CITY OF SAN DIEGO WATER SHORTAGE CONTINGENCY PLAN

Updated 2020

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INTRODUCTION

Due to increasing strain caused by more frequent and extreme drought, the City must be prepared for potential constraints on its local and imported water supply. This Water Shortage Contingency Plan (WSCP) examines the City's contingency plan in the event of a declared water emergency or enactment of more stringent restrictions on water use.

In 2018, two long-term conservation bills, Senate Bill (SB) 606 and Assembly Bill (AB) 1668, were signed into law by Governor Jerry Brown. The two bills amend portions of the California Water Code (CWC) including §10632, which is related to water shortage contingency planning. Among other changes, the amended CWC requires agencies to incorporate an annual water supply and demand assessment under its Urban Water Management Plan (UWMP). It also specifies the adoption of six standard water shortage levels. This WSCP discusses the City's compliance with new regulations, as outlined in §10632 (a)(2) and §10632.1 of the CWC, and steps taken by the City's regional supply wholesaler, the San Diego County Water Authority (SDCWA) to address an extended drought and water emergency.

The City encourages its residents to use water wisely at all times, and the City of San Diego Municipal Code formalizes the WSCP in its Emergency Water Regulations in Chapter 6, Article 7, Division 38. These Emergency Water Regulations specify water use restrictions that are in effect at all times (Water Waste Prohibitions under §67.3803) and authorizes the City to determine and declare water shortages and water shortage emergencies in its service area. Prior to the CWC amendments approved in SB 606 and AB 1668, the City's Emergency Water Regulations specified four "drought condition levels." In coordination with the new CWC §10632 (a)(3),these regulations were revised to specify six drought condition levels which include a graduated scale of water use restrictions (Municipal Code §67.3805-08) that take effect in each level. Subsequently, an additional two levels of water shortage have been defined for this WSCP. During the most recent drought, the Emergency Water Regulations have served as an effective tool in reducing water use.

On July 1, 2015, the City declared a Drought Response Level 2: Drought Alert Condition to comply with a State mandate requiring the City of San Diego to reduce its water usage by 16%. The Emergency Water Regulations were amended by the City on June 29, 2015, to satisfy the California State Water Resources Control Board's (SWRCB's) Emergency Conservation Regulations that took effect on May 18, 2015. On January 26, 2017, SDCWA declared an end to drought conditions in the San Diego region. The City will continue to review its Emergency Water Regulations in light of the SWRCB's Emergency Conservation Regulations and will address any deficiencies as information becomes available. In the meantime, before formalizing any future amendments to the Emergency Water Regulations, any additional conservation requirements imposed by the SWRCB will be available on the City's Mandatory Water Use Restrictions webpage at: http://www.sandiego.gov/water/conservation/drought/prohibitions.shtml.

1. ANNUAL WATER SUPPLY AND DEMAND ASSESSMENT

The new CWC §10632(a)(2) requires that urban water suppliers conduct an annual water supply and demand assessment (Annual Assessment). This chapter describes the procedures used to 1) conduct the Annual Assessment, and 2) prepare and submit an Annual Assessment Report to the state. In addition, this chapter outlines key inputs to conduct the Annual Assessment, the decision-making process for determining water supply reliability, and the ability/flexibility for the City to use shortage response actions not included in the WSCP, as applicable.

The City Council, in accordance with the provisions of the CWC, will determine if a supply shortage exists and declare any foreseen water shortage level based on the results of the Annual Assessment, which will then be included in the Annual Assessment Report submitted to the state. The evaluation is conducted by the City Public Utilities Department to determine if a shortage declaration is needed, and at what level. The Annual Assessment Report will document any anticipated shortage, any triggered shortage response actions, associated compliance and enforcement actions, and communication actions. More information on shortage response actions is included in *Chapter 4 – Shortage Response Actions*. Reasonable alternative actions can be used to address identified water shortages, provided that descriptions of alternative actions are submitted with the Annual Assessment Report.

1.1 Key Input: Projected Water Supply

This WSCP identifies key inputs and methodology needed to evaluate available water supply. Under normal (non-shortage) conditions, the City can purchase as much water as necessary to meet demands from the SDCWA. When that supply (imported supply) is under shortage conditions, the amount of shortage (allocation of shortage) specific to the City is determined in a processed lead by SDCWA. Evaluation of City supply begins with SDCWA's own supply evaluation as the City receives most of its water supply from the SDCWA regional supply system. SDCWA uses the availability of City's local supplies to determine the City's imported water allocation. As such, the City's imported water supply, in years in which imported supply is short, is dependent on availability of local supplies. To inform SDCWA's allocation process, the City must describe and quantify each source of City-owned water supply. The City's local water supply portfolio consists of the following sources:

- Local surface water
- Groundwater
- Non-potable (recycled) water
- Potable reuse (Pure Water)
- City emergency storage

After evaluating the availability of local supply, SDCWA applies allocation formulas to determine the allocation of imported supply specifically to the City in those shortage years.

1.1.1 Evaluating Available Water Supply

The City will evaluate the current year available supply and one dry year available supply in its Annual Assessment. The available water supply evaluation will consider hydrological and regulatory conditions. The methodology for determining the available supply from each water source is as follows:

Local Sources:

- **Local surface water**: On April 1 determine 1) storage in each reservoir and 2) storage above emergency storage pool in each reservoir.
- **Groundwater**: Determine last year's production and potential production constraints.
- **Non-potable (recycled) water**: Determine recent production and supply.

- **Potable reuse (Pure Water)**: Not currently applicable.

Imported Sources:

- **Imported water**: Allocation determined by SDCWA.
- **SDCWA Carryover**: Determine available supply to the City based on SDCWA WSCP and the most recent information.
- **SDCWA and City emergency storage**: Not applicable for non-emergency conditions.

1.1.2 SDCWA Drought Contingency Strategy (Imported Water)

Coordination with SDCWA is crucial to accurately quantify the City's available drought contingency water supply; As the City's direct wholesale water supplier responsible for imported water as well as regional wholesale supply and emergency storage management, SDCWA coordinates all imported supply on behalf of its member agencies. SDCWA also determines the regional water shortage allocation when shortages exist.

In 2008, SDCWA's Board of Directors (Board) approved the Model Drought Response Conservation Program Ordinance (Model Drought Ordinance), which was intended to assist SDCWA's member agencies, including the City, in regional consistency in drought response levels and messaging to the public and media. In addition, the Board adopted Resolution 2008-11 that establishes procedures to administer the supply allocation methodology contained in the Drought Management Plan (DMP). Using lessons from previous shortage periods, the DMP's supply allocation methodology was updated in 2012, and the DMP was renamed the Water Shortage and Drought Response Plan (WSDRP).

To ensure that SDCWA and its member agencies continue to proactively plan for future water supply shortages, SDCWA revised its WSDRP and renamed it the Water Shortage Contingency Plan. SDCWA's WSCP is consistent with the state's long-term framework contained in the April 2017 Final Report, *Making Water Conservation a California Way of Life, Implementing Executive Order B-37-16.* The long-term framework builds on the Executive Order and provides recommendations on implementation of long-term improvements to water supply management to support water conservation. SDCWA's Annual Assessment will ensure that the Board, member agencies, the public, and state and local agencies are informed about the region's water supply conditions and the likelihood of water shortages.

SDCWA's 2017 WSCP outlines shortage response actions it is prepared to implement in times of drought. SDCWA has six regional water shortage levels, which are consistent with the six levels identified in the states' long-term framework document. SDCWA identifies five potential shortage response actions which could be implemented as appropriate for the specific drought condition. The five shortage response actions are:

- Implement the communication plan;
- Initiate storage withdrawals;
- Initiate spot transfers, other;
- Call for extraordinary demand reduction measures; and
- Implement member agency M&I supply allocations.

SDCWA acknowledges that member agencies, including the City, will independently adopt retail-level actions to manage potential water supply shortages. However, the City's WSCP uses the SDCWA's WSCP as a key input with added detail for City-owned supplies and facilities. The City's WSCP does not include a reassessment of regional

emergency supply but it does assess the resulting shortage to the City, specifically, from a declared regional shortage by SDCWA.

