



AGENDA

CITY COUNCIL - SPECIAL MEETING (WORKSHOP)

CITY OF BANNING, CALIFORNIA

July 9, 2024
4:00 p.m.
In Chambers

Council Chambers
99 E. Ramsey Street
Banning, CA 92220

The following information comprises the agenda for the regular meeting of the Banning City Council, a joint meeting of the City Council and Banning Utility Authority, and the Banning City Council sitting in its capacity as the Banning Successor Agency Board.

Per City Council Resolution 2016-44, matters taken up by the Council before 10 p.m. may be concluded, but no new matters shall be taken up except upon a unanimous vote of the council members present and voting. Such an extension shall only be valid for one hour and each hour thereafter shall require a renewed action for the meeting to continue.

1. **CALL TO ORDER**
2. **PUBLIC COMMENTS** - *Agenda Items Only*
3. **WORKSHOP**
 - 3.1 [Update and Discussion on the City Wastewater Treatment Plant Upgrade Project](#)
Recommendation: Discussion Only
4. **ADJOURNMENT**

AFFIDAVIT • DECLARACIÓN JURADA

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Caroline Patton, Administrative City Clerk
Secretario adjunto de la ciudad

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Public Comment

Agenda Items

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Non-Agenda Items

Any member of the public may address this meeting of the City Council on any item which does not appear on the regular meeting agenda but is of interest to the general public and is an item upon which the City Council may act. A three-minute limitation shall apply to each member of the public and no member shall be permitted to share their time with any other person. No action shall be taken, nor discussion held by the City Council, on any item which does not appear on the agenda, unless the action is otherwise authorized in accordance with the provisions of subdivision (b) of §54954.2 of the Government Code.

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99 East Ramsey Street, Banning, California 92220



CITY OF BANNING STAFF REPORT

TO: CITY COUNCIL

FROM: Douglas Schulze, City Manager

PREPARED BY: Art Vela, Public Works Director

MEETING DATE: July 9, 2024

SUBJECT: Update and Discussion on the City Wastewater Treatment Plant Upgrade Project

RECOMMENDATION:

Discussion Only

BACKGROUND:

Wastewater Treatment Plant

The City of Banning Wastewater Treatment Plant (WWTP), also known as the Water Reclamation Facility, provides for the collection, treatment, and disposal of municipal sewage. The WWTP dates back to 1925 and began to see significant additions beginning in 1950's and the last major renovation occurring in the early 2000's. Currently, the WWTP treatment process consists of preliminary, primary, secondary, disinfection (currently not in use), and sludge disposal.

The WWTP has a design treatment capacity of 3.6 million gallons per day (MGD) and typical average daily discharges range from 2.0 MGD to 2.1 MGD into 10 unlined evaporation/percolation ponds. The treated effluent then percolates into the groundwater of the San Geronio Hydraulic Unit. Groundwater from this basin is used for municipal and industrial applications.

In 2007, the City contracted Parsons to evaluate treatment technologies for a 1.5 MGD water reclamation facility (WRF) for the production of recycled water. Treatment alternatives investigated included oxidation ditch (OD), conventional activated sludge (CAS), and membrane bioreactor (MBR). The purpose of the evaluation was to determine the best option to comply with future Title 22 requirements for the beneficial reuse of recycled water. Parsons determined an MBR system was the best treatment option and completed a 90% design package of the WRF. Unfortunately, the project never reached 100% design and was terminated for various reasons.

2016 Regional Water Quality Control Board Order

On June 30, 2016, the California Regional Water Quality Control Board, Colorado River Basin Region (RWQCB) adopted Board Order R7-2016-0015 (Board Order), which describes the Waste Discharge Requirements (WDRs) and other terms and conditions of operation for the City's WWTP. The Board Order requires the WWTP to remove constituents that present the greatest risk to groundwater quality such as nitrogen, coliforms, and total dissolved solids (TDS).

According to the United States Environmental Protection Agency (US EPA), the maximum contaminant level (MCL) for Nitrate as Nitrogen (TN) is 10 mg/L. Currently, the average TN concentration in the WWTP's effluent is 29 mg-N/L, well above the future TN limit of 10 mg-N/L specified in the Board Order.

As a result, the Board Order required the City to conduct a nitrogen removal analysis and to summarize the findings in a technical report that includes a tentative work plan and time schedule for the installation and implementation of nitrogen removal treatment alternatives. The final technical report (Nitrogen Removal Feasibility Study), attached hereto, was completed and submitted to the RWQCB by the due date of June 30, 2020.

The City has had plans for the development of a Title 22 compliant recycled water source dating back to the early 2000's and for this reason, the scope of the Nitrogen Removal Feasibility Study was expanded beyond complying with TN limits and included discharge requirements related to the use of recycled water.

Additionally, the Board Order requires that the City submit a plan for capacity improvements to the RWQCB once the WWTP reaches 80% of its design capacity, or 2.88 MGD.

2018 Integrated Master Plan

In 2016 the Public Works Department set out to develop new master plans for the City's water, wastewater and future recycled water systems, which were previously updated in 2006. The final document resulted in a combined plan titled the Integrated Master Plan (IMP). The objective of the IMP was to develop capital improvement plans that would guide the City in the planning and development of water, wastewater and recycled water system facilities to meet system performance for existing customers as well as to support anticipated demands through the City's buildout.

The IMP projected that the City would reach 80% capacity by 2025 (although could be later if development slows down) and have a buildout wastewater flow of 6.35 MGD.

2020 UWMP

On June 8, 2021 the City Council approved Resolution 2021-50, adopting the 2020 Urban Water Management Plan (UWMP). The UWMP is a planning document with a 20-year planning horizon that assess the water supply and water demand for the City. As part of the assessment all current water supplies and in the future water supplies are include as part of the City's water supply portfolio, which includes the use of recycled water to supplement potable demands (i.e. irrigation demands) and for groundwater recharge.

Owner Advisor

On December 13, 2022, City Council adopted Resolution 2022-14UA, awarding a Professional Services Agreement to N2W Engineering ("N2W") to provide Owner Advisor ("OA") services for the Wastewater Treatment Plant Improvement project.

N2W has assisted the City in further review of available technologies and confirmed that an MBR system would be the best solution for the City. N2W also prepare a Feasibility Report. Additionally, they prepared to grant applications for the City: (1) Water Recycling Funding Program Planning grant application which led to an award of \$300,000 and (2) WaterSMART: Title XVI WIIN Act Water Reclamation and Reuse Program which unfortunately the City did not win.

N2W also assisted in the preparation of a scope of work for a Request for Qualifications that lead to the shortlisting of 3 contractors that are prepared to submit proposals for Phase 1 (Design) of the WWTP Upgrade Project.

JUSTIFICATION:

The purpose of this workshop is to present an update on the project, discuss potential next steps and funding options.

FISCAL IMPACT:

The City has paid \$594,226 to N2W for the work on the project, of which \$300,000 will be reimbursed by the Water Recycling Funding Program Planning grant.

N2W has prepared cost estimates indicating projected costs of \$76,383,509.

Existing applicable fund balances identified to fund the WWTP Improvement Project include:

- Fund 661 - Water Improvement Fund (Approx. Fund Balance = \$3,235,000)
- Fund 680 - Wastewater Operation Fund (Approx. Fund Balance = \$5,840,000)
- Fund 681 - Wastewater Improvement Fund (Approx. Fund Balance = \$10,875,000)
- Fund 682 – Tertiary Fund (Approx. Fund Balance = \$8,001,000)

The approved rate schedules included in Ordinance 1587 anticipated debt financing to cover the costs of the WWTP Improvement project. Debt financing options include the issuance of bonds and/or loans from the Clean Water State Revolving Fund (CWSRF), the Water Infrastructure Finance and Innovation Act (WIFIA) and i-Bank.

ALTERNATIVES:

N/A

ATTACHMENTS:

1. [R7-2016-0015.pdf](#)
2. [Cost Estimate - 3.6 MGD.pdf](#)
3. [Site Plan.pdf](#)
4. [CC Resolution No. 2021-050.pdf](#)
5. [Banning Final 2020 UWMP.pdf](#)
6. [UA Resolution No. 2022-14.pdf](#)

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
COLORADO RIVER BASIN REGION

ORDER R7-2016-0015

WASTE DISCHARGE REQUIREMENTS
FOR
CITY OF BANNING, OWNER
SUEZ WATER ENVIRONMENTAL SERVICES, OPERATOR
BANNING WASTEWATER TREATMENT PLANT
BANNING-RIVERSIDE COUNTY

The California Regional Water Quality Control Board, Colorado River Basin Region (Colorado River Basin Water Board), finds that:

1. The City of Banning (Owner), 99 East Ramsey Street, Banning, California 92220, and Suez Water Environmental Services, Inc., a Delaware-based business entity (Operator), (collectively or individually referred to as Discharger) submitted an application to update the Waste Discharge Requirements (WDRs) for the Banning Wastewater Treatment Plant (WWTP or Facility). The WWTP is located at 2242 East Charles Street, Banning, California 92220, as shown in Attachment A (Vicinity Map), made part of this Board Order by this reference. Suez Water Environmental Services, Inc. maintains an office at the Facility.
2. The City of Banning owns a wastewater collection, treatment and disposal system which provides sewerage service to the city. The WWTP has a design treatment capacity of 3.6 million gallons-per-day (MGD) and currently discharges approximately 2.07 MGD into 10 unlined evaporation/percolation ponds (ponds). The Facility is located in Section 14, Township 3 South, Range 1 East, San Bernardino Baseline and Meridian. The Facility's Assessor's Parcel Numbers are 532 180 038/532 180 036; and its latitude and longitude coordinates are 33.915194/33.912134 and 116.852411/116.84164, respectively. The Facility is assigned California Integrated Water Quality System (CIWQS) number CW-208668; Waste Discharger Identification (WDID) number 7A330100015, and GeoTracker Global ID number WDR100027202.
3. The wastewater treatment plant currently receives industrial wastewater from several businesses within the City of Banning. The Discharger's Industrial Waste Program issues Industrial User Discharge Permits to verify that these businesses meet the City of Banning's local ordinance discharge limits, which were determined to ensure that the wastewater treatment plant is protected and can meet effluent standards.
4. The discharge is currently regulated by Board Order (WDRs) 01-022, adopted on May 9, 2001.

5. Board Order 01-022, required the Discharger to construct a groundwater monitoring system in the vicinity of the unlined ponds. The Board Order also required effluent monitoring for Sulfate, Chloride, Fluoride, Aluminum, and Iron until the groundwater monitoring system was installed and groundwater monitoring was initiated. Board Order 01-022, Monitoring and Reporting Program, states that "As soon as Ground Water monitoring commences, these constituents will not be required in Effluent monitoring." The groundwater monitoring system was completed in August 2007, and effluent monitoring for Sulfate, Chloride, Fluoride, Aluminum, and Iron were discontinued at that time. These constituents have been removed from the monitoring and reporting program for this Board Order as well as the effluent limitations for Chloride, Aluminum, and Iron.
6. The WDRs are being updated to implement the most current laws and regulations applicable to the discharge.

Wastewater Treatment Facility and Discharge

7. The WWTP consists of preliminary treatment, primary treatment, secondary treatment, solids handling, and disinfection (currently not in use), and the disposal ponds. Untreated wastewater flows to the preliminary treatment system, which consists of a mechanical bar screen, compactor, grit removal system, classifier and cyclone separator. Wastewater from the preliminary treatment system flows to two primary clarifiers and is then pumped to two trickling filters. The effluent from the trickling filters flows to the two secondary clarifiers and then to the chlorine contact chamber, which is currently used as a holding tank for the final effluent water sampling and discharge to the percolation ponds. The disinfection units have not been in use since April 2000.
8. Primary sludge from the two primary clarifiers is pumped to the anaerobic digester for further treatment. Secondary sludge from the secondary clarifiers is pumped to the gravity thickener for thickening and then pumped to three anaerobic digesters for further treatment. Sludge wasting from the digester is pumped to the sludge drying beds. The Discharger produces Class B biosolids, and a private contractor hauls the biosolids offsite to a permitted facility for disposal.
9. The Discharger's Self-Monitoring Reports (SMRs) from January 2011 through December 2015 characterize the WWTP effluent as follows:

Constituent	Units	Average	Maximum	Minimum
Flow	MGD	2.071	2.238	1.897
20° C BOD ₅ ¹	mg/L ²	23	27	19

¹ 5-day biochemical oxygen demand at 20 degrees Celsius.

Constituent	Units	Average	Maximum	Minimum
TSS ³	mg/L	21	28	16
pH	s.u. ⁴	7.3	7.6	7.1
TDS ⁵	mg/L	426	464	380
Nitrate as N	mg/L	22	32	12
Total Nitrogen	mg/L	29	49	14

Hydrogeologic Conditions

10. Precipitation in the Banning area averages about 12 inches per year. Annual evapotranspiration rate is approximately 56 inches.
11. A drainage course identified as Smith Creek Flood Control Channel is located along the south side of WWTP.
12. There are no domestic wells within 500 feet of the on-site evaporation/percolation ponds.
13. The evaporation/percolation ponds overlay an aquifer of high quality groundwater. The Discharger's SMRs show that the depth to groundwater in the vicinity of the WWTF ranges from about 330 feet (MW1) to 630 feet below ground surface (bgs) (MW3).
14. Water supply to the community is from groundwater production wells located in the San Gorgonio Hydrologic Unit, Banning Hydrologic Subunit. TDS in the water supply averages about 204 mg/L, based on data reported in the City of Banning's SMRs from January 2011 through December 2015.
15. Regional groundwater flow in the area is generally from the west to the east.
16. The Discharger uses a network of three groundwater monitoring wells, one upgradient and two downgradient, to monitor the impact of wastewater discharge to groundwater in the area of the ponds. The locations of the groundwater monitoring

² Milligrams per Liter

³ Total Suspended Solids

⁴ Standard pH units

⁵ Total Dissolved Solids

wells identified as R-1 (MW1), MP-1 (MW2) and C-6 (MW3) are shown in Attachment C (Monitoring Well Locations), made part of this Board Order by reference. The Discharger's monitoring reports from January 2011 through December 2015 show the following average water quality data for the groundwater monitoring wells:

<i>Column header omitted in original</i>	Units	MW1 (downgradient)	MW2 (downgradient)	MW3 (upgradient)
Depth to Groundwater	feet below ground surface	361	410	629
Total Dissolved Solids	mg/L	332	252	219
Total Nitrogen	mg/L	4	2	1.1
Nitrate as N	mg/L	2	2	1.5
Iron	mg/L	34	ND	ND
Sulfate	mg/L	32	18	15
Chloride	mg/L	42	35	13
Aluminum	mg/L	20	ND	ND
Fluoride	mg/L	0.4	0.4	0.6

17. The Discharger reports that the soil in the vicinity of the WWTP, from ground surface to 300 bgs, is sand and gravelly sand containing small rocks and boulders. From a depth of 300 to 600 feet bgs, the soil is mostly sand and gravel with spots of brown clay and layers of fine sand and clay.

Basin Plan, Beneficial Uses, and Regulatory Considerations

18. The Water Quality Control Plan for the Colorado River Basin Region of California (Basin Plan), which was adopted on November 17, 1993 and amended on November 13, 2012, designates the beneficial uses of ground and surface waters in this Region, and contains implementation programs and policies to achieve water quality objectives, including narrative objectives for ground water quality, in Chapter 3, section IV, Ground Water Objectives.

19. The discharge is within the San Gorgonio Hydrologic Unit, Banning Subunit. The beneficial uses of groundwater in the San Gorgonio Hydrologic Unit include:
 - a. Municipal Supply (MUN),
 - b. Industrial Supply (IND), and
 - c. Agricultural Supply (AGR).
20. This Order implements numeric and narrative water quality objectives for ground and surface waters established by the Basin Plan. The numeric objectives for groundwater designated for municipal and domestic supply are the maximum contaminant levels (MCLs) specified in sections 64431, 64444, and 64678 of Title 22 of the California Code of Regulations (CCR), and the bacteriological limits specified in section 64426.1 of Title 22, CCR.
21. It is the policy of the State of California that every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes. This order promotes that policy by requiring discharges to meet maximum contaminant levels designed to protect human health and ensure that water is safe for domestic use.
22. Section 13267 of the California Water Code (CWC) authorizes the Colorado River Basin Water Board to require technical and monitoring reports. The Monitoring and Reporting Program (MRP) establishes monitoring and reporting requirements to implement federal and state requirements.
23. This Order establishes WDRs pursuant to Division 7, Chapter 4, Article 4, of the CWC for discharges that are not subject to regulation under Clean Water Act (CWA) section 402 (33 U.S.C. section 1342).
24. Pursuant to CWC section 13263(g), the discharge of waste is a privilege, not a right, and adoption of this Order does not create a vested right to continue the discharge.
25. The discharge authorized by this Board Order, and treatment and storage facilities associated with discharges of treated municipal wastewater, except for discharges of residual sludge and solid waste, are exempt from the requirements of the Consolidated Regulations for Treatment, Storage, Processing, or Disposal of Solid Waste, as set forth in Title 27, CCR, Division 2, Subdivision 1. This exemption is based on section 20090(a) of Title 27, which states in relevant part that discharges of domestic sewage or treated effluent are exempt provided that such discharges are regulated by WDRs, or for which WDRs have been waived, and which are consistent with applicable water quality objectives, and treatment or storage facilities associated with municipal WWTP's, provided that residual sludges or solid waste from WWTP's shall be discharged only in accordance with the applicable Title 27 provisions. All of these Title 27 exemption conditions have been met with these WDRs.

Groundwater Degradation

26. State Water Board Resolution 68-16, "Policy with Respect to Maintaining High Quality Waters of the State"(Resolution 68-16) states:

"Whenever the existing quality of water is better than the quality established in policies as of the date on which such policies become effective, such existing high quality will be maintained until it has been demonstrated to the State that any change will be consistent with maximum benefit to the people of the State, will not unreasonably affect present and anticipated beneficial use of such water and will not result in water quality less than that prescribed in the policies."

Resolution 68-16 further states:

"Any activity which produces or may produce a waste or increased volume or concentration of waste and which discharges or proposes to discharge to existing high quality waters will be required to meet waste discharge requirements which will result in the best practicable treatment or control [BPTC] of the discharge necessary to assure that (a) a pollution or nuisance will not occur and (b) the highest water quality consistent with maximum benefit to the people of the State will be maintained."

27. Some degradation of groundwater from the discharge to the ponds is consistent with Resolution 68-16, provided that the degradation:
- a. Is confined to a reasonable area;
 - b. Is minimized by means of full implementation, regular maintenance, and optimal operation of BPTC measures;
 - c. Is limited to waste constituents typically encountered in domestic wastewater; and
 - d. Does not result in the loss of any beneficial use as prescribed in the applicable basin plan, or violation of any water quality objective.
28. The discharge of wastewater from the WWTP, as permitted herein, reflects BPTC. The controls assure the discharge does not create a condition of pollution or nuisance, and that the highest water quality consistent with maximum benefit to the people of the State will be maintained, which is consistent with the anti-degradation provisions of Resolution 68-16. The WWTP incorporates:
- a. Technology for secondary treated domestic wastewater;
 - b. Solids handling facilities;
 - c. An operation and maintenance manual;

- d. A City ordinance that is comprised of a comprehensive set of rules and regulations governing the design, construction, maintenance and use of public and private sewer facilities within City jurisdictional limits;
- e. Staffing to assure proper operation and maintenance;
- f. A network of groundwater monitoring wells; and
- g. A standby emergency power generator of sufficient size to operate the treatment plant and ancillary equipment during periods of loss of commercial power.

Accordingly, the discharge as authorized is consistent with the anti-degradation provisions of Resolution 68-16 and the applicable water quality objectives.

Constituents of Concern

- 29. Constituents of concern in domestic wastewater effluent that present the greatest risk to groundwater quality are nitrogen, coliforms (pathogen-indicator organisms), and TDS. The WWTP provides substantial removal of soluble organic matter, solids, and some nitrogen treatment.
- 30. Title 22, CCR section 64431, Maximum Contaminant Level (MCL) for Nitrate plus Nitrite as Nitrogen is 10 mg/L. To account for the fate of transport for the various components of Total Nitrogen, as a conservative value it is assumed that all nitrogen present converts to nitrate/nitrite. The City of Banning's SMRs report an average of 29 mg/L for Total Nitrogen between January 2011 and December 2015. Because the concentration of total nitrogen in the effluent is elevated, it is probable that nitrates may reach groundwater in concentrations that exceed the MCL prescribed in Title 22, CCR, section 64431. This Board Order will require that the Discharger conduct a nitrogen removal analysis and provide its findings in a technical report that provides a workplan and time schedule for the installation and implementation of nitrogen removal alternatives.
- 31. While secondary treatment reduces fecal coliform densities by 90 to 99%, the remaining organisms in effluent are still 10^5 to 10^6 MPN/100 ml (United States Environmental Protection Agency, Design Manual, Municipal Wastewater Disinfection; October 1986). Given the depth to groundwater, it is not likely that pathogen-indicator bacteria will reach groundwater at densities exceeding those prescribed in Title 22, CCR. Thus, it is not anticipated that groundwater will be degraded by pathogen-indicator bacteria. Furthermore, any degradation by pathogens that might occur will be limited to the area in the vicinity of the ponds and degradation by pathogens should not be significant.
- 32. The typical incremental addition of dissolved salts from domestic water usage is 150 to 380 mg/L. Domestic water supply to the City of Banning showed an

average of about 200 mg/L during the period of January 2011 to December 2015. From January 2011 to December 2015 treated wastewater discharged by the City of Banning had an average TDS concentration of approximately 420 mg/L. Thus, the average TDS increase over the domestic water supply for this facility during the same time period was about 220 mg/L. Treated wastewater discharged by the WWTP has a TDS limit of a maximum of 400 mg/L above the domestic source water as regulated by Board Order 01-022. The Colorado River Water Board is responsible for implementing the State Water Resources Control Board's Salt and Nutrient Management Plan (SNMP). To that end, the TDS effluent limit in this Board Order will be reduced to 300 mg/L above the domestic water supply. A regulatory limit of 300 mg/L above the domestic source water reasonably protects present and anticipated beneficial uses of groundwater in the area; therefore, it is not likely that groundwater will exhibit significant degradation by TDS.

