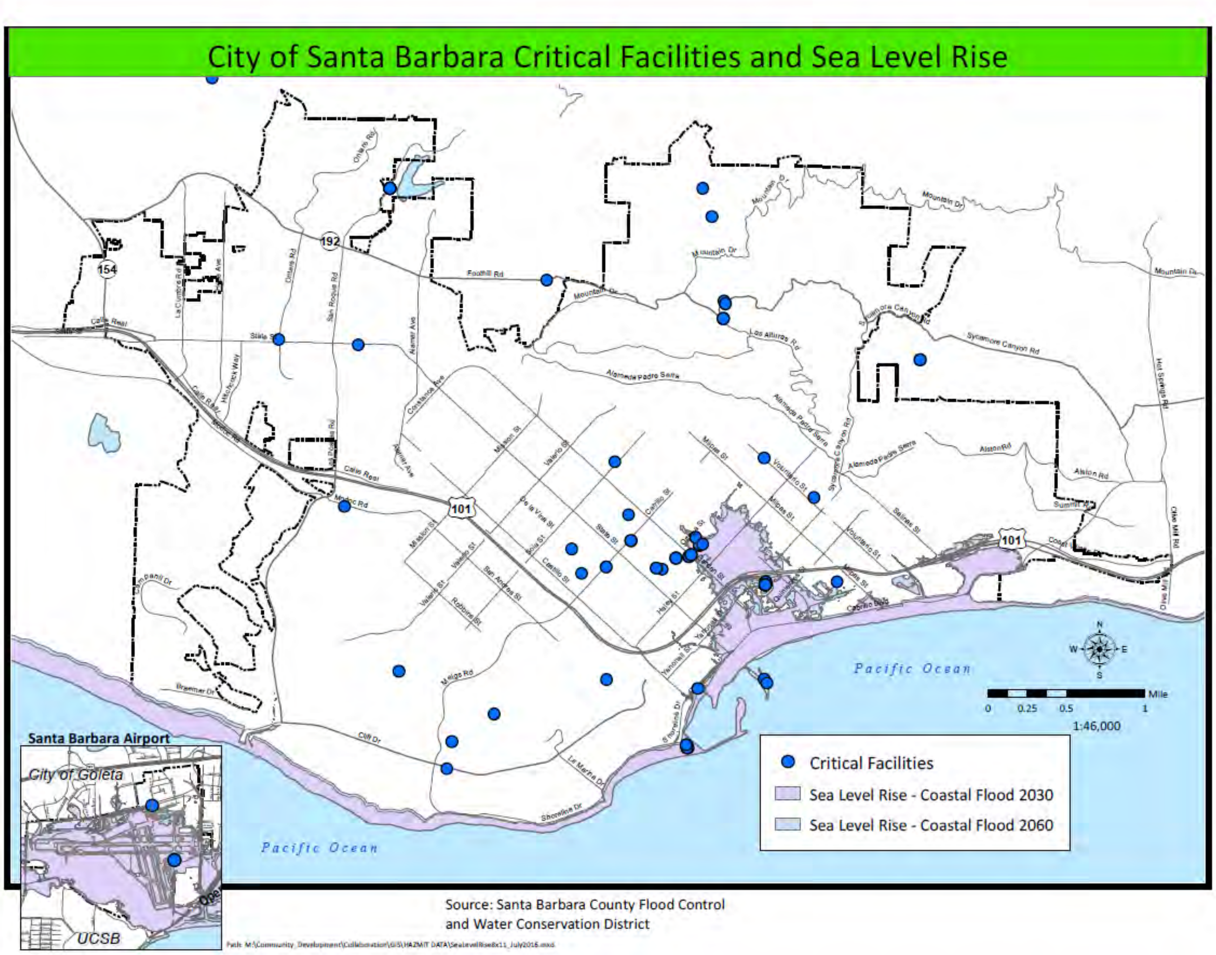
Santa Barbara County will be vulnerable to Sea Level Rise (SLR) along its 110 mile long coastline. SLR coupled with increased frequency, severity, and duration of high tide and storm events related to climate change will result in more frequent and severe extreme events along the coast. These events could expose the coast to severe flooding and erosion, damage to coastal Critical Facilities and real estate, and salinity intrusion into delta areas and coastal aquifers (Projecting Future Sea Level, A Report from the California Climate Change Center, 2006).

Table 6-18 illustrates the potential impact to Critical Facilitates from SLR, while **Figure 6.11** illustrates the vulnerability of the County's Critical Facilities to Sea Level Rise over the next 30 years.

Table 6-18 Critical Facilities by Category in SLR Zones

Currently, the City of Santa Barbara is continuing to assess data to develop policies for planning and mitigation. No critical facilities have been identified.

Figure 6-11 Critical Facilities and Sea Level Rise



Source: Santa Barbara County Flood Control and Water Conservation District

Path: M:\Community_Development\Collaboration\GIS\HAZMIT DATA\SeaLevelRise8x11_July2016.mxd

6.3.5 Dam Failure *(High Impact/Low Probability)*

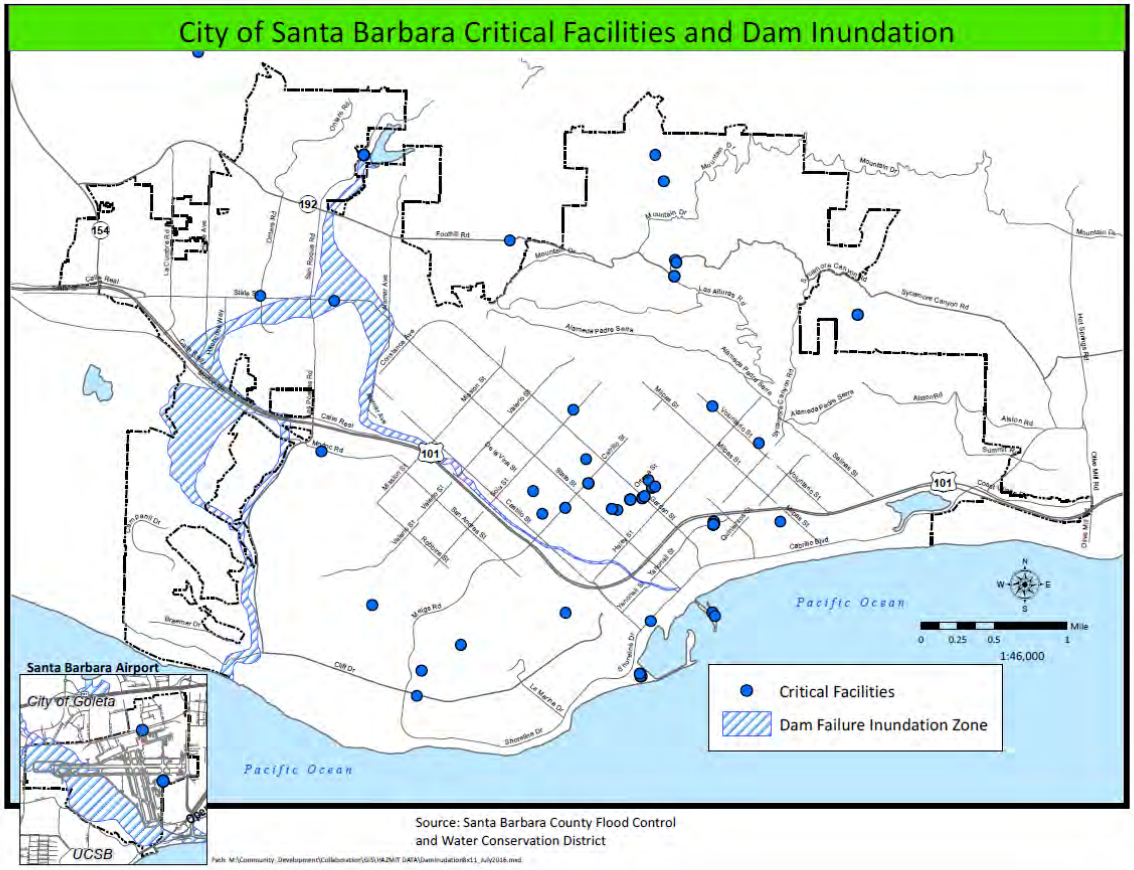
There are nine major dams in the County: Alisal Creek, Bradbury, Dos Pueblos, Gibraltar, Glen Anne, Juncal, Ortega, Rancho Del Ciervo, and Twitchell. Bradbury dam has the largest concern of failure because floodwaters from this dam would affect Cachuma Village, Solvang, Buellton, Lompoc City, Lompoc Valley, and south Vandenberg AFB. A failure of the remaining eight (8) dams would affect portions of populated cities and communities, forest and agricultural lands, roads, and highways. The dam failure vulnerability is simply a look at those critical facilities exposed to risk as indicated by whether they fall into a geographic region that represents a dam inundation zone. There are 39 County critical facilities within the dam inundation zones. The 39 critical facilities represent approximately $XX million in building value and almost $XX million in contents exposed to the risk (**Table 6-19**); however, over half of the critical facilities, nineteen

(19) of the 39 at risk facilities, did not have any dollar information available. **Figure 6-12** depicts the location of the critical facilities in relation to the dam failure inundation zones.

Table 6-19 Critical Facilities by Category in Dam Inundation Zones

Currently, there are no critical facilities within the path of a dam failure. However, the City continues to assess its vulnerabilities with the continued collection of data. This will assist in improving the City's risk assessment process in order to direct planning and mitigation decisions.

Figure 6-12 Critical Facilities and Dam Failure Inundation Areas



Source: Santa Barbara County Flood Control and Water Conservation District

6.3.6 Tsunami *(Medium Impact/Low Probability)*

Tsunami waves travel at speeds averaging 450 to 600 miles per hour. As a tsunami nears the coastline, its speed diminishes, its wavelength decreases, and its height increases. Depending on the type of event that creates the tsunami, as well the remoteness of the event, the tsunami could reach land within a few minutes or after several hours. Low-lying areas could experience severe inland inundation of water and deposition of debris more than 3,000 feet inland.

The University Of Southern California Tsunami Research Group has modeled areas in Santa Barbara County that could potentially be inundated in the event of a tsunami. This model is based on potential earthquake sources and hypothetical extreme undersea, near-shore landslide sources were mapped and used to profile maximum potential exposure.

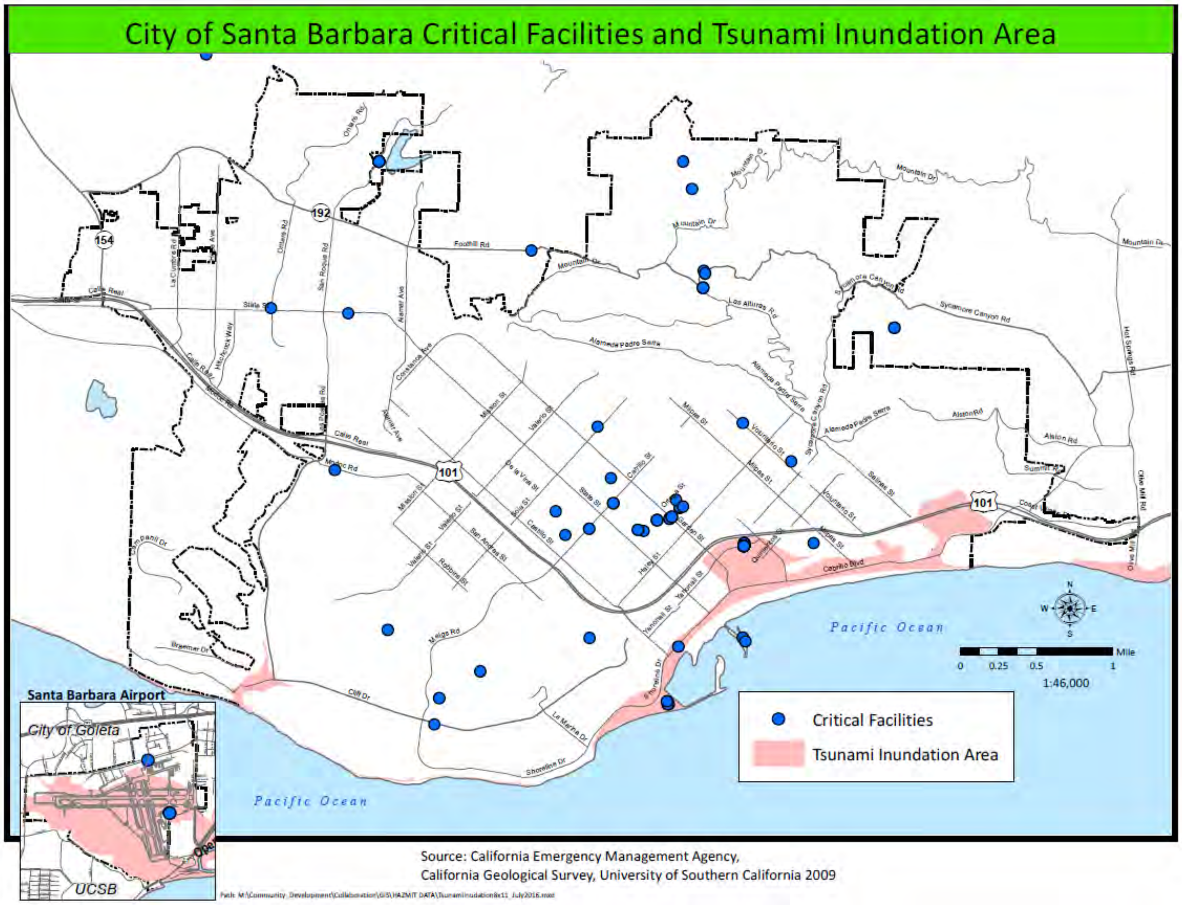
Critical facilities provided by the City were compared against the extreme tsunami inundation zone overlay to see whether they fell within the geographic extent of the hazard. (**Table 6-21**). **Figure 6-14** depicts the critical facilities in relation to the extreme tsunami inundation zone.

Table 6-21 Critical Facilities by Category in Extreme Tsunami Inundation Zone

It is worth noting that a majority of the Santa Barbara City critical facilities evaluated could be moderately impacted by a Tsunami event. The City continues to assess its vulnerabilities with the continued collection of data. This will assist in improving the City's risk assessment process in order to direct planning and mitigation decisions. Below is a table of critical facilities that are within the Tsunami Inundation Map develop in 2009.

Critical Facility
El Estero Wastewater Treatment Plan
Stearns Wharf
Airport Terminal Museum
New Airline Terminal
Waterfront/Harbor Patrol
All Harbor Marinas

Figure 6-14 Critical Facilities and Tsunami Inundation Areas



Source: California Emergency Management Agency, California Geological Survey, University of Southern California 2009

6.4 Qualitative Estimate of Impacts Analysis

6.4.1 Drought and Water Shortage *(Medium Impact/High Probability)*

A drought is present when a region receives below-average precipitation, resulting in prolonged shortages in its water supply, whether atmospheric, surface, or ground water. A drought can last for months or years, or may be declared after as few as 15 days. The effects of the drought are most visible in Santa Barbara County; including the City of Santa Barbara, when looking at the current capacity and maximum storage of the two main water reservoirs in the county, Lake Cachuma and Twitchell. On February 16, 2016, Cachuma was reported to be at 14.9% capacity, and Twitchell was at 0.2% capacity.

Climate change has the potential to make drought events more common in California, including Santa Barbara. Extreme heat creates conditions more conducive for evaporation of moisture from the ground, increasing the possibility of drought. A warming planet could lead to earlier melting of winter snow packs, leaving lower stream flows and drier conditions in the late spring and summer. Snow packs in northern California are important for water storage and ensuring adequate supply in the summer months when water is most needed. Changing precipitation distribution and intensity have the potential to cause more of the fallen precipitation run-off rather than be stored. The result is an increased potential for more frequent and more severe periods of drought.

Past experience with Santa Barbara droughts tells us that drought impacts are felt first by those most dependent on or affected by annual rainfall – fire departments, ranchers engaged in dryland grazing, rural residents relying on wells in low-yield rock formations, or other small water systems lacking a reliable water source. Drought and water shortage can happen countywide; and have significant impacts on the populations and the economy. Significant economic impacts on Santa Barbara's agriculture industry can occur as a result of short- and long-term drought conditions; these include hardships to farmers, farm workers, packers, and shippers of agricultural products. In some cases, droughts can also cause significant increases in food prices to the consumer due to shortages. Drought can also result in lack of water and subsequent feed available to grazing livestock, potentially leading to risk of livestock death and resulting in losses to the Santa Barbara's agricultural economy.

Drought can have secondary impacts. For example, drought is a major determinant of wildfire hazard, in that it creates greater propensity for fire starts and larger, more prolonged conflagrations fueled by excessively dry vegetation, along with reduced water supply for firefighting purposes.

*6.4.2 Severe Weather (*Medium Impact/High Probability)

6.4.2.4 *Extreme Heat*

Extreme heat can have significant impacts on the populations, lifeline infrastructure, and the economy. Heat events also highlight the importance of thoughtful social vulnerability analyses, consideration for socially isolate elderly populations, and illustrate how seemingly unrelated phenomena combine to create disaster, such as when increased use of air conditioners during heat waves can lead to power outages, which makes the events even more deadly.

The California Climate Adaptation Strategy (CAS), citing a California Energy Commission study, states that "over the past 15 years, heat waves have claimed more lives in California than all other declared disaster events combined." For example, the 1989 Loma Prieta Earthquake resulted in 63 deaths, the 1992 Northridge Earthquake was responsible for the loss of 55 lives, and the 2003 Southern California Firestorms resulted in 24 deaths; however, the worst single heat wave event in California occurred in Southern California in 1955, when an eight-day heat wave is said to have resulted in 946 deaths. The July 2006 heat wave in California caused the deaths of about 140 people over a 13-day period.

Because of this, the following groups could be considered vulnerable or at greater risk in a heat emergency:

- People with developmental/intellectual disabilities - refers to a severe and chronic disability that is attributable to a mental or physical impairment that begins before an individual reaches adulthood. These disabilities include cerebral palsy, epilepsy, mobility and autism.
- Blind/low vision
- Deaf/Hard of hearing
- Mobility Injuries: from auto accidents, falls, sports, and or war. These injuries can cause damage to the brain, spinal cord, hearing, sight and mobility
- Chronic Conditions: Diabetes, Arthritis, dialysis, asthma and epilepsy
- Older adults: Have age-related limitations. (move slower, sight and sound limitations, etc.)

- Children: Challenges include dependency not only for care, but decision-making, processing information and trauma differently than adults, they may be unable to articulate their needs, may decompensate faster than adults, and are generally more susceptible to thirst, hunger, temperature, etc. than adults.
- Animals, including domestic pets, livestock, and poultry are also susceptible to extreme heat. For example, dogs and cats are in danger of heat stroke in temperatures of 110°F. The heat wave of 2006 resulted in 15 reported pet deaths and more than 25,000 cattle, and 700,000 fowl heat- related deaths. Heat wave impacts to livestock can lead to financial losses in California's agricultural economy.