1.2 Key Input: Existing Infrastructure

The City is required to describe the methodology for identifying existing water supply infrastructure capabilities and potential constraints. The City's existing water supply infrastructure is well-documented on the City's GIS system and continuously assessed by Water System Operations staff. Existing water supply infrastructure includes City-owned infrastructure and imported water infrastructure. City-owned infrastructure includes surface water reservoirs, water treatment plants, pipelines, pump stations, and groundwater wells. Imported water infrastructure includes a seawater desalination plant, and SDCWA's aqueducts and regional pipelines. The City will evaluate existing water supply and capacities and any constraints for the current year and for one dry year. City-owned infrastructure constraints may consider service area-level supply capabilities in the current year, such as shut-downs due to maintenance, construction impacts, and water quality impacts. Once constraints have been identified, the City will determine whether the total quantified water supply (as determined in Section 1.1 above) should be adjusted to account for these identified constraints. The City will coordinate with SDCWA to evaluate regional infrastructure constraints to determine how they would impact available City water supplies.

1.3 Key Input: Projected Water Demand

This WSCP identifies key inputs and methodology needed to evaluate the City's projected water demand. Unless otherwise specified, the Annual Assessment will use the City's latest demand forecast (adjusted by previous year active consumption) which considers unconstrained demand, weather, population growth, and other influencing factors for the current year and following years. The demand forecast includes adjustment factors for dry year demand.

1.4 Key Input: Evaluation Criteria

The City relies primarily on SDCWA to evaluate regional supply and demand and to evaluate water shortage levels. The City's supply and demand evaluation criterion are applied as minor adjustments to account for latest information on City-owned supplies or unpredicted changes in City demand. As such, the City will evaluate City-owned supply storage levels, changes in recycled water availability, changes in groundwater availability, and recent water demand trends to determine any deviations from the SDCWA Annual Assessment. The criterion will be calculated using the key data inputs of the Annual Assessment, including:

- Overall storage;
- Storage above emergency pools;
- Imported water allocation;
- Drought pool allocation;
- Emergency allocation;
- City emergency storage;
- Effectiveness of active conservation;
- SDCWA Carryover Storage;
- Demand; and
- Infrastructure constraints.

1.5 Decision-Making Process

This section describes the decision-making process that the City will use each year to determine, and subsequently report to the state, its water supply reliability. Steps in the decision-making process are listed below.

1. SDCWA announces member agency allocation determination for current year.
2. SDCWA determines carryover (and emergency storage apportionments if under emergency).
3. City determines City supply available (per Section 1.1) – exclusive of imported water supply.
4. City determines total supply available – inclusive of imported water supply.
5. City determines infrastructure constraints (including water quality conditions limiting local sources).
6. City determines expected demand.
7. City compares supply and demand and makes a determination of the water supply reliability for the current year and one dry year (see Section 1.3 Evaluation Criteria).
8. City prepares and submits Annual Assessment Report to the state. The City will coordinate with SDCWA on submittal of the report. Submittal options are as follows: 1) within 14 days of receiving final allocations from SWP or 2) by June 1.

1.6 Reasonable Alternative Actions

As stated in the regulations, an urban water supplier shall follow, where feasible and appropriate, the prescribed procedures and implement determined shortage response actions in this WSCP, as identified in the CWC subdivision (a) of §10632, or reasonable alternative actions, provided that descriptions of the alternative actions are submitted with the Annual Assessment Report pursuant to CWC §10632.1. Should the City like to include reasonable alternative actions, the Annual Assessment Report will describe identified reasonable alternative actions (shortage response actions in addition to what was identified in *Chapter 4 – Shortage Response Actions* of this WSCP) to reduce the gap between water supply and demand.

2. WATER SHORTAGE LEVELS

Per regulations stipulated in SB 606, this WSCP revises the 2015 WSCP's stages of action to define a total of six water shortage levels. These graduated water shortage levels specify water shortage response actions that the City can implement in response to shortages in water supply, as expressed by percentages. Shortage response actions associated with each of these levels are discussed in *Chapter 4 - Shortage Response Actions*.

2.1 Water Shortage Levels

The City has six standard water shortage levels as provided in **Table 2-1** below. To determine the appropriate level, the City will conduct an assessment of water supply conditions per the procedures outlined in *Chapter 1 - Water Supply and Demand Assessment*. For example, if the Annual Assessment determines a shortage of 18%, the City would be in a Drought Watch Condition, or Water Shortage Level 2. Water shortage levels also apply to catastrophic interruption of water supplies, including but not limited to, a regional power outage, an earthquake, and other potential emergency events. See *Chapter 7 – Catastrophic Supply Interruption Planning* for an expanded discussion of catastrophic supply interruptions.

The Mayor[1] can, when necessary, recommend one of six shortage response levels to the City Council, which has the authority to declare the appropriate conservation level necessary to ensure sufficient supplies will be available to meet anticipated demands. The City Council can also terminate a shortage response level, based on the Mayor's recommendation. *Chapter 9 – Communication Protocol* provides the process for notifying and declaring water shortage levels. As outlined in *Chapter 1 - Water Supply and Demand Assessment*, the City's Public Utilities Department will monitor the projected supply and demand during the water shortage and recommend to the Mayor the extent of conservation required.

Table 2-1: Water Shortage Levels

Water Shortage Level	Percent Shortage Range
Level 1: Expanded Year-Round Permanent Mandatory Water Restrictions	Up to 10%
Level 2: Drought Watch Condition	Up to 20%
Level 3: Drought Alert Condition	Up to 30%
Level 4: Drought Critical Condition	Up to 40%
Level 5: Drought Crisis Condition	Up to 50%
Level 6: Drought Emergency Condition	Greater than 50%

[1] While the Drought Response is often conducted by the City Manager, the City changed from a City Manager form of government to strong Mayor form of government in 2006. While the policy language uses "City Manager", this document will refer to the Mayor.

3. PENALTIES, CHARGES, AND OTHER ENFORCEMENT OF PROHIBITIONS

Wasting water is illegal at all times, even when no drought response levels are in effect, and the Emergency Water Regulations prohibit all water waste. The regulations define violations of both the permanent water conservation measures and mandatory conservation measures for Water Shortage Levels 2 through 6. Violations are subject to criminal, civil, and administrative penalties and remedies, which are defined in Chapter 1 of the San Diego Municipal Code. Under a Water Shortage Level 1: Drought Watch Condition, conservation measures are voluntary, so there are no penalties for non-compliance.

The City may penalize those who continue to willfully waste water by using an escalating series of remedies, up to discontinuing water service or installing flow-restricting devices. Remedies in order of issuance are:

- Warning letter.
- Notice of Violation.
- Administrative Citations with penalties of $100, $250, $500, and up to $1,000.
- Referral to the City Attorney for civil or criminal prosecution.
- Water service restricted or shut off.

Water waste violators will receive a Notice of Violation if a water waste complaint is confirmed. A Notice of Violation does not carry a monetary penalty. If a water waste complaint is not confirmed by City staff, a warning letter is issued instead. Warnings are followed by a site visit from a City code enforcement office to verify if the issue has been resolved. If the problem has not been corrected, the code enforcement officer can issue an Administrative Citation. Each violation is treated on a per property basis, and not a per incident basis. For example, if a property owner has received Notice of Violation for a broken sprinkler head, the next observed violation on the property can result in an Administrative Citation, even if it's for a different fixture. If the problem persists, the case may be referred to the City Attorney and the offender's water service may be restricted or shut off.

Terminating a customer's water service is not taken lightly and would occur only when other enforcement measures have not been effective. The City will consider the following factors as part of a decision regarding appropriate remedies:

- Water shortage level in effect.
- Prior enforcement remedies applied.
- Public health and safety.
- Amount of water being used in violation.
- Impact of the violation.

3.1 Appeals and Exemption Procedures

If, due to unique circumstances, a specific requirement of this WSCP would result in undue hardship to a customer using City of San Diego water or to property upon which City of San Diego water is used, that is disproportionate to the impacts to City of San Diego water users generally or to similar property or classes of water uses, then the customer may apply for a variance to the requirements as provided in this subsection.

The variance may be granted or conditionally granted, only upon a written finding of the existence of facts demonstrating an undue hardship to a customer using City of San Diego water or to property upon which City of San Diego water is used, that is disproportionate to the impacts to City of San Diego water users generally or to similar property or classes of water user due to specific and unique circumstances of the user or the user's property. The following items are required in order to apply for a variance:

- Application: Application for a variance will be in written form prescribed by the Mayor and will be accompanied by a non-refundable processing fee in an amount set by resolution of the City Council.

- Supporting Documentation: The written application will be accompanied by photographs, maps, drawings, or other pertinent information as applicable, including a written statement of the applicant.