Stormwater

33. Federal regulations for storm water discharges were promulgated by the U.S. Environmental Protection Agency on November 16, 1990, (40 CFR Parts 122, 123, and 124) to implement the Clean Water Act's storm water program set forth in Clean Water Act section 402(p) (33 U.S.C. section 1342(p)). In relevant part, the regulations require specific categories of facilities that discharge storm water associated with industrial activity to "waters of the United States" to obtain NPDES permits and to require control of such pollutant discharges using Best Available Technology Economically Achievable (BAT) and Best Conventional Pollutant Control Technology (BCT) to prevent and reduce pollutants and any more stringent controls necessary to meet water quality standards. Facilities used in the storage, treatment, recycling, and reclamation of municipal or domestic sewage, including land dedicated to the disposal of sewage sludge that are within the confines of the facility with a design flow of one million gallons a day or more, or required to have an approved pretreatment program under 40 CFR Part 403, are considered to be engaging in "industrial activity" for purposes of the Clean Water Act's storm water program. The facility has a design treatment capacity of 3.6 MGD, and is thus subject to the federal regulations for discharges of stormwater associated with industrial activity.

CEQA and Public Participation

34. In accordance with section 15301, Chapter 3, Title 14, CCR, the issuance of these WDRs, which govern the operation of an existing facility involving negligible or no expansion of use beyond that previously existing, is exempt from the provisions of the California Environmental Quality Act (Pub. Resources Code, section 21000 et seq.).
35. The Colorado River Basin Water Board has notified the Discharger and all known interested agencies and persons of its intent to draft WDRs for this discharge, and

has provided them with an opportunity for a public meeting and an opportunity to submit comments.

36. The Colorado River Basin Water Board, in a public meeting, heard and considered all comments pertaining to this discharge.

IT IS HEREBY ORDERED, that Board Order 01-022 is rescinded upon the effective date of this Order, except for enforcement purposes, and, in order to meet the provisions contained in Division 7 of the California Water Code, and regulations adopted thereunder, the Discharger shall comply with the following:

A. Effluent Limitations

1. Effluent discharged into the ponds for disposal shall not exceed the following effluent limits:

Constituent	Units	30-Day Arithmetic Mean	7-Day Arithmetic Mean	Maximum
20° C BOD ₅	mg/L	30	45	-----
Total Suspended Solids	mg/L	30	45	-----

2. The 30-day average daily dry weather discharge from the WWTP shall not exceed 3.6 MGD.
3. Effluent from the WWTP into the ponds shall not have a pH below 6.0 or above 9.0.
4. The increase in concentration of TDS in the wastewater discharged to the ponds over that contained in the water supply to the community shall not exceed 300 mg/L.
5. The ponds shall be maintained so they will continuously operate in aerobic conditions. The dissolved oxygen content in the upper zone (one foot) of the ponds shall not be less than 1.0 mg/L at all times.

B. Discharge Prohibitions

1. Discharge of waste classified as “hazardous”, as defined in Title 23, CCR, section 2521(a), or “designated”, as defined in California Water Code section 13173, is prohibited.

2. Discharge of treated wastewater at a location other than the designated disposal areas is prohibited.
3. The discharge of any wastewater from the Facility to any surface waters or surface drainage courses is prohibited.
4. Discharge of waste to land not owned or authorized for such use by the Discharger is prohibited.
5. Surfacing or ponding of wastewater outside of the designated disposal locations is prohibited.
6. Bypass, overflow, discharge, or spill of untreated or partially treated waste is prohibited.

C. Discharge Specifications

1. The treatment or disposal of wastes from the WWTP shall not cause pollution or nuisance as defined in sections 13050(l) and 13050(m) of Division 7 of the California Water Code, respectively.
2. A minimum freeboard depth of two feet shall be maintained at all times in each pond.
3. All treatment, storage, and disposal areas shall be designed, constructed, operated, and maintained to prevent inundation or washout due to floods with a 100-year return frequency.
4. Ponds shall have sufficient capacity to accommodate allowable wastewater flow, design seasonal precipitation, ancillary inflow, and infiltration during the non-irrigation season. Design seasonal precipitation shall be based on total annual precipitation using a return period of 100 years, distributed monthly in accordance with historical rainfall patterns.
5. The ponds shall be managed to prevent breeding of mosquitoes. In particular:
 - a. An erosion control program should assure that small coves and irregularities are not created around the perimeter of the water surface.
 - b. Weeds shall be minimized through control of water depth, harvesting, or herbicides.
 - c. Dead algae, vegetation, and debris shall not accumulate on the water surface.

6. Public contact with wastewater shall be precluded through such means as fences, signs, and other acceptable alternatives.
7. Objectionable odors originating at this facility shall not be perceivable beyond the limits of the wastewater treatment and disposal area.
8. The ponds shall be maintained and operated so as to maximize infiltration and minimize the increase of salinity in the groundwater.
9. The Discharger shall not accept wastewater in excess of the treatment capacity of the Facility.

D. Specifications

1. Discharge from the WWTP shall not cause groundwater to:
 - a. Contain constituents in excess of California MCLs, as set forth in the California Code of Regulations, Title 22, section 64426.1 for bacteriological constituents; section 64431 for inorganic chemicals; section 64444 for organic chemicals; and section 64678 for determination of exceedances of lead and copper action levels.
 - b. Contain taste or odor-producing substances in concentrations that adversely affect beneficial uses as a result of human activity.

E. Pretreatment

1. In the event that the facility has an average dry weather flow or treatment capacity of 5 MGD or more and Industrial Users [40 CFR 403.3(h)] are discharging pollutants which could Pass Through [40 CFR 403.3(n)] or Interfere [40 CFR 403.3(i)] with the operation of the wastewater treatment facility or are otherwise subject to National Pretreatment Standards [40 CFR 403.3(j)], (ii) California Code of Regulations, Title 23, section 2233 requires the facility to have and enforce an adequate pretreatment program, or (iii) the Colorado River Basin Water Board or its Executive Officer determines that other circumstances warrant, then:
 - a. The Discharger shall notify the Colorado River Basin Water Board within 30 days after there are discharges that trigger the pretreatment requirements.
 - b. The Discharger shall submit a revised Report of Waste Discharge and the pretreatment program for the Board review and approval as soon as possible but not later than one year of the notice of pretreatment requirements.

- c. The Discharger shall enforce the federal categorical pretreatment standards on all Categorical Industrial Users (CIUs).
 - d. The Discharger shall notify the CIU of its discharge effluent limits. The limits must be as stringent as the pretreatment standards contained in the applicable federal category (40 CFR Part 400-699). The Discharger may develop more stringent, technically based local limit if it can show cause.
 - e. The Discharger shall notify the RWQCB if the CIU violates its discharge effluent limits.
2. The Colorado River Basin Water Board retains the right to take legal action against an industrial user and/or the Discharger where a user fails to meet the approved applicable pretreatment standards.

F. Special Provisions

- 1. Within **12 months** of the adoption of this Order, the Discharger shall submit to the Colorado River Basin Water Board office a technical report that includes a copy of the Maintenance and Operations Manual for the WWTP.
- 2. Within **18 months** of the adoption date of this Board Order, the Discharger shall submit for approval by the Colorado River Basin Water Board's Executive Officer, a technical report that is a work plan and time schedule to conduct a study that addresses the practicability of a 10 mg/L total nitrogen effluent limitation and the impact the discharge has on the beneficial uses of the receiving groundwater. The time schedule for the study shall not be longer than four (4) years. A California Professional Engineer (PE), Registered Geologist (RG), Certified Engineering Geologist (CEG), or a Certified Hydro Geologist (CHG) must sign and stamp the technical report. The report shall, at a minimum, include the following:
 - a. Evaluation by the Discharger must include information on the following factors relating to the discharge:
 - i. Description of the municipal entity and facilities.
 - ii. Description of the quantity and nitrogen concentration of domestic water sources contributing to discharge.
 - iii. Description of significant nitrogen sources of the municipal wastewater collection system, and identification of entities responsible for each source, if available.
 - iv. Description of the wastewater discharge, receiving waters, quantity, and nitrogen load.

- v. Alternative plans for minimizing nitrogen contribution from the municipal sources. Alternative plans should include:
 - (A) Description of nitrogen sources and alternative means of control; and
 - (B) Cost of alternative plans in dollars per ton, of nitrogen removed from discharge.
 - vi. Description and analyses of potential conventional nitrogen removal treatment technologies for implementation at the WWTP. Analyses shall include cost of implementation in dollars per ton, of nitrogen removed from discharge.
 - vii. Such other information pertinent to the study as the permitting authority may deem necessary.
- b. In determining what permit conditions shall be required, the permit issuing authority shall consider the following criteria including, but not limited to:
- i. The practicability of achieving a 10 mg/L total nitrogen effluent limit.
 - ii. Where a 10 mg/L effluent limit is not determined to be practicable, the Discharger shall provide the following:
 - (A) The impact of the proposed nitrogen input of each alternative on the beneficial uses of the groundwater in terms of tons per year and concentration;
 - (B) Costs per ton of nitrogen removed from discharge of each alternative plan;
 - (C) Capability of minimizing nitrogen discharge;
 - (D) A proposed value for the practical incremental increase; and
 - (E) A justification for the proposed practical incremental increased value.
- c. By **June 30, 2020**, the Discharger shall submit a final technical report that includes the Discharger's recommendations and conclusions, including a tentative work plan and time schedule for facility plant improvements required to accomplish nitrogen removal and comply with the effluent water quality limit. The report shall be

certified with the signature and stamp of a California licensed professional PE, PG, CEG, or a CHG.

3. Within **24 months** of the adoption of this Order, the Discharger shall submit to the Colorado River Basin Water Board a technical report that includes a copy of the City of Banning ordinance that provides a comprehensive set of rules and regulations governing the design, construction, maintenance and use of public and private sewer facilities within the city's jurisdictional limits.
4. Within **24 months** of the adoption of this Order, the Discharger shall submit a technical report that contains:
 - a. Documents demonstrating the City of Banning's authority to issue permits for individual and community onsite septic systems;
 - b. The City of Banning's affirmative statement with regard to submitting a Local Agency Management Program plan in accordance with the State Water Board's *Water Quality Control Policy for Siting, Design, Operation, and Maintenance of Onsite Wastewater Treatment Systems*; and,
 - c. Identification of all areas within the jurisdiction of the City of Banning's sewer authority that are currently on existing onsite septic systems, and those undeveloped areas planned for septic systems.

G. Standard Provisions

1. The Discharger shall comply with all of the conditions of this Board Order. Noncompliance is a violation of the Porter-Cologne Water Quality Control Act (CWC, section 13000 et seq.), and is grounds for enforcement action.
2. The Discharger shall comply with the Electronic Submittal of Information (ESI) requirements by submitting all correspondence and reports required under Monitoring and Reporting Program (MRP) R7-2016-0015, and future revisions thereto, including groundwater monitoring data and discharge location data (latitude and longitude), correspondence, and pdf monitoring reports to the State Water Resources Control Board GeoTracker <https://geotracker.waterboards.ca.gov/> database. Documents that are 2.0 MB or larger should be broken down into smaller electronic files, labelled properly and uploaded into GeoTracker.
3. All technical reports required in conjunction with this Order are required pursuant to Section 13267 of the CWC, and shall include a statement by the Discharger, or an authorized representative of the Discharger, certifying

under penalty of perjury under the laws of the State of California, that the report is true, complete, and accurate.

4. In accordance with California Business and Professions Code Sections 6735, 7835, and 7835.1, engineering and geologic evaluations and judgments shall be performed by or under the direction of California registered professionals (i.e., civil engineer, engineering geologist, geologist, etc.) competent and proficient in the fields pertinent to the required activities. All technical reports specified herein that contain work plans, that describe the conduct of investigations and studies, or that contain technical conclusions and recommendations concerning engineering and geology shall be prepared by or under the direction of appropriately qualified professionals, even if not explicitly stated. Each technical report submitted by the Discharger shall contain a statement of qualifications of the responsible licensed professionals as well as the professional's signature and/or stamp of the seal. Additionally, to the extent that preparation of a required technical report involves field activities, field activities shall be conducted under the direct supervision of one or more of these professionals.
5. The Discharger shall not cause degradation of any water supply in accordance with State Water Board Resolution 68-16.
6. Standby power generating facilities shall be available to operate the plant during a commercial power failure.
7. Adequate measures shall be taken to assure that flood or surface drainage waters do not erode or otherwise render portions of the discharge facilities inoperable.
8. The WWTP shall be supervised and operated by persons possessing certification of appropriate grade pursuant to section 3680, Chapter 26, Division 3, Title 23 of the California Code of Regulations.
9. The Discharger shall at all times properly operate and maintain all systems and components of collection, treatment and control, installed or used by the Discharger to achieve compliance with this Board Order. Proper operation and maintenance includes effective performance, adequate process controls, and appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities/systems when necessary to achieve compliance with this Board Order. All systems in service or reserved shall be inspected and maintained on a regular basis. Records of inspections and maintenance shall be retained, and made available to the Colorado River Basin Water Board's Executive Officer on request.

10. The Discharger shall ensure that all site-operating personnel are familiar with the content of this Board Order, and shall maintain a copy of this Board Order at the site.
11. The Discharger shall allow the Colorado River Basin Water Board, or an authorized representative, upon presentation of credentials and other documents as may be required by law, to:
 - a. Enter the premises regulated by this Order, or the place where records are kept under the conditions of this Board Order;
 - b. Have access to and copy, at reasonable times, records kept under the conditions of this Board Order;
 - c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order; and
 - d. Sample or monitor at reasonable times, for the purpose of assuring compliance with this Order or as otherwise authorized by the Water Code, any substances or parameters at this location.
12. Disposal of oil and grease, biosolids, screenings, and other solids collected from liquid wastes shall be pursuant to Title 27, and the review and approval of the Colorado River Basin Water Board Executive Officer.
13. Any proposed change in use or disposal of biosolids requires the approval of the Colorado River Basin Water Board Executive Officer, and U.S. Environmental Protection Agency Regional Administrator, who must be notified at least 90 days in advance of the change.
14. Sludge use and disposal shall comply with Federal and State laws and regulations, including permitting requirements, and technical standards in 40 CFR Part 503. If the State and Colorado River Basin Water Boards are delegated the authority to implement 40 CFR Part 503 regulations, this Order may be revised to incorporate appropriate time schedules and technical standards. The Discharger shall comply with the standards and time schedules in 40 CFR part 503, whether or not part of this Order.
15. The Discharger shall provide a plan as to the method, treatment, handling and disposal of sludge that is consistent with all State and Federal laws and regulations and obtain prior written approval from the Colorado River Basin Water Board specifying location and method of disposal, before disposing of treated or untreated sludge, or similar solid waste.
16. The Discharger shall maintain a permanent log of all solids hauled away from the treatment facility for use/disposal elsewhere and shall provide a

summary of the volume, type (screenings, grit, raw sludge, digested sludge), use (agricultural, composting, etc.), and the destination in accordance with the MRP of this Board Order. Sludge that is stockpiled at the treatment facility shall be sampled and analyzed for those constituents listed in the sludge monitoring section of the MRP of this Board Order and as required by Title 40, Code of Federal Regulations, Part 503. The results of the analyses shall be submitted to the Colorado River Basin Water Board as part of the MRP.

17. The Discharger shall provide a report to the Colorado River Basin Water Board when it determines that the plant's average dry-weather flow rate for any month exceeds 80 percent of the design capacity. The report should indicate what steps, if any, the Discharger intends to take to provide for the expected wastewater treatment capacity necessary when the plant reaches design capacity.
18. Prior to implementing a modification that results in a material change in the quality or quantity of wastewater treated or discharged, or a material change in the location of discharge, the Discharger shall report all pertinent information in writing to the Colorado River Basin Water Board, and obtain revised requirements.
19. Prior to a change in ownership or management of WWTP, the Discharger shall transmit a copy of this Board Order to the succeeding owner/operator, and forward a copy of the transmittal letter to the Colorado River Basin Water Board.
20. The Discharger shall provide adequate notice to the Colorado River Basin Water Board Executive Officer of the following:
 - a. The introduction of pollutants into any treatment facility described in the Findings of this Board Order from an indirect Discharger which would be subject to section 301 or 306 of the Clean Water Act, if the pollutants were discharged directly;
 - b. Any substantial change in the volume or character of pollutants introduced into any treatment facility described in the Findings of this Board Order, by an existing or new source; and
 - c. Any planned physical alteration or addition to the facilities described in this Board Order, or change planned in the Discharger's sludge use or disposal practice, where such alterations, additions, or changes may justify the application of Board Order conditions that are different from or absent in the existing Board Order, including notification of additional disposal

sites not reported during the Board Order application process, or not reported pursuant to an approved land application plan.

21. The Discharger shall report orally, any noncompliance that may endanger human health or the environment. The noncompliance shall be reported immediately to the Colorado River Basin Water Board's Executive Officer at (760) 346-7491, and the California Office of Emergency Services at (800) 852-7550 as soon as:
 - a. The Discharger has knowledge of the discharge;
 - b. Notification is possible, and
 - c. Notification will not substantially impede cleanup or other emergency measures.

During non-business hours, the Discharger shall leave a message on the Colorado River Basin Water Board's office voice recorder at the above listed number. Incident information shall be provided orally as soon as possible and within 24 hours from the time the Discharger becomes aware of the incident. A written report shall also be provided within five (5) business days of the time the Discharger becomes aware of the incident. The written report shall contain a description of the noncompliance and its cause, the period of noncompliance, the anticipated time to achieve full compliance, and the steps taken or planned, to reduce, eliminate, and prevent recurrence of the noncompliance. The Discharger shall report all intentional or unintentional spills in excess of one thousand (1,000) gallons occurring within the WWTP or collection system to the Colorado River Basin Water Board office in accordance with the above time limits.

22. The Discharger shall report all instances of noncompliance. Reports of noncompliance shall be submitted with the Discharger's next scheduled SMRs or earlier if requested by the Colorado River Basin Water Board's Executive Officer, or if required by an applicable standard for sludge use and disposal.
23. By-pass (i.e., the intentional diversion of waste streams from any portion of the treatment facilities, except diversions designed to meet variable effluent limits) is prohibited. The Colorado River Basin Water Board may take enforcement action against the Discharger for by-pass unless:
 - a. By-pass was unavoidable to prevent loss of life, personal injury, or severe property damage. Severe property damage means substantial physical damage to property, damage to the treatment facilities that causes them to be inoperable, or substantial and permanent loss of natural resources reasonably expected to occur in

the absence of a by-pass. Severe property damage does not mean economic loss caused by delays in production; and

There were no feasible alternatives to by-pass, such as the use of auxiliary treatment facilities or retention of untreated waste. This condition is not satisfied if adequate back-up equipment was not installed to prevent by-pass occurring during equipment downtime, or preventive maintenance.

b. By-pass is:

- i. Required for essential maintenance to assure efficient operation; and
- ii. Neither effluent nor receiving water limitations are exceeded; and
- iii. The Discharger notifies the Colorado River Basin Water Board ten (10) days in advance.

- 24. In the event of an unanticipated by-pass, the Discharger shall immediately report the incident to the Colorado River Basin Water Board. During non-business hours, the Discharger shall leave a message on the Colorado River Basin Water Board office voice recorder. A written report shall be provided within five business days the Discharger is aware of the incident. The written report shall include a description of the by-pass, any noncompliance, the cause, period of noncompliance, anticipated time to achieve full compliance, and steps taken or planned, to reduce, eliminate, and prevent recurrence of the noncompliance.
- 25. Federal regulations for storm water discharges require specific categories of facilities which discharge storm water associated with industrial activity (storm water) to obtain National Pollutant Discharge Elimination System (NPDES) permits and to implement Best Conventional Pollutant Technology (BCPT) and Best Available Technology Economically Achievable (BAT) to reduce or eliminate industrial storm water pollution.
- 26. All storm water discharges from this facility must comply with the lawful requirements of municipalities, counties, drainage districts, and other local agencies, regarding discharges of storm water to storm water drain systems or other courses under their jurisdiction.
- 27. Storm water discharges from the facility shall not cause or threaten to cause pollution or contamination.