The Spatial Hazard Events and Loss Data for the United States (SHELDUS), estimates that approximately 47 heat events occurred in California between the years 1960 and 2008. Adjusted to 2008 dollars, SHELDUS reports that severe heat events in California caused roughly $1.8 million in property damage and $531.7 million in crop damage.

6.4.2.5 Freeze

Sustained temperatures below freezing in Santa Barbara's generally mild weather regions can cause life loss and health risks to vulnerable populations; and have significant impacts on the lifeline infrastructure and the economy. Similar to Extreme Heat events, the same populations, lifeline infrastructure, and parts of the economy are vulnerable to and could be impacted by Freeze events.

Although infrequent, freezes can severely affect Santa Barbara agriculture. Freezing temperatures occurring during winter and spring growing seasons can cause extensive crop damage. Secondary impacts of freeze disasters can include major economic impacts on farmers, farm workers, packers, and shippers of agricultural products. Freezes can also cause significant increases in food prices to the consumer due to shortages. Freezing spells are likely to become less frequent as climate temperatures increase; if emissions follow higher pathways, freezing events could occur only once per decade in a sizable portion of the state by the second half of the 21st century. While fewer freezing spells would decrease cold-related health effects, too few freezes could lead to increased incidence of disease as vectors and pathogens do not die off.

6.4.2.6 *Hailstorm*

Although ranked as part of the Serve Weather, hailstorms are rare in Santa Barbara County and as such represent a relatively low risk for most areas, compared to areas in the Midwest and southern United States where risk exposure is severe and many lives and millions of dollars are lost annually due to this hazard. In the event of a large hailstorm event, it is not expected to have significant impact on the population, built environment, lifeline infrastructure, or the economy.

6.4.2.7 Windstorm

Also ranked as part of the Serve Weather. Santa Barbara County is predominately known to have damaging hot winds known as Sundowners. These winds can reach up to 80 mph and fuel raging wildfires on the south coast. In the north county, the winds can damage agriculture if they are severe enough. In the unlikelihood of a significant event, windstorms could have a considerable impact on the population, built environment, lifeline infrastructure, and the economy.

6.4.3 Energy Shortage and Energy Resilience *(Medium Impact/High Probability)*

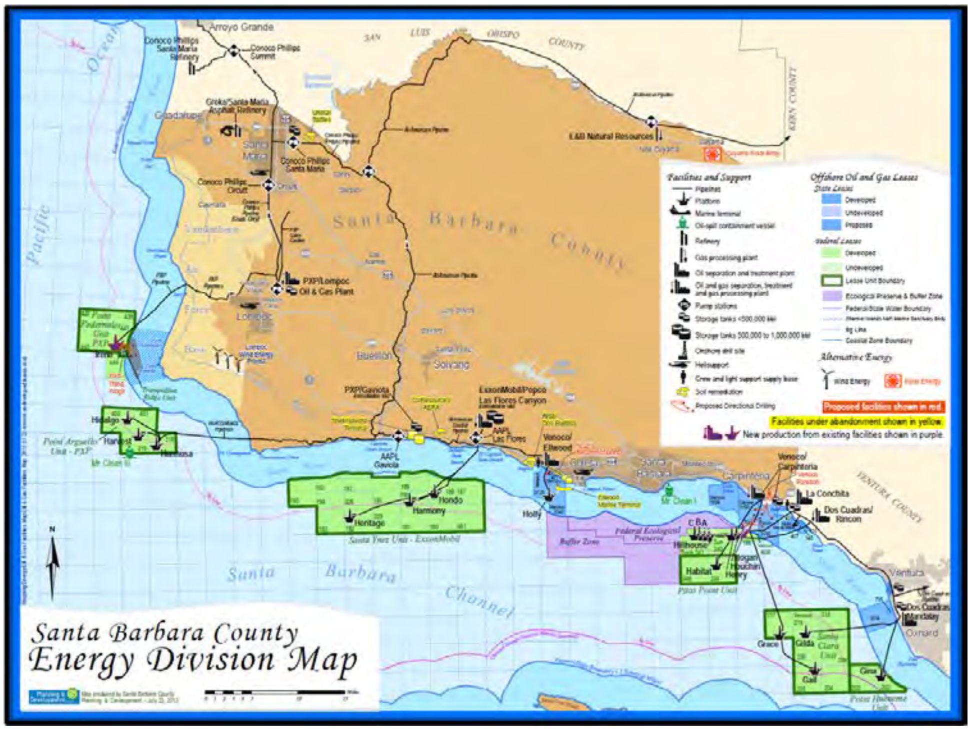
Energy disruptions are considered a form of lifeline system failure. Disruptions can be the consequence of another hazard, or can be a primary hazard, absent of an outside trigger. Santa Barbara County has two power providers. Pacific Gas and Electric provides electricity in the northern part of the county, with termination of services north of the Gaviota area. Southern California Edison provides power to the Southern part of the county, with service terminating in Gaviota. The two systems are not connected. Thus, if there is a major interruption of service in the Santa Barbara area, then all service is denied west of the outage to Gaviota. Likewise, if there is a major interruption of service coming from the north, power south to Gaviota from the outage may be affected.

Santa Barbara continues to experience both population growth and weather cycles that contribute to a heavy demand for power. Predicted increases in heat waves as well as increasingly severe winter storms will put ever greater strain on Santa Barbara’s two electricity providers and the Southern California Gas Company. In the event of a significant energy shortage it will have a significant impact on the population, built environment, lifeline infrastructure, and the economy.

6.4.4 Oil Spill *(Medium Impact/High Probability)*

In the event of a significant oil spill it will have a significant impact on the environment and the economy. The environmental impacts contribute to short- and long-term impacts on economic activities in areas affected by oil spills. Moratoriums may be temporarily imposed on fisheries, and tourism may decline in beach communities, resulting in economic hardship on individuals dependent on those industries for their livelihood and on the economic health of the community as well. Currently, there are 11 Oil Platforms off of the Santa Barbara County Coast and nearly (NEED NUMBER) oil and gas wells in Santa Barbara County. **Figure 6.12** show the Oil Platforms and their proximity to Santa Barbara.

Figure 6.12 Oil Platform Map of Santa Barbara Coast



6.4.5 Agricultural Pests and Disease *(Low Impact/High Probability)*

In the event of a significant agricultural pest or disease event it will have a significant impact on the environment and the economy. The actual acreage of agriculture exposed to pests and disease, as well as other hazards, is 546,512.61 acres including 138,723.18 acres of crop land.

6.4.6 Epidemic/Pandemic/Vector Borne Disease *(Low Impact/Medium Probability)*

The county, as well as the state and country, has been subject recent increases in epidemic/pandemic/vector borne diseases. While a significant epidemic/pandemic/vector borne disease event can have a considerable impact on the population, environment, and economy, the epidemic/pandemic/vector borne disease response plan, developed through the coordination efforts of 75 county employees and partner agencies, establishes a solid foundation for improved coordination and intervention by all participants not only in response to a pandemic but for the prevention as well. Implementation of this plan will enable County Department's to fulfill their significant roles and responsibilities for a coordinated strategy aimed at protecting the public's health and minimizing the impact of the pandemic influenza in Santa Barbara County.

6.4.7 Hazardous Materials Release *(Medium Impact/Medium Probability)*

The release of hazardous materials into the environment can cause a multitude of problems for the population, built environment, lifeline infrastructure, environment, and the economy. Although these incidents can happen almost anywhere, certain areas of the County are at higher risk, such as near roadways that are frequently used to transport hazardous materials and locations with industrial facilities that use, store, and/or dispose of such materials. Aras crossed by railways, waterways, airways, and pipelines also have increased potential for mishaps.

Incidences can occur during production, storage, transportation, use or disposal of hazardous materials. Communities can be at risk if a chemical is used unsafely or released in harmful amounts into the environment. Hazardous materials can cause death, serious injury, long lasting health effects, and damage to buildings, the environment, homes, and other property.

The locations and identity of facilities that store hazardous materials are reported to local and federal governments. Security measures at these facilities can be heightened. Many facilities have their own hazardous materials guides and response plans, including transportation companies who transport hazardous materials.

6.4.8 Radiological Incident *(High Impact/Low Probability)*

Minor radiological accidents are possible at several facilities in Santa Barbara County that utilize some form of uranium including UCSB and area hospitals; however, a major concern for residents of Santa Barbara County is the Diablo Canyon Power Plant (DCPP). A significant radiological incident will have significant impacts on the population, built environment, lifeline infrastructure, environment, and the economy.

6.4.9 Terrorism *(Medium Impact/Medium Probability)*

In the unlikelihood of a significant terrorism event, there could be considerable impact on the population, built environment, lifeline infrastructure, environment, and the economy.

As of this date, there have been no know terrorist incidents in the City.

6.4.10 Cyber Threat *(Low Impact/Medium Probability)*

In the unlikelihood of a significant cyber event, there could be considerable impact on the population, built environment, lifeline infrastructure, environment, and the economy.

A cyber threat can infiltrate many institutions including banking, medical, education, government, military, and communication and infrastructure systems. The majority of effective malicious cyber-activity has become web-based. Recent trends indicate that hackers are targeting users to steal personal information and moving away from targeting computers by causing system failure. The duration of a cyber-attack is dependent on the complexity of the attack, how widespread it is, how quickly the attack is detected, and the resources available to aid in restoring the system. A cyber-attack could be geared toward one organization, one type of infrastructure and/or a specific geographical area. The affected area could range from small to large scale. Cyber-attacks generated toward large corporations can negatively affect the economy. A 2014 report from the MacAfee Corporation stated that the annual global loss to the global economy is between $375B and $500B. Attacks geared toward critical infrastructure and hospitals can result in the loss of life and the loss of basic needs, such as power and water, to the general public. Cyber-attacks can lead to the loss of operational capacity.

Most jurisdictions have several levels of security in place, dependent upon security levels of individuals and the geographical locations (onsite or remote). Redundant dispatch centers with separate systems that can function if the primary center isn't functioning are desirable.

Humans are the weakest link in a chain of cyber security. It remains difficult to continuously monitor and manage human/operator vulnerability. However, to address this weakness it is suggested the all jurisdictions in the Santa Barbara County continue, or develop a security training program which all employees are required to complete or renew annually.

6.4.11 Aircraft Crash *(Low Impact/Medium Probability)*

In the unlikelihood of a significant aircraft crash, depending on the location, there could be considerable impact on the population and the built environment.

The City of Santa Barbara has one airport with commercial flights are available. In addition to flights in and out of the municipal airport, commercial and private air traffic passes over the county. Military aircraft utilize Vandenberg Air Force Base. The City's airport maintains an emergency response plan that is tested at regular intervals with local government response agencies in accordance with FAA regulations.

A major air accident that occurs in a heavily populated residential area can result in considerable loss of life and property. Damage assessment and disaster relief efforts associated with an air accident will require support from other local governments, private organizations, and in certain instances, from the State and Federal governments.

It is anticipated that the mental health needs of survivors and surrounding residents will have to be addressed resulting from the trauma associated with the accident. A coordinated response team, comprised of mental health professionals, should take a proactive approach meeting the mental health needs from any traumatic disaster.

6.4.12 Train Accident *(Low Impact/High Probability)*

In the unlikelihood of a significant train accident there could be considerable impact on the population, economy, and the environment.

Trains running through Santa Barbara County, and in close proximity to U.S. Highway 101 in some areas, carry commuters and all other types of commodities including hazardous materials, fuel (including oil), agriculture, meats, and non-consumables. A hazardous material incident on rails or roadway has the potential to shut down both rail and highway transportation routes where the rail line and Highway101 are in close proximity.

This was the case in the 1991 Seacliff Incident, in neighboring Ventura County where a train accident released 440 gallons of aqueous hydrazine. The accident required the evacuation of the nearby Seacliff community along with the shutting down of Highway 101, and took 5 days to cleanup.

6.4.13 Natural Gas Pipeline/Storage Facility Accidents *(Medium Impact/Low Probability)*

In the unlikelihood of a significant natural gas pipeline or storage facility accident there could be considerable impact on the population, built environment, lifeline infrastructure, economy, and the environment.

Natural gas transported via the interstate pipelines, and some of the California-produced natural gas, is delivered into the Pacific Gas & Electric (PG&E) and Southern California Gas (SoCal Gas) intrastate natural gas transmission pipeline systems (commonly referred to as California's "backbone" natural gas pipeline system). Natural gas on the utilities' backbone pipeline systems is then delivered into the local transmission and distribution pipeline systems, or to natural gas storage fields. PG&E and SoCal Gas own and operate several natural gas storage fields that are located in Northern and Southern California.

Generally speaking, transmission lines are large-diameter steel pipes carrying natural gas at high pressure and compressed to provide higher carrying capacity. Transmission lines are both interstate and intrastate, with the latter connecting to smaller distribution lines delivering gas directly to homes and businesses.

6.4.14 Civil Disturbance *(Medium Impact/Low Probability)*

In the unlikelihood of a civil disturbance, depending on the cause and effect, there could be considerable impact on the population, built environment, lifeline infrastructure, economy, and the environment.

While Santa Barbara County does not have a history of riots there is no record of Civil Unrest in the City.

6.4.15 Marine Invasive Species *(Medium Impact/Low Probability)*

The introduction of non-indigenous species (NIS) into Santa Barbara County coastal marine, estuarine and lake waters can cause significant and enduring economic, human health, and environmental impacts. Ships transfer organisms to California waters from throughout the world. The transfer of ballast water from “source” to “destination” ports results in the movement of many organisms from one region to the next.

The Santa Barbara Coast and Lake Cachuma are vulnerable to Marine Invasive Species and close monitoring of marine and lake vessels as well as water dropping (snorkeling) aircraft is needed.

SECTION 7 MITIGATION STRATEGY

In preparation of the 2016 update of this plan, the City's Local Hazard Mitigation Planning (LHMP) Team made no revisions to the countywide goals and objectives due to the fact that they continue to reflect the needs of the City. This section contains the City's updated and most current mitigation strategy as of March 2016.

Mitigation Priorities

The City's LHMP Team accepted and agreed to the following Goals and Objectives.

Goal 1: Promote disaster-resistant future development.
Objective 1.A: Facilitate the development (or updating) of the Comprehensive Plan, City's General Plans and zoning ordinances to limit (or ensure safe) development in hazard areas.
Objective 1.B: Facilitate the incorporation and adoption of building codes and development regulations that encourage disaster resistant design.
Objective 1.C: Facilitate consistent implementation of plans, zoning ordinances, and building and fire codes.
Goal 2: Building support capacity and commitment for existing assets, including people, critical facilities/infrastructure, and public facilities, to become less vulnerable to hazards.
Objective 2.A: Mitigate vulnerability structures and public infrastructure including facilities, roadways, and utilities
Objective 2.B: Mitigate vulnerable populations
Objective 2.C: Support a coordinated permitting processes and consistent enforcement
Goal 3: Enhance hazard mitigation coordination and communication.
Objective 3.A: Address data limitations identified in Hazard Profiling and Risk Assessment
Objective3.B: Increase awareness and knowledge of hazard mitigation principles and practice among local government officials
Objective 3.C: Provide technical assistance to implement mitigation plans
Objective 3.D: Educate the public to increase awareness of hazards, potential impacts and opportunities for mitigation actions
Objective 3.E: Monitor and publicize the effectiveness of mitigation actions implemented within the City
Objectives 3.F: Educate the professional community on design and construction techniques that will minimize damage from the identified hazard
Objective 3.G: Participate in initiative that have mutual hazard mitigation benefits County-wide

Objective 3.H: Encourage other organizations, within the public, private, and no-profit sectors, to incorporate hazard mitigation activities into their existing programs and plans
Objective 3.I: Continue partnership between the state, county, local and tribal governments to identify, prioritize and implement mitigation actions
Objective 3.J: continuously improve the County's capability and efficiency at administering pre- and post-disaster mitigation programs, including providing technical support to the special districts within the City

Mitigation Progress

The City's Local Hazard Mitigation Planning (LHMP) Team reviewed the mitigation actions listed in the 2011 plan to determine the status of each action. Once reviewed, deferred projects from 2011 were renumbered to reflect 2016 updates. NOTE: All projects deferred from 2011 are due to lack of funding. All projects from 2011 have been deferred to 2016.

Mitigation Approach

The following table presents mitigation actions identified in the 2011 plan that were deferred and those that have been added to this plan by the LHMP Team in March 2016. The projects that were deferred were given new action numbers in the format of 2016 - # to allow all the current actions to be numbered. Projects deferred from 2011 are identified in the Comments Section. As actions are added in future updates they will be numbered in similar format to allow for tracking the year each action was added, deferred or deleted to the list (e.g. 2016 - #). The actions below and their status will be tracked and updated annual by the City's Office of Emergency Services, the Emergency Managers Task Team and LHMP Team.

Table Mitigation Projects

2016 Mitigation Action #	Mitigation Action Description	Status	Comments
2016-1	Pedregosa Storm Drain	Deferred	Previously from 2011 – construction will significantly reduce flooding in the Mission Creek area around Pedregosa
2016-2	Replacement Storm Drain Outfall (Airport)	Deferred	Previously from 2011 – This project is planned but not budgeted. Will significantly reduction flooding on Hollister Avenue.
2016-3	Flood Wall Construction (Airport)	Deferred	Flood Wall Construction - Around buildings 223, 304, 314, and 315 to protect these structures from flooding. Eliminate frequent water intrusion into buildings subsequent clean-up costs due to storm events, many of which are less than10 year events.
2016-4	Honda Valley Hillside Stabilization in location of High Pressure Gas Line Serving City	Deferred	Previously from 2011- High pressure gas line serving the City is located in an areas of Honda Valley where stabilization of soil is needed.