- Approval Authority: The Mayor will exercise approval authority and act upon any completed application after submittal and may approve, conditionally approve, or deny the variance. The applicant requesting the variance will be promptly notified in writing of any action taken. The decision of the City Manager is final. Unless specified otherwise at the time a variance is approved, the variance applies to the subject property during the term of the mandatory drought response.

There are two instances in which an application for variance will be approved.

1. An application for variance will be approved if all the following occur:

- The variance does not constitute a grant of special privilege inconsistent with the limitations upon other City of San Diego customers; and

- because of special circumstances applicable to the property or its use, the strict application of this WSCP would have a disproportionate impact on the property or use that exceeds the impacts to customers generally; and

- the authorizing of such variance will not be of substantial detriment to adjacent properties, and will not materially affect the ability of the City of San Diego to effectuate the purpose of this WSCP and will not be detrimental to the public interest; and

- the condition or situation of the subject property or the intended use of the property for which the variance is sought is not common, recurrent or general in nature.

2. An application for variance will be approved if either of the following occur:

- the property has been adversely impacted by a disaster; or

- proposed alternative water use restrictions for the property would result in greater water savings than the existing water use restrictions.

No relief will be granted to any customer for any reason in the absence of a showing by the customer that the customer has achieved the maximum practical reduction in water consumption in the customer's residential, commercial, industrial, institutional, agricultural, or governmental water consumption.

4. SHORTAGE RESPONSE ACTIONS

Per CWC §10632 (a)(4), the City has expanded its list of possible supply shortage mitigation tools. The four types of locally appropriate "shortage response actions" as defined by regulations are:

- Supply augmentation
- Demand reduction actions,
- Operational changes, and
- Mandatory water use prohibitions (in addition to state-mandated prohibitions).

Shortage response actions included in this WSCP are a mix of prohibitions on end use, consumption reduction methods, supply augmentation, and operational change measures. The California Department of Water Resources (DWR) defines prohibitions on end uses as measures to address areas that are the responsibility of end users, such as a broken sprinkler or leaking faucet. Consumption reduction methods are actions invoked by a water agency to reduce consumption, such as expanding public information campaigns and offering water use surveys. Supply augmentation is defined as any action designed to increase the existing supply availability such as the use of emergency storage or acquiring additional transfer water. Operational changes are defined as actions taken by the City to change the way in which existing supplies are used within its service area. Examples of operational change include eliminating hydrant flushing and street cleaning. The applicability of the Emergency Water Regulations is described in §67.3804 of the San Diego Municipal Code. In general, the Emergency Water Regulations do not apply to special supply programs, such as the SDCWA Special Agricultural Rate Programs. The regulations also do not apply, in general, to water drawn from private wells, reclaimed water, water from graywater systems, areas serviced by the Park and Recreation Department, or industrial manufacturing, processing, or research and development.

4.1 Permanent Water Waste Prohibitions

Permanent Water Waste prohibitions are in effect at all times in the City's water service area. These prohibited uses, defined in §67.3803 of the City's Emergency Water Regulations, are intended to promote water conservation as a permanent way of life in San Diego, even during years of normal or above normal precipitation. All permanent water waste prohibitions target end uses, and are included as shortage response actions under Water Shortage Level 1. The following is an abbreviated list of restrictions; the entire list of restrictions is provided in Appendix G, Emergency Water Regulations, of the City's 2015 UWMP:

- No water may leave a customer's property by drainage due to excessive irrigation and/or uncorrected leaks.
- Users must repair or stop all water leaks upon discovery, or within 72 hours of notification by the City.
- No washing down of sidewalks, driveways, parking areas, tennis courts, or other paved areas without using a power washer or a hose with a shutoff nozzle.
- No overfilling of swimming pools and spas.
- No use of non-recirculating ornamental fountains or cascading fountains.
- Vehicles may be washed only in a commercial car wash, or using a hose with an automatic shutoff nozzle or hand-held container.
- No single pass-through cooling systems and no non-recirculating systems are allowed in all conveyer car wash and commercial laundry systems.

- Restaurants and other food establishments shall only serve and refill water upon request.
- Guests in hotels and motels shall be provided the option of not laundering towels and linens daily.
- Irrigation of potted plants, non-commercial vegetable gardens and fruit trees, residential and commercial landscapes (including golf courses, parks, school grounds, and recreation fields) is limited to the hours before 10:00 am and after 6:00 p.m.
- Irrigation may occur at any time as required by a landscape permit for erosion control; the establishment, repair, or renovation of public use fields for schools and parks; landscape establishment following a disaster; the renovation or repair of an irrigation system with an operator present; or for nursery and commercial growers using a hand-held hose equipped with a positive shutoff device, a hand-held container, or drip or micro-irrigation distribution systems. Irrigation of nursery propagation beds is permitted at any time.

Table 4-1 below summarizes additional on-going consumption reduction methods implemented by the City which are not included in the Emergency Water Regulations.

Table 4-1: Additional On-going Consumption Reduction Methods

Consumption Reduction Method	Description
Improve Customer Billing	City single-family residential water bill provides data showing usage for the current billing period as compared to last year for each billing period and it also shows average single-family residential use in the area. For non-single-family residential bills, the usage during the current billing period is shown in gallons per day and in hundred cubic feet, and shows usage compared to last year's use and the percentage change.
Increase Frequency of Meter Reading	The City is testing Advanced Metering Infrastructure (AMI) at 11,000 meters, including at 1,000 single-family residences. AMI meters use radio-based technology to read meters, eliminating the need to manually read them and providing real-time data to customers and better tools to conserve water. The Department will be rolling out this technology City-wide over the next several years. A submetering ordinance requires submeters to be installed in every new multi-unit building with at least three units. This will allow tenants to be billed on their water use, thereby providing a financial incentive to conserve water.
Offer Water Use Surveys	Water use surveys are offered for residential customers inside and outside their home, and for commercial landscapes. Water-wise business surveys are offered for commercial, industrial, and institutional users. Staffing for the surveys programs was increased in 2015 in response to the drought. See Section 7 of the City's 2015 UWMP for additional details.
Provide Rebates or Giveaways of Plumbing Fixtures and Devices	Through MWD, the City offers rebates on various water conserving devices. See Section 7 of the City's 2015 UWMP for additional details.
Provide Rebates for Landscape Irrigation Efficiency and water wise landscape incentives	Rebates for landscape irrigation efficiency devices and grass replacement are offered on an ongoing basis. In 2015 funding was increased for grass replacement.

Consumption Reduction Method	Description
Decrease Line Flushing	The City actively seeks to minimize the amount of water used for line flushing and has evaluated options to reuse and/or decrease the amount of water required for flushing. However, at this time there is no cost-effective alternative to flushing. SDPUD works closely with the Public Works Department to track, reduce, and limit the amount of water necessary to meet water quality requirements in new lines. Public Works has implemented a tracking form used by contractors to meter flushing. This information is being gathered to accurately determine if appropriate or excessive water is being used for flushing. The information may ultimately be used to revise contract documents and specifications related to flushing, to reduce waste.
Reduce System Water Loss	The City is conducting water system audits on a yearly basis using the American Water Works Association's (AWWA) Water Audit Software, as discussed in Subsection 4.3.2. of the City's 2015 UWMP. Additionally, the City has a goal of replacing more than 30 miles of water mains per year to reduce losses.
Increase Water Waste Patrols	In response to the recent drought, the City is enforcing mandatory reduction measures by using staff from the Public Utilities and the Transportation & Stormwater Departments. When customers continue to waste water after being informed not to do so, the City's Code Enforcement Section steps in. Additionally, the City has a Waste No Water app available for iPhones and Android operating systems, allowing users to take a photo of a problem or concern and link the address using the app's GPS. This information is then conveyed to SDPUD Water Conservation staff for investigation and response. Additional information regarding the app is available in Section 7 of the City's 2015 UWMP.

4.2 Shortage Response Actions

In addition to basic measures, which are always in effect, there are different types of response actions that can be implemented by the City in the event of a supply shortage. These response measures represent a "toolbox" with a range of actions that can be used in combination, depending on the severity and duration of the shortage.

The City employs numerous shortage response actions to mitigate water shortages during drought conditions or catastrophic events. Some of these response actions are detailed in the Emergency Water Regulations, while others go beyond the regulations. As specific drought response levels are implemented, the City will closely monitor projected available supply and demand per the Annual Assessment. Depending on these projections, the shortage response actions would either be implemented or expanded to appropriately respond to shortages.