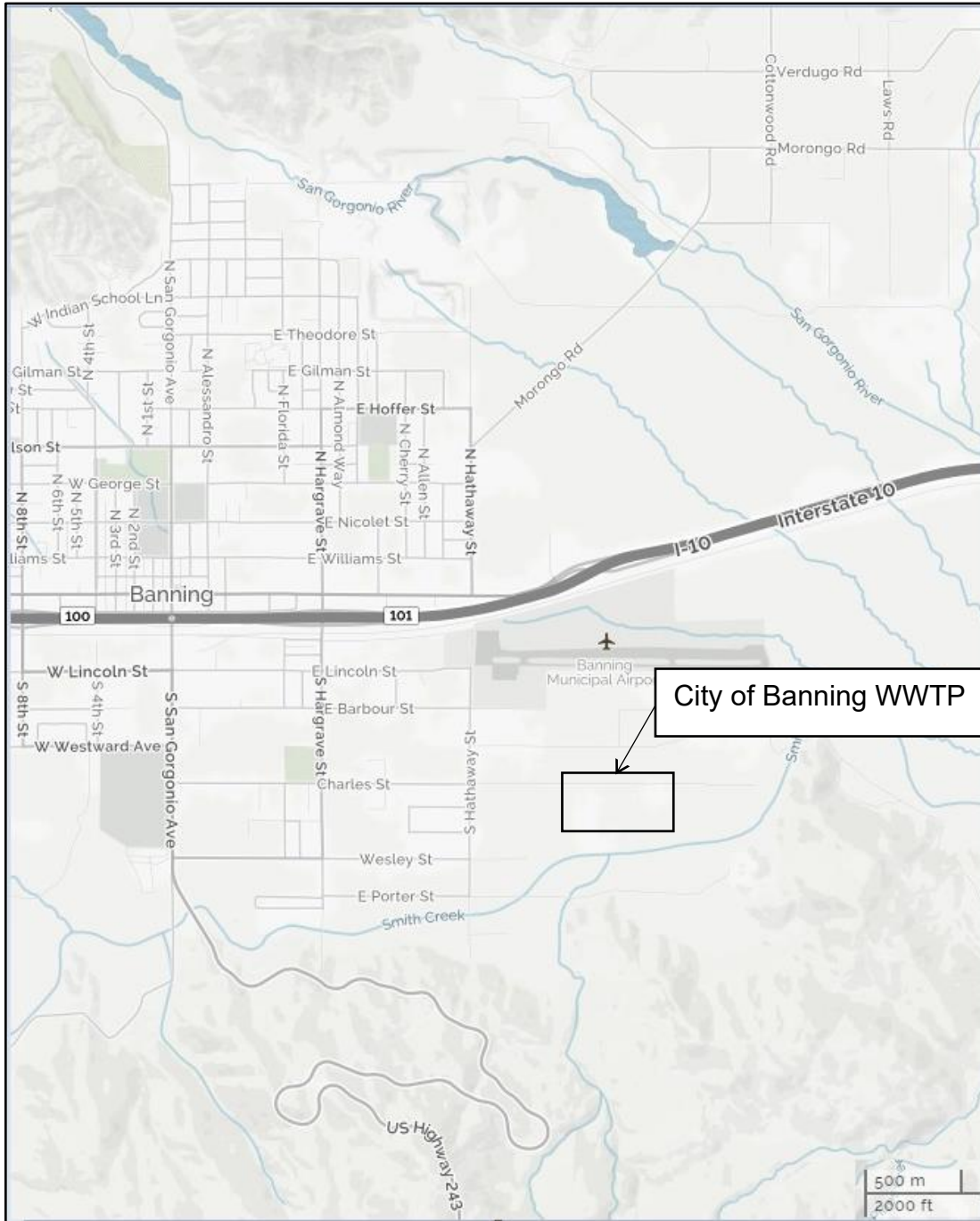
28. Storm water discharges from the facility shall not contain hazardous substances equal to or in excess of a reportable quantity listed in 40 CFR Part 117 and/or 40 CFR Part 302.
29. The Discharger is the responsible party for the waste discharge requirements and the monitoring and reporting program for the facility. The Discharger shall comply with all conditions of these waste discharge requirements. Violations may result in enforcement actions, including Colorado River Basin Water Board Orders or court orders, requiring corrective action or imposing civil monetary liability, or in modification or revocation of these waste discharge requirements by the Colorado River Basin Water Board.
30. This Board Order does not authorize violation of any federal, state, or local laws or regulations.
31. This Board Order does not convey property rights of any sort, or exclusive privileges, nor does it authorize injury to private property or invasion of personal rights, or infringement of federal, state, or local laws or regulations.
32. This Board Order may be modified, rescinded, or reissued, for cause. The filing of a request by the Discharger for a Board Order modification, rescission or reissuance, or notification of planned changes or anticipated noncompliance, does not stay any Board Order condition. Causes for modification include a change in land application plans, or sludge use or disposal practices, and adoption of new regulations by the State or Colorado River Basin Water Board (including revisions to the Basin Plan), or Federal government.

I, Jose L. Angel, Executive Officer, do hereby certify the foregoing is a full, true and correct copy of an Order adopted by the California Regional Water Quality Control Board, Colorado River Basin Region, on June 30, 2016.

Original Signed by

JOSE L. ANGEL, P.E.
Executive Officer

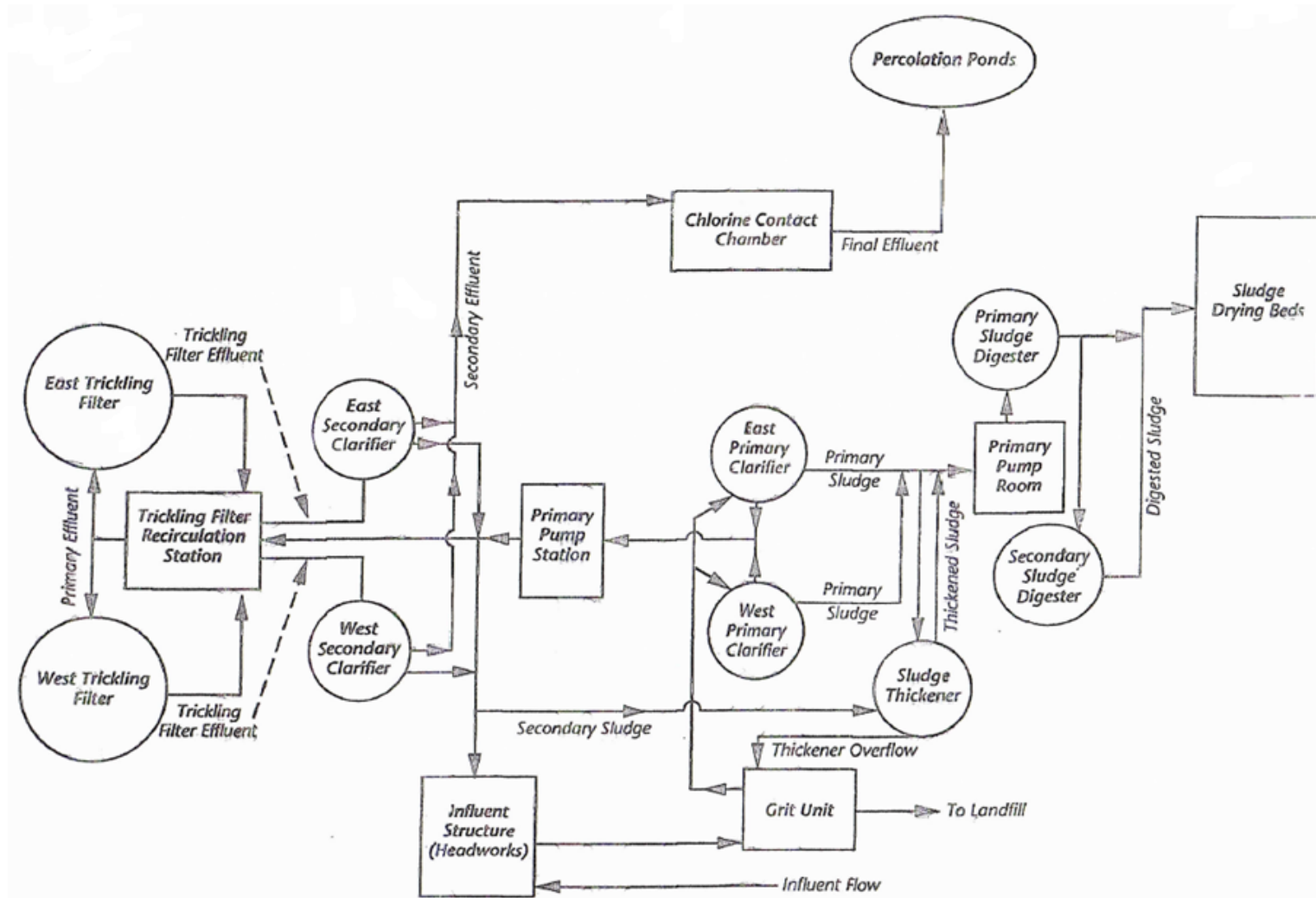
**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
COLORADO RIVER BASIN REGION**



CITY OF BANNING, OWNER

**SUEZ WATER ENVIRONMENTAL SERVICES, INC., OPERATOR
WASTEWATER TREATMENT PLANT
Banning – Riverside County
Section 14, T3S, R1E, SBB&M**

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
COLORADO RIVER BASIN REGION**



CITY OF BANNING, OWNER
SUEZ WATER ENVIRONMENTAL SERVICES, INC., OPERATOR
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**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
COLORADO RIVER BASIN REGION**



**CITY OF BANNING, OWNER
SUEZ WATER ENVIRONMENTAL SERVICES, INC., OPERATOR
WASTEWATER TREATMENT PLANT
Banning – Riverside County**

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
COLORADO RIVER BASIN REGION

MONITORING AND REPORTING PROGRAM R7-2016-0015

FOR

CITY OF BANNING, OWNER

SUEZ WATER ENVIRONMENTAL SERVICES, OPERATOR

BANNING WASTEWATER TREATMENT PLANT

BANNING-RIVERSIDE County:

LOCATION OF DISCHARGE:

Section 14, T3S, R1E, SBB&M

A. Monitoring

1. This Monitoring and Reporting Program (MRP) describes requirements for monitoring a wastewater system and groundwater quality (when needed). This MRP is issued pursuant to California Water Code (CWC) section 13267. The Discharger shall not implement any changes to this MRP unless and until a revised MRP is issued by the Executive Officer.
2. Water Code section 13267 states, in part:

“In conducting an investigation specified in subdivision (a), the Colorado River Basin Water Board may require that any person who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge waste within its region, or any citizen or domiciliary, or political agency or entity of this state who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge, waste outside of its region that could affect the quality of waters within its region shall furnish, under penalty of perjury, technical or monitoring program reports which the Colorado River Basin Water Board requires. The burden, including costs, of these reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports. In requiring those reports, the Colorado River Basin Water Board shall provide the person with a written explanation with regard to the need for the reports, and shall identify the evidence that supports requiring that person to provide the reports.”
3. Water Code section 13268 states, in part:

“(a) (1) Any person failing or refusing to furnish technical or monitoring program reports as required by subdivision (b) of section 13267, or failing or refusing to furnish a statement of compliance as required by subdivision (b) of section 13399.2, or falsifying any information provided therein, is guilty of a misdemeanor, and may be liable civilly in accordance with subdivision (b). (b) (1) Civil liability may be administratively imposed by a Colorado River Basin Water Board in accordance with Article 2.5 (commencing with section

13323) of Chapter 5 for a violation of subdivision (a) in an amount which shall not exceed one thousand dollars (\$1,000) for each day in which the violation occurs.”

4. The Discharger owns and operates the wastewater system that is subject to Board Order R7-2016-0015. The reports are necessary to ensure that the Discharger complies with the Order. Pursuant to Water Code section 13267, the Discharger shall implement the MRP and shall submit the monitoring reports described herein.
5. All samples shall be representative of the volume and nature of the discharge or matrix of material sampled. The time, date, and location of each grab sample shall be recorded on the sample chain of custody form. If composite samples are collected, the basis for sampling (time or flow weighted) shall be approved by Colorado River Basin Water Board staff.
6. Field test instruments (such as those used to test pH, dissolved oxygen, and conductivity) may be used provided that:
 - a. The user is trained in proper use and maintenance of the instruments;
 - b. The instruments are field calibrated prior to monitoring events at the frequency recommended by the manufacturer;
 - c. Instruments are serviced and/or calibrated by the manufacturer at the recommended frequency; and
 - d. Field calibration reports are submitted as described in the “Reporting” section of this MRP.
7. The collection, preservation and holding times of all samples shall be in accordance with U. S. Environmental Protection Agency (USEPA) approved procedures. Unless otherwise approved by the Colorado River Basin Water Board’s Executive Officer, all analyses shall be conducted by a laboratory certified by the State Water Resources Control Board Division of Drinking Water. All analyses shall be conducted in accordance with the latest edition of the “Guidelines Establishing Test Procedures for Analysis of Pollutants” (40 CFR Part 136), promulgated by the USEPA.
8. All monitoring instruments and devices used by the Discharger to fulfill the prescribed monitoring program shall be properly maintained and calibrated as necessary to ensure their continued accuracy. In the event that continuous monitoring equipment is out of service for period greater than 24-hours, the Discharger shall obtain representative grab samples each day the equipment is out of service. The Discharger shall correct the cause(s) of failure of the continuous monitoring equipment as soon as practicable.

The Discharger shall report the period(s) during which the equipment was out of service and if the problem has not been corrected, shall identify the steps which the Discharger is taking or proposes to take to bring the equipment back into service and the schedule for these actions.

9. The Discharger shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this Board Order, and records of all data used to complete the application for this Board Order, for a period of at least five (5) years from the date of the sample, measurement, report or application. This period may be extended by request of the Colorado River Basin Water Board's Executive Officer at any time. Records of monitoring information shall include:
 - a. The date, exact place, and time of sampling or measurement(s);
 - b. The individual(s) who performed the sampling or measurement(s);
 - c. The date(s) analyses were performed;
 - d. The individual(s) who performed the analyses;
 - e. The analytical techniques or method used; and
 - f. The results of such analyses.
10. Samples shall be collected at the location specified in the WDRs. If no location is specified, sampling shall be conducted at the most representative sampling point available.
11. Given the monitoring frequency prescribed by MRP R7-2016-0015, if only one sample is available for a given reporting period, compliance with monthly average, or weekly average Discharge Specifications, will be determined from that sample.
12. If the facility is not in operation, or there is no discharge during a required reporting period, the Discharger shall forward a letter to the Colorado River Basin Water Board indicating that there has been no activity during the required reporting period.

Influent Monitoring

13. Influent to the WWTP shall be monitored according to the following schedule:

Constituent	Units	Type of Sample	Monitoring Frequency	Reporting Frequency
20°C BOD ₅ ¹	mg/L ²	24-Hr. Composite	2x/Month	Monthly
Total Suspended Solids	mg/L	24-Hr. Composite	2x/Month	Monthly
Nitrate as N	mg/L	24-Hr. Composite	Quarterly	Quarterly
Nitrite as N	mg/L	24-Hr. Composite	Quarterly	Quarterly
Total Nitrogen	mg/L	24-Hr. Composite	Quarterly	Quarterly

WWTP Effluent Monitoring

14. Effluent from the WWTP into the Evaporation/Percolation Ponds shall be monitored according to the following schedule:

Constituent	Units	Type of Sample	Monitoring Frequency	Reporting Frequency
Flow; Total Plant Effluent into Ponds	MGD ³	Flow Meter Reading	Daily	Monthly
20°C BOD ₅	mg/L	24 Hr. Composite	Weekly	Monthly
Total Suspended Solids	mg/L	24 Hr. Composite	Weekly	Monthly
Nitrate as N	mg/L	24 Hr. Composite	2x/Month	Monthly
Nitrite as N	mg/L	24 Hr. Composite	2x/Month	Monthly

¹ 5-day Biochemical Oxygen Demand at 20 degrees Celsius.

² milligrams per Liter

³ Million Gallons per Day

Constituent	Units	Type of Sample	Monitoring Frequency	Reporting Frequency
Total Nitrogen	mg/L	24 Hr. Composite	2x/Month	Monthly
Total Dissolved Solids	mg/L	Grab	Monthly	Monthly
VOCs ⁴	µg/L ⁵	24 Hr. Composite	Annually	Annually

Pond Monitoring

15. The ponds shall be monitored according to the following schedule:

Constituent	Units	Type of Sample	Sampling Frequency	Reporting Frequency
Dissolved Oxygen ⁶	mg/L	Composite	Weekly	Monthly
pH	s.u. ⁷	Grab	Weekly	Monthly
Freeboard	Ft	Measurement	Weekly	Monthly

The ponds shall be observed for vegetation growth, erosion and irregularities to prevent the breeding of mosquitoes. Observations shall be reported with the monthly SMR.

Domestic Water Supply

16. The domestic water supply shall be monitored according to the following schedule:

⁴ Analysis of Volatile Organic Compounds is to be accomplished using the USEPA test methods 601 and 602 or 624

⁵ micrograms per liter

⁶ Dissolved Oxygen shall be monitored at the upper one foot layer of the evaporation/percolation ponds.

⁷ standard pH units

Constituent	Units	Type of Sample	Monitoring Frequency	Reporting Frequency
Total Dissolved Solids	mg/L	Composite	Monthly	Monthly

Groundwater Monitoring

17. Groundwater shall be sampled in the uppermost 20 feet of the shallow aquifer from the monitoring wells according to the following schedule:

Constituent	Units	Type of Sample	Monitoring Frequency	Reporting Frequency
Depth to Groundwater	ft (bgs) ⁸	measurement	Quarterly	Quarterly
Total Dissolved Solids	mg/L	Grab	Quarterly	Quarterly
Total Nitrogen	mg/L	Grab	Quarterly	Quarterly
Nitrate as N	mg/L	Grab	Quarterly	Quarterly
Nitrite as N	mg/L	Grab	Quarterly	Quarterly
Sulfate	mg/L	Grab	Quarterly	Quarterly
Chloride	mg/L	Grab	Quarterly	Quarterly
Fecal Coliform	MPN/100mL	Grab	Quarterly	Quarterly
VOCs	µg/L	Grab	Annually	Annually

Sludge Monitoring

18. Prior to disposal, sludge that is generated at the WWTP shall be sampled and analyzed for the following:

⁸ feet below ground surface.

Constituent	Units	Type of Sample	Monitoring Frequency	Reporting Frequency
Arsenic	mg/kg ⁹	Composite	Annually	Annually
Cadmium	mg/kg	Composite	Annually	Annually
Chromium	mg/kg	Composite	Annually	Annually
Copper	mg/kg	Composite	Annually	Annually
Lead	mg/kg	Composite	Annually	Annually
Mercury	mg/kg	Composite	Annually	Annually
Molybdenum	mg/kg	Composite	Annually	Annually
Nickel	mg/kg	Composite	Annually	Annually
Selenium	mg/kg	Composite	Annually	Annually
Zinc	mg/kg	Composite	Annually	Annually
Fecal Coliform	MPN/gram ¹⁰	Composite	Prior to Disposal	Annually

B. Reporting

1. The Discharger shall inspect and document any operation/maintenance problems by inspecting each unit process. In addition, calibration of flow meters and equipment shall be performed in a timely manner and documented. Operation and Maintenance reports shall be submitted to the Colorado River Basin Water Board Office annually.
2. The annual Operation and Maintenance report shall include the following:
 - a. Documentation showing the calibration of flow meters and equipment as performed in a timely manner annually;
 - b. Modifications and updates to the Operation and Maintenance Manual;

⁹ milligrams per kilogram

¹⁰ Most Probable Number per gram.

- c. Operator certification status update including number of staff and grade certification.
 - d. Modifications and updates to the City's waste water ordinance or rules and regulations.
3. The Discharger shall report annually on the quantity, location and method of disposal of all sludge and similar solid materials being produced at the WWTP. If no sludge is disposed of during the year being reported, the Discharger shall state "No Sludge Removed" in the annual monitoring report.
4. The Discharger shall provide the Colorado River Basin Water Board with an annual report describing the pretreatment program activities over the previous twelve-month period. The report shall be transmitted to the Colorado River Basin Water Board office no later than January 31 of each year and include:
 - a. A summary of actions taken by the Discharger which ensures industrial-user compliance;
 - b. An updated list of industrial users (by SIC categories) which were issued permits, and/or enforcement orders, and a status of compliance for each user; and
 - c. The name and address of each user that received a revised discharge limit.
5. SMRs shall be certified under penalty of perjury to be true and correct, and shall contain the required information at the frequency designated in this MRP.
6. Each Report must contain an affirmation in writing that states:

"All analyses were conducted at a laboratory certified for such analyses by and in accordance with current USEPA procedures or as specified in this Monitoring and Reporting Program."
7. Each report shall contain the following completed declaration:

"I certify under the penalty of law that this document, including all attachments and supplemental information, was prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. I have personally examined and am familiar with the information submitted in this document, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for

submitting false information, including the possibility of a fine and imprisonment.

Executed on the _____ day of _____ at _____

_____(Signature)

_____(Title)"

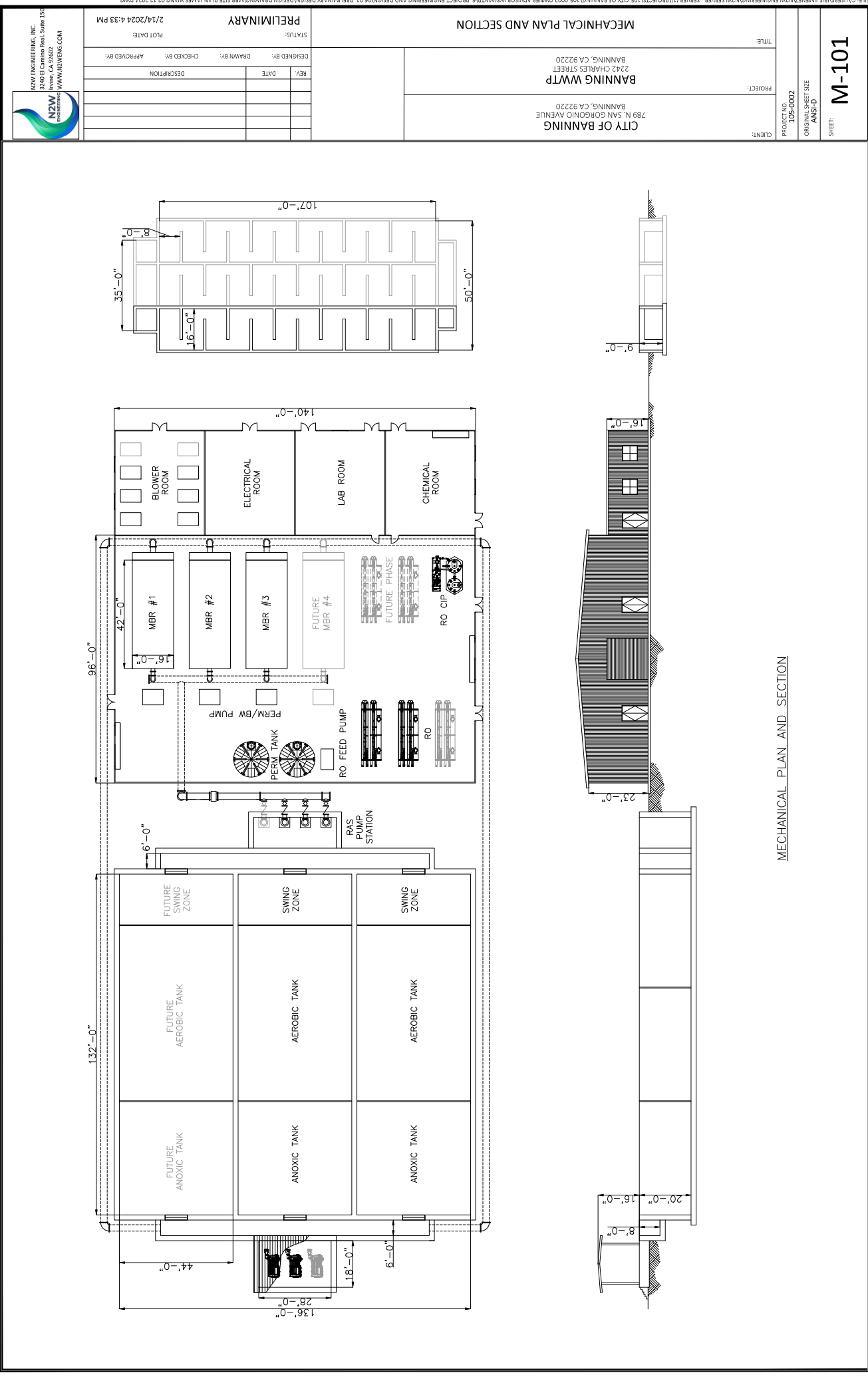
8. The SMRs, and other information requested by the Colorado River Basin Water Board, shall be signed by a principal executive officer or ranking elected official.
9. A duly authorized representative of the Discharger may sign the documents if:
 - a. The authorization is made in writing by the person described above;
 - b. The authorization specified an individual or person having responsibility for the overall operation of the regulated disposal system; and
 - c. The written authorization is submitted to the Colorado River Basin Water Board's Executive Officer.
10. The Discharger shall attach a cover letter to the SMRs. The information contained in the cover letter shall clearly identify violations of the WDRs; discuss corrective actions taken or planned and the proposed time schedule of corrective actions. Identified violations should include a description of the requirement that was violated and a description of the violation.
11. Daily, weekly, and monthly monitoring shall be included in the monthly monitoring report. Monthly monitoring reports shall be submitted to the Colorado River Basin Water Board by the 15th day of the following month. Quarterly monitoring reports shall be submitted by January 15th, April 15th, July 15th and October 15th. Annual monitoring reports shall be submitted by January 31st of the following year.
12. The Discharger shall comply with the Electronic Submittal of Information (ESI) requirements by submitting all correspondence and reports required under Monitoring and Reporting Program (MRP) R7-2016-0015, and future revisions thereto, including groundwater monitoring data and discharge location data (latitude and longitude), correspondence, and pdf monitoring reports to the State Water Resources Control Board GeoTracker database. Documents that are 2.0 MB or larger should be broken down into smaller electronic files, labelled properly and uploaded into GeoTracker.