Table Mitigation Projects			
2016 Mitigation Action #	**Mitigation Action Description**	**Status**	**Comments**
2016-5	Hidden Valley Park Slope Stability	Deferred	Previously from 2011 – To reduce risk to life and property from slides and flooding.
2016-6	Stevens Park Eastern Access Erosion Remediation	Deferred	Previously from 2011 – Benefit to secure life and property and the preservation of an effective and ecologically sound creek system.
2016-7	Francheschi Park/Mission Ridge Hillside geotechnical stabilization of retaining wall	Deferred	Previously moved from in-progress to defer in 2011 due to lack of funding – retaining wall is crucial to evacuation and emergency response.
2016-8	Bluff Retreat Management at Shoreline Park	Deferred	Previously moved from in-progress to deferred in 2011 due to lack of funding – This project is on-going due to continuous bluff erosion.
2016-9	Rebuild 1000 Steps	Deferred	Previously moved from In-Progress in 2011 to Deferred in 2016 due to lack of funding – coastal erosion to beach access.
2016-10	Police Department Remodel	Deferred	Previously New in 2011 now Deferred due to lack of funding.
2016-11	High Fire Area Roadways	Deferred	Previously from 2011 - Erosions and landslides due to steep slopes and unreinforced retaining walls will hamper evacuation and emergency response.
2016-12	Laguna Pump Station	Deferred	Previously from 2011 - If the pump station is not replaced and/or repaired there will be massive closures in the downtown area.
2016-13	Replace deluge system on Stearns Wharf	Deferred	Previously from 2011 – Continues to be an on-going maintenance Project to promote firefighting on Stearns Wharf, which is an historical site in the Waterfront area.
2016-14	Backup generator for Waterfront Department Operating Center.	Deferred	Previously from 2011 - Upgraded power needed for Harbor Patrol and Waterfront DOC.
2016-15	Current Harbor facilities are old early 60s type construction – seismic renovation needed for safety	Deferred	Previously from 2011 - Current Harbor facilities are early 60s' type construction that would not withstand a large earthquake.
2016-16	Mesa Lane Coastal Access	Deferred	Previously from 2011 - Coastal erosion has already damaged a good portion of this coastal access.
2016-17	Salsipuedes Street Storm Drain Improvement	NEW	Potential improvements include connection of storm drain inlets on Micheltorena Street to existing storm drain on Salsipuedes Street and the construction of a new storm drain pipe along Salsipuedes and Victoria Streets

Table Mitigation Projects			
2016 Mitigation Action #	**Mitigation Action Description**	**Status**	**Comments**
2016 -18	Corrugated Metal Pipe Repairs	NEW	Repair through slip lining or to completely replace the highest priority corrugated metal pipe drain lines annually.
2016-19	Guiterrez Storm Drain Improvements	NEW	Construct additional storm drains to reduce the duration and severity of flooding when the upstream storm drain system is overwhelmed. The project is intended to improve the ability to remove runoff from the area by providing increased inlet capacity and by providing larger conduits between the street inlets and the box culverts under Hwy 101.
2016-20	Goleta Slough Mouth Management	NEW	Project will control the water level in the Goleta Slough to minimize flood hazard, mosquito population blooms, and waterfowl attractants that pose a greater bird-strike risk. The project will be designed to minimize adverse effects to the Federally-endangered tidewater goby and steelhead trout, while avoiding significant flood and bird-strike hazards such as those experienced in November 2012, May 2013 and February 2014.
2016-21	Hollister Drainage Improvement	NEW	The project includes establishing new swales to connect to an existing culvert emptying to Carneros Creek. To preserve the wetland habitat within the project site, the swales will be “eco-channels” which are constructed to allow a certain depth of water to still fill the wetlands, but now allow the water to overflow into Hollister Avenue. There will be a significant component of wetland enhancement/planting to offset any detrimental impacts of the project to the wetland habitat.
2016-22	Sea Level Rise Adaptation Plan	NEW	Develop a comprehensive Sea Level Rise Adaptation Plan for the low-lying coastal area from Ledbetter Point to the coastal bluffs at the eastern City limits to identify, manage, and reduce sea level rise effects on coastal resources and critical City facilities.
2016-23	Review/Revise the City’s Critical Facilities List	NEW	Develop a more comprehensive list of Critical Facilities that would include hospitals, skilled nursing facilities and private companies; as applicable.

Implementation Plan

Mitigation Action # 2016 – 1 Deferred from 2011

Project Description: Pedregosa Storm Drain

This is a cooperatively funded project of the County Flood Control and the City to solve drainage problem along Pedregosa Avenue to De la Vina Street. This is scheduled to be constructed next year. The affected area is from Mission Creek to Sheridan Avenue vicinity.

Applicable Hazards

High	**Medium**	**Low**
☐ Earthquake	☐ Agricultural Pests / Disease	☐ Tsunami
☒ Flooding	☐ Epidemic/Pandemic	☐ Dam Failure
☐ Wildfire	☐ HazMat Release	☐ Commercial Aircraft
☐ Sea Level Rise	☐ Oil Spills	☐ Terrorism
☐ Drought	☐ Landslide/Coastal Erosion	☐ Cyber Threat

Existing and Potential Resources: Santa Barbara County Flood Control District Benefits Assessments/Streets Capital Fund – estimated cost of project $700,000

Responsible Department: Santa Barbara County Flood Control - Tom Fayram, Deputy Public Works Director

Target Completion Date: Undetermined due to funding

Additional Comments / Status Report:

Construction will significantly reduce flooding.

Generating Department/Division: Public Works – Streets Division

Mitigation Action # 2016 – 2 Deferred from 2011

Project Description: Replacement Storm Drain Outfall

Replace steel pipe culvert at Carneros Creek and improve associated drainage channels. As recommended in Santa Barbara Airport "Master Drainage Plan". This will assist in eliminating over bank flooding along Hollister Ave near Carneros Way up to a 10 year storm event

Applicable Hazards

High	**Medium**	**Low**
☐ Earthquake	☐ Agricultural Pests / Disease	☐ Tsunami
☒ Flooding	☐ Epidemic/Pandemic	☐ Dam Failure
☐ Wildfire	☐ HazMat Release	☐ Commercial Aircraft
☐ Sea Level Rise	☐ Oil Spills	☐ Terrorism
☐ Drought	☐ Landslide/Coastal Erosion	☐ Cyber Threat

Existing and Potential Resources: Federal Aviation Administration Grant Funds, FEMA, and Airport Revenue. Design approximately $15,000, Construction approximately $95,000.

Responsible Department: Owen Thomas Supervising Engineer

City of Santa Barbara Airport Department

Target Completion Date: 2021

Additional Comments / Status Report: This Project is planned but not budgeted. Targeted to complete in 5 Years Planning/Permitting and Design approximately 9 months. Construction time estimated at approximately 60 days.

Significant reduction in flooding of Hollister Ave (main through fare) eliminating this traffic hazard for up to 10-year storm event and traffic.

Generating Department/Division: Airport Engineering

Mitigation Action # 2016 – 3 Deferred from 2011

Project Description: Flood Wall Construction - Around buildings 223, 304, 314, and 315 to protect these structures from flooding.

Applicable Hazards

High

☐ Earthquake
☒ Flooding
☐ Wildfire
☐ Sea Level Rise
☐ Drought

Medium

☐ Agricultural Pests / Disease
☐ Epidemic/Pandemic
☐ HazMat Release
☐ Oil Spills
☐ Landslide/Coastal Erosion

Low

☐ Tsunami
☐ Dam Failure
☐ Commercial Aircraft
☐ Terrorism
☐ Cyber Threat

Existing and Potential Resources: Airport revenue and/or FEMA funds.

Design and Construction cost of Storm walls - approximately $120,000

Responsible Department: Owen Thomas Supervising Engineer

City of Santa Barbara Airport Department

Target Completion Date: Undetermined due to funding

Additional Comments / Status Report:

Eliminate frequent water intrusion into buildings subsequent clean-up costs due to storm events, many of which are less than10 year events.

Generating Department/Division: Airport Engineering

Mitigation Action # 2016 – 4 Deferred from 2011

Project Description: Honda Valley Hillside Stabilization in location of High Pressure Gas line Serving the City

An area near a roadway and private property where high pressure gas lines are buried erodes frequently due to runoff and the steepness of the slope. This necessitates stabilization of the continually eroding hillside containing the gas line. An engineering consultant would prepare plans for slope stabilization and native revegetation, and infrastructure relocation if necessary.

- Identify Funding
- Prepare scope of work
- Hire consultation firm to design job
- Acquire all necessary permits.
- Write Specifications
- Bid construction
- Construct project

Applicable Hazards

High	**Medium**	**Low**
☐ Earthquake	☐ Agricultural Pests / Disease	☐ Tsunami
☒ Flooding	☐ Epidemic/Pandemic	☐ Dam Failure
☐ Wildfire	☐ HazMat Release	☐ Commercial Aircraft
☐ Sea Level Rise	☐ Oil Spills	☐ Terrorism
☐ Drought	☒ Landslide/Coastal Erosion	☐ Cyber Threat

Existing and Potential Resources: Funding has not been specified

Responsible Department: City of Santa Barbara Parks and Recreation Department working with City of Santa Barbara Public Works and the Gas Company

Target Completion Date: Undetermined due to funding

Additional Comments / Status Report: The benefits of public safety and a secure utility delivery would outweigh the likely fiscal costs of planning and implementation of a slope stabilization project.

Generating Department/Division: Parks & Recreation – Parks Division

Mitigation Action # 2016 – 5 Deferred from 2011

Project Description: Hidden Valley Park Slope Stability

At numerous locations throughout the park, slope stability problems are reoccurring along steep creek banks causing public safety hazards from slides and flooding, as well as stability issues on private and public property that lines the park. Potential hazards to park users and public and private economic losses would be reduces if the slopes were stabilized.

- Identify Funding
- Hire consultation firm to design job
- Acquire all necessary permits.
- Write Specifications
- Bid construction
- Construct project

Applicable Hazards

High

☐ Earthquake
☒ Flooding
☐ Wildfire
☐ Sea Level Rise
☐ Drought

Medium

☐ Agricultural Pests / Disease
☐ Epidemic/Pandemic
☐ HazMat Release
☐ Oil Spills
☒ Landslide/Coastal Erosion

Low

☐ Tsunami
☐ Dam Failure
☐ Commercial Aircraft
☐ Terrorism
☐ Cyber Threat

Existing and Potential Resources: Funding has not been specified

Responsible Department: City of Santa Barbara Parks and Recreation working with County of Santa Barbara Flood Control, and City of Santa Barbara Creeks Division.

Target Completion Date: Undetermined due to funding.

Additional Comments / Status Report: Reduced risk to life and property from slides and flooding would outweigh likely fiscal costs.

Generating Department/Division: Parks & Recreation – Parks Division

Mitigation Action # 2016 – 6 Deferred from 2011

Project Description: Stevens Park Eastern Access Erosion Remediation

The sole emergency access point to the majority of Stevens Park is subject to severe erosion, undercutting, potential slope failure and substantial sedimentation into San Rogue Creek from storm damage and poor drainage. In order to reduce the hazard to life and property from slides and flooding and to maintain a functional flood control system the area must be repaired by means of bank stabilization, revegetation, and appropriate drainage control.

- Identify Funding
- Prepare scope of work
- Hire consultation firm to design job
- Acquire all necessary permits.
- Write Specifications
- Bid construction
- Construct project

Applicable Hazards

High

☐ Earthquake
☒ Flooding
☐ Wildfire
☐ Sea Level Rise
☐ Drought

Medium

☐ Agricultural Pests / Disease
☐ Epidemic/Pandemic
☐ HazMat Release
☐ Oil Spills
☒ Landslide/Coastal Erosion

Low

☐ Tsunami
☐ Dam Failure
☐ Commercial Aircraft
☐ Terrorism
☐ Cyber Threat

Existing and Potential Resources: Funding has not been specified

Responsible Department: City of Santa Barbara Parks and Recreation Department

Target Completion Date: Undetermined due to funding.

Additional Comments / Status Report: The benefit of secure life and property and the preservation of an effective and ecologically sound creek system would outweigh the likely fiscal costs.

Generating Department/Division: Parks & Recreation – Parks Division

Mitigation Action # 2016 – 7 Deferred from 2011

Project Description: Francheschi Park/Mission Ridge Hillside geotechnical stabilization of retaining wall Improve storm drain infrastructure improvements.

Applicable Hazards

High	**Medium**	**Low**
☐ Earthquake	☐ Agricultural Pests / Disease	☐ Tsunami
☒ Flooding	☐ Epidemic/Pandemic	☐ Dam Failure
☐ Wildfire	☐ HazMat Release	☐ Commercial Aircraft
☐ Sea Level Rise	☐ Oil Spills	☐ Terrorism
☐ Drought	☒ Landslide/Coastal Erosion	☐ Cyber Threat

Existing and Potential Resources: No current funding sources.

Responsible Department: Parks & Recreation and Community Development

Target Completion Date: Undetermined due to funding.

Additional Comments / Status Report:

Retaining wall is crucial to ingress and egress in the area; especially for evacuation and emergency response

Generating Department/Division: Parks & Recreation – Parks Division and Community Development - Planning

Mitigation Action # 2016 – 8 Deferred from 2011

Project Description: Bluff Retreat Management at Shoreline Park

Since the late 90's the Park's bluff has been subject to numerous slides. Management of sidewalks and parkway needs to be continually addressed.

Applicable Hazards

High

☐ Earthquake

☒ Flooding

☐ Wildfire

☐ Sea Level Rise

☐ Drought

Medium

☐ Agricultural Pests / Disease

☐ Epidemic/Pandemic

☐ HazMat Release

☐ Oil Spills

☒ Landslide/Coastal Erosion

Low

☐ Tsunami

☐ Dam Failure

☐ Commercial Aircraft

☐ Terrorism

☐ Cyber Threat

Existing and Potential Resources: Currently an unfunded project

Responsible Department: Parks & Recreation

Target Completion Date: Undetermined due to funding.

Additional Comments / Status Report:

Currently the erosion to the park continues and will continue into the future. Keeping the management of sidewalks and vegetation in the area is an on-going issue.

Generating Department/Division: Park & Recreation – Parks Division and Public Works - Engineering

Mitigation Action # 2016 – 9 Deferred from 2011

Project Description: Rebuild 1000 Steps

Coastal erosion to the access on the beach has been on-going. The steps need to be rebuilt for safety of coastal access.

Applicable Hazards

High	**Medium**	**Low**
☐ Earthquake	☐ Agricultural Pests / Disease	☒ Tsunami
☒ Flooding	☐ Epidemic/Pandemic	☐ Dam Failure
☐ Wildfire	☐ HazMat Release	☐ Commercial Aircraft
☐ Sea Level Rise	☐ Oil Spills	☐ Terrorism
☐ Drought	☒ Landslide/Coastal Erosion	☐ Cyber Threat

Existing and Potential Resources: Currently an unfunded project

Responsible Department: Parks & Recreation and Public Works

Target Completion Date: Undetermined due to funding.

Additional Comments / Status Report:

Generating Department/Division: Parks & Recreation – Parks Division and Public Works – Engineering Division

Mitigation Action # 2016 – 10 Deferred from 2011

Project Description: Police Department

Police Building has been assessed by outside architectural firm and has been determined that the building needs seismic renovation.

Applicable Hazards

High

☒ Earthquake
☐ Flooding
☐ Wildfire
☐ Sea Level Rise
☐ Drought

Medium

☐ Agricultural Pests / Disease
☐ Epidemic/Pandemic
☐ HazMat Release
☐ Oil Spills
☐ Landslide/Coastal Erosion

Low

☐ Tsunami
☐ Dam Failure
☐ Commercial Aircraft
☐ Terrorism
☐ Cyber Threat

Existing and Potential Resources: No current funding potential

Responsible Department: Police Department and Community Development

Target Completion Date: Undetermined due to funding.

Additional Comments / Status Report:

Concept designs have been submitted. The Communication Center, housed on the first floor (basement) of the Police Department has been relocated to another facility off site due to the safety issues. Completion date for the building is dependent on securing funding.

Generating Department/Division: Police Department and Community Development – Planning Division

Mitigation Action # 2016 – 11 Deferred from 2011

Project Description: High Fire Area Road

- Many steep slopes in the high fire areas are subject to erosion and has already failed in areas in past flooding events
- Gravity/unreinforced retaining walls subject to land slide and earthquake

Applicable Hazards

High	**Medium**	**Low**
☐ Earthquake	☐ Agricultural Pests / Disease	☐ Tsunami
☒ Flooding	☐ Epidemic/Pandemic	☐ Dam Failure
☒ Wildfire	☐ HazMat Release	☐ Commercial Aircraft
☐ Sea Level Rise	☐ Oil Spills	☐ Terrorism
☐ Drought	☒ Landslide/Coastal Erosion	☐ Cyber Threat

Existing and Potential Resources: Currently an unfunded project

Responsible Department: Public Works

Target Completion Date: Undetermined due to funding.

Additional Comments / Status Report:

Erosions and landslides will hamper emergency responders from access these high fire areas and will drastically slow down calls times if these roads are hampered.

Generating Department/Division: Public Works – Engineering and Fire Department – Fire Prevention Bureau, Wildland Fire Specialist

Mitigation Action # 2016 – 12 Deferred from 2011

Project Description: Laguna Pump Station

Replace and repair pump station.

Applicable Hazards

High

☒ Earthquake

☒ Flooding

☐ Wildfire

☐ Sea Level Rise

☐ Drought

Medium

☐ Agricultural Pests / Disease

☐ Epidemic/Pandemic

☒ HazMat Release

☐ Oil Spills

☒ Landslide/Coastal Erosion

Low

☐ Tsunami

☐ Dam Failure

☐ Commercial Aircraft

☐ Terrorism

☐ Cyber Threat

Existing and Potential Resources: Currently an unfunded project

Responsible Department: Public Works

Target Completion Date: Undetermined due to funding.

Additional Comments / Status Report:

If pump station goes out, the downtown area will have massive closure between Anacapa and Quenientos Street and Ortega and Canon Perdido Street. It will also cause upstream flooding and coastal erosion.

Generating Department/Division: Public Works – Water Resources and Engineering Divisions

Mitigation Action # 2016 – 13 Deferred from 2011

Project Description: Replace deluge system on Stearns Wharf

In the past Stearns Wharf, which is an historical site, has suffered three massive fires. The current deluge system is not adequate if there is another fire.

Applicable Hazards

High	**Medium**	**Low**
☐ Earthquake	☐ Agricultural Pests / Disease	☐ Tsunami
☐ Flooding	☐ Epidemic/Pandemic	☐ Dam Failure
☒ Fire	☐ HazMat Release	☐ Commercial Aircraft
☐ Sea Level Rise	☐ Oil Spills	☐ Terrorism
☐ Drought	☐ Landslide/Coastal Erosion	☐ Cyber Threat

Existing and Potential Resources: Currently an unfunded project; however is part of the City's Capital Improvement Project (CIP)

Responsible Department: Waterfront

Target Completion Date: Undetermined due to funding.

Additional Comments / Status Report:

This is life essential equipment for the wharf

Generating Department/Division: Waterfront – Operations Division

Mitigation Action # 2016 – 14 Deferred from 2011

Project Description: Backup generator for Waterfront Department Operating Center (DOC)

Upgrade power for Harbor Patrol and Department’s DOC

Applicable Hazards

High

☒ Earthquake

☒ Flooding

☐ Wildfire

☐ Sea Level Rise

☐ Drought

Medium

☐ Agricultural Pests / Disease

☐ Epidemic/Pandemic

☐ HazMat Release

☐ Oil Spills

☐ Landslide/Coastal Erosion

Low

☒ Tsunami

☐ Dam Failure

☐ Commercial Aircraft

☐ Terrorism

☐ Cyber Threat

Existing and Potential Resources: Currently no funding sources

Responsible Department: Waterfront

Target Completion Date: Undetermined due to funding.