The shortage response actions presented in this WSCP were developed through the coordinated effort of multiple City departments and builds on the City's 2015 WSCP. The combination of shortage response actions associated with each water shortage level considered the estimate of extent to which the supply gap was reduced. The first two water shortage levels focus on low-hanging actions so as to delay, indefinitely, the reductions to rate-payer quality of life. In addition, implementing supply augmentation strategies, such as considering SDCWA's carryover storage program, early on allows water customers to maintain their standard of living. Water Shortage Level 1 includes expanded year-round water restriction found in the City's municipal code (§67.3803). Water Shortage Level 2 builds on actions outlined in Level 1 with the addition of one operational change and a supply augmentation strategy. An increase in mandatory prohibitions and the use of emergency storage withdrawals in Levels 5 and 6 reflect the urgency of mitigating shortages as drought conditions worsen.

Shortage response actions from previous levels are assumed to remain in effect as the water shortage level increases. The mix of shortage response actions in any given level is designed to produce an additional 10% of demand reductions

above the previous level's reduction. Level 3 shortage response actions in conjunction with those implemented in Levels 1 and 2 are anticipated to provide a combined demand reduction total of up to 30%.

The following subsections list the combinations of shortage response actions associated with each of the six WSCP Water Shortage Levels. The categories of "high," "medium," or "low" are assigned to each shortage response action based on the estimated extent to which it is able to reduce the supply gap. These shortage response actions are also presented in table format in **Appendix A**.

4.2.1 Water Shortage Level 1: Expanded Year-Round Permanent Mandatory Water Restrictions

Water Shortage Level 1 constitutes a consumer demand reduction of up to 10%. Shortage response actions listed under this level include the expanded enforcement of permanent water waste prohibitions listed in Section 4.1 and provided in the City's Emergency Water Regulations. In addition, the following shortage response actions have been included in Water Shortage Level 1:

- Low: Increase outreach efforts for high-volume customers and expand leak alert program.
- Low: Increase voluntary conservation.
- Medium: Expanded enforcement of Permanent Water Waste Prohibitions.

4.2.2 Water Shortage Level 2: Drought Watch Condition

The City implements a Water Shortage Level 2: Drought Watch Condition when there is reasonable probability of a supply shortage, and when demand needs to be reduced by up to 20% to ensure there will be sufficient supplies to meet demands. To reduce consumption during a Drought Watch Condition and all higher levels of conditions, the City will increase its public education and outreach efforts to build awareness of voluntary water conservation practices and all permanent water waste prohibitions. The shortage response actions under a Drought Watch Condition appears below:

- Low: Areas with no irrigation system must use a hand-held hose with a shutoff nozzle, hand-held container, or a garden hose sprinkler system on a timer.
- Low: Irrigation is prohibited during and within 48 hours of a rain event.
- Low: Washing of automobiles, vehicles, airplanes, and other mobile equipment is permitted only before 10:00 a.m. or after 6:00 p.m. with a hand-held container or a hand-held hose with shutoff nozzle. Washing is permitted at any time at commercial car washes. Car washes that do not use partially recirculated water will be subject to volume limits designated by a resolution of the City Council. Boats and boat engines are permitted to be washed down after use. Mobile equipment washings are exempt from these regulations where the health, safety, and welfare of the public are contingent upon frequent vehicle washings.
- Low: Landscape irrigation is limited to no more than three assigned days per week on a schedule posted by the Mayor. This does not apply to commercial growers or nurseries, nor to the irrigation of golf course greens and trees.
- Medium: Use of recycled or non-potable water, when available, is required for construction purposes.
- Medium: Prohibition of car washing.

4.2.3 Water Shortage Level 3: Drought Alert Condition

A Water Shortage Level 3: Drought Alert Condition is implemented when demand must be reduced up to 30% to ensure sufficient supplies. During a Drought Alert Condition, a new set of mandatory water conservation practices takes effect, in addition to all Permanent Water Waste Prohibitions, Level 1, and Level 2 conservation practices. A list of the Water Shortage Level 3 shortage response actions appears below:

- Low: Construction operations receiving water from a fire hydrant meter or water truck will not use water beyond that required for normal construction activities. Construction projects requiring water for new landscaping materials shall adhere to the designated irrigation hours of before 10:00 a.m. and after 6:00 p.m.
- Low: Water from fire hydrants is limited to firefighting.
- Low: Landscaped irrigation of areas not covered by sprinklers is limited to two assigned days per week using a hand-held container, hand-held hose with shutoff nozzle, or low volume non-spray irrigation, such as a soaker hose.
- Low: Operation of ornamental fountains is prohibited, except when needed for maintenance.
- Medium: Landscape irrigation using sprinklers is limited to no more than five minutes per watering station during two assigned days per week, on a schedule established by the Mayor. The five-minute limit per watering station does not apply to landscape irrigation systems using water efficient devices, including drip/micro-irrigation systems and stream rotor sprinklers.
- Medium: Car wash must reuse water.
- Medium: Prohibition on street cleaning.
- High: SDCWA Carryover Storage Program.

During a Drought Alert Condition, the Mayor may recommend and implement a water allocation per account as an additional tool to reduce consumption and establish a schedule of surcharges or penalties for exceeding the water allocation. These actions are subject to passage of a resolution by the City Council. Water conservation measures required under the Drought Watch and Alert conditions could be suspended by resolution of the City Council, if a water allocation is in effect.

4.2.4 Water Shortage Level 4: Drought Critical Condition

Water Shortage Level 4: Drought Critical Condition is implemented when demand must be reduced up to 40% to ensure sufficient supplies. During a Drought Critical Condition, a new set of mandatory water conservation practices takes effect, in addition to all Permanent Water Waste Prohibitions and additional restriction practices that became mandatory under Water Shortage Level 1, Level 2, and Level 3. The Drought Critical Condition's mandatory conservation practices apply to industrial manufacturing, processing, or research and development, which are exempt, under certain conditions, from the Drought Watch and Drought Alert conditions. The list of shortage response action options available for Water Shortage Level 4 appears below:

- Low: Irrigating potted plants, non-commercial vegetable gardens, and fruit trees may take place on any day, but only before 10:00 a.m. or after 6:00 p.m.
- Low: Operation of cascading and recreational fountains is prohibited, except to the extent needed for maintenance.

- Medium: Landscape irrigation is limited to two assigned days per week and to no more than five minutes per watering station, or no more than 18 minutes per day with impact rotors, rotating nozzles, or micro-spray heads. This condition does not apply to commercial growers or nurseries, or to the irrigation of golf course greens.

- Medium: Refilling ornamental lakes or ponds is prohibited, except to the extent necessary to sustain plants or animals that were present in the water feature before a water shortage level was declared.

- Medium: Washing vehicles is prohibited, except at commercial car washes that recirculate water, or by using high pressure/low volume wash systems.

- High: Suspension of specific municipal uses such as hydrant flushing, street cleaning, and water-based recreation.

- High: Increase initiative to install pressure regulators to all homes and businesses that do not currently have one and require a downward adjustment to 60 pounds per square inch (PSI).

During a Drought Critical Condition, the Mayor may recommend and implement a water allocation per account as an additional tool to reduce consumption and establish a schedule of surcharges or penalties for exceeding the water allocation. These actions are subject to passage of a resolution by the City Council. Water conservation measures required under the Drought Watch, Alert, and Critical conditions could be suspended by resolution of the City Council, if a water allocation is in effect.

4.2.5 Water Shortage Level 5: Drought Crisis Condition

Water Shortage Level 5: Drought Crisis Condition is implemented when a water shortage emergency requires that demand be reduced up to 50% to ensure sufficient supplies. During a Drought Crisis a new set of mandatory conservation measures takes effect, in addition to all Permanent Water Waste Prohibitions. Mandatory conservation practices imposed under Water Shortage Levels 1 through 4 remain in effect. The list of shortage response actions available during a Drought Crisis Condition appears below:

- Medium: Stop all landscape irrigation, except crops and landscape products of commercial growers and nurseries. This does not apply to:

    - Maintenance of trees and shrubs watered no more than two assigned days per week and by using a hand-held container, hand-held hose with an automatic shutoff nozzle, or low-volume non-spray irrigation.

    - Maintenance of existing landscaping for fire protection.

    - Maintenance of plant materials identified to be rare or protected by City Council policy, or essential for the well-being of rare animals.

    - Maintenance of landscaping within active parks and playing fields, day care centers, school grounds, cemeteries, and golf course greens, with maximum irrigation of two days per week.

- Medium: Stop filling or refilling residential pools and spas.

- High: Suspension of potable water use for irrigation (100% reduction).

- High: City emergency storage withdrawals.