Ordered by: Original signed by
JOSE L. ANGEL, P.E.
Executive Officer

June 30, 2016
Date

BUDGET ITEM DESCRIPTION	COMPUTATION			Recipient	Reclamation	TOTAL COST
	Price/Rate	Unit	Quantity			
CONTRACTUAL/ CONSTRUCTION - Explain any contracts or sub-Agreements that will be awarded, why needed. Explain contractor qualifications and how the contractor will be selected.						
Phase 1 Costs: City of Banning WWTP Upgrades						
Task 1: CEQA						
CEQA (bio, cultural, air quality & IS/MND)	\$180,000	LS	1.0	\$ 135,000	\$ 45,000	\$ 180,000
Permitting	\$120,000	LS	1.0	\$ 90,000	\$ 30,000	\$ 120,000
Subtotal						\$ 300,000
Task 2: Design						
Preliminary Design	\$1,221,939	% of cost	2.0%	\$ 916,454	\$ 305,485	\$1,221,939
Final Design	\$3,054,848	% of cost	5.0%	\$ 2,291,136	\$ 763,712	\$3,054,848
Subtotal						\$ 4,276,787
Task 3: Construction						
RO system (1.2 MGD)	\$ 5,044,300	LS	1.0	\$ 3,783,225	\$ 1,261,075	\$ 5,044,300
Brine Drying Beds and Evaporators	\$ 4,079,300	LS	1.0	\$ 3,059,475	\$ 1,019,825	\$ 4,079,300
MBR Facility (3.6 MGD)	\$ 46,175,900	LS	1.0	\$ 34,631,925	\$ 11,543,975	\$ 46,175,900
Primary Clarifier	\$ 1,866,300	LS	1.0	\$ 1,399,725	\$ 466,575	\$ 1,866,300
Chlorine Tank (3.6 MGD)	\$ 2,148,700	LS	1.0	\$ 1,611,525	\$ 537,175	\$ 2,148,700
Upgrade Ferric Sulfate Feed/Storage System	\$ 286,200	LS	1.0	\$ 214,650	\$ 71,550	\$ 286,200
Digester Coating	\$ 444,900	LS	1.0	\$ 333,675	\$ 111,225	\$ 444,900
Replace Piping in Grit Chamber	\$ 56,000	LS	1.0	\$ 42,000	\$ 14,000	\$ 56,000
Replace TF Center Drives	\$ 239,650	LS	1.0	\$ 179,738	\$ 59,913	\$ 239,650
Replace East Primary Clarifier Center Drive	\$ 47,950	LS	1.0	\$ 35,963	\$ 11,988	\$ 47,950
Replace Existing PVC Digester Gas Piping	\$ 16,000	LS	1.0	\$ 12,000	\$ 4,000	\$ 16,000
Replace Digester Hot Water Boiler	\$ 169,400	LS	1.0	\$ 127,050	\$ 42,350	\$ 169,400
Replace TF Effluent Distribution Valves (4)	\$ -	LS	1.0	\$ -	\$ -	\$ -
Replace TF Recirculation Pumps (2)	\$ 59,950	LS	1.0	\$ 44,963	\$ 14,988	\$ 59,950
Replace Grit/Cyclone Unit	\$ 287,600	LS	1.0	\$ 215,700	\$ 71,900	\$ 287,600
Replace Two Old Grit Pumps	\$ 174,800	LS	1.0	\$ 131,100	\$ 43,700	\$ 174,800
Recycled Water Laterals	\$ -	LS	1.0	\$ -	\$ -	\$ -
Subtotal						\$ 61,096,950
AACE CLASS 3 COST ESTIMATE					+30%	\$ 79,426,035
					-10%	\$ 55,542,682
Task 4: Construction Admin						
Construction Management and Inspection	\$3,665,817	% of cost	6.0%	\$ 2,749,363	\$ 916,454	\$ 3,665,817
Environmental Monitoring and Support during Construction	\$100,000	LS	1.0%	\$ 75,000	\$ 25,000	\$ 100,000
Subtotal						\$ 3,765,817
OTHER - List any other cost elements necessary for your project; such as extra reporting, or contingencies in a construction contract.						
Contingency (10% of project cost)	\$6,943,955	% of cost	10.0%	\$ 5,207,967	\$ 1,735,989	\$ 6,943,955
Subtotal						\$ 6,943,955
TOTAL DIRECT COSTS:				57,287,631.64	19,095,877.21	\$ 76,383,509
INDIRECT COSTS -						
Not applicable						\$ -
TOTAL ESTIMATED PROJECT/ACTIVITY COSTS:						\$ 76,383,509
AACE CLASS 3 COST ESTIMATE					+30%	\$ 99,298,562
					-10%	\$ 69,439,554





RESOLUTION NO. 2021-50

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF BANNING, CALIFORNIA ADOPTING THE 2020 URBAN WATER MANAGEMENT PLAN

WHEREAS, the California Legislature enacted Assembly Bill 797 (Water Code Section 10610 et seq.), known as the Urban Water Management Planning Act, during the 1983-1984 Regular Session, and as amended subsequently, which mandates that every supplier providing water for municipal purposes to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually, prepare an Urban Water Management Plan (UWMP), the primary objective of which is to plan for the conservation and efficient use of water; and

WHEREAS, the City of Banning (City) is an urban supplier of water providing water; and

WHEREAS, the UWMP shall be periodically reviewed at least once every five years, and that the City shall make any amendments or changes to its plan which are indicated by the review; and

WHEREAS, the UWMP must be adopted after public review and hearing, and filed with the California Department of Water Resources within thirty days of adoption; and

WHEREAS, the City has therefore, prepared and circulated for public review a draft UWMP, and a properly noticed public hearing regarding said UWMP was held by the City Council on June 8, 2021; and

WHEREAS, the City Council shall have filed said UWMP with the California Department of Water Resources within 30 days of adoption.

NOW, THEREFORE, BE IT RESOLVED by the City Council of the City of Banning as follows:

SECTION 1. The City of Banning is in conformance with all applicable requirements of the Urban Water Management Planning Act.

SECTION 2. The 2020 UWMP is hereby adopted and ordered filed with the City Clerk.

SECTION 3. This resolution shall be in full force and effect immediately upon its passage and adoption thereof.

SECTION 4. The Public Works Director is hereby authorized and directed to file the 2020 UWMP with the California Department of Water Resources within 30 days after adoption of this resolution.

PASSED, APPROVED AND ADOPTED this 8th day of June 2021.


Colleen Wallace, Mayor
City of Banning

ATTEST:


Caroline Patton, Deputy City Clerk
City of Banning

**APPROVED AS TO FORM AND
LEGAL CONTENT:**


Kevin G. Ennis, City Attorney
Richards, Watson & Gershon

CERTIFICATION:

I, Caroline Patton, Deputy City Clerk of the City Council, do hereby certify that the foregoing Resolution 2021-50, was duly adopted by the City Council of the City of Banning, California, at a regular meeting thereof held on the 8th day of June 2021 by the following vote, to wit:

AYES: Council Members Hamlin, Happe, Pingree, Sanchez, and Mayor Wallace

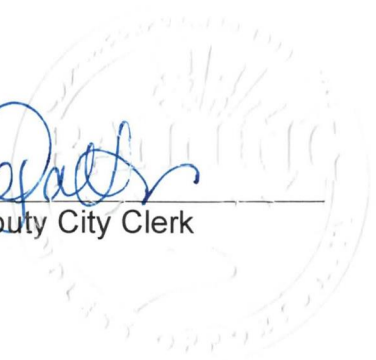
NOES:

ABSENT:

ABSTAIN:



Caroline Patton, Deputy City Clerk
City of Banning





2020

URBAN WATER MANAGEMENT PLAN

City of Banning, CA



2020

URBAN WATER MANAGEMENT PLAN



City of Banning, CA

Public Works Department
99 East Ramsey Street Banning, CA 92220
(951) 922-3130

June, 2021

Prepared by:



West & Associates Engineering, Inc.
78 Anacapa Ct.
Foothill Ranch, CA
(949) 716-7670
philw@westaeng.com



John Robinson Consulting, Inc.
1055 E. Colorado Boulevard
Pasadena, CA
(626) 375-9389
jrobinson@johnrobinsonconsulting.com



TABLE OF CONTENTS

Section 1: Introduction

SECTION	Page
1.1 Purpose & Summary	1-1
1.2 Coordination	1-4
1.3 DWR Updates for the 2020 UWMPs.....	1-6
1.4 Updates to the City's UWMP	1-7
1.5 Format of the 2020 UWMP.....	1-8
1.6 Lay Description.....	1-9

Section 2: Service Area Description

SECTION	Page
2.1 City and Water System History	2-1
2.2 Current Water Service Area	2-2
2.3 Land Use & Economy	2-3
2.4 Climate	2-8
2.5 Population	2-10
2.6 Water System.....	2-11

Section 3: Water Sources & Supplies

SECTION	Page
3.1 Introduction	3-1
3.2 Imported Water Sources.....	3-1
3.3 Imported Water Purchases.....	3-6
3.4 Groundwater Sources	3-10
3.5 Groundwater Production.....	3-17
3.6 Surface Water	3-20
3.7 Alternate Water Sources	3-21
3.8 Transfers or Exchanges	3-22
3.9 Planned Supply Projects	3-22
3.10 Energy Intensity of Supply	3-23



Section 4: Recycled Water Opportunities

SECTION	Page
4.1 Overview	4-1
4.2 Wastewater Collection System	4-1
4.3 Recycled Water	4-5
4.4 Encouraging and Optimizing Recycled Water Use.....	4-9

Section 5: Water Quality

SECTION	Page
5.1 Overview	5-1
5.2 Water Quality Standards.....	5-2
5.3 Quality of Water Sources	5-4
5.4 Impacts of Water Quality.....	5-5

Section 6: Water Use

SECTION	Page
6.1 Overview	6-1
6.2 Recent Water Use Changes	6-1
6.3 Current City Water Needs.....	6-2
6.4 Climate Impacts on Water Use	6-3
6.5 Water Use	6-4
6.6 Water Use by Sector	6-5
6.7 Water Conservation Act.....	6-8
6.8 Projected Water Demand	6-14

Section 7: Reliability Planning

SECTION	Page
7.1 Overview	7-1
7.2 Historic Droughts	7-1
7.3 Recent Drought (2011-2017)	7-2
7.4 State Water Supply Reliability	7-3
7.5 Colorado River Reliability.....	7-7
7.6 City Supply Reliability.....	7-9
7.7 Ensuring Adequate Supply.....	7-22
7.8 WSCP Supply Augmentation.....	7-22



Section 8: Contingency Planning

SECTION	Page
8.1 Introduction	8-1
8.2 Need for Contingency Plans.....	8-2
8.3 Legal Authority	8-4
8.4 Water Supply Reliability Analysis	8-4
8.5 Annual Assessments	8-7
8.6 Contingency Plans	8-9
8.7 Disaster Management.....	8-14
8.8 WSCP Enforcement & Evaluation	8-19
8.9 Fiscal Impacts.....	8-21
8.10 Three-Year Minimum Supply	8-21
8.11 WSCP Adoption and Refinement	8-22

Section 9: Conservation Measures

SECTION	Page
9.1 Overview	9-1
9.2 DWR DMMs for 2020 UWMPs.....	9-2
9.3 CalWEP BMPs.....	9-2
9.4 City Conservation Measures	9-3
9.5 Continued Implementation	9-7

Appendices

Appendix A	City Council Resolution Adopting 2020 UWMP
Appendix B	City Council Resolution Adopting 2020 WSCP
Appendix C	UWMP Act
Appendix D	Dept. of Water Resources UWMP Checklist
Appendix E	Dept. of Water Resources UWMP Data Tables
Appendix F	Dept. of Water Resources SBx7-7 Tables
Appendix G	AWWA Water Audits (2015-2020)
Appendix H	Land Use and Planning Element – City General Plan
Appendix I	2013-2021 Housing Element – City General Plan
Appendix J	2019 Consumer Confidence Report (Water Quality Report)
Appendix K	UWMP Notices: 60-Day Notice, 2-Week and 1 Week Notices
Appendix L	Beaumont Basin Judgment
Appendix M	Riverside County Climate Action Plan Update 2019
Appendix N	City of Banning Local Hazard Mitigation Plan
Appendix O	Final Transmittals to County and State Library



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ACRONYMS

AAC	All-American Canal
AF	Acre-Feet
AFY	Acre-Feet per Year
AMI	Automatic Metering Infrastructure
AP	Allocation Plan
BCVWD	Beaumont Cherry-Valley Water District
BDCP	Bay-Delta Conservation Plan
BHMWC	Banning Heights Mutual Water Company
BMP	Best Management Practice
CDP	Census Designated Place
CDPH	California Department of Public Health
CFS	Cubic Feet per Second
CII	Commercial Industrial Institutional
CIMIS	California Irrigation Management Information System
City	City of Banning
CRA	Colorado River Aqueduct
CUWCC	California Urban Water Conservation Council
CalWEP	California Water Efficiency Partnership
CVP	Central Valley Project
CDPH	California Department of Public Health
DBPs	Disinfection Byproducts
DDW	Division of Drinking Water
DMM	Demand Management Measure
DOE	Department of Energy
DWSAP	Drinking Water Source Assessment and Protection
DWR	Department of Water Resources
EPA	Environmental Protection Agency
ETo	Evapotranspiration
GPCD	Gallons per Capita per Day
GPM	Gallons per Minute
HEN	High Efficiency Nozzle
HET	High Efficiency Toilet
HEW	High Efficiency Washer
IPR	Indirect Potable Reuse



IRP	Integrated Resources Plan
MAF	Million Acre-Feet
MBR	Membrane Bioreactor
MCL	Maximum Contaminant Level
MCLG	Maximum Contaminant Level Goal
MG	Million Gallons
MGD	Million Gallons per Day
mg/L	Milligrams per Liter
µg/L	Micrograms per Liter
MOU	Memorandum of Understanding
MWA	Mohave Water Agency
MWD	Metropolitan Water District of Southern California
ng/L	Nanograms per Liter
NPDWR	National Primary Drinking Water Regulations
NTU	Nephelometric Turbidity Units
PCA	Possible Contaminating Activities
PHG	Public Health Goal
PPCPs	Pharmaceuticals and Personal Care Products
QSA	Quantification Settlement Agreement
RHNA	Regional Housing Needs Assessment
SCADA	Supervisory Control and Data Acquisition
SCAG	Southern California Association of Governments
SDWA	Safe Drinking Water Act
SB	Senate Bill
SBx7-7	Senate Bill x7-7
SGPWA	San Gorgonio Pass Water Agency
SWP	State Water Project
SWRCB	State Water Resources Control Board
TDS	Total Dissolved Solid
TOC	Total Organic Carbon
ULFT	Ultra-Low-Flow Toilet
USFWS	U.S. Fish and Wildlife Service
UWMP	Urban Water Management Plan
WSAP	Water Supply Allocation Plan
WSDM	Water Surplus & Drought Management Plan
WSS	Watershed Sanitary Survey
WWTP	Wastewater Treatment Plant

Section 1

Introduction

Since 1983, the State of California requires urban water agencies to prepare Urban Water Management Plans (UWMPs). The City's 2020 UWMP is a collaborative effort involving its own staff, outside agencies, and the general public.





INTRODUCTION

In accordance with the Water Code, an Urban Water Management Plan is required to be updated every five years.

1.1 PURPOSE AND SUMMARY

This is the 2020 Urban Water Management Plan (“UWMP” or “Plan”) for the City of Banning (hereinafter “City”). This Plan has been prepared in compliance with the Urban Water Management Planning Act (Act), which was established in 1983 and has been codified into the California Water Code sections 10610 through 10657. A copy of the Act can be found in **Appendix C** to this 2020 UWMP.

As part of the Act, the legislature declared that waters of the state are a limited and renewable resource subject to ever increasing demands; that the conservation and efficient use of urban water supplies are of statewide concern; that successful

implementation of plans is best accomplished at the local level; that conservation and efficient use of water shall be actively pursued to protect both the people of the state and their water resources; that conservation and efficient use of urban water supplies shall be a guiding criterion in public decisions; and that urban water suppliers shall be required to develop water management plans to achieve conservation and efficient use.

The Act requires “every urban water supplier providing water for municipal purposes to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually, to prepare and adopt, in accordance with prescribed requirements, an Urban Water Management Plan.”



These plans must be filed with the California Department of Water Resources (DWR) every five (5) years, describing and evaluating reasonable and practical efficient water uses, reclamation, and conservation activities. The Water Code mandates that each water supplier shall update its plan at least once every five years on or before July 1, in years ending in six and one.



Figure 1.1: UWMPs are Governed by State Law

The Act has been amended multiple times since its initial passage in 1983. A summary of the amendments is provided in **Figure 1.2**. The intent of the amendments was to broaden the scope of the UWMPs, encourage public participation, and add financial incentives to the UWMPs. A significant amendment to the Act was a 2009 amendment (Senate Bill SBx7-7) signed by former Governor Schwarzenegger. The Senate Bill, also known as the “Water Conservation Act” required that per capita water use within an urban water supplier's service area decrease by 20 percent by the year 2020 in order to receive grants or loans

administered by DWR or other state agencies. Each urban retail water supplier developed water use “targets” for 2015 and for 2020. The “target” date for 2020 just passed on December 31, 2020. Urban water suppliers whose 2020 actual water use does not meet the target requirements established by this bill are not eligible for State water grants or loans. This included, but was not limited to, the following funding sources:

Amendments to the Act have added financial incentives to UWMPs

- **Drinking Water State Revolving Fund**
Primarily a source for funds to help correct deficiencies.
- **Proposition 1**
Primarily a source for funds related to supplies & infrastructure.
- **Proposition 50**
Primarily a source for funds related to security & treatment technology.
- **Proposition 84**
Primarily a source for funds related to protection from pollution.