Additional Comments / Status Report:

Planning design work is currently being generated.

Generating Department/Division: Waterfront – Operations Division

Mitigation Action # 2016 – 15 Deferred from 2011

Project Description: Seismic Upgrades to City Facilities in the Harbor

Current Harbor facilities are old early 60s type construction – seismic renovation needed for safety

Applicable Hazards

High

- ☒ Earthquake
- ☐ Flooding
- ☐ Wildfire
- ☐ Sea Level Rise
- ☐ Drought

Medium

- ☐ Agricultural Pests / Disease
- ☐ Epidemic/Pandemic
- ☐ HazMat Release
- ☐ Oil Spills
- ☐ Landslide/Coastal Erosion

Low

- ☐ Tsunami
- ☐ Dam Failure
- ☐ Commercial Aircraft
- ☐ Terrorism
- ☐ Cyber Threat

Existing and Potential Resources: Currently an unfunded project

Responsible Department: Waterfront

Target Completion Date: Undetermined due to funding.

Additional Comments / Status Report:

Generating Department/Division: Waterfront – Operations Division and Public Works – Engineering Division

Mitigation Action # 2016 – 16 Deferred from 2011

Project Description: Mesa Lane Coastal Access

Coastal Erosion has damaged a good portion of the access to the beach.

-

Applicable Hazards

High

☐ Earthquake

☒ Flooding

☐ Wildfire

☐ Sea Level Rise

☐ Drought

Medium

☐ Agricultural Pests / Disease

☐ Epidemic/Pandemic

☐ HazMat Release

☐ Oil Spills

☒ Landslide/Coastal Erosion

Low

☒ Tsunami

☐ Dam Failure

☐ Commercial Aircraft

☐ Terrorism

☐ Cyber Threat

Existing and Potential Resources: Currently an unfunded project

Responsible Department: Parks & Recreation

Target Completion Date: Undetermined due to funding.

Additional Comments / Status Report:

A significant storms could element this beach access

Generating Department/Division: Parks & Recreation – Parks Division

Mitigation Action # 2016 – 17 **NEW**

Project Description: Salsipuedes Street Storm Drain Improvements

The project first involves the study of existing public and private storm drain facilities beginning on Salsipuedes Street at Micheltorena Street and continuing south to Victoria Street. Potential improvements include connection of storm drain inlets on Micheltorena Street to an existing storm drain on Salsipuedes Street and the construction of a new storm drain pipe along Salsipuedes and Victoria Streets.

Applicable Hazards

High

- ☐ Earthquake
- ☒ Flooding
- ☐ Wildfire
- ☐ Sea Level Rise
- ☐ Drought

Medium

- ☐ Agricultural Pests / Disease
- ☐ Epidemic/Pandemic
- ☐ HazMat Release
- ☐ Oil Spills
- ☐ Landslide/Coastal Erosion

Low

- ☐ Tsunami
- ☐ Dam Failure
- ☐ Commercial Aircraft
- ☐ Terrorism
- ☐ Cyber Threat

Existing and Potential Resources: No current funding sources

Responsible Department: City of Santa Barbara Public Works Department

Target Completion Date: Undetermined due to funding.

Additional Comments / Status Report:

Public Works will pursue completion of an initial study and design for this project in the event that grant funding or a cost sharing agreement with County Flood Control can be secured to cover 50% of the cost for construction.

Generating Department/Division: Public Works- Engineering Division

Mitigation Action # 2016 – 18 **NEW**

Project Description: Corrugated Metal Pipe Repairs

Studies done in the several areas within the City noted many corrugated metal pipes will need to be replaced. This project would seek to repair through slip lining or to completely replace the highest priority corrugated metal pipe drain lines annually.

Applicable Hazards

<u>High</u>

☐ Earthquake
☒ Flooding
☐ Wildfire
☐ Sea Level Rise
☐ Drought

<u>Medium</u>

☐ Agricultural Pests / Disease
☐ Epidemic/Pandemic
☐ HazMat Release
☐ Oil Spills
☐ Landslide/Coastal Erosion

<u>Low</u>

☐ Tsunami
☐ Dam Failure
☐ Commercial Aircraft
☐ Terrorism
☐ Cyber Threat

Existing and Potential Resources: To be determined

Responsible Department: City of Santa Barbara Public Works Department

Target Completion Date: Undetermined

Additional Comments / Status Report:

Many of the City owned corrugated metal pipes were installed over 50 years ago and may require replacement. Due to lack of funding for this project, repairs are typically only completed as emergency maintenance projects in response to failures evident at the street level (typically as sinkholes following rain events).

Generating Department/Division: Public Works – Engineering Division

Mitigation Action # 2016 – 19 **NEW**

Project Description: Gutierrez Storm Drain Improvements

The project would construct additional storm drains to reduce the duration and severity of flooding when the upstream storm drain system is overwhelmed. The project is intended to improve the ability to remove runoff from the area by providing increased inlet capacity and by providing larger conduits between the street inlets and the box culverts under Hwy 101.

Applicable Hazards

High

☐ Earthquake

☒ Flooding

☐ Wildfire

☐ Sea Level Rise

☐ Drought

Medium

☐ Agricultural Pests / Disease

☐ Epidemic/Pandemic

☐ HazMat Release

☐ Oil Spills

☐ Landslide/Coastal Erosion

Low

☐ Tsunami

☐ Dam Failure

☐ Commercial Aircraft

☐ Terrorism

☐ Cyber Threat

Existing and Potential Resources: To be determined

Responsible Department: City of Santa Barbara Public Works Department

Target Completion Date: Undetermined

Additional Comments / Status Report:

The area north of Hwy 101 within the Laguna Channel watershed is within the 100-year flood plain. During flooding events where the City’s storm drain system is unable to transport peak runoff, the overflow travels overland to the area along Gutierrez Street between Rose Avenue and Olive Street. The local storm drain system in this area is inadequate to handle these overflow events and local flooding occurs.

Generating Department/Division: Public Works – Engineering Division

Mitigation Action # 2016 – 20 **NEW**

Project Description: Goleta Slough Mouth Management
Narrative: This project will control the water level in the Goleta Slough to minimize flood hazard, mosquito population blooms, and waterfowl attractants that pose a greater bird-strike risk. This project will be designed to minimize adverse effects to the Federally-endangered tidewater goby and steelhead trout, while avoiding significant flood and bird-strike hazards such as those experienced in November 2012, May 2013 and February 2014.

Applicable Hazards

High	**Medium**	**Low**
☐ Earthquake	☒ Agricultural Pests / Disease	☐ Tsunami
☒ Flooding	☐ Epidemic/Pandemic	☐ Dam Failure
☐ Wildfire	☐ HazMat Release	☒ Commercial Aircraft
☐ Sea Level Rise	☐ Oil Spills	☐ Terrorism
☐ Drought	☐ Landslide/Coastal Erosion	☐ Cyber Threat

Existing and Potential Resources: Project formulation and biological assessment are underway and are expected to be finalized in May 2015. Funding sources include funding from FAA and the Airport.

Responsible Department: Airport Department

Target Completion Date: 2021

Additional Comments / Status Report: The Federal Aviation Administration (FAA) requires that wildlife strike risk be avoided to the maximum extent feasible within environmental constraints. The Santa Barbara County Flood Control District completed an Environmental Impact Report for their maintenance activities, including slough mouth management in 2011.

Generating Department/Division: Public Works - Engineering Division and Airport – Operations Division

Mitigation Action # 2016 – 21 **NEW**

Project Description: Hollister Drainage Improvement
Narrative: The project includes establishing new swales to connect to an existing culvert emptying to Carneros Creek. To preserve the wetland habitat within the project site, the swales will be "eco-channels" which are constructed to allow a certain depth of water to still fill the wetlands, but now allow the water to overflow into Hollister Avenue. There will be a significant component of wetland enhancement/planting to offset any detrimental impacts of the project to the wetland habitat.

Applicable Hazards

High

☐ Earthquake
☒ Flooding
☐ Wildfire
☐ Sea Level Rise
☐ Drought

Medium

☐ Agricultural Pests / Disease
☐ Epidemic/Pandemic
☐ HazMat Release
☐ Oil Spills
☐ Landslide/Coastal Erosion

Low

☐ Tsunami
☐ Dam Failure
☐ Commercial Aircraft
☐ Terrorism
☐ Cyber Threat

Existing and Potential Resources:

Responsible Department: Airport Department

Target Completion Date: 2021

Additional Comments / Status Report: The area south of Hollister Avenue and east and west of Los Carneros Way is twelve acre moisture of upland and wetland habitats. The area is drained by several poorly defined swales which have not been maintained for many years. In moderate storm event (3-5 year storms) the swales, which are severely choked by bulrush, back up with storm runoff and flood over Hollister Avenue. The depth of water on Hollister Avenue is as much as 12 inches and the road has to be closed for safety reasons. Hollister Avenue is an important access route to the Airport and needs to remain as safe and dependable route to the Airport in moderate and heavy rains. The project is consistent with Public Works Engineering standards that require roads to be adequately drained during a 10-year storm.

Generating Department/Division: Airport – Operations Division

Mitigation Action # 2016 – 22 **NEW**

Project Description: Sea Level Rise Adaptation Plan**.**
Develop a comprehensive Sea Level Rise Adaptation Plan for the low-lying coastal area from Ledbetter Point to the coastal bluffs at the eastern City limits to identify, manage, and reduce sea level rise effects on coastal resources and critical City facilities.

Applicable Hazards

High

- ☐ Earthquake
- ☐ Flooding
- ☐ Wildfire
- ☒ Sea Level Rise
- ☐ Drought

Medium

- ☐ Agricultural Pests / Disease
- ☐ Epidemic/Pandemic
- ☐ HazMat Release
- ☐ Oil Spills
- ☒ Landslide/Coastal Erosion

Low

- ☐ Tsunami
- ☐ Dam Failure
- ☐ Commercial Aircraft
- ☐ Terrorism
- ☐ Cyber Threat

Existing and Potential Resources: Currently an unfunded project. Grant sources are being sought.

Responsible Department: Community Development Department

Target Completion Date: Undetermined

Additional Comments / Status Report: Sea level rise modeling has shown that erosion, wave uprush, and coastal flooding threatens City facilities along the shoreline and downtown area in the 2060-2100 timeframe for medium and high sea level rise scenarios. This could worsen if tidal inundation were compounded with high groundwater, local surface runoff, and fluvial flooding. Adaptation planning is needed to reduce risks to critical City facilities. Policy direction for this project is found in the 2013 Safety Element.

Submitted by:
Generating Department/Division: Community Development Department, Long Range Planning Division

Mitigation Action # 2016 – 23 **NEW**

Project Description: Review/Revise the City's Critical Facilities List
Develop a more comprehensive list of Critical Facilities that would include hospitals, skilled nursing facilities and private companies; as applicable.

Applicable Hazards

High

☐ Earthquake
☐ Flooding
☐ Wildfire
☐ Sea Level Rise
☐ Drought

Medium

☐ Agricultural Pests / Disease
☐ Epidemic/Pandemic
☐ HazMat Release
☐ Oil Spills
☐ Landslide/Coastal Erosion

Low

☐ Tsunami
☐ Dam Failure
☐ Commercial Aircraft
☐ Terrorism
☐ Cyber Threat

Existing and Potential Resources: Cost of in-kind staff cost.

Responsible Department: Finance – Risk Management

Target Completion Date: 2020

Additional Comments / Status Report: In order to have a comprehensive Hazard Mitigation Plan, the City will need to develop a critical infrastructure list that includes outside agencies and businesses, such; hospitals, skilled nursing facilities, dialysis clinics, etc.

Submitted by:
Generating Department/Division: Fire/Office of Emergency Services

SECTION 8 PLAN MAINTENANCE

This section of the Plan describes the formal process that will ensure that the Plan remains an active and pertinent document. The plan process includes a schedule for monitoring and evaluating the Plan annually, which will produce a plan revision every five (5) years.

This section will describe how the City will integrate public participation throughout the plan maintenance process.

Plan Monitoring

The City of Santa Barbara Office of Emergency Services (OES) will be responsible to ensure that the City's Local Hazard Mitigation Planning Team monitoring the overall Plan for updates on an annual basis.

Plan Evaluation

City OES will call the Local Hazard Mitigation Planning (LHMP) team together on an annual basis to evaluate the Plan and Mitigation Actions set forth in this plan and discuss effectiveness of the Plan. The LHMP team will develop a list of items to be updated, added, or removed in revisions of this Plan.

City OES will report the outcomes of the annual meeting to the County Office of Emergency Management (OEM) and the City's Disaster Council.

The Plan will also be a work item on the City's Emergency Managers Task Team (EMTT) agenda annually. Department heads and other emergency preparedness staff who serve in the City's Emergency Operations Center (EOC) will focus on evaluating the Plan in light of technological, budgetary, political changes, or other significant events that may occur during the year.

Plan Updates

Since the plan's first adoption in 2005, the LHMP Planning Team has participated in an annual review. The Planning Team reviewed all aspects of the plan and mitigation actions that were either deferred, begun, continued or completed during that year.

After FEMA approval and City Council adoption, the 2011 HMP was integrated into the Safety Element of the City of Santa Barbara's Comprehensive Plan by City Council Resolution 12-004. City planning efforts and Capital Projects directed by the City were influenced by the information taken from the 2011 HMP. The 2011 HMP was also utilized and referenced to update the 2013 City Emergency Operations Plan, City's General Plan, Tsunami Response Guidelines, and Watershed Response Guidelines.

The review process has been effective in identifying gaps and shortfalls in funding, support, and other resources. It has also allowed the re-prioritization of specific actions as circumstances change. It allows the City to maintain the plan as a living document.

All Planning Team members will continue to be responsible to provide City OES with updates annually. City OES will be responsible to take all revisions to the County Mitigation Advisory Committee (MAC) annually. However, major disasters affecting the City, legal changes, and/or other events may trigger a meeting of the LHMP team before the annual meeting. The Planning

Team will be responsible for determining the revisions to the plan after any activation due to an emergency or disaster.

Continued Public Involvement

The City and all stakeholders continue to be dedicated to involving the public directly in the review process and updates of the Plan. The Planning Team is responsible for monitoring, evaluating, and updating the Plan as described above. During all phases of plan maintenance the public will have the opportunity to provide feedback.

A copy of the Plan will be available for review on the City's OES website and Facebook page. In addition, hard copies will be available at City Hall, the main library at the reference desk, and the City's Office of Emergency Services (OES). In addition, to facilitate public comments, the OES website will contain an email address for the public's use which is monitored on a daily basis by the City's Emergency Services Manager or designee. Any questions or comments received on this website will be forwarded to the appropriate Planning Team member or Department for review and response.

A press release requesting public comments will also be used for each update and after each evaluation. City OES will also use social media (Facebook, Twitter, etc.) to notify the public of any changes they should be aware of. Coupled with the dedicated email address for comments, this provides the public a simple and easily accessible to allow them to express their concerns, opinions, or ideas about any updates/changes that are proposed to the Plan. The City will continue to be responsible for publicizing any changes to the Plan and maintaining public involvement.

The City will also make reference to the Plan at all community events and training, e.g. Community Emergency Response Team (CERT), Community Disaster Education (CDE), Listos (class for the Hispanic Community), etc.

Point of Contact

Comments or suggestions regarding this plan may be submitted at any time to Yolanda McGlinchey, City Emergency Services Manager using the following information:

Yolanda McGlinchey
City of Santa Barbara Fire Department
Office of Emergency Services
925 Chapala Street
Santa Barbara, CA 93101
YMcGlinchey@SantaBarbaraCA.gov
805-564-5711

Attachment 4: Fiscal Year 2021 Water Rates

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WATER RATES AND FEES

Title 14.08 of the Santa Barbara Municipal Code authorizes the City Council to set fees for water meters and water service;

Section 14.12.010 of the Santa Barbara Municipal Code authorizes the City Council to set the rate for City water for private fire services when the use of a meter is not required; and

The City does currently and wishes to continue to have in effect a water rate structure that reflects an adequate supply of water and promotes the efficient use of such water by its customers.

1 Definitions

Wherever used in this resolution the following quoted words shall have the meanings set forth below:

1.1 **"Account holder"** means the person or entity responsible for payment for water service at a particular property, as shown in the City's water billing records.

1.2 **“Master Meter”** or “Auxiliary Master Meter” is defined in Santa Barbara Municipal Code 14.04.020

1.3 "**Base allotment**" means the average monthly consumption on record with the City for the most recent complete off-peak period calculated assuming the maximum days in a monthly billing cycle, or such other level of consumption determined by the Director to represent the average monthly off-peak water usage by a particular customer. An off-peak period for any given customer shall be a period comprised of the service periods charged on bills dated January through June.

1.4 **"Director**" means the Director of the Department of Public Works, or his or her designated representative.

1.5 “**Dominant use**” means for any meter serving multiple uses, such as an existing meter serving both a residence and a commercial establishment, the use consuming the most water on average. In cases where a meter serves more than one type of use, the meter will be classified based on the dominant use for billing purposes.

1.6 "**HCF**" means one Hundred Cubic Feet.

1.7 "**Service**" or "water service" means water provided by or through the water distribution facilities of the City.

2 Water Service Rates and Classifications

The following provisions shall govern all fees related to water service for metered connections to the City water system:

2.1 MONTHLY SERVICE CHARGES

A monthly service charge shall be collected for all connections, including City submeters, without regard to actual water use. Unless a master meter serves water directly to a dwelling unit without water passing through a City submeter, a monthly service charge shall not be collected for a City master meter. The monthly service charges shall be as follows:

Size of Water Service Connection	Rate ($/meter/month) Effective August 15, 2017	Rate ($/meter/month) Effective July 1, 2018	Rate ($/meter/month) Effective July 1, 2019
5/8"	$25.89	$27.36	$28.92
3/4"	$37.65	$39.81	$42.10
1"	$61.15	$64.70	$68.45
1 1/2"	$119.91	$126.92	$134.34
2"	$190.43	$201.59	$213.40
3"	$413.74	$438.05	$463.80
4"	$742.81	$786.51	$832.79
6"	$1,530.25	$1,620.34	$1,715.72
8"	$2,823.06	$2,989.30	$3,165.32
10"	$4,459.38	$4,712.41	$4,979.80

2.2 MASTER METER (AUXILARY MASTER METER) OPERATIONS AND MAINTENANCE FEE

Unless a master meter directly serves water to a dwelling unit without water passing through a City submeter, a monthly operations and maintenance fee shall be collected for master water meters, without regard to actual water use, if any, as follows:

Size of Master Meter	Rate ($/meter/month) Effective August 15, 2017	Rate ($/meter/month) Effective July 1, 2018	Rate ($/meter/month) Effective July 1, 2019
2"	$62.00	$62.00	$62.00
3"	$67.00	$67.00	$67.00
4"	$70.00	$70.00	$70.00
6"	$76.00	$76.00	$76.00
8"	$82.00	$82.00	$82.00
10"	$88.00	$88.00	$88.00

2.3 USER CLASSIFICATIONS

For the purposes of assessing metered water charges provided for below, user classifications shall be determined and corrected by Staff, using the categories below. Any meter serving multiple uses shall be classified based on the dominant use.