- High: Locally appropriate supply augmentation as per SDCWA WSCP.

- High: Increase initiative to install pressure regulators to all homes and businesses that do not currently have one and require a downward adjustment of all pressure regulators from 60 PSI to 50 PSI.

4.2.6 Water Shortage Level 6: Drought Emergency Condition

Water Shortage Level 6: Drought Emergency Condition is implemented when a water shortage emergency requires that demand be reduced greater than 50% to ensure sufficient supplies. During a Drought Emergency a new set of mandatory conservation measures takes effect, in addition to all Permanent Water Waste Prohibitions. Mandatory conservation practices that were imposed Levels 1 through 5 remain in effect. A list of available shortage response actions under Water Shortage Level 6 appears below:

- High: Use of flow restrictors on accounts that are non-responsive to outreach, and other mandatory restrictions and enforcement, as necessary.
- High: Stop all landscape irrigation. This does not apply to:
    - Maintenance of trees and shrubs watered no more than two assigned days per week and by using a hand-held container, hand-held hose with an automatic shutoff nozzle, or low-volume non-spray irrigation.
    - Maintenance of existing landscaping for fire protection.
    - Maintenance of plant materials identified to be rare or protected by City Council policy, or essential for the well-being of rare animals.
- High: City emergency storage withdrawals.
- High: Locally appropriate supply augmentation as per SDCWA WSCP.
- High: Increase initiative to install pressure regulators to all homes and businesses that do not currently have one and require downward adjustment of all pressure regulators from 50 PSI to 40 PSI.

5. DETERMINING WATER SHORTAGE REDUCTIONS

5.1 Monitoring and Reporting

The City monitors how effective the combination of shortage response actions in each water shortage level is with meters. The City meters both water supplies entering the distribution system, and water consumed by individual customers. The City can compare this meter data with water use in prior months and during non-drought years to determine if it is achieving specific percentage goals for water consumption associated with the drought response levels. If the goals are not being met, the City can implement additional shortage response actions.

The City is also required to report total monthly production to the SWRCB in compliance with Governor Brown's Executive Order B-29-15 and more recently B-36-15, as described in the introduction of this WSCP.

5.2 Reevaluation and Improvement Procedures

Reevaluation and improvement procedures are used to ensure shortage risk tolerance is adequate and appropriate water shortage mitigation strategies are implemented as needed. The WSCP will be re-evaluated at least every five years in coordination with the UWMP update or at the discretion of the City Council. An evaluation on the effectiveness of the water shortage response actions on demand levels will be conducted following the future implementation of the WSCP. The evaluation will compare the expected percent demand reduction against actual reductions, and shortage response actions in the WSCP will be revised appropriately. The City will also assess the effectiveness of the communication plan so that it may be modified as appropriate in the future.

6. REVENUE AND EXPENDITURE IMPACTS

When customers reduce their water consumption in response to prolonged water shortages or emergency situations, revenues for the City's Water Enterprise Fund (Fund) decline as a result. However, a portion of the Fund's expenditures are fixed regardless of how much water customers use. To remedy this imbalance of revenues versus expenditures, the City may have to increase rates and/or reduce or defer capital improvements. This is necessary to meet contractual requirements of bond holders related to outstanding debt, as the City must maintain a minimum debt service coverage ratio. Maintaining targeted debt service ratios is critical to obtaining future funding for capital projects needed to improve water system reliability and mitigate against future droughts and emergencies. In 2015 the City completed a Cost of Service Update for the City's Water Enterprise Fund to determine necessary rate changes.

6.1 Water Rate Structure

The City's current water rate structure, adopted on November 17, 2015, with an effective date of January 1, 2016, accounts for consumption reductions, among other variables, in meeting the Governor's mandate of a 16% reduction for the City from June 2015 to February 2016. The rate structure included increases on January 1, 2016, and then annually on July 1 for the ensuing four fiscal years through 2020. The Cost of Service Update indicated that revenues would be sufficient throughout the rate increase period to recover 100% of the total cost of service, accounting for the Governor's mandated 16% reduction. As adopted, the rate structure assisted the City in generating sufficient revenues to operate, manage, and maintain its facilities and services, even during State-mandated water use restrictions.

The City's rate structure uses a tiered conservation structure for single-family residential customers. The structure uses four consumption-based tiers with progressively higher commodity charges at each tier to pay for the increased costs related to peak demands. Assets like storage facilities, treatment plants, pump stations, and pipelines have to be built to not only handle average daily demand, but to handle peak hour demands plus fire suppression flow. The single-family residential class typically exhibits the highest peaking factor among the user classes, therefore have been singled out with the tiered structure. Those customers who use more water create the need for the larger, more expensive, facilities, thus pay for higher priced water. The tiered structure has also been proven to encourage conservation.

The rate structure also includes a pass-through adjustment that applies to all water users. As previously discussed in this UWMP, the City purchases the majority of its water from the SDCWA. In turn, SDCWA purchases a large portion of it supplies from MWD. Scarcities in statewide and regional water supplies have raised the cost of imported water while reducing availability. The rate increases from SDCWA and MWD are used to calculate the overall dollar impact to the City based on assumed purchases for the current fiscal year. The pass-through percentage increase to the City's customers is calculated as the impact amount as a percentage of total assumed sales, so that the City only collects the impact amount. EXAMPLE: If SDCWA imposes a 2% increase resulting in a $5 million impact to the City for water purchases; and the City expects to sell $500 million worth of water that year; it would raise rates by 1% to city customers (1% of $500 million is $5 million).

6.2 Use of Financial Reserves

The City does not anticipate tapping any reserves to maintain operations during a drought or emergency. The current rate structure accounts for the State's mandatory 16% demand reduction and incorporates pass-through adjustments associated with future increases in water purchases from SDCWA. However, if revenue shortfalls were to occur, the City could consider the options of deferring operation and maintenance and capital program projects, using emergency storage water, or drawing from one or more of the available reserve funds. Any reallocation of capital project funding to meet short-term emergency needs would be restricted by bond covenants that require bond proceeds to be used exclusively for capital projects.

There are currently three applicable reserve funds that could serve in the event of a revenue loss resulting from reduced water demands under a future reduction mandate:

- Secondary Purchase Reserve. Intended to be equal to 6% of the annual water purchase budget, this fund is earmarked as an emergency reserve for the purchase of water in the event of drought or other emergency that suddenly disrupts the normal supply. City Council action is required to appropriate this reserve.

- Operating Reserve. Intended to be used in the event of a catastrophe that prevents the utility from operating in its normal course of business, with a target level equivalent to 70 days of operation. Any request to utilize the Emergency Operating Reserve must include a plan and timeline for replenishment, which may be in conjunction with the City Council authorization of a future cost of service study and rate adjustment. City Council approval is required to appropriate this reserve.

- Rate Stabilization Reserve. Transfers in and out of this fund serve as a revolving mechanism to mitigate potential fluctuations in the rates for the Water System operations and maintain stable debt service coverage ratios for the Outstanding Obligations. Use of the Rate Stabilization Reserve is based upon the recommendation of Public Utilities and approved by the City's Chief Financial Officer.

Without the use of these reserves or emergency storage water, it could be necessary to increase rates if deliveries fall significantly during periods of substantial reductions. The use of reserves would ultimately require rate increases because the reserves would need to be replenished, but the increases could be spread over multiple years. The timing and the amount of the reserves used would be evaluated based on the significance of the rate increases, the ability to reduce variable operation and maintenance costs and defer capital projects, the availability of emergency storage water, the timing of additional debt issuances, and the possibility of a downgrade in the debt rating.

6.3 Potential Revenue Reductions & Expenses Associated with Activated Shortage Response Actions

Potential revenue reductions and expenses associated with activated shortage response actions are varied depending on shortage response action. As mentioned above, customer reductions in water use consumption will result in declining revenues during a shortage. Increased enforcement and auditing of existing water waste prohibitions could increase operational expenditures. In addition, increase outreach efforts may require more staff time and resources.

6.4 Measures to Mitigate Revenue and Expenditure Impacts During Shortages

The City has many ways to mitigate the effects of prolonged water shortages or emergencies on revenues and expenditures, as previously discussed. The City is performing another Cost of Service Update to address the needs of the Department going forward and is anticipating further rate increases starting Fiscal Year 2022 and will contain pass-through adjustments. As discussed in Section 6.1. any future rate increases would have to be approved by the City Council via the Proposition 218 noticing and Public Hearing process. **Table 6-1** summarizes the measures discussed in this section.