Agencies that submit their UWMPs past the July 2021 deadline are still technically eligible for grants or loans, provided that the UWMP addresses the requirements of the Act. However, applications for such funds are subject to legal challenges coming

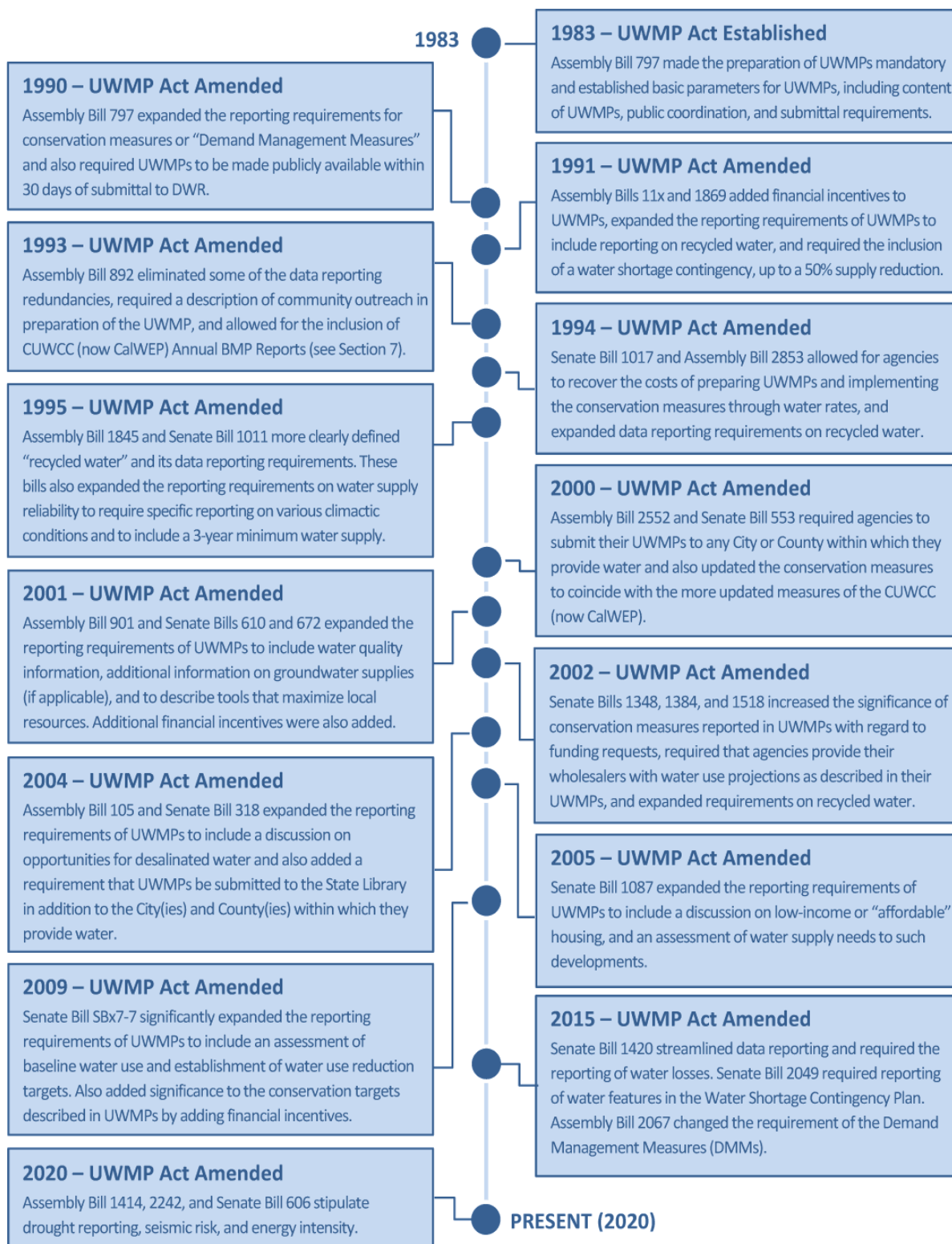


Figure 1.2: UWMP Act Establishment and Amendment



from competing agencies for the same funding, if the competing agencies become aware of the timeframe in which an UWMP was submitted.

UWMPs are considered to be a foundation document and a source of information for Water Supply Assessments (Senate Bill 610) and Written Verifications of Water Supply (SB 221). In addition, an UWMP may serve as a long-range planning document for water supply, a source of data for development of a regional water plan, and a source document for cities and counties as they prepare their General Plans. These planning documents are linked, and their accuracy and usefulness are interdependent.

One of the primary objectives of the Act is the assessment of demands and supplies over a 20-year or a 25-year planning horizon under normal rainfall conditions, as well as under various drought conditions. The Act also requires water shortage contingency planning and drought response actions be included in an UWMP. In short, this Plan is a management tool that provides a general, long-term framework for action, rather than a detailed blueprint for supply and demand management. This Plan evaluates the City's supply and demand projections over a 25-year planning horizon, and what mix of programs should be explored for ensuring that such water will

be available. As part of the City's past and current water conservation policies, the City is currently implementing many facets of this plan to achieve its water conservation goals.

1.2 COORDINATION

The process of preparing and submitting an UWMP is a transparent process that requires opportunities for outside-agency and general public involvement. In preparing this 2020 Plan, the City has encouraged broad community participation. The City notified the agencies that the City interacts with more

The City's 2020 UWMP is a collaborative effort involving its own staff, outside agencies, and the general public.

than 60 days in advance of the City Council's adoption of the Plan. The City has also made the draft Plan available at City Hall and on the City's website, leading up to a public hearing on the Plan. Notices of the public hearing were published in the local press and on the City's website for a two-week period. On June 8, 2021, the City held a noticed public hearing to review and accept comments on the UWMP. Following the public hearing, the City officially adopted the 2020 Plan through Council resolution. A copy of the council resolution adopting this UWMP is included in **Appendix A**.



Table 1.1
Coordination and Public Involvement

Agency	Participated in Plan Preparation	Sent 60- Day Notice	Commented on Draft	Notified of Public Hearing	Attended Public Hearing
San Geronio Pass Water Agency	x	x		x	
Beaumont Cherry Valley Water District		x		x	
Beaumont Basin Watermaster		x		x	
City of Beaumont		x		x	
Yucaipa Valley Water District		x		x	
High Valleys Water District		x		x	
County of Riverside Planning Department		x		x	
Various Developers		x		x	
Building Industry Association of Southern California		x		x	
Cabazon Water District		x		x	
Morongo Band of Mission Indians		x		x	
Banning Heights Mutual Water Company		x		x	
South Mesa Water Company		x		x	
General Public				x	

Note: Documents were made available to the public through notices published in the newspaper, online, and at the City Clerk's office for public review.



As required by the Act, the 2020 UWMP is being prepared by the City and will be submitted to DWR, the California State Library, and any city or county within which it provides water to no later than 30 days after adoption. The 2020 UWMP has been made available to the public on the City's website and at City Hall during normal business hours within 30 days of submitting the 2020 UWMP to DWR.

1.3 DWR UPDATES FOR THE 2020 UWMPs

There have been significant changes to the Water Code affecting the 2020 UWMPs. The changes include the following:

- **Water Reliability Planning:** UWMPs must extend drought planning of water sources (supplies) for periods of up to five (5) consecutive dry years (CWC § 10635 (a)).
- **Drought Risk Assessment:** UWMPs must assess water supply reliability over five (5) consecutive dry years that takes into consideration demands (CWC § 10635(b)).
- **Seismic Risk:** UWMPs must address seismic risks in the Contingency Section in the UWMP, or refer to local or regional hazard mitigation plans (CWC § 10632.5 (a) (b) and (c)).
- **Contingency Plans:** Water Shortage Contingency Plans (WSCPs) must include six (6) Standard Stages (CWC § 10632(a)(3)).
- **Groundwater Supply Projections:** If a Groundwater Sustainability Plan has been completed by an agency, groundwater pumping projections in the UWMP must be consistent with those Plans (CWC § 10631(A)(B)).
- **Lay Description:** UWMPs must include a less-technical summary of water service reliability, challenges, and strategies which could be read as a go-to synopsis for new staff, new governing members, customers, and the media (CWC § 10630.5).
- **Energy Intensity:** UWMPs must report on the energy intensity of water supplies (CWC § 10631.2 (a)).
- **Land Use:** UWMPs must include current and projected land uses in addition to population estimates (CWC § 10631 (a)).
- **Water Supply Projects:** UWMPs must include a description of potential water supply projects that may be implemented during droughts of up to five (5) years (CWC § 10631 (f)).



Of the above listed changes to the UWMPs by DWR, the contingency planning changes (i.e., changes to the City's WSCP) are the most significant updates affecting the 2020 UWMPs. These contingency planning changes were written into the Water Code in 2018, in response to the severe drought of 2012-2017. While overlapping aspects of the prior law, the new requirements have several prescriptive elements that a Water Supplier's WSCP must include.

In addition to the above, there are several optional or voluntary categorical and data reporting changes to the UWMP Act. These include an optional Planning Tool that suppliers can use to report and assess water use and supply in order to better conduct the Reliability Assessment and Drought Risk Assessment, a Potable and Non-Potable Planning Tool, Potable and Non-Potable Submittal Tables, as well as various optional data reporting.

1.4 UPDATES TO THE CITY'S UWMP

In addition to required updates described in the previous section, the City's 2020 UWMP has undergone several changes from the 2015 UWMP. A summary of the key changes to the UWMP are as follows:

- **New Format:** Format of the UWMP has been changed to include a new look and new arrangement of sections. The new arrangement helps the discussion of

certain topics which precede other topics. See **Section 1.5** for the format of this 2020 UWMP.

- **DWR & Water Code:** A listing of DWR-required UWMP updates (see previous Section).
- **City Development Growth:** An updated look at development which took place in the City since the 2015 UWMP.
- **Water Sources and Supplies:** A broader, more in-depth discussion of water sources and supplies.
- **Recycled Water:** An updated look at recycled water opportunities in the City.
- **Water Quality:** A broader, more in-depth discussion of water quality and treatment.
- **Water Use:** Updated information on recent water use quantities and a deeper discussion on water use parameters. Also, an updated look at SBx7-7 targets.
- **Supply v Demand:** Updated information on projected supplies vs demands, and a discussion on recent regional droughts affecting the City. There is also an expansion on the discussion of the City's source water reliability.



- **Contingency Planning:** Updated information on the City's contingency plans, including the City's Ordinances.
- **Conservation Measures:** Updated information on the City's conservation measures, which reflect the previous (2015) changes by DWR.

In addition to the above changes, there are multiple minor changes. The changes reflect both those that are required by the Water Code and those that are voluntarily included for the benefit of the City.

1.5 FORMAT OF THE 2020 UWMP

The information contained in this 2020 UWMP correspond to the items in the UWMP Act and other amendments to the Water Code. The sections of the UWMP are as follows:

Section 1 - Introduction

This section describes the UWMP Act, the UWMP preparation and adoption process, updates to the UWMP, and a lay description of this entire document.

Section 2 – Service Area Description

This section outlines the history and development of the City and the City's water supply system, a description of its existing service area, the local climate,

population served, and some basic statistics on the City's water distribution system.

Section 3 – Water Sources & Supplies

This section describes the existing water supplies available to the City, including local groundwater extracted from the San Gorgonio Pass Subbasin (SGP Subbasin) of the Coachella Valley Groundwater Basin, and its five (5) water storage units (also colloquially termed "basins"), and imported water from the State Water Project (SWP) obtained from the San Gorgonio Pass Water Agency (SGPWA). In addition, this section discusses potential future water supplies.

Section 4 – Recycled Water Opportunities

This section describes the City's wastewater collection by the City and treatment at the City's wastewater treatment plant (WWTP), and the uses and benefits to implementing a recycled water system. In addition, this section discusses the future use of recycled water in the City.

Section 5 – Water Quality

This section discusses the quality of the City's potable water supply sources, including imported, surface, and groundwater. This section also discusses drinking water standards and the effect that water quality has on management strategies and supply reliability.



Section 6 – Water Use

This section describes past, current and projected water usage within the City's service area. This chapter also discusses the requirement of the Water Conservation Act (SBx7-7), including the 2020 Water Use Targets.

Section 7 – Reliability Planning

This section presents a drought risk assessment of the City's water system. The drought risk assessment is an assessment of the reliability of the City's water supplies by comparing projected future water demands with expected available water supplies under three different hydrologic conditions: normal year; a single dry year; and multiple dry years. This 2020 Plan concludes that if projected imported and local supplies are developed as anticipated, no water shortages are anticipated in the City's service area during the planning period.

Section 8 – Contingency Planning

This section describes the City's response plan to water shortages, as well as those efforts that will be utilized in the event of water supply interruptions, such as power outages, earthquakes, or droughts. This section also describes regional response efforts to water supply interruptions.

Section 9 – Conservation Measures

This section addresses the City's compliance with water conservation measures that correspond to the seven (7) Demand Management Measures (DMMs) described in the 2020 UWMP Guidebook, which were previously the fourteen (14) DMMs listed in the Act. The DMMs also correspond to the current Best Management Practices (BMPs) from the California Water Efficiency Partnership (CalWEP).

Appendices

The appendices contain references, specific documents, and data used to prepare this 2020 Plan.

1.6 LAY DESCRIPTION

To facilitate effective and efficient management of water supplies, and in compliance with the UWMP Act and the Water Conservation Act of 2009, the City has prepared this 2020 UWMP. This UWMP includes background information regarding the City's history, water system, and water supplies. This UWMP also analyzes recent water demands and projects future water supply capacity and water demands through 2045. The effects of water quality, drought, and emergencies on the City's water supply reliability are also analyzed.



As indicated by **Section 7** of this UWMP, the City does not expect to have a water supply shortage through 2045. Furthermore, this UWMP concludes that the City's water supplies, which are obtained entirely from local groundwater basins, are resilient to droughts. A basic overview of the City's water system can be found in **Section 2**. Water quality does not have an occasional impact on the consistency of groundwater supplies, but due to the recent ruling by the State Water Resources Control Board on Chromium-6, the City's groundwater quality is not expected to be affected.

This UWMP recommends that the City implement water operation management tools that maximize the use of local groundwater production and decrease the need for imported water. This UWMP also recommends conservation tools that will

enable the City's residents to conserve water and maximize water use efficiency. These are described in **Section 9**.

If the water consumption rates in the City decrease as this UWMP projects, the City can expect to have an adequate water supply in future years. This is in spite of a projected population growth over the next 25 years. Finally, this UWMP recommends that severe droughts or sudden supply interruptions be addressed by following the criteria of the Water Shortage Contingency Plan (WSCP), as described in **Section 8** of this UWMP.

Since UWMPs are due for revision every five years, this UWMP is projected to be in effect until the year's end of 2025. At that time the City's 2025 UWMP will begin development and adoption.

Section 2

Service Area Description

The City of Banning's water service area (pictured) serves the entirety of the City's population, along with small portions of the County outside of the City. The estimated current resident population served by the City's water system is approximately 31,000 persons.



**SERVICE AREA
DESCRIPTION**

The City's Water Service Area comprises about 16,908 acres or 26.4 square miles.

2.1 CITY AND WATER SYSTEM HISTORY

The City of Banning was incorporated on February 6, 1913. Currently, the City is a general-law City per the State of California Govt Code § 34102. Per the US Census Bureau, the City qualifies as an “urban area”, but currently falls under the “urban cluster” category which is a Census category for small to mid-size cities. The City operates under a City Council/City Manager form of government. The City Council consists of five (5) Council Members elected to four-year terms, one of which is appointed mayor by Council for a one-year term. The City Manager, who serves on behalf of the City Council, runs the day-to-day operations of the City. Under the City Manager’s general

oversight, the City’s Director of Public Works runs the Public Works Department, which includes the City’s Water and Sewer Division. The City’s Water Division performs all activities related to the water system.

2.1.1 Early Stages

Prior to the City’s incorporation, the Banning Water Company, which was incorporated in 1884, provided delivery of domestic and irrigation water to various local customers within the area. In 1913, the Banning Water Company began operating as a public utility, and, in 1967 the City acquired the Banning Water Company. Later in 1997, the City purchased the Mountain Water Company, which had supplied water to its customers in



an unincorporated portion of the County of Riverside from groundwater wells located within the City.

2.2 CURRENT WATER SERVICE AREA

The City of Banning is located in the northwestern portion of Riverside County, approximately 25 miles east of downtown Riverside and approximately 30 miles west of the City of Palm Springs. The City is bounded by the San Bernardino Mountains to the north; Cherry Valley to the northwest; the City of Beaumont to the west and southwest; unincorporated County area to the south; the San Jacinto Mountains to the southeast; and the Morongo Band of Mission Indians and unincorporated community of Cabazon to the east. The City's total land area is 14,848 acres or 23.2 square miles.

The City's water service area comprises 100 percent of the population residing within the City limits, and a small unincorporated area of Riverside County. The City's Water Service Area comprises about 16,908 acres or 26.4 square miles.

The City is a retail agency and within the San Gorgonio Pass Subbasin portion of the Coachella Valley Groundwater Basin. The City is a member of the San Gorgonio Pass Regional Water Alliance (Alliance). The Alliance was created to identify challenges in water supply and water quality in the region

and to improve coordination and communication among local, state, and federal governments and water purveyors and other water resource stakeholders in the San Gorgonio Pass region.

Since the 2015 UWMP, the City has participated in the following two additional agreements:

1. San Gorgonio IRWM Regional Water Management Group, which includes: City of Banning, Banning Heights Mutual Water Company, Cabazon Water District, High Valleys Water District, RCFCWCD, and the San Gorgonio Pass Water Agency.
2. San Timoteo Groundwater Sustainability Agency, which includes: City of Banning, Beaumont-Cherry Valley Water District, City of Redlands, Yucaipa Valley Water District, San Gorgonio Pass Water Agency.

The City participates in the Beaumont Management Zone (BMZ) Maximum Benefits Program, which is under the oversight of the Santa Ana Regional Water Quality Control Board (RWQCB) and is intended to ensure the long-term sustainability of water quality in the BMZ. Yucaipa Valley Water District, Beaumont-Cherry Valley Water District, and City of Beaumont also participate in the program.



The City also meets bi-monthly with the Beaumont Basin Watermaster, which is comprised of a five-member Watermaster Committee that consists of representatives from each of the five appropriators, which include the City of Banning, City of Beaumont, Beaumont-Cherry Valley Water District, South Mesa Water Company, and Yucaipa Valley Water District. This panel meets to discuss local issues with different agencies and addresses adjudicated rights within the Beaumont Basin.

Water Division staff read water meters monthly for billing purposes, change damaged water meters in order to keep accurate accounts of water consumed by customers, and tracks water purchased from the SGPWA to ensure proper delivery of purchased water and related billing. The City's Water Division staff are certified by the State of California to operate, maintain, and repair the water distribution system and the City's wells.

The Water Division's key objectives can be summarized as the following:

- Respond to all water quality complaints
- Flushing mains
- Efficiently operate groundwater facilities
- Maintain and make repairs to all components of the water distribution system
- Comply with Division of Drinking Water (DDW) regulations, including laboratory testing
- Promote water certification and safety training

Another component of the Water Division's objectives is to lead and/or assist in the planning, design, and construction of the water system. This objective involves duties that occur on an infrequent, as-needed basis, such as assisting with the preparation of Master Plans and UWMPs.

2.3 LAND USE & ECONOMY

The City is one of twenty-eight (28) incorporated cities located in Riverside County. Riverside County encompasses an area of 7,206 square miles or 4.6 million acres, and is bordered on the west by Orange County, on the north by San Bernardino County, on the South by San Diego and Imperial Counties, and on the east by the Colorado River. Roughly 4% of the total acreage in unincorporated Riverside County is irrigated for agricultural purposes, most of which occurs in the area known as the Palo Verde Valley. According to a County Report, nearly 200,000 acres are used for agriculture in Riverside County, including



acreage in both unincorporated and incorporated County. Overall, Riverside County's agricultural production consists of more than 120 types of commodities. In

Riverside County's agricultural component has aided the growth of inland empire communities.

In addition, a number of dairies located in the County have significant economic impact. In fact, according to County Agricultural Reports, milk accounts for the single highest-ranking value at over \$150 million gross. Total combined agricultural production in Riverside County is just over \$1 billion.

In addition to agricultural and livestock production, the County has a substantial manufacturing economy. According to County estimates, total manufacturing production in Riverside County is estimated to be over \$10 billion, of which over \$1 billion consists of food shipments.

The Riverside County General Plan, updated October 2017, identifies nineteen (19) Specific Area Plans within Riverside County. This includes a mixture of residential,

commercial, industrial, and public facility development. No specific developments are identified within the City in the current version of the County's Plan because the City is governed by its own general plan.

2.3.1 City Land Use & Economics

The City includes a mixture of residential uses and equestrian estates, combined with more-recent planned residential housing developments. The community focal point is actually an extended commercial downtown stretching along Ramsey Street. Ramsey Street largely parallels Interstate 10; consequently, one can find almost any type of restaurant, bank, or service station here - a wider variety than one would expect in a City of this size.

Table 2.1 on the following page provides some basic statistics on current land use and economy for Riverside County and the City. **Figure 2.3** in this Section shows the Riverside County General Plan Land Use Map, which includes the agricultural, open space, and community areas.



Table 2.1
Current Land Use & Economic Statistics for Riverside County and City of Banning

Land: Total (sq. miles)		
Item	Riverside County	City of Banning
Land Area (sq. miles)	7,206 sq. miles	23 sq. miles
Land Area (acres)	4,611,840 acres	14,720 acres
Land: Irrigated/Agriculture (acres)		
Item	Riverside County	City of Banning
Agricultural Land	263,796 acres	1,200 acres
Land: Developed (acres)		
Item	Riverside County	City of Banning
Developed Land	165,151 acres	428 acres
Population		
Item	Riverside County	City of Banning
Population	2,470,546	31,125
Housing		
Item	Riverside County	City of Banning
Housing Units	857,148	10,991
Median Home Price	\$350,100	\$234,900
Owner Occupancy Rate	66.3%	65.9%
Economy		
Item	Riverside County	City of Banning
Employed (16yrs +)	59.7%	44.5%
Median Household Income	\$67,005	\$42,274
Percent in Poverty	11.3%	20.6%
Economic: Production/Revenue		
Item	Riverside County	City of Banning
Manufacturing	\$15.1 Billion	\$72.8 Million
Agriculture/Crops	\$3.9 Billion	N/A*
Retail & Wholesale Sales	\$43.8 Billion	\$248.7 Million



2.3.2 Development in City

The current City General Plan was comprehensively updated by the twenty-eight (28) member General Plan Advisory Committee (GPAC), which was appointed by the Banning City Council. The GPAC review process began in March of 2003 and ended in January of 2005. At the end of this process, the GPAC recommended a draft document to the Planning Commission and City Council.

The Banning General Plan contains the following elements, as mandated by Government Code Section 65302: Land Use, Traffic & Circulation, Housing, Conservation, Open Space, Safety and Noise. In addition to the mandated elements, optional elements have been included in this General Plan, including Economic Development and Cultural Resources. The Banning Land Use Element identifies that land within the City's limits is broken down into six (6) main zones as shown on **Figure 2.4** and as follows:

Residential

- Ranch/Agriculture
- Ranch/Agriculture Hillside
- Rural
- Rural Hillside
- Very Low, Low, Medium, and High Density
- Single-Family
- Multi-Family

Commercial

- Downtown
- General
- Highway Serving
- Professional Office

Industrial

- Light and Medium Manufacturing
- Mini-Storage
- Auto storage and repair
- Business Park
- Mineral Resources

Public Facilities

- Airport
- Government
- Cemetery
- Fire Station
- Schools
- Hospital
- Railroad and Interstate

Open Space and Conservation

- Resources Preservation
- Parks
- Hillside Preservation

Other

- Indian jurisdiction
- Miscellaneous

The City's Land Use Element is meant to promote an orderly pattern of development in the City, including the City's ability to provide water service to the development.