2.3.1 Residential Single Family

Applicable to all meters serving one detached dwelling unit.

2.3.2 Multifamily 1-4 Units

Applicable to all meters serving two or more detached dwelling units, all meters serving 1, 2, 3, or 4 attached dwelling units, and all meters serving accessory dwelling units.

2.3.3 Multifamily Over 4 Units

Applicable to all meters serving five or more dwelling units, any of which are attached.

2.3.4 Commercial

Applicable, without regard to meter size, to all accounts serving mercantile buildings, motels, and other short term lodging establishments, office buildings, institutional buildings, schools, churches, and other commercial establishments. Also applicable to accounts solely serving common areas on multifamily or mixed use properties including but not limited to communal laundry rooms.

2.3.5 Industrial

Applicable to all meters serving laundries (other than self-service laundries), manufacturing facilities, and other industrial facilities.

2.3.6 Irrigation-Potable

Applicable to meters limited to outdoor water use and subclassified as provided in subsections 2.3.6.1 through 2.3.6.4 below. All meters under this classification shall be subject to interruption upon declaration of a Stage Three Drought Condition. There shall be no connection between a meter served under this classification and any dwelling or commercial or industrial structure.

The first tier of all irrigation accounts shall be calculated using the following formula: Monthly Water Budget = (ETo)(.62/748)((PF x HA)/IE))
Where

ETo = Reference evapotranspiration (weather factor)
0.62/748 = Conversion factor (inches to HCF)
PF = Plant factor
HA =Square footage of irrigated area(s)
IE = Irrigation efficiency (80%)

The Monthly Water Budget shall be determined using real-time monthly ETo data from a local weather station, plant factors that relate plant type water use needs to the ETo, and irrigated area by plant type. Irrigation system efficiency is set at a constant value of 80% for all account types.

Monthly Water Budgets shall be based on irrigated area only. Accounts shall be subject to mandatory ground-truthing measurement at Staff discretion to verify measurement accuracy of irrigated areas and plant types. If ground-truthing measurements are not completed within two months after initial contact due to lack of customer response, service may be subject to suspension until irrigated landscaped areas are verified in the field.

2.3.6.1 Irrigation-Agriculture

Applicable only to Potable Irrigation meters that serve bona fide commercial agricultural enterprises, including nurseries. A bona fide commercial agricultural enterprise is one that grows and sells one or more type of agricultural or horticultural products, for the purpose of producing income from the sale of these products. The amount of water made available in the first tier of metered water usage under this sub-classification shall be based on the square footage of the commercial crop area that is planted and irrigated as part of the enterprise. As a condition of the right to receive Irrigation-Agriculture service, the Director may require an Account holder to submit to the Director any documentary or other evidence necessary to establish to a reasonable degree of certainty that the property served by the meter is being used to conduct a bona fide commercial agricultural enterprise as defined above. Such evidence may include tax returns, bills of sale, or similar documents.

PFc = 75%

HAc = total crop irrigated area (square feet)

If the crop is a tree species the crop irrigated area is the number of irrigated trees multiplied by the average tree area. The average tree area is the area of a circle with a diameter equal to the average diameter of the drip line of the relevant species. An alternate method to calculate the irrigated area may be used as approved by the Director.

2.3.6.2 Irrigation-Recreation

Applicable only to Potable Irrigation meters that serve areas used primarily for passive or active recreational purposes, including parks, playgrounds, golf courses, school yards, and publicly owned open spaces and landscaped areas. The amount of water made available in the first tier of metered water usage under this sub-classification shall be based on the square footage of the irrigated area served by the meter.

HAt = total irrigated turf area (square feet)

Turf PFt = 80%

HAs = total irrigated shrub area (square feet)

Shrub PFs = 30%

2.3.6.3 Irrigation-Urban (Residential / Commercial):

Applicable to Potable Irrigation meters serving properties that are primarily residential in use or are zoned for residential use or commercial, industrial, or institutional in use. The amount of water made available in the first tier of metered water usage under this subclassification shall be based on the square footage of the irrigated area served by the meter.

HAt = total irrigated turf area (square feet)

For Residential Irrigation, HAt cannot exceed 20% of total irrigated area. If measurements are greater than 20%, the remainder square footage will be assigned to the HAs.

PFt = turf plant factor = 80%.

HAs = total irrigated shrub area (square feet)

For Commercial Irrigation, 100% of total irrigated area is considered HAs, unless a permitted exception of Landscape Design Standards has been approved.

PFs = shrub plant factor = 30%.

Plant Factor percentage allotments reflect the requirements of the City's Landscape Design Standards for Water Conservation per SBMC 22.80.

2.3.6.4 Bird Refuge

Upon finding that there are adequate water resources available to allow such use, the Director may also authorize the sale of up to a total of 21,780 HCF (50 acre feet) per year at the first block recreation rate for use in refilling the Andre Clark Bird Refuge.

2.3.7 Recycled Water

Applicable to all meters providing recycled water

2.3.8 State Institutional

Applicable to customers that are State agencies located in the unincorporated area of the County of Santa Barbara

2.4 METERED WATER CHARGES

In addition to all other charges imposed by Chapter 14.08 of the Santa Barbara Municipal Code, including but not limited to the monthly service charges set forth in subsection 2.1 above, water use shall be charged according to the following block rates for those user classifications defined in subsection 2.3 above. Usage shall be measured in units of 100 cubic feet (HCF).

The allocation of the City's six water sources to customer classes and tiers is based on priority level. Each tier is charged the weighted average cost of water based on the allocated sources. The highest priority customer tiers receive the least expensive sources of water, limited to that tier's percentage of each priorities' total demand times the water source (or remaining water source remaining from a higher priority).

1. Tier 1 Agriculture. The highest priority use is allocated to tier 1 agriculture (Ag) for efficient agricultural purposes.
2. Tier 1 Residential Single Family (SFR)/Tier 1 Residential Multi-family (MFR)/Tier 1 Recreation (Rec) for essential health and safety purposes and efficient irrigation of parks and public spaces.
3. Tier 1 Commercial/Industrial for efficient use of commercial and industrial purposes.
4. Tier 2 Residential SFR/MFR and Tier 1 irrigation for efficient irrigation needs for residential/commercial with dedicated irrigation meters.
5. Tier 2 Ag/Tier 2 Rec/Tier 3 Residential/Tier 2 Irrigation for residential and commercial dedicated irrigation meters/ Tier 2 Commercial or Industrial for inefficient use for agricultural, recreation, residential, commercial or industrial purposes

2.4.1 Single Family Residential

Monthly Usage Quantities	**Rate ($/HCF) Effective August 15, 2017**	**Rate ($/HCF) Effective July 1, 2018**	**Rate ($/HCF) Effective July 1, 2019**

First 4 hcf (per dwelling unit)	$4.44	$4.44	$4.44
Next 12 hcf (per dwelling unit)	$12.96	$12.96	$12.96
Over 16 hcf (per dwelling unit)	$23.98	$23.98	$23.98

2.4.2 Multi-Family Residential 1 - 4 Dwelling Units

Usage Quantities (Monthly, except as specified)	Rate ($/HCF) Effective August 15, 2017	Rate ($/HCF) Effective July 1, 2018	Rate ($/HCF) Effective July 1, 2019
First 4 hcf (per dwelling unit)	$4.44	$4.44	$4.44
Next 4 hcf (per dwelling unit)	$12.96	$12.96	$12.96
Over 8 hcf (per dwelling unit)	$23.98	$23.98	$23.98

2.4.3 Multi-Family Residential Over 4 Dwelling Units

Usage Quantities (Monthly, except as specified)	Rate ($/HCF) Effective August 15, 2017	Rate ($/HCF) Effective July 1, 2018	Rate ($/HCF) Effective July 1, 2019
First 4 hcf (per dwelling unit)	$4.44	$4.44	$4.44
Next 4 hcf (per dwelling unit)	$12.96	$12.96	$12.96
Over 8 hcf (per dwelling unit)	$23.98	$23.98	$23.98

2.4.4 Commercial

Monthly Usage Quantities	Rate ($/HCF) Effective August 15, 2017	Rate ($/HCF) Effective July 1, 2018	Rate ($/HCF) Effective July 1, 2019
Up to 100% of base allotment	$6.52	$6.76	$7.01
All other use	$23.91	$23.91	$23.91

2.4.5 Industrial

Monthly Usage Quantities	Rate ($/HCF) Effective August 15, 2017	Rate ($/HCF) Effective July 1, 2018	Rate ($/HCF) Effective July 1, 2019
Up to 100% of base allotment	$6.52	$6.76	$7.01
All other use	$23.91	$23.91	$23.91

2.4.6 Irrigation Agriculture

Monthly Usage Quantities	Rate ($/HCF) Effective August 15, 2017	Rate ($/HCF) Effective July 1, 2018	Rate ($/HCF) Effective July 1, 2019
All Use within Monthly Budget	$3.01	$3.01	$3.01
All other use	$23.98	$23.98	$23.98

2.4.7 Irrigation Recreation

Monthly Usage Quantities	Rate ($/HCF) Effective August 15, 2017	Rate ($/HCF) Effective July 1, 2018	Rate ($/HCF) Effective July 1, 2019
All Use within Monthly Budget	$4.11	$4.48	$4.88
All other use	$23.98	$23.98	$23.98

2.4.8 Irrigation Urban (Residential/Commercial)

Monthly Usage Quantities	Rate ($/HCF) Effective August 15, 2017	Rate ($/HCF) Effective July 1, 2018	Rate ($/HCF) Effective July 1, 2019
All Use within Monthly Budget	$12.96	$12.96	$12.96
All other use	$23.98	$23.98	$23.98

2.4.9 Recycled Water

Monthly Usage Quantities	Rate ($/HCF) Effective August 15, 2017	Rate ($/HCF) Effective July 1, 2018	Rate ($/HCF) Effective July 1, 2019
All HCF	$3.42	$3.88	$4.40

2.4.10 State Institutional

Monthly Usage Quantities	Rate ($/HCF) Effective August 15, 2017	Rate ($/HCF) Effective July 1, 2018	Rate ($/HCF) Effective July 1, 2019
Up to 100% of base allotment	$6.52	$6.76	$7.01
All other use	$23.91	$23.91	$23.91

3 Water Service Policies and Miscellaneous Fees

3.1 FAILURE TO CONNECT TO RECYCLED WATER SYSTEM

Where the Director has determined that use of recycled water is feasible at and on a particular property and has notified the account holder for the meter serving such property of this fact as described in Section 14.23.030 of the Santa Barbara Municipal Code, and thereafter the user has failed to substitute recycled water use for potable water use, the charge for provision of potable water use shall be double the otherwise applicable charge for metered water.

3.2 GRANTING OF ADJUSTMENTS TO EXTRAORDINARY WATER CHARGES

Upon an account holder's application that is 1) received within 45 days of a relevant billing date, 2) submitted on a form provided by the Finance Director, and 3) supported by detailed written documentation, the Finance Director, or a designee of the Finance Director, shall have the authority to make adjustments to extraordinary water charges in the event of hidden leaks, undetected line breaks, unexplained usage of at least five times the average use, or circumstances that are demonstrated to be beyond the reasonable control of the account holder. Such adjustments shall be made in accordance with written guidelines reviewed by the Water Commission and approved by the Finance Director and Public Works Director. However, such adjustments shall in no case result in a cost per HCF that is less than the lowest unit rate for residential customers located within the City limits. The decision of the Finance Director, or said designee, regarding any such adjustment shall be final and not subject to further appeal. Adjustments shall not be allowed for ordinary water use, such as filling of swimming pools, establishment of landscaping, or similar voluntary or customary uses of water. The Finance Director shall not approve an adjustment within five years of the date of a prior adjustment for the same account unless the Director rescinds the prior adjustment at the request of the account holder.

3.3 WATER CONSUMPTION ESTIMATES

If an accurate meter reading is not obtained for any reason, including but not limited to, inability to access the meter and/or meter failure, the water consumption for the time period where the water meter read is not available may be estimated. If access is the issue, then estimation may only occur after two separate attempts within one reading cycle to gain access. If meter failure is the issue, then the water consumption will not be estimated for more than 90 days, unless plumbing on the customer side must be addressed prior to meter replacement or with mutual consent of the City and the customer.

City staff will utilize estimating functionality within the billing system to estimate use based on the six billing periods that most closely correspond to the time frame from the prior calendar year. The calculated daily average is multiplied by the number of days in the reading period where the meter read is not available to determine an estimated consumption for the reading period. Should there not be sufficient usage history on the customer's account, the last actual meter read will be used.

Once the water meter is repaired or replaced, if the customer's water consumption is found to be significantly lower than the estimated consumption calculation after three full months of meter reads on the new meter, the customer may request an evaluation of the estimated consumption calculation and consideration of a billing adjustment.

3.4 MISCELLANEOUS SERVICES

3.4.1 Service and Administration Fees

The following miscellaneous fees related to water service shall be charged and collected upon demand:

Fee Key	Fee	Fee Amount
3.4.1.1	Service Initiation Fee	$47.00
3.4.1.2	Service Restoration Fee	$64.00
3.4.1.3	Administrative Account Transfer Fee	$21.00
3.4.1.4	Declined Payment Fee	See Finance Administrative Fees
3.4.1.5	Delinquent Payment Fee (per account, per month, for any billing period in which a delinquent unpaid balance exists)	$8.00

If a payment is returned for insufficient funds for a second time in any 12 month period, payments will only be accepted via cash, cashier's check, money order or credit card.

3.4.2 Fire Hydrant Upgrade Fees

Upgrade of existing fire hydrant to City standard where only the fire hydrant head needs replacement:

Fee Key	Fee	Fee Amount
3.4.2.1	Upgrade to Standard Residential Hydrant	$3,108
3.4.2.2	Upgrade to Standard Commercial Hydrant	$3,158

3.4.3 Flow Test Fees

Fee Key	Fee	Fee Amount
3.4.3.1	Hydrant Flow Test	$497
3.4.3.2	Meter Flow Test	$85

3.4.4 Meter Services Fees

Fee Key	Fee	Fee Amount
3.4.4.1	Data Logger Fee*	$37
3.4.4.2	After Hours Turn On Fee	$72

* Data Logger Fee applies to the third request and each request thereafter, within the same fiscal year, for deployment of a data logger to the same water meter as requested by a customer. The fee is not applicable to deployments initiated by City staff.

3.5 TAMPERING FEES

In addition to the fees below, reconnection fees shall be applied. Unauthorized water use via tampering may also be subject to Administrative Penalties per S.B.M.C. Section 1.28.

Fee Key	Fee	Fee Amount
3.5.1	Damaged/Missing Locks	$61
3.5.2	Damaged/Missing Locking Brackets	$138

3.6 DAMAGE TO CITY WATER SYSTEM INFRASTRUCTURE

City shall be reimbursed for the time and material cost to repair damage inflicted on City water system infrastructure and for any water lost as a result of the damage. Any water lost as a result of damage to water system infrastructure shall be billed at the current second block Commercial rate.

3.7 LABORATORY ANALYSIS

City shall be reimbursed at cost for laboratory analyses performed on behalf of private parties.

3.8 CHANGE OF ACCOUNT HOLDER UPON TERMINATION OF TENANCY

Upon termination of utility service by an account holder who is a tenant, the property owner or agent thereof, shall automatically become the account holder, provided that the City has on file a written request from such property owner or agent authorizing such change. In the event that the account holder is transferred to a new account holder willing to take responsibility for all charges incurred after the most current bill, the Administrative Transfer Fee shall apply in lieu of the Service Initiation Fee.

4 Non-Metered Private Fire Services

Payable monthly, the rates for City water for private fire services when the use of a meter is not required pursuant to Section 14.12.010 of the Santa Barbara Municipal Code shall be as follows:

Size of Service	Monthly Rate Effective August 15, 2017	Monthly Rate Effective July 1, 2018	Monthly Rate Effective July 1, 2019
1”	$2.88	$3.01	$3.14
1 ½”	$3.83	$4.03	$4.24
2"	$5.47	$5.79	$6.14
4"	$21.45	$23.02	$24.70

6"	$57.76	$62.15	$66.89
8"	$120.38	$129.65	$139.63
10"	$214.58	$231.18	$249.06
12"	$345.13	$371.89	$400.73

Upon a determination that unauthorized use of water through a fire service or other private main connection has occurred, the Director may assess a fee for each HCF of such use at a rate equal to twice the rate for the first block allotment for Commercial customers.

5 Water Service Connections

All determinations of the size and location of water service connections, water main connections, and meters shall be subject to the approval of the Director. All water service connections must be installed per City standard details. If not, the customer shall be charged at a time and materials basis for the service to be brought up to City standards.

The Director may waive the fee for a service connection or main connection to the recycled water system upon a finding that such connection will promote the efficient and beneficial use of recycled water and will displace existing usage of the City’s potable water supply. Fees related to water service connection to the City water system are as follows and are in addition to capacity charges established by the City Council in separate resolutions:

5.1 RETAIL WATER SERVICE CONNECTOINS

Type of Service Connection	Fee
Add (1) additional 5/8" or ¾” meter to an existing 1” service, where feasible:	$1,379
1” service with a 5/8” meter:	$3,105
1” service with a ¾” meter:	$3,141
1” service with a 1” meter:	$3,166
2” service with a 1 ½” meter:	$5,389
2” service with a 2” meter:	$5,485
1” service & manifold with two 5/8” meters installed at the time of manifold installation:	$3,261
Add (1) additional 5/8”, ¾”, 1” or 1 ½” meter to an existing 2” service, where feasible:	$1,379 per meter
2” service & manifold with multiple meters installed at the time of manifold installation:	$5,096 plus:
5/8” meters (# of meters per manifold outlined in table below):	$326 per meter

3/4” meters (# of meters per manifold outlined below):	$362 per meter
1” meters (# of meters per manifold outlined below):	$646 per meter
1 ½” meters (# of meters per manifold outlined below):	$801 per meter
Over 2” service:	Sum of Connection Fee and Meter Set Fee
Abandon service	$429 per service

Any new service installations that are greater than 4 feet deep and/or require a service trench longer than 20 feet shall be charged an additional time and materials fee.