Table 6-1: Summary of Measures to Mitigate Revenue and Expenditure Impacts

Name of Measure	Summary of Effects
Use of emergency water storage and other local water resources during times of shortage	Makes water available to avoid revenue losses resulting from decreased sales, and expenditure increases caused by purchasing imported water. Protects against potential higher cost or surcharges on imported water during shortages.
Use of Secondary Purchase Reserve	Allows the purchase of water during a sudden disruption of supply during drought or other emergency.
Use of Operating Reserve	Provides for unanticipated needs when normal water supply is disrupted by a catastrophic event.
Use of Rate Stabilization Reserve	Provides a source of funds to mitigate future rate increases by maintaining legal covenanted rates.
Reductions in expenditures through possible deferrals	Reduces current operational expenditures to compensate for reduction in water sales revenue. Delays operations & maintenance and capital improvements.
Council approved rate increase	Provides additional revenues when water sales decline or expenditures increase. Replenishes reserve funds used to offset effects of shortages.

7. CATASTROPHIC SUPPLY INTERRUPTION PLANNING

A catastrophic supply interruption occurs when a disaster suddenly disrupts all or a large portion of the water available to meet the region's needs. The UWMP Act requires agencies to identify actions they will take if there is a catastrophic supply interruption, specifically including interruptions from a power outage, earthquake, or other non-drought related emergency. MWD, SDCWA, and the City have developed plans for catastrophic supply interruptions that include a regional power outage, earthquake, or other disaster. The City additionally maintains several emergency connections to and from neighboring water agencies, to provide mutual aid during times of catastrophic supply interruptions. These agencies include the Santa Fe Irrigation District, Poway Municipal Water District, Otay Water District, Cal-Am, and the Sweetwater Authority. Catastrophic supply interruption events are considered when determining the City's overall water supply shortage as defined by the water shortage levels identified in *Chapter 2 – Water Shortage Levels*. The City does not designate a specific catastrophic supply interruption water shortage level with its own shortage response actions. Rather, the resulting shortage of a catastrophic supply interruption would contribute to the City's total projected shortage in any given year. Shortage response actions associated with the determined water shortage level will help guide the City's response to catastrophic supply interruptions.

7.1 MWD Catastrophic Supply Interruption Planning

MWD has developed emergency storage requirements and plans based on a 100% reduction in imported supplies from all aqueducts serving its service area, for a period of six months. MWD has made significant investments in emergency storage to provide water to its member agencies during emergencies. If a catastrophe were to occur, non-firm (non-contractual) service deliveries would be suspended and firm (contractual) supplies to member agencies would be cut back by 25% from normal-year demands. Water would be drawn from a combination of MWD's surface reservoirs and groundwater basins, as well as its emergency water storage and other available storage projects. Emergency supplies are designed to be delivered via gravity, except in limited circumstances. MWD's water treatment plants have backup generators to continue treating water in the event of a power outage. MWD also has the ability to deploy mobile generators to key locations, as needed.

MWD's Water Surplus and Drought Management (WSDM) Plan and Water Supply Allocation Plan (WSAP) will guide the allocation of supplies and resources during a catastrophic supply interruption. MWD and its member agencies worked together to develop the WSDM Plan. The WSDM Plan establishes broad water resource management strategies to ensure MWD's ability to meet full service demands at all times. It also contains principles for supply allocation if the need should ever arise. The WSDM Plan splits MWD's resource actions into two major categories: Surplus Actions and Shortage Actions. The Shortage Actions are split into three subcategories: Shortage, Severe Shortage, and Extreme Shortage.

A catastrophic supply interruption would fall under an Extreme Shortage. Under an Extreme Shortage MWD would allocate supplies to its member agencies in accordance with the WSAP. If shortage allocations are required, MWD will rely on the calculations established in the WSAP. The plan allocates shortages equitably among its member agencies based on need, with adjustments for growth, local investments, changes in supply conditions, demand hardening (increasing water use efficiency such that additional conservation is more difficult to obtain), and water conservation plans.

7.2 SDCWA Catastrophic Supply Interruption Planning

SDCWA's catastrophic supply interruption planning consists of an Integrated Contingency Plan (ICP) and an Emergency Storage Project (ESP).

7.2.1 SDCWA Integrated Contingency Plan

The SDCWA's ICP outlines how staff would respond to an emergency that causes severe damage to SDCWA's water distribution system or hinders SDCWA's ability to provide reliable water service to its member agencies, including the

City. In addition to providing direction and strategies for responding to a crisis, it also outlines the triggers that would activate the ICP and/or the Emergency Operations Center (EOC). SDCWA's ICP includes the following:

- Authorities, policies, and procedures associated with emergency response activities.
- EOC activities, including EOC activation and deactivation guidelines.
- Multiagency and multijurisdictional coordination, particularly between SDCWA, its member agencies, and MWD, in accordance with Standardized Emergency Management Systems and National Incident Management System guidelines.
- Incident Command System management and organization and emergency staffing required to assist in mitigating any significant emergency or disaster.
- Mutual aid agreements and covenants that outline terms and conditions under which mutual aid assistance will be provided.
- Hazard specific action plans and Incident Command System position checklists.

The SDCWA's ICP provides a step-by-step approach with procedural tools such as resource and information lists, personnel rosters, listings of established policies and procedures, and reference materials. SDCWA provides input to the Unified San Diego County Emergency Services Organization's "Operational Area Emergency Plan", which serves to supports SDCWA's ICP.

7.2.2 SDCWA Emergency Storage Program

The SDCWA's Emergency Storage Program (ESP) is a system of reservoirs, pipelines, pump stations, and other conveyance facilities that are designed to provide water to the region during a prolonged regional supply interruption. The recently completed project has added 90,100 AF of water storage capacity to provide for six months of supplies in the San Diego region, through at least 2030, for use during an emergency. Emergency water storage was added at Hodges Reservoir, which is owned by the City, and at the Olivenhain and San Vicente reservoirs. The regional water pipeline system was expanded to allow water distribution throughout the region in the event of an emergency. SDCWA sized the ESP based on the authority's assumption of providing a 75% service level to all member agencies during an outage, while fully implementing best management practices for water conservation. SDCWA's Board of Directors has the ability to authorize use of ESP supplies in an emergency or prolonged drought situation when imported water and local supplies would not meet 75% of the member agencies' municipal and industrial demands.

Emergency Water Delivery Plans (EWDPs) provide forecasts of SDCWA emergency water supply deliveries to its member agencies during two- and six-month emergency events. The following general steps from EWDPs show the methodology for calculating the allocation of ESP supplies to member agencies in a prolonged drought or outage situation without imported supplies:

- Define water storage and conveyance facility infrastructure that would be in place at the time of the emergency event in order to estimate the duration of the emergency (i.e., time needed to repair damaged pipelines and/or infrastructure);
- Determine the total demand of each member agency during the emergency, considering both municipal and industrial water demands and agricultural water demands;
- Determine the net demand of each member agency, considering the availability of recycled water supplies;
- Determine the local supplies available to each member agency, including: potable reuse, groundwater, surface water storage, and seawater desalination;

- Determine the amount of local supplies that could be transferred within the City of San Diego service areas;
- Determine the amount of transfers between member agencies based on existing agreements;
- Determine the amount of Lewis Carlsbad Desalination Plant supplies that could be delivered to member agencies;
- Determine the amount of imported water supplies available for delivery to member agencies;
- Allocate ESP supplies in Olivenhain, Lake Hodges, and San Vicente Reservoirs to member agencies to achieve an initial service of 75%, considering other available supplies described above and taking into account limitations of delivery facilities;
- Determine reductions in deliveries to member agencies participating in SDCWA's Transitional Special Agricultural Water Rate (TSAWR) program. The reductions rate for TSAWR customers is twice the rate imposed on SDCWA municipal and industrial customers, up to a 90% reduction. Reductions in deliveries that arise from such cutbacks would be reallocated to commercial and industrial customers;
- Determine increases in member agency deliveries due to redistribution of emergency water not delivered to member agencies as a result of TSAWR program;
- Determine net SDCWA deliveries to member agencies from all water sources available to SDCWA, consisting of Carlsbad Desalination Plant supplies, imported water supplies, and ESP reservoir supplies.