2.3.3 Recent Developments

The City has experienced very substantial developments in recent years. Recent or planned developments are shown on **Figure 2.5**. Some of these developments are listed in **Table 2.2**:

Table 2.2
Recent Developments in City of Banning
(Since 2015 UWMP)

No.	Development
1	Banning Distribution Center*
2	Mountain Ave. Baptist School (Expansion of existing private school and installation of five modular building)
3	Inland Behavioral Health Services
4	ESTES Trucking Terminal*
5	West Coast Electric*
6	Cruz Industrial Truck Inc.
7	O'Reilly's Auto Parts*
8	Taco Bell
Tot.	Eight (8) Developments

**Pending or Under Construction*

2.3.4 Planned Developments

Currently, there are two (2) significant developments planned within the City's water service area, as described below. Final

subdivision maps prepared for the two projects will comply with the provisions of CA Government Code Section 66473.7.

Atwell (Formerly "Butterfield")

The Atwell Specific Plan is a master planned community project that encompasses 1,543 acres and includes approximately 4,900 residential dwelling units, two elementary schools, two commercial sites, and community parks and trails. The project will be constructed in five phases over an estimated period of 30 years. **Figure 2.1** shows some of the developments currently being constructed.



Figure 2.1: Atwell Development

A project-specific water supply assessment (WSA), titled Water Supply Assessment for Atwell Specific Plan, Issued June 2011 with the Draft EIR, Modified December 2011 by Section 4.1 of the Final EIR, was prepared to determine the adequacy of existing and future water supplies to serve the project.



The Environmental Impact Report (EIR) for Atwell, which includes an analysis of water supply supported by the project specific WSA cited above, has been approved by City Council.

Tri Pointe Homes (formerly known as Pardee Homes), the home builder responsible for the new development, has stated that escrow was closed on 83 homes in 2020. They are projecting 392 escrow closings by year end of 2021, bringing the total number of closed homes to 475. They are projecting 316 escrow closings in 2022, bringing the total number of homes occupied by new buyers to 791.

Rancho San Gorgonio

The Rancho San Gorgonio Specific Plan (Rancho San Gorgonio) is a master planned community project that encompasses approximately 831 acres and includes up to 3,385 residential dwelling units, almost 49 acres of neighborhood and community parks, over 160 acres of paseos and open space, and approximately 81 acres of right-of-way and utility easements. The project is anticipated to be constructed in six phases over a period of 18 years. This period is likely to be extended due to varying economic factors.

A project-specific WSA was prepared for Rancho San Gorgonio, titled Water Supply

Assessment Rancho San Gorgonio Specific Plan, by Madole & Associates, Inc. and Encompass Associates, Inc., in 2015.

The Draft EIR for Rancho San Gorgonio analyzes water supply supported by the project-specific WSA cited above. Both the EIR and WSA have been completed and approved by the City Council.

2.4 CLIMATE

The City is located within the San Gorgonio Pass, which is a transitional zone where coastal climates transition to desert, resulting in significantly differing landscape and geology. The climate can best be characterized by hot, dry summers and short, mild winters. The region receives an average annual rainfall of approximately 19.7 inches, most of which takes place between December and March. Evapotranspiration (ET_o) in the area ranges from 7.88 inches in July to 1.94 inches in December.

As the State of California and the Riverside County region has undergone a several-year drought, rainfall has been much lower in the City. Southern California is also expected to be in a moderate La Nina year for 2021. Recent ET_o and rainfall for the City is listed in **Table 2.3:**



Table 2.3
Recent Climate Characteristics (2021)
CIMIS Station 239 (Hemet)
(cimis.water.ca.gov)

Month	Rainfall (in)	ETo (in)
Jan (2021)	0.75	2.30
Feb (2021)	0.27	3.15
Mar (2021)	1.41	4.21
Apr (2021)	0.15	6.14
May (2020)	0.03	7.89
Jun (2020)	0.00	7.70
Jul (2020)	0.07	9.16
Aug (2020)	0.00	8.34
Sep (2020)	0.00	6.47
Oct (2020)	0.01	4.65
Nov (2020)	0.26	2.87
Dec (2020)	0.00	2.13
Totals:	2.95	65.01

As noted in the table, rainfall totals for all months are lower than the normal levels.

2.4.1 Climate Change

The DWR Guidebook requires water suppliers to include a discussion of climate change in their UWMPs, specifically with regard to Drought Risk Assessments (DRA). **Section 7** of this UWMP provides an overview of droughts. The Riverside County 2019 Climate Action Plan (CAP) Update was

prepared to meet the goals and objectives of Assembly Bill No. 32 (AB 32) and to refine the County's efforts to meet greenhouse gas (GHG) reduction strategies, through 2050. The 2019 CAP Update builds upon the GHG reduction strategies in the 2015 Climate Action Plan. The CAP is a single document that provides a framework for assessing greenhouse gas emissions, establishes an emissions reduction target, and outlines strategies to meet these goals.

The California Adaptive Planning Guide (2012) projects possible temperature increases throughout the South Coast region. By 2050, average temperatures in the Colorado River hydrologic region could increase by nearly 5°F. The annual number of extreme heat days (with temperatures of more than 105°F) could increase by 2050. Similarly, precipitation could decline by a few inches per year by 2050. The County's CAP mentioned above lists seven (7) steps for implementing the GHG emission-reduction strategies. Among the 7 steps listed in the CAP is water conservation. Due to the City's reliance on groundwater, the City is not significantly impacted by temperature changes or droughts compared to agencies relying on surface water. **Section 7** provides greater detail of droughts and their impact on the City's supplies.



2.5 POPULATION

According to the most recent population figures from the California Department of Finance (DOF), the current 2020 resident population of the City is approximately 31,125 persons. Since the City's water service area comprises 100 percent of the population residing within the City limits, the total current resident population served by the City's water system is approximately 31,125 persons, too. This is approximately 500 persons more than the population total in 2015. The City is currently experiencing a peak population, based on DoF estimates. **Table 2.4** below lists the City's recent and current (2020) populations:

Table 2.4
City of Banning Current Population

Year	Service Area Population
2015	30,542
2016	30,769
2017	30,981
2018	31,091
2019	31,142
2020	31,125

Since the City is a commercial and government-services center for the region, daytime population estimates may be somewhat higher than the City's resident population.

2.5.1 Population Projections

The SCAG periodically forecasts population growth for incorporated and unincorporated areas within Southern California. In its latest forecast prepared in 2020, SCAG forecasted a 2045 population for the City at 41,500. Two (2) proposed developments, Atwell and Rancho San Gorgonio (totaling 8,300 connections) will be added to the SCAG estimate for 2045. Three (3) persons per connection multiplied by 8,300 connections (totaling 24,900 persons) amounts to 66,400 persons for 2045. This amounts to a growth of 1,411 persons per year for 25 years to 2045. Population projections for 2045, and every five-year increment from 2020 until then is shown in **Table 2.5**.

Table 2.5
Population Projections

Year	Service Area Population
2025	38,180
2030	45,235
2035	52,290
2040	59,345
2045	66,400

As the City continues to grow both in size and significance, the City may likely experience periodic spikes in the number of daytime or short-term residents (due to schools or daytime commercial jobs).



2.6 WATER SYSTEM

A basic overview of the City's water system is provided herein. More information on the City's water sources, water treatment, and water demands can be found in **Sections 3 through 6** of this report. As this report is more of a water-resource-management planning document, it does not provide a great degree of technical or engineering detail on water system components.

2.6.1 City Water System Overview

Overall, the City's water system consists of the following components:

- Imported Water (used to recharge the City's storage account in the Beaumont Basin)
- Groundwater supply wells with on-site water treatment facilities
- Water distribution pipeline network
- Water storage facilities
- Booster stations
- Pressure Reducing Valve (PRV) stations
- Emergency interconnections

2.6.2 Imported Water

The City purchases State Water Project (SWP) non-potable water from the San

Gorgonio Pass Water Agency (SGPWA) a State Water Contractor, that is used to recharge the Beaumont Basin. The recharge points have changed since the 2015 UWMP. Some used to be located at Beaumont-Cherry Valley Water District (BCVWD) owned percolation ponds, but now they are being recharged entirely at SGPWA recharge facilities.

Two Interconnect facilities with BCVWD are being planned within the Atwell development. One of which will soon start construction on Meadowline Way, but will not be online until 2022. The second is the Starlight interconnect. These interconnect facilities are for use of co-owned wells, which happen to be in the Beaumont Basin, but are not necessarily just in the "imported" water category. While there are still appropriative rights available, the water can be considered a mix of local groundwater and imported water that was recharged into the Beaumont Basin.

The City and BCVWD jointly own and operate three groundwater wells, Wells 24, 25, and 26, in accordance with an agreement between the two parties, dated December 23, 2003. These wells produce water from the Beaumont Basin, and can collectively supply roughly 3,400 gpm. This supply is considered a groundwater supply rather than an imported supply. The City does not have any direct imported water connections.



2.6.3 Groundwater

The City's potable water system is entirely supplied by groundwater from 19 drinking groundwater wells and 1 non-potable groundwater well. The City lost Well M-12 but is currently looking into redrilling. Tri Pointe Homes, a land developer, plans to dedicate a piece of land where the City will design/construct Well C-8, which would take the count to 21 total wells. The groundwater wells are spread out throughout the City, in five (5) basins (also colloquially termed "storage units"): Beaumont, West Banning (formerly known as the Banning Basin), Cabazon (formerly known as the East Banning Basin), Banning Bench, and the Banning Water Canyon. These basins are described in **Section 3**.

Localized water treatment varies by well site, but can include sand separation and disinfection through chemical addition. The water treatment facilities at the City's groundwater wells consists of the following:

- Well 1: Liquid hypochlorite system
- Well 3: Liquid hypochlorite system
- Well C-5: Liquid hypochlorite system
- Well C-6: Liquid hypochlorite system
- Wells M-3 and M-11: A sand separator and liquid hypochlorite system

Currently, all wells use liquid sodium hypochlorite and none of the sand separators are being used.

2.6.4 Distribution System

The City distributes water to residential, commercial, and other customers through approximately 10,754 service connections using a 168-mile network of distribution mains averaging 8 inches in size. The majority of the current distribution pipes were installed between 1981 to 1990. The water system consists of six (6) pressure zones that provide modified pressure to customers. The water service area is shown in **Figures 2.2** at end of this Section.

2.6.5 Water Storage

For storage needs, the City maintains operating reservoirs with a combined storage capacity of 19.55 million gallons (MG) amongst nine (9) reservoirs. These reservoirs consist of the following:

- San Gorgonio Reservoirs 1, 2 and 3: Welded steel storage tanks, a below-grade valve vault, and the Foothill East PRV station within a security fence.
- Sunset Reservoirs: Two (2) welded steel storage tanks.
- Mountain Reservoir & Booster: One (1) welded steel tank, three (3) booster



pumps, and three (3) hydropneumatics tanks.

- Southwest Reservoir: A prestressed concrete tank that is partially buried, an irrigation pump, and a few electrical boxes. It is located inside the Sun Lakes Country Club. The tank was installed around 2003.
- High Valley Reservoir: A galvanized bolted steel tank within a security fence.
- Brinton Reservoir: The largest of the City's tanks, has an aboveground storage capacity of 24.6 AF.

2.6.6 Booster Stations

The City of Banning maintains and operates two (2) booster stations throughout its service area. The first Booster station is located at Well C2. The second is located at the Mountain Reservoir.

2.6.7 PRV Stations

The City maintains and operates six (6) Pressure Reducing Valve Stations throughout its service area. These PRV stations include the following:

- Sun Lakes PRV station: From the Foothill West Zone to the Main Zone.

- Foothill East PRV station: From the Canyon Wells Zone to the Foothill East Zone.
- Well 1 PRV: From the Canyon Wells Zone to the Main Zone.
- Mountain South PRV: From the Main Zone to the Mountain South Zone.
- San Gorgonio & Lincoln PRV: From the Main Zone to the Lower I Zone.
- Hargrave & John St PRV station: From the Main Zone to the Lower I Zone.

2.6.8 Emergency Interconnections

The City's water system includes one emergency connection, a 12-inch emergency interconnection with BCVWD at the western boundary of the City's service area, at the intersection of Sun Lakes Blvd & Highland Springs Ave. The interconnect was used in the summer of 2020 to meet demands with a comfortable margin. Before this year, the interconnect had not been used since 2008. Four wells were down during the summer of 2020 for rehab, and due to fires, another well went down. This interconnect was used to supplement the loss from these wells. Three (3) of the four wells are about to go back online, but M-12 is no longer operational.

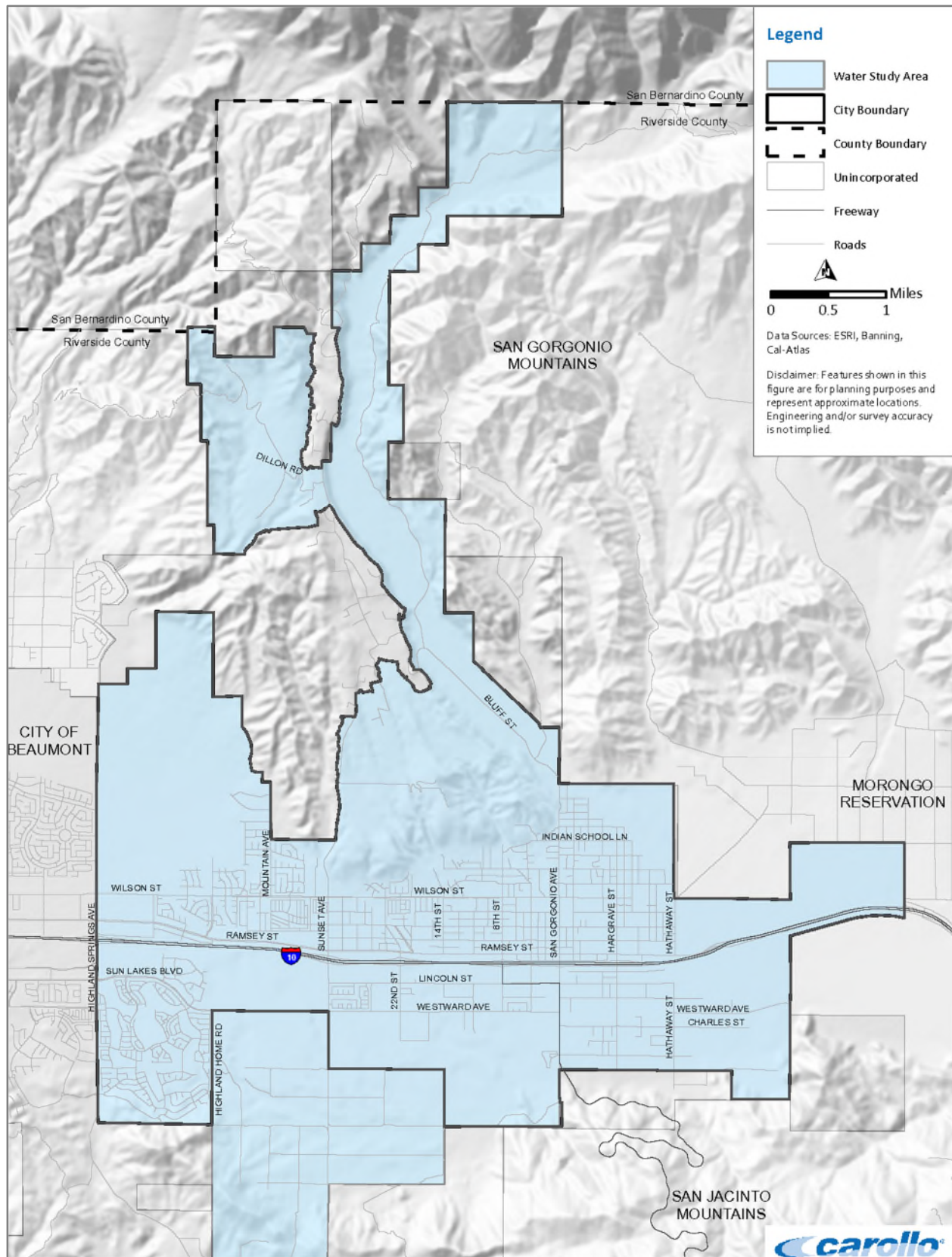


Figure 2.2: City of Banning Water Service Area

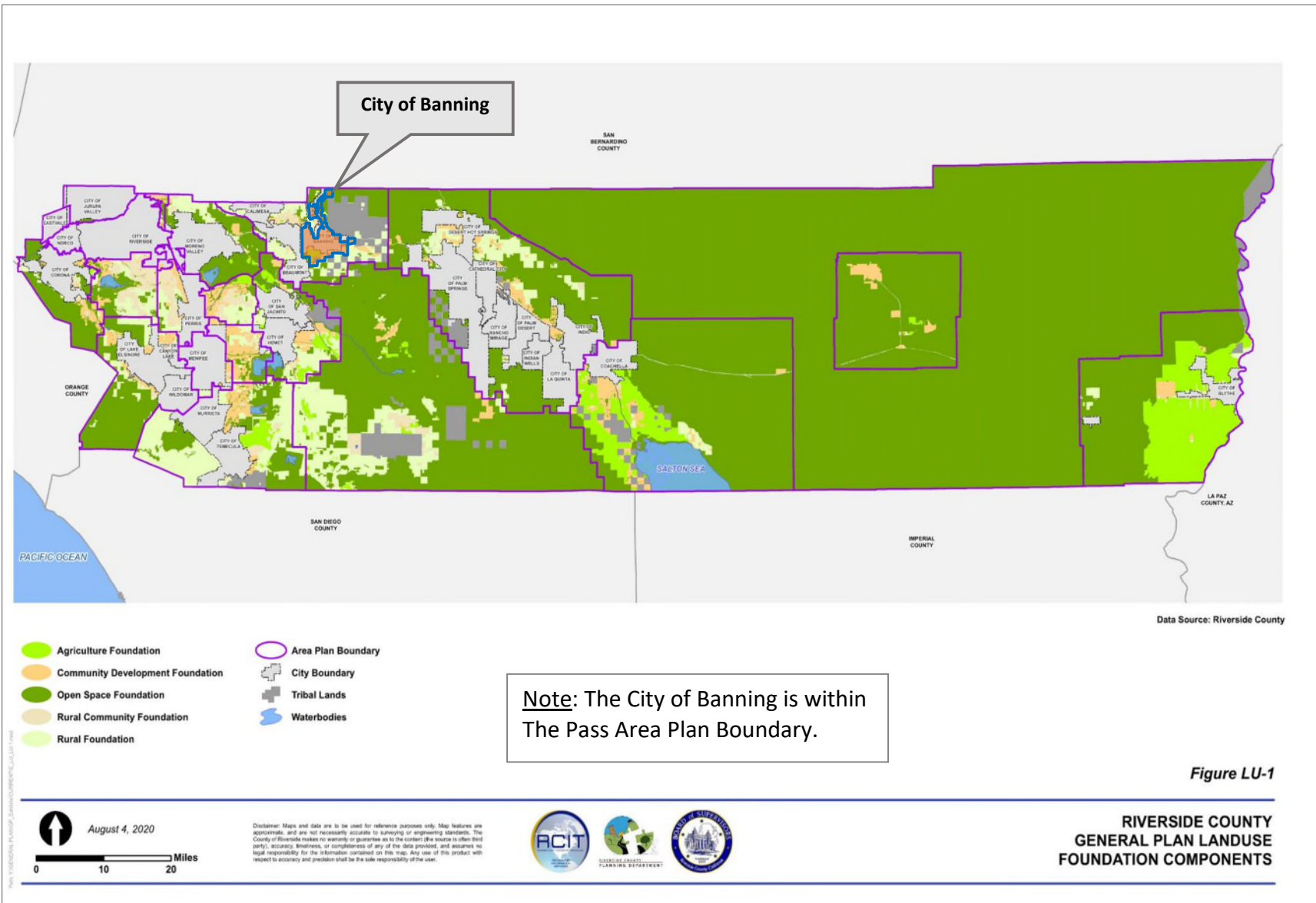


Figure 2.3: Riverside County General Plan Land Use Map (from Riverside County Official Website)