A water service relocation of up to 5 feet or the addition of a meter to a service connection that has an existing meter, except as provided above, shall be charged at the cost of labor and materials plus overhead, provided that installation of a new service connection is not required. Water service relocations of greater than 5 feet shall require installation of a new service connection at fees as specified herein.

5.1.1 1 ½”, 1”, ¾”, and 5/8” Meter Combinations Allowed on 2” Manifolds

# of 1 1/2" Meters	**# of 1” Meters**	**# of 3/4" Meters**	**# of 5/8" Meters**
0	0	5	0
		4	2
		3	3
		2	5
		1	6
		0	8
1	0	2	0
		1	1
		0	3
1	1	0	0
0	1	1	4
		1	3
		2	2
		3	1
		3	0
0	2	0	3
		1	1
		2	0

0	3	0	0

5.2 FIRELINE AND PRIVATE WATER MAIN CONNECTIONS

Payable at the time of request, fees for water service main connections to the City water system, including private fire lines and other private mains, shall be as follows and shall be in addition to any applicable fees for trench inspections and encroachment permits:

CONNECTION SIZE	CONNECTION FEE
4" MAIN (OR SMALLER)	
2"	$1,401
4"	$2,337
6" MAIN	
2"	$1,401
4"	$2,486
6"	$2,743
8" MAIN	
2"	$1,401
4"	$1,999
6"	$2,935
8"	$3,611
10" MAIN	
2"	$1,401
4"	$2,002
6"	3,043
8"	$3,342
10"	$3,988
12" MAIN	
2"	$1,401
4"	$2,047
6"	$2,186
8"	$3,510

10"	$4,207
12"	$4,322

Fees for other combinations shall be charged at the cost of labor and materials, plus overhead. The fees for water service main connections shall include only the materials (tee, valve, and valve box) and labor for tapping into the City water system. Contractor is responsible for excavation of the existing water main, traffic control, pipe extension, backfilling, paving, backflow device with in-line detector meter and any other costs. In the event the existing water main or water service main connection is damaged during attachment, an additional fee of $225 per lineal foot of water line needing repair or replacement shall be charged to the person(s) who caused such damage.

5.3 REVIEW AND INSPECTION FEES

5.3.1 Water Distribution

Fee Key	Fee	Fee Amount
5.3.1.1	Plan Review Fee	$129/Hour
5.3.1.2	Pre Work Order Inspection Fee	$126/Visit
5.3.1.3	Inspection Fee	$126/Visit

5.3.2 Backflow Assemblies

Backflow assemblies are required for all private fireline connections and fire sprinklers, all private water main connections, all dedicated irrigation meters, and as dictated by the City building codes. Backflow devices shall be tested immediately after they are installed and then annually by a certified backflow tester. Payable at time of request, fees for plan review shall be as follows:

Fee Key	Description	Fee Amount
5.3.2.1	Backflow Plan Review – Firelines & Private Mains	$128
5.3.2.2	Backflow Plan Review – Retail Meters	$64
5.3.2.3	Backflow Inspection – Firelines & Private Mains	$557
5.3.2.4	Backflow Inspection – Retail Meters	$258
5.3.2.5	Enforcement Fee – 3rd Notice to Test	$109
5.3.2.6	Enforcement Fee – Shutoff/Turn-on	$222
5.3.2.7	Supplemental Backflow Inspection Fee	$195/Visit

6 Setting and Pulling of Water Meters, Temporary Fire Hydrant Meters, and Temporary Recycled Water Meters

Fees related to setting and pulling of water meters, temporary fire hydrant meters and temporary recycled water meters shall be as follows:

6.1 METER SETTING AND PULLING

Fee Key	Description	Fee Amount
6.1.1	5/8" meter	$163
6.1.2	3/4" meter	$198
6.1.3	1" meter	$482
6.1.4	1 1/2" meter	$637
6.1.5	2" meter	$733
6.1.6	3" meter and above	Time and Materials

6.2 METER REDUCTIONS

Fee Key	Description	Fee Amount
6.2.1	Reduction from 1" or 3/4" to 3/4" or 5/8"	$207
6.2.2	Reduction from 1½” or 2” to 1½”, 1”, or 5/8" or 3/4”	$416
6.2.3	Other reductions	Time and Materials

6.3 INCREASE IN METER SIZE

An enlargement of water service pipes and meters shall be charged before work order issuance at the regular charges set by Resolution pursuant to Section 14.08.050 of the Santa Barbara Municipal Code.

6.4 REPLACEMENT OF AN EXISTING METER WITH A METER OF LARGER SIZE

Replacement of an existing meter with a meter of larger size, where a larger service to the meter is not required:

Fee Key	Size of New Meter	Amount
6.4.1	3/4” or 1” meter	$833
6.4.2	1½” meter	$1,199
6.4.3	2” meter	$1,605
A1	Other increases	Cost plus overhead

6.5 MOBILE METERS

The following fees and deposits shall be assessed and collected for mobile meters, including temporary fire hydrant meters, and meters installed on water trucks or trailers:

Fee Key	Description	Amount
	Deposit (collected prior to meter installation)	$2,026
6.5.1	Any other equipment	$78
6.5.2	Fee to install, remove, and complete backflow testing, or relocate a mobile meter	$129

6.5.3	Fee to install and remove, or relocate a mobile recycled water meter	$111
	Fixed Monthly Service Charge	Per Section 2.A.1.
	Metered water	For potable water, charged at the prevailing first block rate for commercial customers. For recycled water, charged at the prevailing unit rate for recycled water customers.

Water sold via mobile water meters cannot be re-sold to any private entity or used outside of the City water service area.

A charge will be deducted from the meter deposit for any damaged or missing equipment, and for assumed water use if the meter is returned in an inoperable or damaged condition. In such cases all relevant documentation, including but not limited to, log sheets and application use estimates shall be used to estimate water use.

Per Santa Barbara Municipal Code 14.25.040, only City staff may install, remove, or relocate mobile meters on, from, or to a fire hydrant. A violation is punishable as an infraction with a penalty of $250 to $500.

7 Effective Date

Rates and charges specified herein shall be effective July 1, 2020.

Attachment 5: Notifications

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SantaBarbaraCA.gov

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Transportation Planning & Parking
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Water Resources
Tel: (805) 564-5387
Fax: (805) 897-1991

March 23, 2021

Ray Stokes
Central Coast Water Authority
255 Industrial Way
Buellton, CA 93427

Subject: Notice of Public Hearing on the City of Santa Barbara Draft 2020 Urban Water Management Plan, Draft 2021 Water Shortage Contingency Plan, and Draft Appendix O to the 2015 UWMP

Dear Mr. Stokes,

The City of Santa Barbara (City), as required every five years, is preparing its 2020 Urban Water Management Plan (UWMP) in compliance with the Urban Water Management Planning Act and the Water Conservation Act of 2009, commonly referred to as SBX7-7. The City's 2020 UWMP, titled the Enhanced Urban Water Management Plan, will include results of the City's recently updated long range water supply planning efforts, and reflect the growth that has occurred since the adoption of the 2015 UWMP; forecasted growth within its service area; the City's plan to reliably meet the water needs within its service area; and compliance with the SB X7-7.

The City is also updating and re-adopting its Water Shortage Contingency Plan (WSCP), which will be included as part of the 2020 UWMP. This document will describe how the City will respond to foreseeable and unforeseeable water shortages. In addition, City is preparing an appendix to both the 2015 UWMP and 2020 UWMP to demonstrate consistency with the Delta Plan Policy WR P1, Reduced Reliance on the Delta Through Improved Regional Water Self-Reliance (California Code Reg., tit.23, §5003). The 2015 UWMP is being amended only to report reduced reliance on the Delta and this action is separate from adoption of the 2020 UWMP and adoption of the 2021 WSCP.

The City is required to notify cities and counties within its service area that it is preparing its 2020 UWMP, 2021 WSCP, and Appendix O of the 2015 UWMP at least 60 days prior to holding a public hearing. This letter serves as City's official public hearing notice and intent to adopt the 2020 UWMP, 2021 WSCP, and Appendix O of the 2015 UWMP before the July 1, 2021 deadline.

A copy of the City's draft 2020 EUWMP and WSCP will be available for review on the City's website (www.SantaBarbaraCA.gov/WaterVision) by May 6, 2021. The City plans to have its public hearing to receive comments on the draft 2020 UWMP and WSCP on May 25, 2021, prior to adoption of the plans. The public hearing will be held at 2:00 PM via teleconference.

If you have any questions, comments, or input, please contact Dakota Corey, Water Supply Analyst, via email at Dcorey@SantaBarbaraCA.gov or by phone at (805) 564-5369.

Sincerely,

Catherine Taylor
Water Supply and Service Manager

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SantaBarbaraCA.gov

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March 23, 2021

Janet Gingras
Cachuma Operations and Maintenance Board
3301 Laurel Canyon Road
Santa Barbara, CA 93105

Subject: Notice of Public Hearing on the City of Santa Barbara Draft 2020 Urban Water Management Plan, Draft 2021 Water Shortage Contingency Plan, and Draft Appendix O to the 2015 UWMP

Dear Ms. Gingras,

The City of Santa Barbara (City), as required every five years, is preparing its 2020 Urban Water Management Plan (UWMP) in compliance with the Urban Water Management Planning Act and the Water Conservation Act of 2009, commonly referred to as SBX7-7. The City's 2020 UWMP, titled the Enhanced Urban Water Management Plan, will include results of the City's recently updated long range water supply planning efforts, and reflect the growth that has occurred since the adoption of the 2015 UWMP; forecasted growth within its service area; the City's plan to reliably meet the water needs within its service area; and compliance with the SB X7-7.

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If you have any questions, comments, or input, please contact Dakota Corey, Water Supply Analyst, via email at Dcorey@SantaBarbaraCA.gov or by phone at (805) 564-5369.

Sincerely,

Catherine Taylor
Water Supply and Service Manager

City of Santa Barbara
Public Works Department
SantaBarbaraCA.gov

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Santa Barbara, CA
93102-1990

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Water Resources
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Fax: (805) 897-1991

March 23, 2021

Matt Young
Santa Barbara County Water Agency
130 E. Victoria Street, Suite 200
Santa Barbara, CA 93101

Subject: Notice of Public Hearing on the City of Santa Barbara Draft 2020 Urban Water Management Plan, Draft 2021 Water Shortage Contingency Plan, and Draft Appendix O to the 2015 UWMP

Dear Mr. Young,

The City of Santa Barbara (City), as required every five years, is preparing its 2020 Urban Water Management Plan (UWMP) in compliance with the Urban Water Management Planning Act and the Water Conservation Act of 2009, commonly referred to as SBX7-7. The City's 2020 UWMP, titled the Enhanced Urban Water Management Plan, will include results of the City's recently updated long range water supply planning efforts, and reflect the growth that has occurred since the adoption of the 2015 UWMP; forecasted growth within its service area; the City's plan to reliably meet the water needs within its service area; and compliance with the SB X7-7.

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March 23, 2021

Robert McDonald
Carpinteria Valley Water District
1301 Santa Ynez Avenue
Carpinteria, CA 93013

Subject: Notice of Public Hearing on the City of Santa Barbara Draft 2020 Urban Water Management Plan, Draft 2021 Water Shortage Contingency Plan, and Draft Appendix O to the 2015 UWMP

Dear Mr. McDonald,

The City of Santa Barbara (City), as required every five years, is preparing its 2020 Urban Water Management Plan (UWMP) in compliance with the Urban Water Management Planning Act and the Water Conservation Act of 2009, commonly referred to as SBX7-7. The City's 2020 UWMP, titled the Enhanced Urban Water Management Plan, will include results of the City's recently updated long range water supply planning efforts, and reflect the growth that has occurred since the adoption of the 2015 UWMP; forecasted growth within its service area; the City's plan to reliably meet the water needs within its service area; and compliance with the SB X7-7.

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March 23, 2021

John McInnes
Goleta Water District
4699 Hollister Avenue
Goleta, CA 93110

Subject: Notice of Public Hearing on the City of Santa Barbara Draft 2020 Urban Water Management Plan, Draft 2021 Water Shortage Contingency Plan, and Draft Appendix O to the 2015 UWMP

Dear Mr. McInnes,

The City of Santa Barbara (City), as required every five years, is preparing its 2020 Urban Water Management Plan (UWMP) in compliance with the Urban Water Management Planning Act and the Water Conservation Act of 2009, commonly referred to as SBX7-7. The City's 2020 UWMP, titled the Enhanced Urban Water Management Plan, will include results of the City's recently updated long range water supply planning efforts, and reflect the growth that has occurred since the adoption of the 2015 UWMP; forecasted growth within its service area; the City's plan to reliably meet the water needs within its service area; and compliance with the SB X7-7.

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March 23, 2021

Paeter Garcia
Santa Ynez River Water Conservation District Improvement District No. 1
PO Box 157
Santa Ynez, CA 93460

Subject: Notice of Public Hearing on the City of Santa Barbara Draft 2020 Urban Water Management Plan, Draft 2021 Water Shortage Contingency Plan, and Draft Appendix O to the 2015 UWMP

Dear Mr. Garcia,

The City of Santa Barbara (City), as required every five years, is preparing its 2020 Urban Water Management Plan (UWMP) in compliance with the Urban Water Management Planning Act and the Water Conservation Act of 2009, commonly referred to as SBX7-7. The City's 2020 UWMP, titled the Enhanced Urban Water Management Plan, will include results of the City's recently updated long range water supply planning efforts, and reflect the growth that has occurred since the adoption of the 2015 UWMP; forecasted growth within its service area; the City's plan to reliably meet the water needs within its service area; and compliance with the SB X7-7.

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March 23, 2021

Nick Turner
Montecito Water District
583 San Ysidro Road
Montecito, CA 93108

Subject: Notice of Public Hearing on the City of Santa Barbara Draft 2020 Urban Water Management Plan, Draft 2021 Water Shortage Contingency Plan, and Draft Appendix O to the 2015 UWMP

Dear Mr. Turner,

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Sincerely,

Catherine Taylor
Water Supply and Service Manager

From: Dakota Corey
To: Bob McDonald; Nicholas Turner; John McInnes; Ryan Drake; Paeter Garcia; Ray Stokes; John L. Brady; Janet Gingras; pcantle@ccrb-board.org; mjackson@usbr.gov
Cc: Rob Morrow; Catherine Taylor
Subject: Notice of Public Hearing (Pursuant to California Water Code, Section 10642)
Date: Monday, May 3, 2021 4:20:36 PM

NOTICE IS HEREBY GIVEN that the City Council of the City of Santa Barbara will conduct a Public Hearing on Tuesday, May 25, 2021, during the afternoon session of the meeting, which begins at 2:00 p.m. The meeting will be conducted electronically. On Thursday, May, 20, 2021 an Agenda with all items to be heard on Tuesday, May 25, 2021 will be available online at www.SantaBarbaraCA.gov/CAP. The Agenda includes instructions for participation in the meeting. If you wish to participate in the public hearing, please follow the instructions on the posted Agenda.

The hearing is to consider the adoption of the City of Santa Barbara 2020 Enhanced Urban Water Management Plan, addendum to the 2015 Urban Water Management Plan, and 2021 Water Shortage Contingency Plan, according to the requirements of California Water Code Division 6, Part 2.6, Chapter 3, commencing with § 10620. A copy of the proposed Enhanced Urban Water Management Plan is available for public review online at www.SantaBarbaraCA.gov/WaterVision. The preparation and adoption of the Enhanced Urban Water Management Plan is exempt from the California Environmental Quality Act under California Water Code § 10652.

You are invited to attend this public hearing and address your verbal comments to the City Council. Written comments are also welcome up to the time of the hearing, and should be addressed to the City Council via the City Clerk's Office by sending them electronically to Clerk@SantaBarbaraCA.gov. In order to promote social distancing and prioritize the public's health and well-being, the City Council currently holds all meetings electronically. As a public health and safety precaution, the council chambers will not be open to the general public. Councilmembers and the public may participate electronically.

Please feel free to direct any questions to me.

Best,

Dakota Corey
Administrative Analyst II
CITY OF SANTA BARBARA, Public Works
(805) 564-5369 | dcorey@SantaBarbaraCA.gov
SantaBarbaraCA.gov

From: Dakota Corey
To: tfayram@cosbpw.net; Young, Matt
Cc: Rob Morrow; Catherine Taylor
Subject: Notice of Public Hearing (Pursuant to California Water Code, Section 10642)
Date: Monday, May 3, 2021 4:12:57 PM

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PUBLIC NOTICE
City of Santa Barbara

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(SEAL)

____
Sarah Gorman, MMC
City Clerk Services Manager
5/12/2021

Published May 12 and May 19, 2021
Montecito Journal

CITY OF SANTA BARBARA
CITY COUNCIL

Cathy Murillo
Mayor

Oscar Gutierrez
Mayor Pro Tempore

Mike Jordan
Ordinance Committee Chair

Eric Friedman
Finance Committee Chair

Alejandra Gutierrez
Meagan Harmon
Kristen Sneddon

Paul Casey
City Administrator

Ariel Pierre Calonne
City Attorney

City Hall
735 Anacapa Street
http://www.SantaBarbaraCA.gov

MAY 25, 2021, 2:00 PM
AGENDA

IN ORDER TO PROMOTE SOCIAL DISTANCING AND PRIORITIZE THE PUBLIC'S HEALTH AND WELL-BEING, THE GOVERNOR OF THE STATE OF CALIFORNIA ISSUED EXECUTIVE ORDER N-29-20, WHICH ALLOWS THE CITY COUNCIL TO HOLD MEETINGS VIA TELECONFERENCES OR OTHER ELECTRONIC MEETING FORMAT WHILE STILL MEETING THE STATE'S OPEN AND PUBLIC MEETING REQUIREMENTS. AS A PUBLIC HEALTH AND SAFETY PRECAUTION, THE COUNCIL CHAMBERS WILL NOT BE OPEN TO THE GENERAL PUBLIC. COUNCILMEMBERS MAY PARTICIPATE ELECTRONICALLY. THE CITY OF SANTA BARBARA STRONGLY ENCOURAGES AND WELCOMES PUBLIC PARTICIPATION DURING THIS TIME. PUBLIC PARTICIPATION IS AVAILABLE THROUGH THE FOLLOWING OPTIONS:

TELEVISION COVERAGE: Each regular City Council meeting is broadcast live in English and Spanish on City TV Channel 18 and rebroadcast in English on Wednesdays and Thursdays at 7:00 p.m. and Saturdays at 9:00 a.m., and in Spanish on Sundays at 4:00 p.m. Each televised Council meeting is closed captioned for the hearing impaired. Check the City TV program guide at www.santabarbaraca.gov/citytv for rebroadcasts of Finance and Ordinance Committee meetings, and for any changes to the replay schedule.