7.2.3 Emergency Storage Program Project Components

The Lake Hodges Pipeline and Pump Station project connected the City's Hodges Reservoir to Olivenhain Reservoir, which is owned by the SDCWA and Olivenhain Municipal Water District. Major components include a ten-foot diameter pipeline connecting the lake and reservoir, a pump station to pump water back and forth between the facilities, electrical turbines to generate hydroelectric power, an electrical switchyard to provide electricity to the pump station and send electricity generated by the turbines to the local electrical grid, and an inlet-outlet below the water surface connecting to the pump station. This connection allows water to be pumped back and forth between Hodges Reservoir and Olivenhain Reservoir. From Olivenhain Reservoir, water can be distributed throughout the region via SDCWA's delivery system. This project also assists in keeping Hodges Reservoir at a more constant level in dry seasons by capturing runoff during rainy seasons and preventing spills over the dam. The project gives the City access to an additional 40,000 AF of storage for delivery into the northern part of its distribution system. With the project agreements, the City has access to 20,000 AF of water in Hodges Reservoir that it could not previously access, in addition to 20,000 AF in Olivenhain Reservoir.

The San Vicente Pipeline and Pump Station and Dam Raise projects included construction of pipelines and pumping facilities, and raising the San Vicente Dam. The San Vicente Dam Raise component of the ESP raised the dam by 117 feet, from 220 feet to 337 feet, increasing the storage capacity by 152,000 AF, to 242,000 AF from 90,000 AF. Activated during emergencies, the pumping facilities can move up to 300 million gallons of water per day from the reservoir to SDCWA's water delivery system. Water is pumped through the pipelines to a 3 million-gallon surge tank. The surge tank protects the pipeline and other pipelines from extreme pressure fluctuations in the event of sudden pump or valve failures in the system. From the surge tank water flows through the pipeline by gravity to SDCWA's Second Aqueduct, where it can be delivered to agencies in the southern half of the county during emergencies. Nearly half of the City's average daily water use can be met through this project.

The final component of the ESP, consisting of a pump station and conveyance facilities, is scheduled for completion in 2019. The facilities will convey treated water from SDCWA's treatment plant to the northern portions of SDCWA's service area.

7.3 City of San Diego Emergency Storage of Water Policy

The City receives its major water supply sources through aqueducts, canals, and pumping plants owned by MWD and the SDCWA. The City maintains an accessible emergency water supply that could provide an uninterrupted supply of water to the City's water treatment facilities, should the supply of imported water be interrupted. The management of reservoirs is guided by the City of San Diego Council Policy 400-04 (Appendix G of the City's 2015 UWMP), dated December 27, 1973, which outlines the City's Emergency Water Storage Policy. The policy mandates that the City store sufficient untreated water in active, available storage to meet six-tenths of the normal annual (7.2 months) City and its contractees water demand requirements, exclusive of conservation. Active available storage is the portion of water that is above the lowest usable outlet of each reservoir. This policy applies to the following reservoirs: Lake Skinner, San Vicente, El Capitan, Lower Otay, Murray, and Miramar. The active available storage shall include any water in the San Vicente Reservoir stored to the account of SDCWA or MWD, but shall not include any water stored at El Capitan Reservoir by the Helix Irrigation District. The active available storage shall also include 60% of the active, available storage in the MWD's Lake Skinner reservoir.

The emergency storage requirement changes from month to month and is based on the upcoming seven months' water demands. This results in a seasonally fluctuating emergency storage requirement, generally peaking in April and reaching its minimum in October. This seasonally fluctuating requirement makes a portion of the required emergency storage capacity available for impounding or seasonal storage.

8. LEGAL AUTHORITIES

Under California law, including CWC Chapters 3.3 and 3.5 of Division 1, Parts 2.55 and 2.6 of Division 6, Division 13, and Article X, Section 2 of the California Constitution, the City Council is authorized to implement the water shortage actions outlined in this WSCP. In all water shortage cases, shortage response actions to be implemented will be at the discretion of the City Council and will be based on an assessment of the supply shortage, customer response, and need for demand reductions.

It is noted that upon proclamation by the Governor of a state of emergency under the California Emergency Services Act (Chapter 7 (commencing with Section 8550) of Division 1 of Title 2 of the Government Code) based on drought conditions, the state will defer to implementation of locally adopted water shortage contingency plans to the extent practicable. The City will coordinate with regional and local water suppliers for which it provided water supply services for possible proclamation of a local emergency as necessary.

9. COMMUNICATION PROTOCOL

The City's communication protocol includes the various channels the City will utilize to convey critical messages regarding water shortage allocations and voluntary and mandatory actions. Public outreach programs can help increase awareness of water shortages, while customer services and workshops can encourage ratepayers to actively participate in demand reducing strategies. A strong communication plan will educate City ratepayers, including local leaders and the business community, on the water supply situation; what actions are proposed; what the intended achievements are; and how these actions are to be implemented. While specific types of messaging are deployed at various shortage response levels, how these messages are conveyed to the public are described per this communication protocol. The communication protocol will be in place prior to a water supply shortage and be initiated in Level 1 (Expanded Year-Round Permanent Mandatory Water Restrictions). Activation of the communication protocol will continue through all subsequent water shortage levels. At times, specific communities may require specialized outreach. The City will ensure outreach efforts are reaching key audiences as needed.

Per SDCWA's 2017 WSCP, it is important to communicate to ratepayers the following when urgent conservation is needed:

- Specific actions needed to save water;
- How much water needs to be saved and for how long;
- Why water needs to be saved; and
- What the City is doing to correct the supply problem or address the situation.

9.1 Coordination

In order to communicate effectively, avoid confusion, and maintain credibility, the City will work in close coordination with SDCWA at various levels of management. These levels include the Joint Public Information Council/Conservation Coordinators (JPIC; staff level), the Member Agency Managers group (management level), and SDCWA Board's Legislation and Public Outreach Committee (Board level). During droughts or other times of limited supply, the frequency and extent of coordination will increase to ensure outreach tactics are consistent with the changing needs of the City and its ratepayers. The City will seek opportunities to leverage external resources to complement its own outreach.

9.2 Communication Objectives

Communication objectives during the various water shortage levels of the WSCP include the following:

- Motivate water users to quickly increase conservation in ways that are consistent with any voluntary or mandatory actions called for at the current level of the WSCP.
- Raise awareness and understanding of the drought, regulatory, or other condition affecting water supplies and the need for increased conservation.
- Minimize confusion and maintain credibility of water agencies and conservation messages with an appropriate tone that avoids a "cry wolf" perception and non-compliance backlash.
- Make water users feel appreciated for existing accomplishments in improving their water-use efficiency, and for supporting regional and local investments in water supply reliability.
- Educate regional civic and business leaders, elected officials and the public that the City has greatly improved its water supply reliability.

- Prepare the City for any potential escalation (or de-escalation) of the WSCP based on trending supply conditions.
- Ensure all stakeholders believe they are being treated fairly in relationship to other stakeholders.
- Maintain communication effectiveness by soliciting or monitoring feedback from member agencies, key stakeholders, and the general public to update or adapt messages or communication tools.
- Exit WSCP implementation having demonstrated the effectiveness and value of conservation actions and water supply reliability investments in minimizing impacts to the City's economy and quality of life.

9.3 Communication Protocol for Current or Predicted Shortage

A current or predicted shortage, as determined by the Annual Assessment, will be communicated to the public upon submittal of the Annual Assessment Report in June of any given year. For a Water Shortage Level 1 or 2, the Mayor may publish a notice of determination of the existence of a shortage condition in the City's official newspaper. The City of San Diego may also post notice of the condition on its website. A Water Shortage Level 3 or 4 condition may be declared upon recommendation by the Mayor and resolution of the City Council. The declaration of a Water Shortage Level 5 or 6 may be issued upon recommendation by the Mayor and resolution of the City Council and in accordance with the procedures specified in CWC §351 and §352.

9.4 Communication Protocol for Triggered or Anticipated to Be Triggered Shortage Response Action

The public will be notified about triggered or anticipated to be triggered shortage response actions. The implementation of shortage response actions associated with any water shortage level will take effect on the tenth day after the date the shortage response action is declared. Within five days following the declaration of the shortage response action, the Mayor will publish a notice giving the extent, terms, and conditions around the use and consumption of water a minimum of one time for three consecutive days in the City's official newspaper.

9.5 Protocol and Strategies for Relevant Communications

To reduce water use consumption during any water shortage level, the City will increase its public education and outreach efforts to build awareness of needed actions from the public. In addition, the City's outreach campaign will be regularly revised to reflect current conditions. Key communication strategies and associated water shortage level implementation are listed below. Communication strategies build from previous levels are assumed to be built upon as the Shortage Level increases.