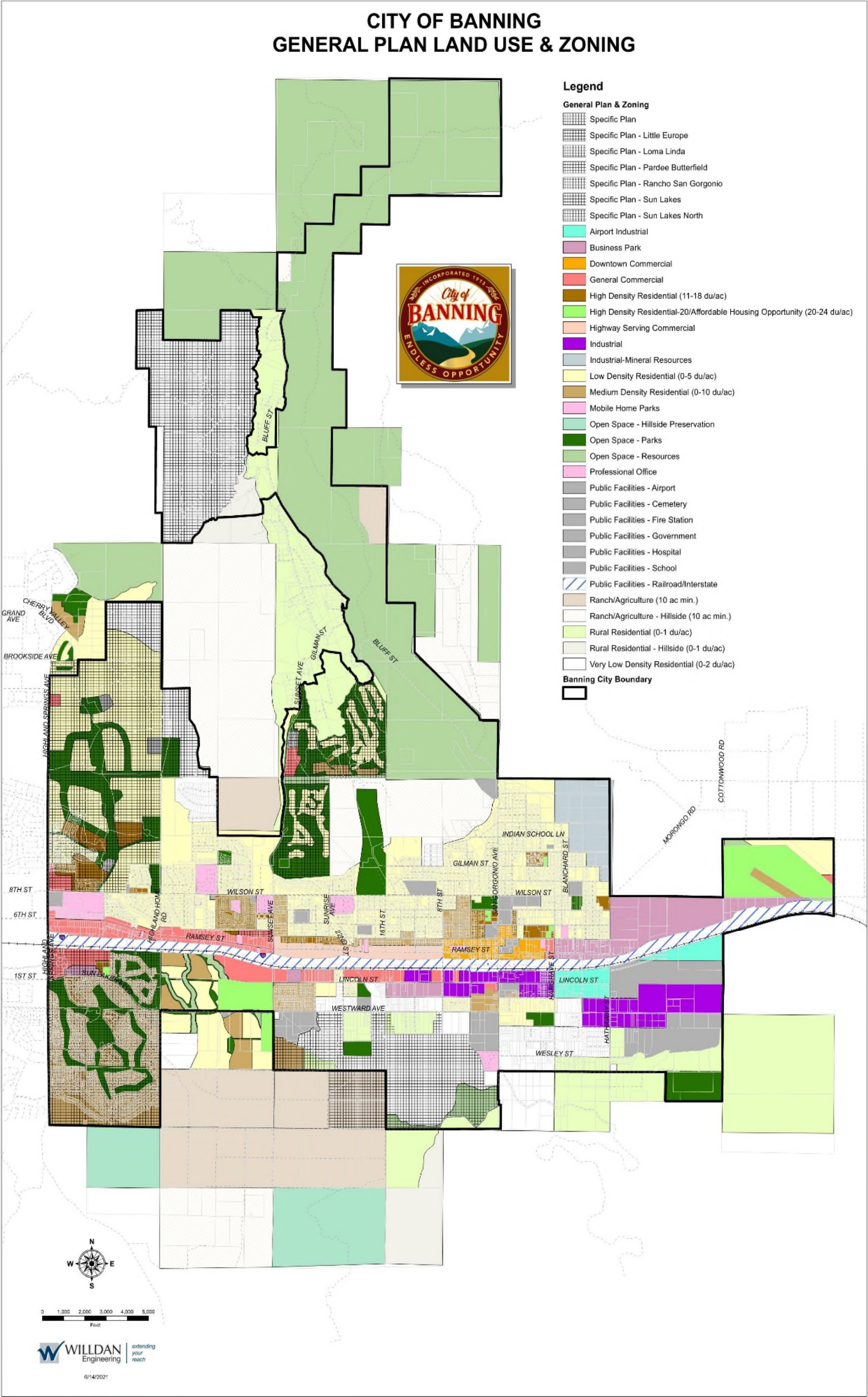


Figure 2.4: City of Banning Zoning Map

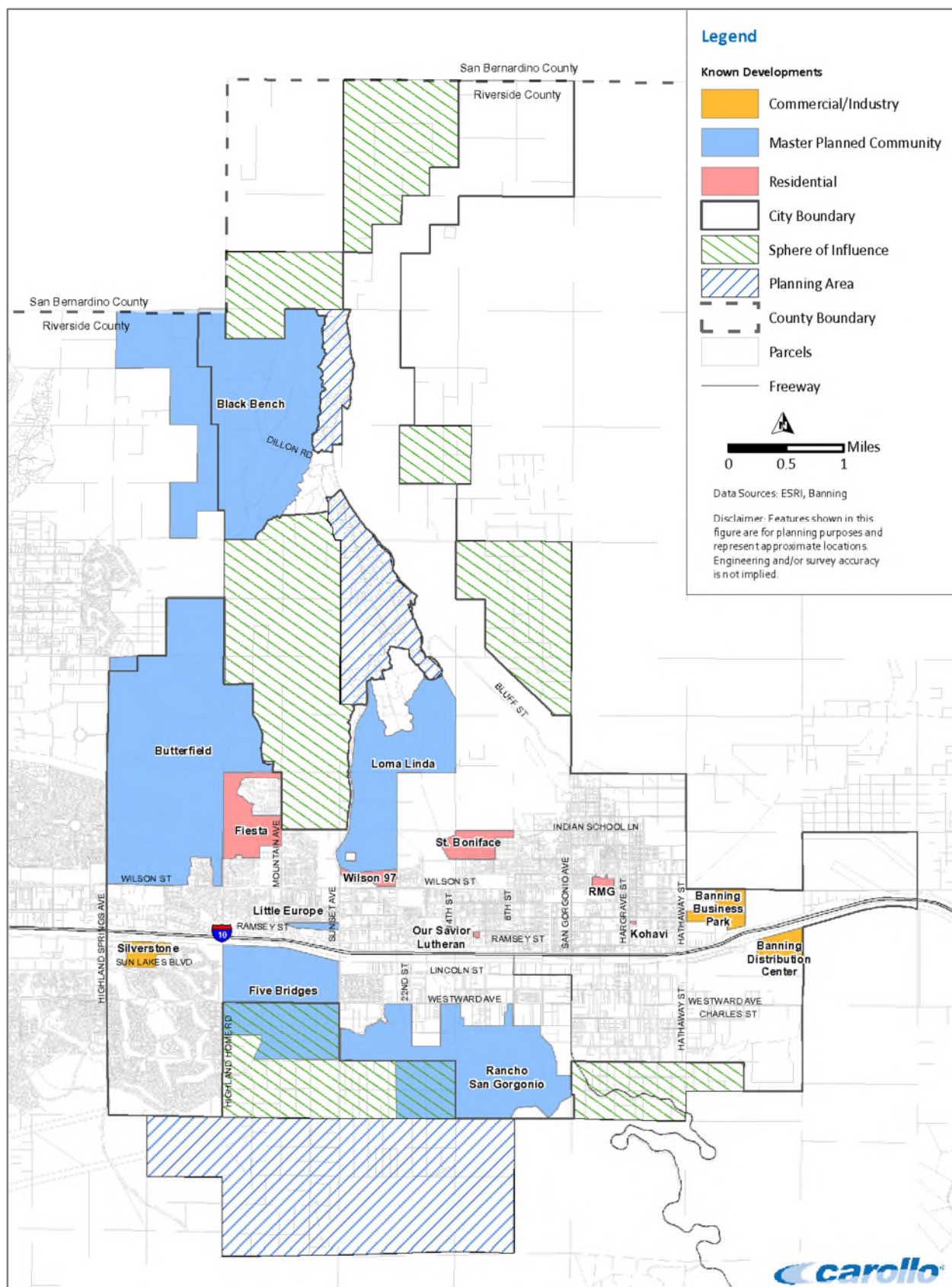


Figure 2.5: City of Banning: Known Developments



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Section 3

Water Sources & Supplies

The City's Source of Water Supply is Groundwater Pumped from Five (5) Local Groundwater Basins. The City also Uses Imported Water to Recharge the Groundwater Basins.





WATER SOURCES & SUPPLIES

The City's water supply consists of local groundwater sources and imported water used to recharge such sources.



3.1 INTRODUCTION

This section describes the current and projected potable water resources available to the City over a 25-year period. The City currently uses potable water and non-potable water to meet the water needs of its service area. The City's water is obtained entirely from local groundwater basins through nineteen (19) potable groundwater wells, one (1) non-potable groundwater well, and three (3) co-owned wells with the Beaumont-Cherry Valley Water District (BCVWD). The City also has access to imported water from the San Geronio Pass Water Agency (SGPWA) and surface water from the Whitewater River. Both imported water and surface water are used to recharge the groundwater aquifers.

This Section describes the current and projected water resources available to the City over a 25-year period (through 2045). This Section also provides some background information on the overall water supplies available to the region.

3.2 IMPORTED WATER SOURCES

3.2.1 Bay Delta

The City has access to imported water from the Sacramento-San Joaquin River Delta in Northern California through SGPWA. The Bay Delta water system provides Southern California agencies with over 1 million acre-feet (MAF) of water annually.



Figure 3.1: Sacramento-San Joaquin Bay Delta

The “Delta” is located at the confluence of the Sacramento and San Joaquin Rivers east of the San Francisco Bay and is the West Coast's largest estuary. The Delta supplies Southern California with over 1 MAF of water annually which has been significantly reduced in recent years.



Figure 3.2: Bay Delta

The Delta is often considered the nexus of California's statewide water system. About half the total river flow in the State passes through this region, from which water is exported to the San Joaquin Valley, Southern California and portions of the Bay area to supply some 1,130,000 acres of farmland and 23 million people in central and Southern California. The Delta provides an estimated 7 million acre-feet (MAF) of water per year, of which about 100,000 AF are exported to the San Francisco Bay Area, 1.7 MAF are used locally, and over 5 MAF are exported to the San Joaquin Valley, coastal Central and Southern California via the State Water Project.

3.2.2 State Water Project (Aqueduct)

The California State Water Project is a water storage and delivery system of reservoirs, aqueducts, power-plants and pumping plants. Its main purpose is to store water and distribute it to 29 urban and agricultural water suppliers in Northern California, the San Francisco Bay Area, the San Joaquin Valley, the Central Coast, and Southern California. Of the contracted water supply, 70 percent goes to urban users and 30 percent goes to agriculture.

In 1947, the California State Legislature funded a water resources investigation that led to the development of the SWP. This investigation resulted in the publication of the California Water Plan, which presented preliminary plans to meet the State's ultimate water needs, including those facility works required for transferring surplus water from northern California to southern California. Financing

The State Water Project or "SWP" is a result of decades of planning and construction dating back to the 1940s.

for the construction of SWP facilities was authorized in 1959, when the State Legislature enacted the California Water Resources Development Act (known as the Burns-Porter Act). The Burns-Porter Act, formally known as the California Water Resources Development Bond Act, was placed

Figure 3.3: Aqueduct Systems in California



Figure 3.4: State Water Project

on the November 1960 ballot. Also known as Proposition One, the initial works included Oroville Dam and Lake Oroville, B.F. Sisk Dam (also known as San Luis Dam) and San Luis Reservoir, the South Bay Aqueduct, the North Bay Aqueduct, and the California Aqueduct. Construction on the Oroville site actually began even before the passage of the Burns-Porter Act. A \$25 million emergency appropriation was passed in 1957 after a record late 1955-early 1956 flood, which devastated Northern and Central California. Statewide, 64 deaths were recorded, most in Sutter County and Yuba City, and more than \$200 million of property damage.

The first SWP water deliveries were made in 1962, two years after construction began. The State of California Department of Water Resources (DWR) and MWD signed the first water supply contract in 1960. Today 29 agencies have long-term water supply contracts with DWR. The service areas of these long-term water supply contractors vary widely in size, location, climate, and population. The contractors' uses for SWP water also differ. In the San Joaquin Valley, SWP water is used primarily for agriculture. In Southern California, SWP water is used primarily for urban and industrial needs.



Today, the SWP includes 34 storage facilities, reservoirs and lakes; 20 pumping plants; 4 pumping-generating plants; 5 hydroelectric power plants; and about 701 miles of open canals and pipelines. The SWP is owned and managed by the Department of Water Resources (DWR).

3.3 IMPORTED WATER PURCHASES

In the early 1960s, DWR began entering into individual SWP Water Supply Contracts with urban and agricultural public water supply agencies located throughout northern, central, and southern California for SWP water supplies. The San Geronio Pass

DWR allocates water to 29 SWP contractors on an annual basis, including the San Geronio Pass Water Agency.

Water Agency (SGPWA) is one of 29 agencies in the State that have a SWP Water Supply Contract with DWR.

These agencies receive an allocation from the SWP each year.

SGPWA also acquires

water supplies through contracts with other agencies and annual water transfers and exchanges. SGPWA annually acquires Yuba Accord water as well as water under the Nickel Agreement. SGPWA may also acquire water through an agreement with SBVMWD as well as annual transfers and exchanges with other SWP contractors.

Currently, as a wholesale agency, SGPWA distributes imported SWP water to three (3) member agencies:

- City of Banning
- BCVWD
- Yucaipa Valley Water District

Nine retail purveyors, including the three listed above, provide water services to most residents and businesses within the SGPWA service area and all nine retailers supply water to their customers from local groundwater. Banning Heights is the only agency that does not provide water from local groundwater; their primary source is surface water. The SGPWA Service Area Boundary is shown below in **Figure 3.6**. The remaining retail purveyors include the following:

- South Mesa Water Company
- Cabazon Water District
- Banning Heights Mutual Water
- High Valleys Water District
- Mission Springs Water District
- Morongo Band of Mission Indians

SGPWA delivers its SWP supplies through the East Branch to use within the local groundwater basins. Efforts to increase the

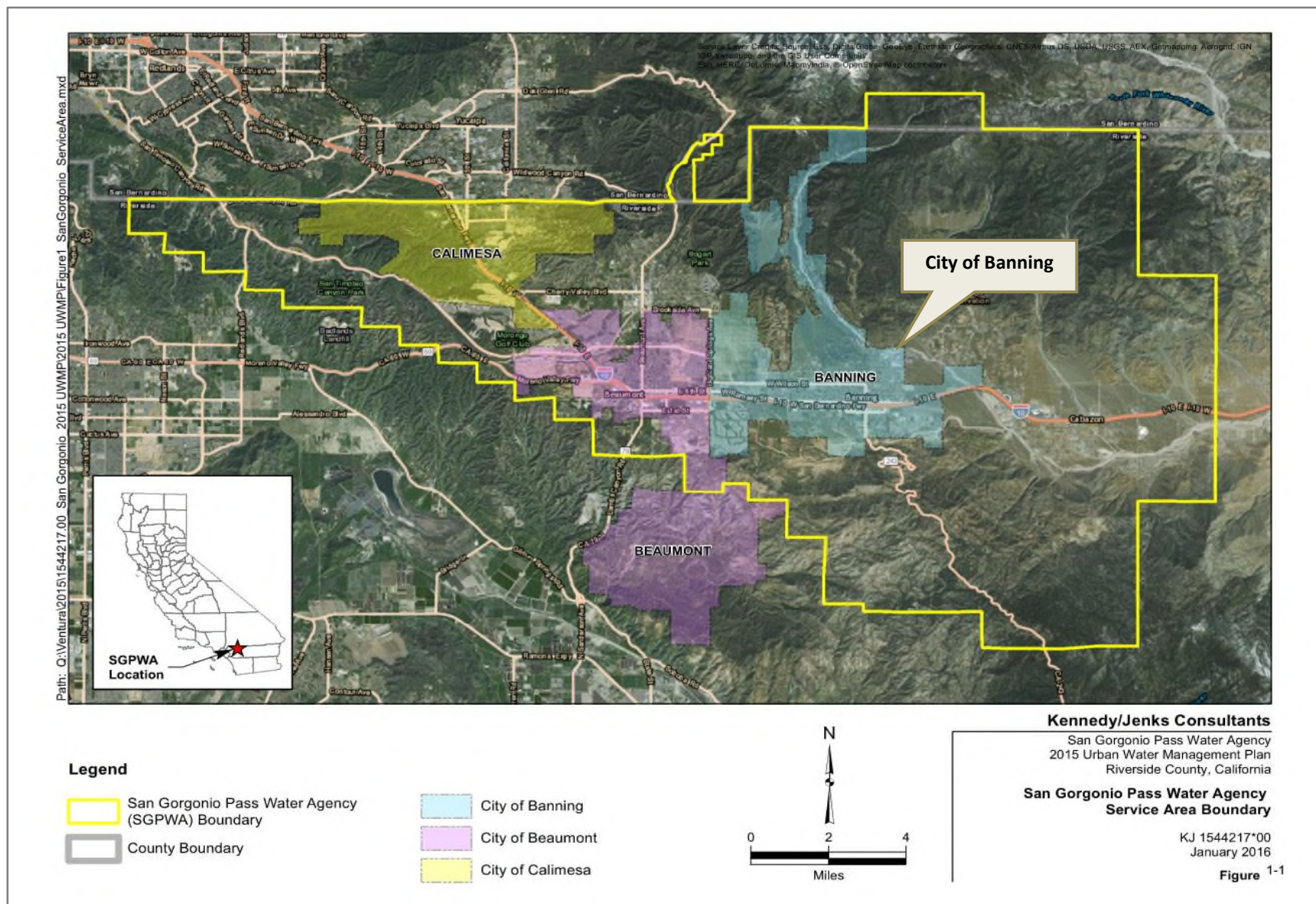


Figure 3.5: SGPWA Service Area



conveyance capacity of the East Branch extension to 48 cubic feet per second (CFS) were completed in 2017. Past SWP deliveries to SGPWA are shown in **Table 3.1**.

Table 3.1
SWP Deliveries to SGPWA (2003 to 2015)

Year	Purchases (AF)
2003	116
2004	814
2005	687
2006	4,420
2007	4,815
2008	4,905
2009	5,792
2010	6,840
2011	10,503
2012	10,924
2013	7,068
2014	5,175
2015	3,478
2016	9,616
2017	11,246
2018	5,548
Average:	5,479

Source: DWR – Final SWP Delivery Capability Report (2019) & 2014 San Geronio Pass Water Agency Report on Water Conditions; 2015 data provided by SGPWA.

SWP supplies delivered to the SGPWA service area are not treated prior to reaching the recharge facilities, except for water delivered to YVWD. The imported water YVWD receives is treated at the

Yucaipa Valley Regional Water Filtration Facility (YVRWFF), with a capacity of 12 million gallons per day (MGD).

As stated in **Section 2**, the recharge points into the Beaumont Basin have changed since the 2015 UWMP. Previously, quantities of SWP water purchased were recharged to the Beaumont Basin at BCVWD's Noble Creek spreading facility, which is located in the vicinity of Beaumont Avenue and Cherry Valley Boulevard. The SWP water is now recharged at the SGPWA owned and operated Brookside Recharge Facility, which was completed in 2017, and enables SGPWA to import more water in wet years when available and to store it in the local groundwater basin. The new facility consists of five large ponds, a pipeline connecting the ponds to the East Branch Extension of the SWP as well as a new connection to said East Branch Extension. The new facility, shown in **Figure 3.6** on the following page, is located adjacent to the existing Noble Creek spreading facility, at Beaumont Avenue and Brookside Avenue. The concrete lined Noble Creek separates the two facilities.

Table 3.2 presents the City's recent imported water purchases from SGPWA for years 2015 to 2020 and compares them to years 2010 to 2015.



Figure 3.6: Brookside Recharge Facility



Table 3.2
Imported Water Supply 2015 to 2020
(Purchases of SWP water from SGPWA)

Year	Purchases (AF)
2015	686
2016	1,477
2017	1,350
2018	500
2019	250
2020	250
Average:	752
2010-2015 Avg. (2015 UWMP)	847

Although the City purchases imported water, this water is used solely for recharge of the Beaumont Basin. None of the water purchased is supplied directly to the City's customers. The amount of imported water available to the City for groundwater recharge is dependent on SGPWA's available supply from the SWP. According to the water supply contract between DWR and the SGPWA, SGPWA's maximum annual entitlement from the SWP is 17,300 AFY. Under shortage conditions, SGPWA could limit volumes by implementing SGPWA's Water Shortage Contingency Plan (WSCP).

The SGPWA also has a financial plan in place to obtain additional supplies necessary to meet projected demands within its service area. Sources include the dry-year water purchase program, exchanges with the

Crestline-Lake Arrowhead Water Agency (CLAWA), and other supplemental water as available. The SGPWA is expected to purchase additional supplies by 2020 to meet demands.

3.4 GROUNDWATER SOURCES

The City is within the boundaries of the Coachella Valley Hydrologic Unit, which encompasses several groundwater basins, including the Coachella Valley Groundwater Basin (Basin), within which the City is located. The Basin is underlain by several large subbasins, the boundaries of which are mostly defined by fault lines that restrict the lateral flow of water. The Basin extends from Banning easterly to the Salton Sea.

The City is underlain by the San Geronimo Pass Subbasin (SGP Subbasin) portion of the Basin per **Figure 3.7** on the following page. The SGP Subbasin is divided into water storage units (also colloquially termed "basins"), as depicted in **Figure 3.8**. The City extracts groundwater from the West Banning Storage Unit (formerly known as the Banning Storage Unit), the Banning Bench Storage Unit, the Cabazon Storage Unit (formerly known as the East Banning Storage Unit), the Beaumont Storage Unit, and the Banning Water Canyon Storage Unit, as shown in **DWR Submittal Table 6-1** in **Appendix E**. The storage unit boundaries have been defined in a 2006 USGS report

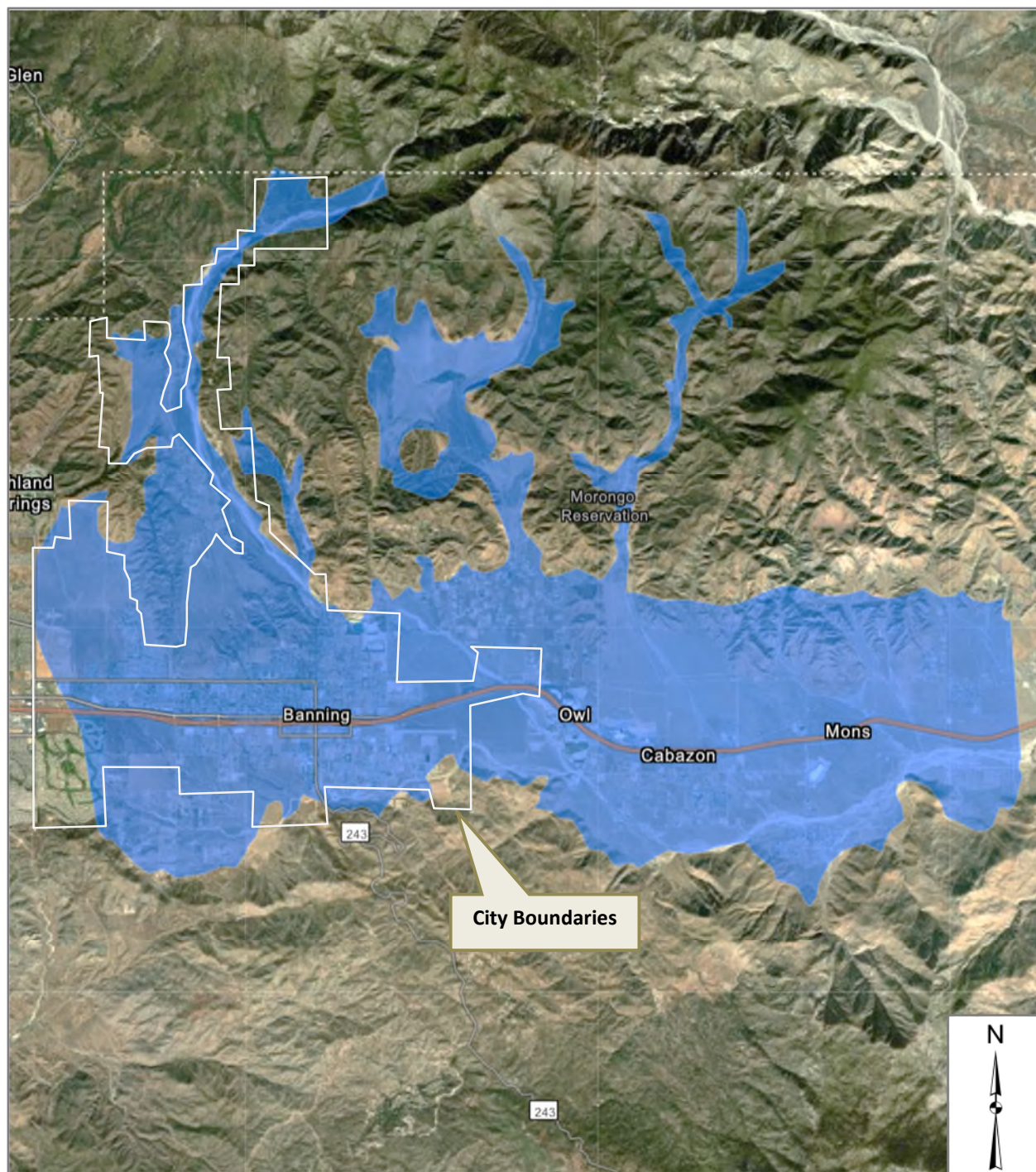


Figure 3.7: San Geronio Pass Groundwater Basin



on Groundwater Hydrology, in the San Gorgonio Pass Area (*Scientific Investigations Report 2006-5026*), prepared by USGS in cooperation with the SGPWA, dated 2006. Since this report, DWR, SGPWA, and the City have refined the details of these storage units.