ONLINE STREAMING: Council meetings are streamed live at www.SantaBarbaraCA.gov/CAP

ELECTRONIC PARTICIPATION: Register to Join Meeting Electronically at:
https://attendee.gotowebinar.com/register/2144419723879283726

WEBINAR ID: 585-713-555

To register, please use the Chrome, Firefox, or Safari browsers for the meeting. The Internet Explorer browser is not supported by the software.

After registering, you will receive a confirmation email containing information about joining the webinar. You will be connected to audio using your computer's microphone and speakers (VoIP). A headset is recommended. You can also select the option to use your telephone, but you must use the Go To Webinar software to interact with the meeting. Select "Use Telephone" after joining the webinar in order to use your telephone.

Oral comments during a meeting may be made by electronic participation only.

If you have technical questions about the webinar, please go to: https://support.goto.com/webinar, or call the **Technical Support Phone Number (805) 617-7080.** To see what **Accessibility Features** are available in GoToWebinar, please visit https://support.goto.com/webinar/help/what-accessbility-features-are-available-in-gotowebinar.

WRITTEN PUBLIC COMMENT: Public comments may also be submitted via email to Clerk@SantaBarbaraCA.gov prior to the beginning of the Council Meeting. All public comments submitted via email will be provided to City Council and will become part of the public record.

CONTINUED ON THE NEXT PAGE

PUBLIC COMMENT: Public comment on matters not listed on the agenda will occur at the beginning of the meeting. Members of the public wishing to speak must “raise their hand” in the GoToWebinar platform by selecting the virtual hand icon during the presentation of that item. When persons are called on to speak, their microphone will be activated by City staff and the speaker will be notified that they can now unmute themselves in order to begin speaking. The speaker will then need to unmute themselves by selecting the ‘mute/unmute’ icon or pressing Ctrl+Alt+A on their keyboard.

For those who need accessibility accommodation in using the “raise hand” function and/or registering to participate in the GoToWebinar session, please contact the Clerk’s office by 5:00 p.m. the day before the meeting for assistance. Additionally, a speaker may email Clerk@SantaBarbaraCA.gov by 5:00 p.m. the day before a meeting, stating which item they wish to speak on. When persons are called on to speak, their microphone will be activated the speaker will be notified by City staff that they can now unmute themselves in order to begin speaking. The speaker will then need to unmute themselves by selecting the ‘mute/unmute’ icon or pressing Ctrl+Alt+A on their keyboard.

Each speaker will be given a total of 3 minutes to address the Council. Pooling of time is not allowed during general public comment. The time allotted for general public comment at the beginning of the 2:00 p.m. session is 30 minutes. The City Council, upon majority vote, may decline to hear a speaker on the grounds that the subject matter is beyond the City’s subject matter jurisdiction.

PUBLIC COMMENT ON AGENDIZED ITEMS: Members of the public wishing to speak on a matter on the agenda must “raise their hand” in the GoToWebinar platform by selecting the virtual hand icon during the presentation of that item. The “raise hand” icon is generally located on most devices in the upper right hand corner of the screen. For those who need accessibility accommodation in using the “raise hand” function, please contact the Clerk’s office by 5:00 p.m. the day before the meeting for assistance. Additionally, a speaker may email Clerk@SantaBarbaraCA.gov by 5:00 p.m. the day before a meeting, stating which item they wish to speak on. When persons are called on to speak, their microphone will be activated and they will be notified to begin speaking. Each speaker will be given a total of 3 minutes to address the Council. Pooling of time is not permitted during meetings conducted electronically.

ORDER OF BUSINESS: Regular meetings of the Finance Committee and the Ordinance Committee begin at 12:30 p.m. The regular City Council meeting begins at 2:00 p.m. in the Council Chamber at City Hall.

REPORTS: Copies of the reports relating to agenda items are available for review at http://www.SantaBarbaraCA.gov/CAP.In accordance with state law requirements, this agenda generally contains only a brief general description of each item of business to be transacted or discussed at the meeting. Should you wish more detailed information regarding any particular agenda item, you are encouraged to obtain a copy of the Council Agenda Report (a "CAR") online at the City's website (http://www.SantaBarbaraCA.gov/CAP). Materials related to an item on this agenda submitted to the City Council after distribution of the agenda packet are posted to the City’s website as soon as reasonably feasible.

CONSENT CALENDAR: The Consent Calendar is comprised of items that will not usually require discussion by the City Council. A Consent Calendar item is open for discussion by the City Council upon request of a Councilmember, City staff, or member of the public. Items on the Consent Calendar may be approved by a single motion. Should you wish to comment on an item listed on the Consent Agenda, after turning in your "Request to Speak" form, you should come forward to speak at the time the Council considers the Consent Calendar.

SPANISH INTERPRETATION: If you need interpretation of your communications to Council from Spanish into English, please contact the City Clerk’s Office at 564-5309 or by email at Clerk@SantaBarbaraCA.gov. If possible, notification of at least 48 hours will usually enable the City to make arrangements.

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MAY 25, 2021 AGENDA

ORDER OF BUSINESS

12:30 p.m. - Ordinance Committee Meeting, Council Chamber

ELECTRONIC PARTICIPATION: Register to Join Meeting Electronically at:
https://attendee.gotowebinar.com/register/7524369701155483917

WEBINAR ID: 269-631-219

2:00 p.m. - City Council Meeting

ELECTRONIC PARTICIPATION: Register to Join Meeting Electronically at:
https://attendee.gotowebinar.com/register/2144419723879283726

WEBINAR ID: 585-713-555

4:00 p.m. - Advisory Group Interviews
(estimated time)

ORDINANCE COMMITTEE MEETING - 12:30 P.M. IN THE COUNCIL CHAMBER (120.03)

Subject: Proposed Ordinance Enacting A Prohibition Of Natural Gas Infrastructure In New Construction (630.02)

Recommendation: That Ordinance Committee forward to Council for introduction an Ordinance of the Council of the City of Santa Barbara Amending the Santa Barbara Municipal Code by Adding Chapter 22.100 Prohibiting Natural Gas Infrastructure in New Buildings, along with a Recommendation to Adopt.

REGULAR CITY COUNCIL MEETING – 2:00 P.M.

CALL TO ORDER

PLEDGE OF ALLEGIANCE

ROLL CALL

CHANGES TO THE AGENDA

PUBLIC COMMENT

CONSENT CALENDAR

1. **Subject: Adoption Of Ordinance Amendments Related To The Architectural Board Of Review, Single Family Design Board, And Sign Committee Consistent With Revised Historic Resources Ordinance Amendments (630.02)**

   Recommendation: That Council:
   - A. Adopt, by reading of title only, an Ordinance of the Council of the City of Santa Barbara Amending Sections 22.68.045 and 22.68.100 of the Santa Barbara Municipal Code Pertaining to the Architectural Board of Review Project Compatibility Analysis and Appeal to Council – Notice and Hearing and Finding the Project to Be Exempt from CEQA Pursuant to CEQA Guideline 15061(B)(3);
   - B. Adopt, by reading of title only, an Ordinance of the Council of the City of Santa Barbara Amending Section 22.69.080 of the Santa Barbara Municipal Code Pertaining to the Single Family Design Board Appeal to Council – Notice and Hearing and Finding the Project to Be Exempt from CEQA Pursuant to CEQA Guideline 15061(B)(3); and
   - C. Adopt, by reading of title only, an Ordinance of the Council of the City of Santa Barbara Amending Section 22.70.050 of the Santa Barbara Municipal Code Pertaining to Sign Permits and Finding the Project to Be Exempt from CEQA Pursuant to CEQA Guideline 15061(B)(3).

2. **Subject: Adoption Of Amendments To The Santa Barbara Municipal Code And Zoning Map Related To The Historic Resources Ordinance And The Historic Resource Design Guidelines (640.06)**

   Recommendation: That Council adopt, by reading of title only, an Ordinance of the Council of the City of Santa Barbara Amending the Santa Barbara Municipal Code by Adding Chapters 30.57, 30.157, and 30.237; Adding Sections 30.200.080, 30.220.020, 30.220.030, 30.220.040; and 30.300.080 Subsection H to Establish Procedures for Protecting Historic Resources.

3. **Subject: Adoption Of A Resolution Approving Santa Barbara Clean Energy Administrative Policies (630.02)**

Recommendation: That Council adopt, by reading of title only, a Resolution of the Council of the City of Santa Barbara Approving Santa Barbara Clean Energy Administrative Policies Related to Customer Privacy, Cost Confidentiality and Collections.

4. **Subject: April 2021 Investment Report (260.02)**

Recommendation: That Council accept the April 2021 Investment Report.

5. **Subject: Parking And Business Improvement Area Annual Assessment Report For Fiscal Year 2022 – Intention To Levy (550.1)**

Recommendation: That Council:

A. Approve the Parking And Business Improvement Area Annual Assessment Report 2022; and

B. Adopt, by reading of title only, a Resolution of the Council of the City of Santa Barbara Declaring Council's Intention to Levy Parking and Business Improvement Area Assessment Rates for Fiscal Year 2022, at a Public Hearing to be Held on June 8, 2021, at 2:00 p.m.

6. **Subject: Amendment To Settlement Agreement Of Design, Build, Operate Contract With IDE Americas, Inc. For The Charles E. Meyer Desalination Plant (540.1)**

Recommendation: That Council:

A. That Council authorize the Acting Public Works Director to execute the First Amendment to Settlement Agreement with IDE Americas, Inc. related to construction of repairs to the raw water intake pipeline serving the Charles E. Meyer Desalination Plan; and

B. Approve an increase in estimated revenue and appropriations in the Water Capital Fund in the amount of $2,404,779, funded from monies paid to the City of Santa Barbara from IDE Americas, Inc. as a term of the Amendment to the Settlement Agreement.

7. **Subject: Authorization To Execute $1.5 Million Grant Funding Agreement For The Desalination Product Water Pump Station Upgrades Project (540.1)**

Recommendation: That Council adopt, by reading of title only, a Resolution of the Council of the City of Santa Barbara Authorizing the Public Works Director to Negotiate and Execute a Grant Funding Agreement with the Federal Bureau of Reclamation for the Charles E. Meyer Desalination Plant Product Water Pump Station Upgrades Project.

8. **Subject: Increase Grant Funding And Authorize Additional Work For The Cabrillo Boulevard And Union Pacific Railroad Bridge Project And The Los Patos Undercrossing Replacement Project (530.04)**

Recommendation: That Council:

A. Authorize the City Administrator to sign Amendment No. 5 to the Memorandum of Understanding with the Santa Barbara County Association of Governments to increase the funding from the Santa Barbara County Association of Governments by $103,862, from $4,121,000 to $4,224,862, for work to complete 30 percent design of the Los Patos Undercrossing Replacement Project, and separate the Cabrillo Boulevard and Union Pacific Railroad Bridge Project into two separate construction projects;

B. Authorize the Public Works Director to execute Amendment No. 3 to the City Professional Services Agreement No. 26,031 with T.Y. Lin International in the amount of $942,113 for design services, and authorize the Public Works Director to approve expenditures of up to $94,212 for extra services of T.Y. Lin International that may result from necessary changes in the scope of work; and

C. Approve an increase in appropriations and estimated revenues in the Streets Grant Capital Fund in the amount of $103,862, funded by grant funds from the Santa Barbara County Association of Governments, for the Cabrillo Boulevard and Union Pacific Railroad Bridge Project and the Los Patos Undercrossing Replacement Project.

9. **Subject: Reallocation Of Community Development Block Grant Funds From Housing Rehabilitation Loan Program To Other Eligible Uses (610.05)**

Recommendation: That Council:

A. Approve reallocation of $361,715.53 in Community Development Block Grant (CDBG) funds from Program Year 2014; and

B. Authorize the Interim Community Development Director to execute, subject to approval as to form by the City Attorney, an Amendment to Agreement No. 26,710 with the Parks and Recreation Department increasing the CDBG grant by $95,100; and

C. Authorize the Interim Community Development Director to execute, subject to approval as to form by the City Attorney, an Amendment to Agreement No. 26,711 with the Parks and Recreation Department increasing the CDBG grant by $50,000; and

D. Authorize the Interim Community Development Director to execute, subject to approval as to form by the City Attorney, an Amendment to Agreement No. 26,709 with the Parks and Recreation Department increasing the CDBG grant by $90,373; and

E. Authorize the Interim Community Development Director to execute, subject to approval as to form by the City Attorney, an Amendment to Agreement No. 26,450 with the Parks and Recreation Department increasing the CDBG grant by $22,442.53; and

F. Authorize the Interim Community Development Director to execute, subject to approval as to form by the City Attorney, an Amendment to Agreement No. 26,452 with Cliff Drive Care Center increasing the CDBG grant by $103,800.

10. **Subject: Homeless Emergency Aid Program (HEAP) Grant Agreement Amendments (660.04)**

Recommendation: That Council:

A. Authorize the Interim Community Development Director to execute, subject to approval as to form by the City Attorney, an Amendment to Agreement No. 26,456A between the City and Santa Barbara Cottage Hospital decreasing the contract by $113,000 for the SB Connect Home Program; and

B. Authorize the Interim Community Development Director to execute, subject to approval as to form by the City Attorney, an Amendment to Agreement No. 26,394A between the City and City Net increasing the contract by $113,000 for the SB Connect Home Program.

11. Subject: Bequest From The Trust Of Dorothy Holland-Kaupp To The City Of Santa Barbara Public Library (570.04)

Recommendation: That Council adopt, by reading of title only, a Resolution of the Council of the City of Santa Barbara Accepting a Donation from the Trust of Dorothy Holland-Kaupp in the Sum of or Around $100,000 for the Exclusive Use and Benefit of the Santa Barbara Public Library.

SUCCESSOR AGENCY

12. Subject: Transfer And Appropriation Of Funds And Approval Of A Professional Services Agreement With RRM Design Group For The Chase Palm Park Arbor Project (570.05)

Recommendation: That the Successor Agency:
Approve a conveyance to the City of Santa Barbara's General Capital Outlay Fund in the amount of $835,000 from the Successor Agency Capital Fund, funded from existing appropriations for the Chase Palm Park Arbor Project.
That the City Council:
1. Receive a conveyance of $835,000 from the Successor Agency Capital Fund, increase the estimated revenues and appropriate the full $835,000 in the General Capital Outlay Fund for the Chase Palm Park Arbor Project; and
2. Authorize the Parks and Recreation Director to execute a professional services agreement with RRM Design Group in the amount of $101,419 for architectural and engineering design services for the Chase Palm Park Arbor Project to be paid for from the General Capital Outlay Fund.

CONSENT PUBLIC HEARING

13. Subject: Enhanced Urban Water Management Plan And Water Shortage Contingency Public Hearing (540.08)

Recommendation: That Council:
A. Hold a Public Hearing to review the Public Draft of the City's 2020 Enhanced Urban Water Management Plan;
B. Hold a Public Hearing to review the Public Draft of the City's 2021 Water Shortage Contingency Plan;
C. Hold a Public Hearing to review the Public Draft addendum to the City's 2015 Urban Water Management Plan; and
D. Confirm the City's adoption of and compliance with a 2020 water use target of 117 gallons per capita per day, per legislative requirements of the Water Conservation Act of 2009 (SBX7-7), determined in Section 5 of the Urban Water Management Plan.

This concludes the Consent Calendar.

REPORT FROM THE ORDINANCE COMMITTEE

MAYOR AND COUNCIL REPORTS

14. Subject: Councilmember Sneddon And Mayor Pro Tempore Oscar Gutierrez Requesting A Presentation From Healing Justice And Local Black Organizations On Benefits Of A Black/African-American Cultural Resource Center (120.02)

Recommendation: That Council consider the request from Councilmember Sneddon and Mayor Pro Tempore Oscar Gutierrez requesting a presentation from Healing Justice Santa Barbara and a collective of local Black organizations and leaders on the multiple benefits of a Black/African American Cultural Resource Center.

CITY ADMINISTRATOR

15. Subject: Santa Barbara's Economic Development Plan (650.11)

Recommendation: That Council review and adopt a three year Economic Development Plan.

MAYOR AND COUNCIL REPORTS

16. Subject: Semi-Annual Interviews For City Advisory Groups (Not Including State Street Advisory Committee) (Est. time: 4:00 p.m.) (140.05)

Recommendation: That Council:
A. Hold interviews of applicants to various City Advisory Groups; and
B. Continue interviews of applicants to June 8, and June 15, 2021. (Est. time 4:00 p.m.)

CLOSED SESSIONS

17. Subject: Conference With City Attorney -- Anticipated Litigation -- Gov. Code § 54956.9(d)(4): Initiation Of Litigation On One Matter (160.03)

Recommendation: That Council hold a closed session to consider initiating litigation pursuant to subsection (d)(4) of Section 54956.9 of the Government Code and take appropriate action as needed. (one potential case).

Scheduling: Duration, 30 minutes; anytime
Report: None anticipate

18. Subject: Conference With City Attorney -- Anticipated Litigation -- Gov. Code § 54956.9(d)(2) & (e)(3) (160.03)

Recommendation: That Council hold a closed session to consider significant exposure to litigation (one potential case) pursuant to Government Code Section 54956.9(d)(2) & (e)(3) and take appropriate action as needed.

The anticipated litigation is based upon significant exposure arising out of the May 13, 2021 litigation threat from the Santa Barbara Rental Property Association though the law firm of Fisher Broyles.

Scheduling: Duration: 15 minutes; anytime
Report: None anticipated

19. Subject: Conference With City Attorney -- Existing Litigation -- Gov. Code § 54956.9(d)(1) and -- Anticipated Litigation -- Gov. Code § 54956.9(d)(4): Initiation Of Litigation On One Matter (160.03)

Recommendation: That Council hold a closed session to consider pending litigation pursuant to subsection (d)(1) of section 54956.9 of the Government Code and take appropriate action as needed.

The pending litigation is Theodore P. Kracke v. City of Santa Barbara, COA Case No. B300528; VSC Case No. 56-2016-00490376-CU-WM-VTA.

That Council hold a closed session to consider initiating litigation pursuant to subsection (d)(4) of Section 54956.9 of the Government Code and take appropriate action as needed. (one potential case).