- Announce status change to key stakeholders and the general public (all Water Shortage Levels).
- Provide regular update to stakeholders and the media on conditions (all Water Shortage Levels).
- Increase agency coordination via monthly JPIC meetings (Water Shortage Level 1 and 2).
- Conduct issue briefings with elected officials and other key civic and business leaders (Water Shortage Level 2)
- Promote available water assistance resources for vulnerable populations; specialized outreach for impact industries (Water Shortage Levels 3 and 4).
- Conduct specialized outreach to reduce discretionary outdoor use while minimizing landscape damage (Water Shortage Levels 3 and 4).
- Suspend promotion of long-term water use efficiency programs/tools to focus on imminent needs (Water Shortages Levels 5 and 6).

The City has various mean of implementing its communication strategies. The City may update its website, newsletters, and social media platforms to reflect conditions and convey key messaging. The City may also hold news conferences or other events to announce or explain chances in conditions. Finally, the City may modify school assembly program content to include key conservation messages.

9.5.1 Catastrophic Communications

In the event of a catastrophic supply interruption that requires water use to be quickly prioritized for or limited to essential public health and safety needs, the City will immediately deploy appropriate strategies from Water Shortage Levels 1 through 6. In addition, outreach messaging will reflect emergency conditions and the need to focus on health and public safety. The City may also consider potential joint news release/new events with public health officials or incident commanders to announce conditions and explain needed action. Finally, the City will ensure ongoing coordination with emergency response services with daily advisories or alerts as needed.

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APPENDIX A: SHORTAGE RESPONSE ACTIONS TABLE

Types of response actions:

- Locally appropriate supply augmentation actions
- Locally appropriate demand reduction actions to adequately respond to shortages
- Locally appropriate operational changes
- Additional, mandatory prohibitions against specific water use practices (in addition to state-mandated prohibitions)

Note: Shortage response actions from previous drought response levels will remain in effect at later levels.

Water Shortage Level	Shortage Response Actions	Estimate Of Extent To Which Supply Gap Reduced	Response Action Type
Water Shortage Level 1: Expanded Year-Round Permanent Mandatory Water Restrictions (consumer demand reduction of up to 10% is required)	Increase outreach efforts for high-volume customers and expand leak alert program.	Low	Demand Reduction
	Increase voluntary conservation.	Low	Demand Reduction
	Expanded enforcement of Permanent Water Waste Prohibitions.	Medium	Demand Reduction
Water Shortage Level 2: Drought Watch Condition (consumer demand reduction of up to 20% is required)	Areas with no irrigation system must use a hand-held hose with a shutoff nozzle, hand-held container, or a garden hose sprinkler system on a timer.	Low	Demand Reduction
	Irrigation is prohibited during and within 48 hours of a rain event.	Low	Mandatory Prohibition
	Washing of automobiles, vehicles, airplanes, and other mobile equipment is permitted only before 10:00 a.m. or after 6:00 p.m. with a hand-held container or a hand-held hose with shutoff nozzle. Washing is permitted at any time at commercial car washes. Car washes that do not use partially recirculated water will be subject to volume limits designated by a resolution of the City Council. Boats and boat engines are permitted to be washed down after use. Mobile equipment washings are exempt from these regulations where the health, safety, and welfare of the public are contingent upon frequent vehicle washings.	Low	Mandatory Prohibition
	Landscape irrigation is limited to no more than three assigned days per week on a schedule posted by the Mayor. This does not apply to commercial growers or nurseries, nor to the irrigation of golf course greens and trees.	Low	Mandatory Prohibition
	Use of recycled or non-potable water, when available, is required for construction purposes.	Medium	Operational Change
	Prohibition of car washing.	Medium	Demand Reduction
Water Shortage Level 3: Drought Alert Condition (consumer demand reduction of up to 30% is required)	Construction operations receiving water from a fire hydrant meter or water truck will not use water beyond that required for normal construction activities. Construction projects requiring water for new landscaping materials shall adhere to the designated irrigation hours of before 10:00 a.m. and after 6:00 p.m.	Low	Mandatory Prohibition
	Water from fire hydrants is limited to firefighting.	Low	Operational Change
	Landscaped irrigation of areas not covered by sprinklers is limited to two assigned days per week using a hand-held container, hand-held hose with shutoff nozzle, or low volume non-spray irrigation, such as a soaker hose.	Low	Mandatory Prohibition
	Operation of ornamental fountains is prohibited, except when needed for maintenance.	Low	Mandatory Prohibition
	Landscape irrigation using sprinklers is limited to no more than five minutes per watering station during two assigned days per week, on a schedule established by the Mayor. The five-minute limit per watering station does not apply to landscape irrigation systems using water efficient devices, including drip/micro-irrigation systems and stream rotor sprinklers.	Medium	Mandatory Prohibition
	Car wash must reuse water.	Medium	Demand Reduction
	Prohibition on street cleaning.	Medium	Mandatory Prohibition
	SDCWA Carryover Storage Program.	High	Supply Augmentation

Water Shortage Level	Shortage Response Actions	Estimate Of Extent To Which Supply Gap Reduced	Response Action Type
Water Shortage Level 4: Drought Critical Condition (consumer demand reduction of up to 40% is required)	Irrigating potted plants, non-commercial vegetable gardens, and fruit trees may take place on any day, but only before 10:00 a.m. or after 6:00 p.m.	Low	Mandatory Prohibition
	Operation of cascading and recreational fountains is prohibited, except to the extent needed for maintenance.	Low	Mandatory Prohibition
	Landscape irrigation is limited to two assigned days per week and to no more than five minutes per watering station, or no more than 18 minutes per day with impact rotors, rotating nozzles, or micro-spray heads. This condition does not apply to commercial growers or nurseries, or to the irrigation of golf course greens.	Medium	Mandatory Prohibition
	Refilling ornamental lakes or ponds is prohibited, except to the extent necessary to sustain plants or animals that were present in the water feature before a water shortage level was declared.	Medium	Mandatory Prohibition
	Washing vehicles is prohibited, except at commercial car washes that recirculate water, or by using high pressure/low volume wash systems.	Medium	Mandatory Prohibition
	Suspension of specific municipal uses such as hydrant flushing, street cleaning, and water-based recreation.	High	Operational Change
	Increase initiative to install pressure regulators to all homes and businesses that do not currently have one and require a downward adjustment to 60 pounds per square inch (PSI).	High	Operational Change
Water Shortage Level 5: Drought Crisis Condition (consumer demand reduction of up to 50% is required)	Stop all landscape irrigation, except crops and landscape products of commercial growers and nurseries. This does not apply to: • Maintenance of trees and shrubs watered no more than two assigned days per week and by using a hand-held container, hand-held hose with an automatic shutoff nozzle, or low-volume non-spray irrigation. • Maintenance of existing landscaping for fire protection. • Maintenance of plant materials identified to be rare or protected by City Council policy, or essential for the well-being of rare animals. • Maintenance of landscaping within active parks and playing fields, day care centers, school grounds, cemeteries, and golf course greens, with maximum irrigation of two days per week.	Medium	Mandatory Prohibition
	Stop filling or refilling residential pools and spas.	Medium	Demand Reduction
	Suspension of potable water use for irrigation (100% reduction).	High	Mandatory Prohibition
	City emergency storage withdrawals.	High	Supply Augmentation
	Locally appropriate supply augmentation as per SDCWA WSCP.	High	Supply Augmentation
	Increase initiative to install pressure regulators to all homes and businesses that do not currently have one and require a downward adjustment of all pressure regulators from 60 PSI to 50 PSI.	High	Operational Change
Water Shortage Level 6: Drought Emergency Condition (consumer demand reduction greater than 50% is required)	Use of flow restrictors on accounts that are non-responsive to outreach, and other mandatory restrictions and enforcement, as necessary	High	Mandatory Prohibition
	Stop all landscape irrigation. This does not apply to: • Maintenance of trees and shrubs watered no more than two assigned days per week and by using a hand-held container, hand-held hose with an automatic shutoff nozzle, or low-volume non-spray irrigation. • Maintenance of existing landscaping for fire protection. • Maintenance of plant materials identified to be rare or protected by City Council policy, or essential for the well-being of rare animals.	High	Mandatory Prohibition
	City emergency storage withdrawals.	High	Supply Augmentation
	Locally appropriate supply augmentation as per SDCWA WSCP.	High	Supply Augmentation
	Increase initiative to install pressure regulators to all homes and businesses that do not currently have one and require downward adjustment of all pressure regulators from 50 PSI to 40 PSI.	High	Operational Change