Scheduling: Duration, 15 minutes; anytime
Report: None anticipated

ADJOURNMENT

Attachment 6: Resolution Approving the WSCP

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CITY OF SANTA BARBARA
CITY COUNCIL

Cathy Murillo
Mayor

Oscar Gutierrez
Mayor Pro Tempore

Mike Jordan
Ordinance Committee Chair

Eric Friedman
Finance Committee Chair

Alejandra Gutierrez
Meagan Harmon
Kristen Sneddon

Paul Casey
City Administrator

Ariel Pierre Calonne
City Attorney

City Hall
735 Anacapa Street
http://www.SantaBarbaraCA.gov

JUNE 29, 2021, 2:00 PM
AGENDA

IN ORDER TO PROMOTE SOCIAL DISTANCING AND PRIORITIZE THE PUBLIC'S HEALTH AND WELL-BEING, THE GOVERNOR OF THE STATE OF CALIFORNIA ISSUED EXECUTIVE ORDER N-29-20, WHICH ALLOWS THE CITY COUNCIL TO HOLD MEETINGS VIA TELECONFERENCES OR OTHER ELECTRONIC MEETING FORMAT WHILE STILL MEETING THE STATE'S OPEN AND PUBLIC MEETING REQUIREMENTS. AS A PUBLIC HEALTH AND SAFETY PRECAUTION, THE COUNCIL CHAMBERS WILL NOT BE OPEN TO THE GENERAL PUBLIC. COUNCILMEMBERS MAY PARTICIPATE ELECTRONICALLY. THE CITY OF SANTA BARBARA STRONGLY ENCOURAGES AND WELCOMES PUBLIC PARTICIPATION DURING THIS TIME. PUBLIC PARTICIPATION IS AVAILABLE THROUGH THE FOLLOWING OPTIONS:

TELEVISION COVERAGE: Each regular City Council meeting is broadcast live in English and Spanish on City TV Channel 18 and rebroadcast in English on Wednesdays and Thursdays at 7:00 p.m. and Saturdays at 9:00 a.m., and in Spanish on Sundays at 4:00 p.m. Each televised Council meeting is closed captioned for the hearing impaired. Check the City TV program guide at www.santabarbaraca.gov/citytv for rebroadcasts of Finance and Ordinance Committee meetings, and for any changes to the replay schedule.

ONLINE STREAMING: Council meetings are streamed live at www.SantaBarbaraCA.gov/CAP

ELECTRONIC PARTICIPATION: Register to Join Meeting Electronically at:
https://attendee.gotowebinar.com/register/7663639341670490124

WEBINAR ID: 949-641-523

To register, please use the Chrome, Firefox, or Safari browsers for the meeting. The Internet Explorer browser is not supported by the software.

After registering, you will receive a confirmation email containing information about joining the webinar. You will be connected to audio using your computer's microphone and speakers (VoIP). A headset is recommended. You can also select the option to use your telephone, but you must use the Go To Webinar software to interact with the meeting. Select "Use Telephone" after joining the webinar in order to use your telephone.

Oral comments during a meeting may be made by electronic participation only.

If you have technical questions about the webinar, please go to: https://support.goto.com/webinar, or call the **Technical Support Phone Number (805) 617-7080.** To see what **Accessibility Features** are available in GoToWebinar, please visit https://support.goto.com/webinar/help/what-accessbility-features-are-available-in-gotowebinar.

WRITTEN PUBLIC COMMENT: Public comments may also be submitted via email to Clerk@SantaBarbaraCA.gov prior to the beginning of the Council Meeting. All public comments submitted via email will be provided to City Council and will become part of the public record.

CONTINUED ON THE NEXT PAGE

PUBLIC COMMENT: Public comment on matters not listed on the agenda will occur at the beginning of the meeting. Members of the public wishing to speak must "raise their hand" in the GoToWebinar platform by selecting the virtual hand icon during the presentation of that item. When persons are called on to speak, their microphone will be activated by City staff and the speaker will be notified that they can now unmute themselves in order to begin speaking. The speaker will then need to unmute themselves by selecting the 'mute/unmute' icon or pressing Ctrl+Alt+A on their keyboard.

For those who need accessibility accommodation in using the "raise hand" function and/or registering to participate in the GoToWebinar session, please contact the Clerk's office by 5:00 p.m. the day before the meeting for assistance. Additionally, a speaker may email Clerk@SantaBarbaraCA.gov by 5:00 p.m. the day before a meeting, stating which item they wish to speak on. When persons are called on to speak, their microphone will be activated the speaker will be notified by City staff that they can now unmute themselves in order to begin speaking. The speaker will then need to unmute themselves by selecting the 'mute/unmute' icon or pressing Ctrl+Alt+A on their keyboard.

Each speaker will be given a total of 3 minutes to address the Council. Pooling of time is not allowed during general public comment. The time allotted for general public comment at the beginning of the 2:00 p.m. session is 30 minutes. The City Council, upon majority vote, may decline to hear a speaker on the grounds that the subject matter is beyond the City's subject matter jurisdiction.

PUBLIC COMMENT ON AGENDIZED ITEMS: Members of the public wishing to speak on a matter on the agenda must "raise their hand" in the GoToWebinar platform by selecting the virtual hand icon during the presentation of that item. The "raise hand" icon is generally located on most devices in the upper right hand corner of the screen. For those who need accessibility accommodation in using the "raise hand" function, please contact the Clerk's office by 5:00 p.m. the day before the meeting for assistance. Additionally, a speaker may email Clerk@SantaBarbaraCA.gov by 5:00 p.m. the day before a meeting, stating which item they wish to speak on. When persons are called on to speak, their microphone will be activated and they will be notified to begin speaking. Each speaker will be given a total of 3 minutes to address the Council. Pooling of time is not permitted during meetings conducted electronically.

ORDER OF BUSINESS: Regular meetings of the Finance Committee and the Ordinance Committee begin at 12:30 p.m. The regular City Council meeting begins at 2:00 p.m. in the Council Chamber at City Hall.

REPORTS: Copies of the reports relating to agenda items are available for review at http://www.SantaBarbaraCA.gov/CAP.In accordance with state law requirements, this agenda generally contains only a brief general description of each item of business to be transacted or discussed at the meeting. Should you wish more detailed information regarding any particular agenda item, you are encouraged to obtain a copy of the Council Agenda Report (a "CAR") online at the City's website (http://www.SantaBarbaraCA.gov/CAP). Materials related to an item on this agenda submitted to the City Council after distribution of the agenda packet are posted to the City's website as soon as reasonably feasible.

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JUNE 29, 2021 AGENDA

ORDER OF BUSINESS

2:00 p.m. - City Council Meeting

ELECTRONIC PARTICIPATION: Register to Join Meeting Electronically at:
https://attendee.gotowebinar.com/register/7663639341670490124

WEBINAR ID: 949-641-523

6:00 p.m. - State Street Advisory Committee Applicant Interviews
(Time Certain)

REGULAR CITY COUNCIL MEETING – 2:00 P.M.

CALL TO ORDER

PLEDGE OF ALLEGIANCE

ROLL CALL

CHANGES TO THE AGENDA

PUBLIC COMMENT

CONSENT CALENDAR

1. **Subject: An Ordinance Repealing Chapter 22.22 Of The Santa Barbara Municipal Code Pertaining To Historic Structures And Amending Santa Barbara Municipal Code Sections 22.68.015 And 22.69.015 To Include The Definition Of Project Design Approval (640.06)**

   Recommendation: That Council, introduce and subsequently adopt, by reading of title only, an Ordinance of the Council of the City of Santa Barbara Repealing Chapter 22.22 of the Santa Barbara Municipal Code Pertaining to Historic Structures and Amending Santa Barbara Municipal Code Sections 22.68.015 and 22.69.015 to Include the Definition of Project Design Approval.

2. **Subject: Authorize A Contract With BAE Urban Economics For An Economic Feasibility Study And Introduce Amendments To SBMC Chapter 30.150 To Extend The Duration Of The Average Unit-Size Density Incentive Program (660.06)**

   Recommendation: That Council:
   A. Make the California Environmental Quality Act findings contained in this Council Agenda Report;
   B. Introduce and subsequently adopt, by reading of title only, an Ordinance of the Council of the City of Santa Barbara Amending Santa Barbara Municipal Code Section 30.150.010 of the City's Average Unit-Size Density Incentive Program to Extend the Program from August 31, 2021 to February 28, 2022;
   C. Authorize the Community Development Director to execute a Professional Services Agreement contract with BAE Urban Economics in the amount not-to-exceed $70,000 for an economic feasibility study of proposed multi-unit housing standards and related affordable housing requirements; and
   D. Increase appropriations and estimated revenues in the Fiscal Year 2022 Community Development Miscellaneous Grants Fund in the amount of $70,000, funded by the Regional Early Action Planning Grant.

3. **Subject: Introduction Of Ordinance For Average Unit-Size Density Incentive Program Ordinance Amendments Related To Clarifying Rental Inclusionary Rates And Mobilehome Parks (640.09)**

Recommendation: That Council introduce and subsequently adopt, by reading of title only, an Ordinance of the Council of the City of Santa Barbara Amending Santa Barbara Municipal Code Section 30.150.090 and 30.150.110 of the City's Average Unit-Size Density Incentive Program to Exclude Mobilehome Parks from Development Under the Program and Clarify That Rental Units Must Be Rented at Moderate Income Levels.

4. **Subject: Adoption Of The Fee Schedule For Fiscal Year 2022 (210.01)**

Recommendation: That Council adopt, by reading of title only, a Resolution of the Council of the City of Santa Barbara Amending the City of Santa Barbara Schedule of Penalties, Fees, Rates and Service Charges.

5. **Subject: Updated Sales Or Transactions And Use Tax Records Disclosure Designations For The Finance Director To Review Tax Records And Authorize Muniservices, LLC To Review Tax Records On Behalf Of The City (210.01)**

Recommendation: That Council:

A. Adopt, by reading of title only, a Resolution of the Council of the City of Santa Barbara Authorizing Examination of Sales or Transactions and Use Tax Records; and

B. Approve the Second Amendment and Novation Agreement for Sales and Use Tax Services, Assigning the Agreement with Municipal Resource Consultant to Muniservices.

6. **Subject: May 2021 Investment Report (260.02)**

Recommendation: That Council accept the May 2021 Investment Report.

7. **Subject: Allocation Of Awarded California Department Of Resources Recycling And Recovery Grant Funds Reimbursement For Household Hazardous Waste Collection And Education (630.12)**

Recommendation: That Council approve the allocation of $10,000 in Fiscal Year 2022 of the City’s California Department of Resources Recycling and Recovery Grant to fund staff costs related to grant administration and implementation of Household Hazardous Waste Collection and Education.

8. **Subject: Best Interest Waiver For The Purchase Of A New Wastewater Collection Video Inspection Vehicle And Hardware System (540.13)**

Recommendation: That Council:

A. Find it in the City's best interest to waive the formal bid process as authorized by Municipal Code Section 4.52.070(L) and authorize the General Services Manager to issue a purchase order to Haaker Equipment Company in the amount of $298,274 for the purchase, assembly, and delivery of one custom Wastewater Collection Video Inspection Vehicle and Hardware System;

B. Authorize the General Services Manager to approve expenditures up to $15,000 to cover any cost increases that may result from contract change orders for extra work or from necessary changes in the scope, for a total expenditure authority of $313,274; and

C. Approve the transfer of available appropriations in the Sanitary Sewer Overflow Compliance Project in the amount of $244,328 from the Wastewater Capital Fund to the Fleet Replacement Fund, and approve an increase in appropriations and estimated revenue in the Fleet Replacement Fund in the amount of $244,328 in Fiscal Year 2021, funded by the transfer, for the purchase of the Wastewater Collection Video Inspection Vehicle and Hardware System.

9. **Subject: Authorization To Amend Agreement With Best Best & Krieger LLP For Special Appellate Counsel Support (160.01)**

Recommendation: That Council:

A. Authorize the City Attorney to execute an amendment to the legal services agreement with Best Best & Krieger, LLP, for special appellate support in Theodore P. Kracke v. City of Santa Barbara Ventura County Superior Court 56-2016-00490376-CU-WM-VTA, increasing the contract amount by $25,000; and

B. Increase appropriations in the Fiscal Year 2022 City Attorney's Office budget from the General Fund Reserve for Contingencies in the amount of $25,000.

10. **Subject: Amendment Of Professional Services Agreement With Hiltachk Marketing Group (560.09)**

Recommendation: That Council:

A. Authorize the Airport Director to amend Professional Services Agreement No. 25,939 with Hiltachk Marketing Group for one additional year of services, and increase the contract amount by $100,000.

B. Approve an increase in FY 2021 appropriations in the Airport Operating Fund in the amount of $100,000, funded from reserves, for the services of Hiltachk Marketing Group.

11. **Subject: Contract For Airport Poly- And Per-Fluoroalkyl Substance (PFAS) Investigation Efforts (560.01)**

Recommendation: That Council:

A. Authorize the Airport Director to execute a Professional Services Agreement with GSI Environmental, Inc., in the amount of $204,100 for site investigation work necessary to implement the Poly-and Per-Fluororalkyl Substance Supplemental Work Plan approved by the Regional Water Quality Control Board; and

B. Approve an increase in FY 2022 appropriations in the Airport Operating Fund in the amount of $204,100, funded from reserves, for Airport Poly- and Per-Fluororalkyl Substance (PFAS) investigation efforts.

12. **Subject: Grant Agreement With South Coast Community Media Access Center, dba TV Santa Barbara (230.02)**

Recommendation: That Council authorize the Finance Director to execute a one year grant agreement with the South Coast Community Media Access Center for management of the public, and educational access television channels in an amount of $297,445 plus an amount for public, educational and government access (PEG) capital expenditures equal to 50% of the actual PEG fees received by the City for Fiscal Year 2022.

13. **Subject: Potential Acquisition Of A Conservation And Access Easement At 1235 Veronica Springs Road (APN 047-010-039) For A Creek Restoration And Water Quality Improvement Project (540.14)**

Recommendation: That Council receive a report and authorize negotiations on the potential acquisition of a conservation and access easement at 1235 Veronica Springs Road for a future creek restoration and water quality improvement project.

This concludes the Consent Calendar.

CITY COUNCIL ADMINISTRATIVE AND ATTORNEY REPORTS

PUBLIC WORKS DEPARTMENT

14. Subject: Water Supply Update And Adoption Of 2020 Enhanced Urban Water Management Plan, 2021 Water Shortage Contingency Plan, And Related Documents (540.01)

Recommendation: That Council:

A. Receive a water supply update; and

B. Adopt and authorize the Public Works Director to transmit the City's 2020 Enhanced Urban Water Management Plan to the California Department of Water Resources, such adoption to include modifications as may be approved by the Public Works Director to ensure compliance with State UWMP requirements; and

C. Adopt and authorize the Public Works Director to transmit the City's 2021 WSCP to the California Department of Water Resources, such adoption to include modifications as may be approved by the Public Works Director to ensure compliance with State WSCP requirements; and

D. Adopt and authorize the Public Works Director to transmit an addendum to the City's 2015 UWMP to the California Department of Water Resources.

SUSTAINABILITY AND RESILIENCE

15. Subject: Temporary Safe Shelter For Fire Prone Encampments Update (660.04)

Recommendation: That Council:

A. Approve staff's recommendation of a hotel to provide temporary safe shelter and begin clean-up operations at fire-prone encampments;

B. Direct staff on use of funding for a temporary safe shelter agreement; and

C. Direct staff to execute a first amendment to Agreement No. 26,897 between the City of Santa Barbara and Kingdom Causes, Inc., DBA City Net to provide temporary bridge housing services.

MAYOR AND COUNCIL REPORTS

16. Subject: Appointments To City Advisory Groups, Not Including State Street Advisory Committee (140.05)

Recommendation: That Council make appointments to the City's Advisory Groups, not including the State Street Advisory Committee.

CLOSED SESSIONS

17. Subject: Conference With Real Property Negotiators (330.03)

Recommendation: That Council hold a closed session pursuant to Government Code Section 54956.8 to consider price and terms of payment for the potential acquisition of a conservation and access easement.

Real Property: Conservation and Access Easements on property at 1235 Veronica Springs Road (APN 047-010-039)

City Negotiators: Jill Zachary, Parks and Recreation Director; Cameron Benson, Creeks Restoration/Clean Water Manager; Dan Hentschke, Acting City Attorney

Negotiating Party: Hillside House

Under Negotiation: Price and terms of acquisition of easements

Scheduling: Duration, 15 min; anytime
Report: None anticipated

18. Subject: Conference With City Attorney – Existing Litigation – Gov. Code §54956.9(d)(1) (160.03)

Recommendation: That Council hold a closed session to consider pending litigation pursuant to subsection (d)(1) of section 54956.9 of the Government Code and take appropriate action as needed.

The pending litigation is George Martinez v. COSB, et al. SBSC Case No. 20CV02839.

Scheduling: Duration, 15 min.; anytime
Report: None anticipated

MAYOR AND COUNCIL REPORTS (Time Certain 6:00 pm)

19. Subject: State Street Advisory Committee Applicant Interviews (140.05)

Recommendation: That Council interview applicants to the State Street Advisory Committee (Time Certain 6:00 pm).

COUNCIL AND STAFF COMMUNICATIONS

COUNCILMEMBER COMMITTEE ASSIGNMENT REPORTS

PUBLIC COMMENT (IF NECESSARY)

ADJOURNMENT

CITY OF SANTA BARBARA
CITY COUNCIL

MINUTE ORDER

DATE

June 29, 2021

ROLL CALL

Mayor Cathy Murillo; Councilmembers Eric Friedman, Alejandra Gutierrez, Oscar Gutierrez, Meagan Harmon, Mike Jordan, Kristen Sneddon.

ITEM

No. 14

Subject: Water Supply Update And Adoption Of 2020 Enhanced Urban Water Management Plan, 2021 Water Shortage Contingency Plan, And Related Documents (540.01)

RECOMMENDATION

That Council:

A. Receive a water supply update; and

B. Adopt and authorize the Public Works Director to transmit the City's 2020 Enhanced Urban Water Management Plan to the California Department of Water Resources, such adoption to include modifications as may be approved by the Public Works Director to ensure compliance with State UWMP requirements; and

C. Adopt and authorize the Public Works Director to transmit the City's 2021 WSCP to the California Department of Water Resources, such adoption to include modifications as may be approved by the Public Works Director to ensure compliance with State WSCP requirements; and

D. Adopt and authorize the Public Works Director to transmit an addendum to the City's 2015 UWMP to the California Department of Water Resources.

ACTION

Motion:

Councilmembers Sneddon/Friedman to approve the recommended action.

Vote:

Unanimous roll call vote.

STATE OF CALIFORNIA)
)
COUNTY OF SANTA BARBARA) ss.
)
CITY OF SANTA BARBARA)

I, Robert Stough, Deputy City Clerk in and for the City of Santa Barbara, California, DO HEREBY CERTIFY that attached is a full, true and correct copy of a City of Santa Barbara City Council Minute Order pertaining to the Council's action for the adoption of 2020 Enhanced Urban Water Management Plan, 2021 Water Shortage Contingency Plan, and related documents (Item No. 14 of its June 29, 2021, meeting agenda).

IN WITNESS WHEREOF, I have hereunto set my hand and caused the official seal of said City to be affixed this 30th day of June, 2021.

(SEAL)

Robert Stough
Deputy City Clerk