Groundwater recharge in the area results from precipitation infiltrating into the ground within the surface water catchments and particularly in the canyons north of the City. An additional source of recharge is subsurface inflow (also referred to as underflow) from storage unit to storage unit, infiltration of Whitewater River diversions in the Banning Water Canyon, and from percolation of treated wastewater into the Cabazon Storage Unit. The Banning Water Canyon area receives water from the percolation of canyon flows through the gravelly soils of the canyon bottom. The San Gorgonio River running southerly through the Banning Water Canyon provides intake areas for distributing water to spreading ditches that interconnect with spreading ponds located approximately one mile north of the Banning Bench to enhance percolation.

A hydrogeological study was conducted by Geoscience to determine the maximum perennial yield of the groundwater storage units in the vicinity and to determine the anticipated future available water supply from the Beaumont Storage Unit, West

Banning Storage Unit, Banning Bench Storage Unit, Cabazon Storage Unit, and Banning Water Canyon Storage Unit. The findings of the study are set forth in the report by Geoscience, titled *Maximum Perennial Yield Estimates for the Banning and Cabazon Storage Units*, and Available Water Supply from the Beaumont Basin, dated March 29, 2011 (herein referred to as the Geoscience Report). The individual basin safe yields and projected groundwater production (from each basin) are included in **Table 3.4** of this Section and in **Appendix E** as **DWR Submittal Table 6-9** (Projected Water Supplies).

3.4.1 Beaumont Basin (Storage Unit)

The Beaumont Storage Unit (also referred to as the Beaumont Basin) is located primarily in the City of Beaumont, with some portions located within Banning, Calimesa, and Cherry Valley, as depicted in **Figure 3.8**. The Beaumont Storage Unit covers approximately 12,480 acres (19.5 square miles). The City operates four (4) groundwater production wells, namely Wells C2, C3, C4, and M3, within the Beaumont Basin. The City also maintains an additional, non-operating well in the Beaumont Basin (Well M9). The 4 active wells have a combined nominal capacity of 4,650 gallons per minute (gpm). The City also co-owns with BCVWD three additional

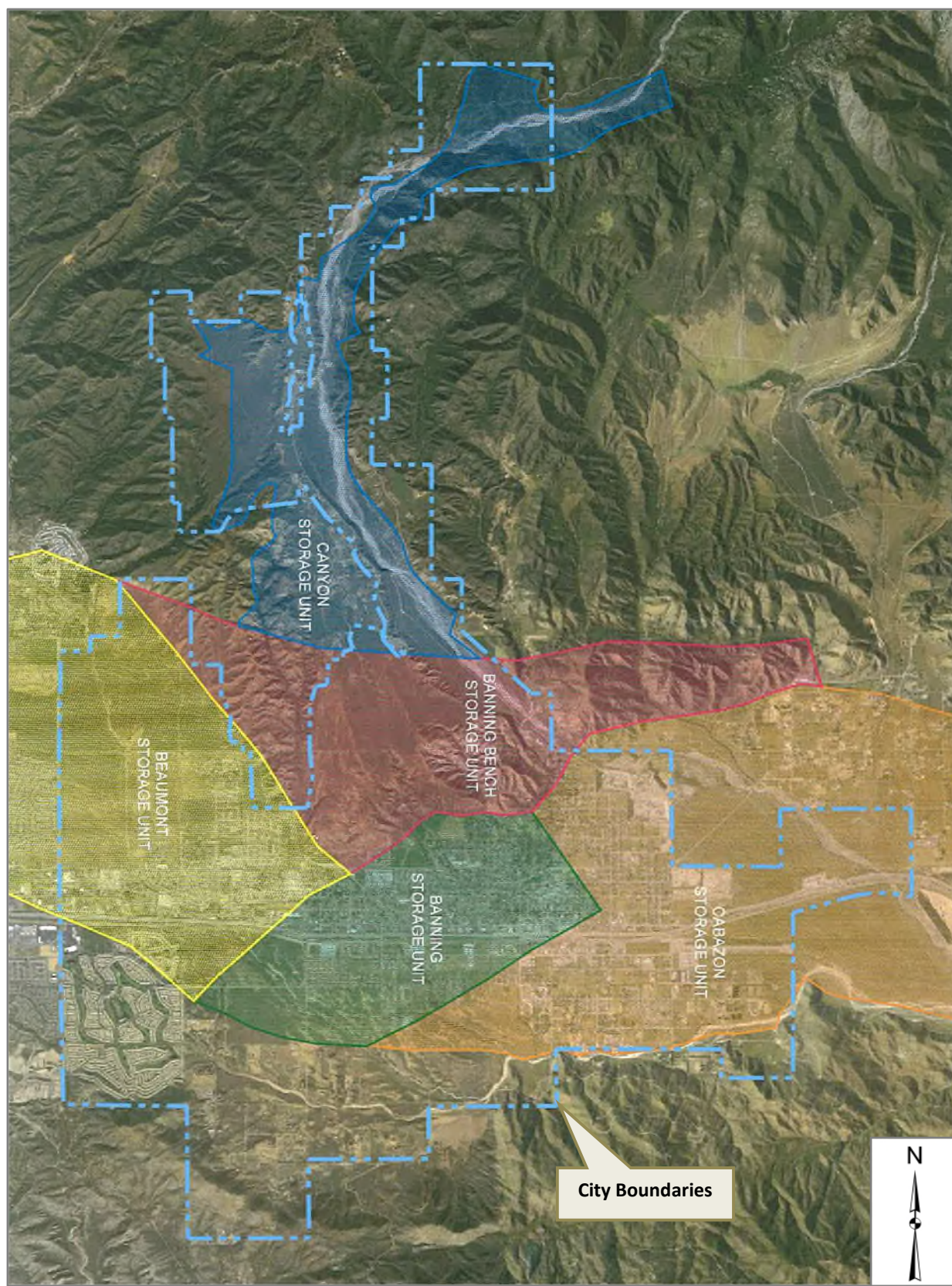


Figure 3.8: Groundwater Basins in the City (Subbasins of San Geronio Pass Basin)



groundwater production wells (Wells 24, 25, and 26), with a combined nominal capacity of 6,800 gpm, of which half is allotted to the City. Therefore, the City's total nominal pumping capacity in the Beaumont Basin is 8,050 gpm. The forementioned Wells in the Beaumont Basin are shown in **Figure 3.9**.

The Beaumont Basin is an adjudicated basin pursuant to the *Stipulation for Entry of Judgment Adjudicating Groundwater Rights in the Beaumont Basin* (the Judgment), a

The Beaumont Basin is the only adjudicated storage unit within the San Geronio Pass Basin

copy of which is included in **Appendix L**

of this Plan. Pursuant to the Judgment, the Court appointed a five-member Watermaster Committee, consisting of members from each

of the five member agencies, which include the Cities of Banning and Beaumont, Beaumont-Cherry Valley Water District, South Mesa Water Company, and Yucaipa Valley Water District.

The safe yield of the Beaumont Basin was initially established at 8,650 AF/yr, to be distributed among the appropriators. The safe yield is to be reevaluated at least once every ten years. Based on the 2013 *Reevaluation of the Beaumont Basin Safe Yield*, dated April 3, 2015, the safe yield was determined to be 6,700 AF/yr.

Based on a description of the Judgment included in the Beaumont Basin Watermaster 2019 Annual Report Draft, dated December 2020 (referred to herein as the 2019 Watermaster Report), a controlled overdraft (also referred to as temporary surplus) was created to allow the appropriators to extract from the Beaumont Basin, during the first ten years after adoption of the Judgment, a maximum of 16,000 AF/yr. The temporary surplus was divided among the appropriators, with City of Banning receiving 31.43 percent (or 5,029 AF/yr).

After the first 10 years of operation ended in 2014, appropriators no longer receive the temporary surplus and are permitted to extract only the amount each has in storage or credited to them. At the end of calendar year 2019, the City had approximately 51,917.9 AF in its storage account, based on the 2019 Watermaster Report. City of Banning is permitted to store up to 80,000 AF in the Beaumont Basin.

On an annual basis, the Watermaster determines the amount of groundwater to which each producer is entitled from the Beaumont Basin without incurring a replenishment obligation. City of Banning is entitled to 31.43% of the unused production in the Beaumont Basin. Quantities to which the City is entitled but does not pump can be credited to the City's storage account.

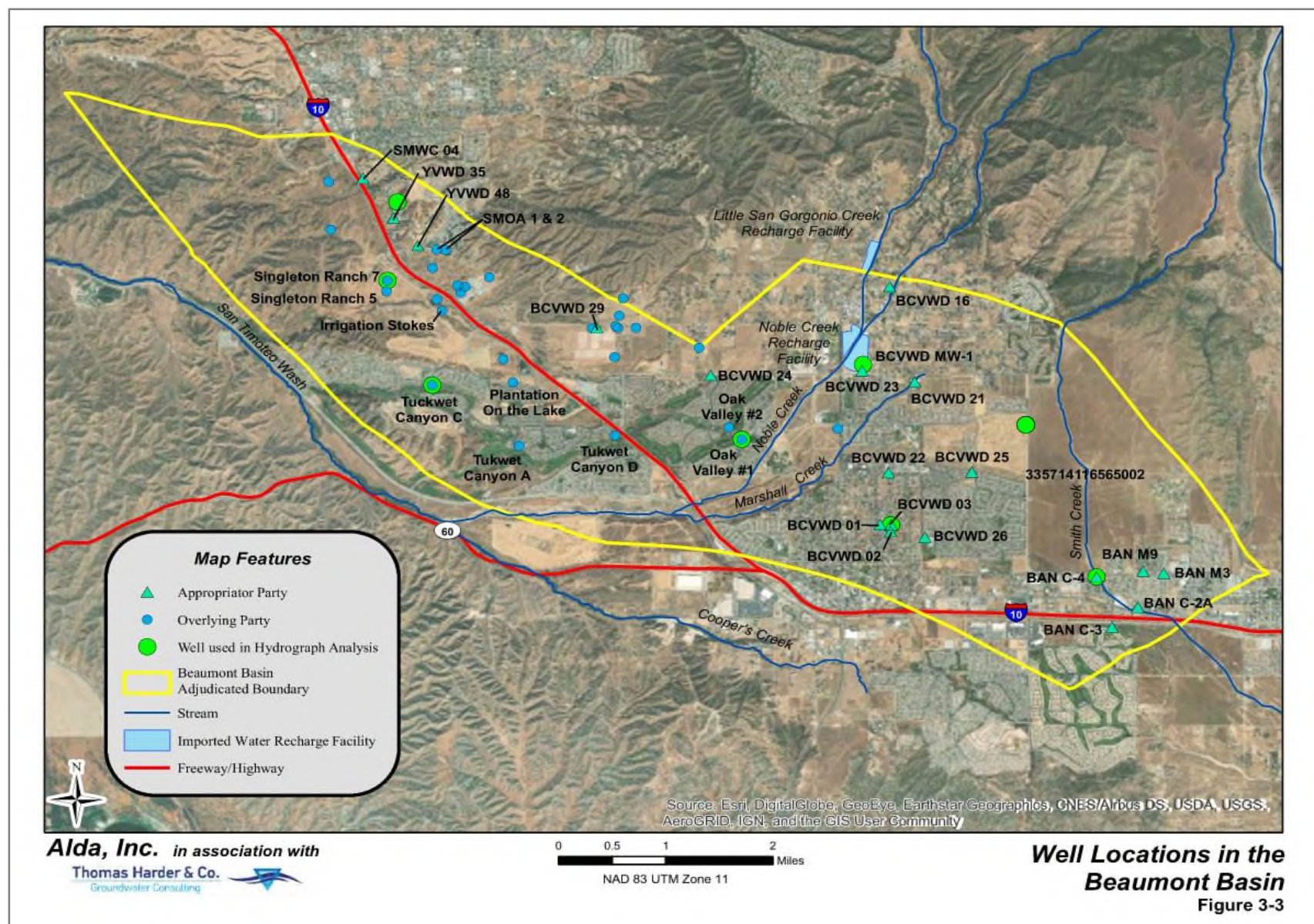


Figure 3.9: Well Locations in the Beaumont Basin



Figure 3.10: Spreading Grounds at WWTP

3.4.2 West Banning Storage

The West Banning Storage Unit lies south of the Banning Bench Storage Unit and east of the Beaumont Storage Unit, as depicted on **Figure 3.8**. The total surface area of the West Banning Storage Unit is approximately 2,489 acres (3.9 square miles). The area is underlain by alluvial sediments, with bedrock occurring to the north in the San Bernardino Mountains. The City currently operates four (4) groundwater production wells within the West Banning Storage Unit, namely C5, M7, M10, and M11. The City lost Well M-12 within the basin, due to a cave-in, but is currently looking into redrilling.

3.4.3 Cabazon Storage Unit

The Cabazon Storage Unit is located near the eastern boundary of the City, southeast

of the West Banning Storage Unit and the Banning Bench Storage Unit, as depicted on **Figure 3.8**. The Cabazon Storage Unit encompasses a surface area of approximately 17,215 acres (26.9 square miles). The City currently operates one (1) groundwater production well in the Cabazon Storage Unit, namely Well C6, with a nominal pumping capacity of 900 gpm.

Additional groundwater can be produced from the Cabazon Storage Unit. A water balance prepared for the Cabazon Storage Unit, as described in the Geoscience Report, determined that a positive change in storage has occurred as a result of inflow and outflow factors, including effluent from the Wastewater Treatment Plant (WWTP) percolated from the adjacent spreading grounds (**Figure 3.10** above). Therefore, future projections of available water from



the Cabazon Storage Unit assume that all inflow and outflow values remain the same, with the exception of treated wastewater applied to the basin.

For purposes of projecting Cabazon water supplies into the future, inflow of recycled water increases in time to account for the increase of wastewater generated by an increase in population over time, and this recycled water will be percolated into the Cabazon Storage Unit. Once the Phase I expansion of the WWTP is completed, approximately 1,680 AF/yr of recycled water will be used for irrigation purposes and will no longer be applied to the Cabazon Storage Unit for direct percolation. Well NP-1 is an offline non-potable well that is near the City's WWTP. It was drilled more than 20 years ago, but was never equipped to produce groundwater. There are plans to equip it in the near future and use it prior to the completion of the WWTP expansion. Once the Title 22 improvements at the WWTP are completed, Well NP-1 will serve as a backup and will be used sparingly to help the City meet peak irrigation demands.

3.4.4 Banning Bench Storage Unit

The Banning Bench Storage Unit is located to the north of the West Banning Storage Unit, as shown in **Figure 3.8**. The total surface area of the Banning Bench Storage Unit is approximately 3,573 acres (5.9 square miles). The City currently operates

three (3) groundwater production wells within the Banning Bench Storage Unit, namely Wells 1, 2, and 3, with a combined nominal pumping capacity of 3,650 gpm.

3.4.5 Banning Water Canyon Storage Unit

The Banning Water Canyon Storage Unit is located north of the Banning Bench Storage Unit, as depicted in **Figure 3.8**. The total surface area of the Banning Water Canyon Storage Unit is approximately 1,058 acres (1.7 square miles). The canyon bottom comprises alluvium, and the canyon sides are bedrock. The City currently operates eight (8) groundwater production wells within the Banning Water Canyon Storage Unit, namely Wells 4, 5, 7, 8, 9, 10, 11, and 12, with a combined nominal pumping capacity of 8,600 gpm.

Additional recharge occurs in the Banning Water Canyon Storage Unit through the diversion of Whitewater River drainage into Banning Water Canyon. The diverted water flows along steep mountain slopes for approximately 14 miles in a mostly concrete lined conveyance system known as the Whitewater Flume. The Whitewater Flume is described in more detail in **Section 3.6**.

3.5 GROUNDWATER PRODUCTION

All wells within the City's service area are equipped with a flowmeter to measure water production. Water production is



recorded monthly by City water staff and reported annually to DWR. Over the past five years of operation, groundwater extraction has averaged 7,513 AFY. **Table 3.3** displays the City's groundwater supplies for years 2015 to 2020.

Table 3.3
Groundwater-Production

Year	Production (AF)
2015	6,723
2016	7,035
2017	7,576
2018	7,924
2019	7,226
2020	8,596
Average	7,513
2010-2015 Avg. (2015 UWMP)	8,246

Due to the City's increase in population since 2015, the rebounding effects of the mandatory declaration period, and an abnormally dry 2020, groundwater pumping has increased.

3.5.1 Projected Groundwater Supplies

Currently, the City does not utilize the entire capacity of all of its storage units

(subbasins). The maximum annual amount pumped by the City in the past 10 years is just under 9,000 AF. Due to the projected developments, the City expects pumping to increase by 25% within 10 years and over 50% by the end of this UWMP planning period (2045). The pumping capacity of the City's twenty-three (23) wells, including the City's co-owned wells with BCVWD, is just over 14,000 AFY. However, this mechanical pumping capacity is actually limited to the safe yields and/or the adjudicated rights of the subbasins. As noted, in some of the subbasins, the City does not maximize groundwater resources (i.e. Cabazon Unit). Therefore, the City will be establishing new groundwater resources to meet projected demands. In the interim, the City will need to supplement their current allowable pumping capacity by dipping into their Beaumont Basin storage account while the City locates and drills new wells. This will create new resources or establish redundancy in existing resources in order to meet water demands under built-out conditions. **Table 3.4** below shows the City's projected water supplies and available volumes. These values are also reflected in **DWR Submittal Table 6.9** in **Appendix E**.



Table 3.4
Projected Water Supply Availability (AF)

Year	2025	2030	2035	2040	2045
Basin	Projected (Available)	Projected (Available)	Projected (Available)	Projected (Available)	Projected (Available)
Beaumont Basin	1,491	1,267	1,077	916	778
	(6,700)	(6,700)	(6,700)	(6,700)	(6,700)
West Banning Basin	1,430	1,430	1,430	1,430	1,430
	(1,430)	(1,430)	(1,430)	(1,430)	(1,430)
Cabazon Basin	853	960	1,054	1,136	1,208
	---	---	---	---	---
Banning Bench	1,055	1,187	1,304	1,330	1,330
	(1,330)	(1,330)	(1,330)	(1,330)	(1,330)
Banning Water Canyon	3,679	3,730	3,730	3,730	3,730
	(3,730)	(3,730)	(3,730)	(3,730)	(3,730)
Imported Recharge	250	500	1,000	1,750	2,500
WWTP Recharge (Recycled Water)	1,067	1,107	2,491	2,491	2,491
Additional Supply from Storage	999	2,126	3,156	4,128	4,991
Total Available Supply	63,098	59,351	51,220	40,439	28,551
Total Net Storage	47,169	43,422	35,291	24,510	12,622

Note: See notes under **Table 7.1** and notes under **DWR Submittal Table 6.9** in **Appendix E** for a detailed explanation of the volumes above.



To offset dependency on the groundwater supplies listed above, the City intends to begin using recycled water within the next 10 years, as described in **Section 4**.

The City will also continue to benefit indirectly from regional conservation efforts and also through SGPWA's efforts to augment its supplies and improve reservoir storage capacities. **Section 7** discusses reliability issues and compares the City's projected water supply availability to projected demands for normal, dry, and multiple dry years through 2045.

3.6 SURFACE WATER

The Whitewater Flume was built to provide water and power to the City and Banning Heights Mutual Water Company (BHWMC). BHWMC utilizes approximately 1,000 AF/yr of the Whitewater River diversions in the Flume (**Figures 3.11 and 3.12**), and the remainder of the diverted water flows into the San Gorgonio River below the Banning Heights Mutual Water Company (BHMWC) extraction point. A portion of the natural runoff and the Whitewater River diversions are diverted into spreading ponds located approximately one mile north of the Banning Bench in order to increase groundwater recharge.

Since 1913, surface water from the Whitewater River has been diverted into

the Banning Water Canyon Storage Unit, with an average of 1,500 AF/yr diverted into Banning Water Canyon since 1961. The water flowed within the Whitewater Flume (mentioned above in **Section 3.4.5 Banning Water Canyon Storage Unit**), and then through two hydroelectric power plants.



Figure 3.11: Whitewater Flume System

Due to damage along sections of the Whitewater Flume, surface flow is being diverted into Burnt Canyon to the north, and then back to the Whitewater Flume upstream of Powerhouse No. 1, where it continues downstream through Powerhouse No. 2 to an above ground reservoir operated by Banning Heights Mutual Water Company (BHMWC). The remaining water flows to the San Gorgonio River, where it recharges the Banning Water Canyon Storage Unit.

In June of 2010, Southern California Edison (SCE), the City of Banning, BHMWC and the SGPWA entered into an "Agreement for

Transfer of San Gorgonio Hydroelectric Project No. 344 Water Conveyance Facilities” which determined that SCE would restore and repair the facilities and transfer ownership to the City and BHMWC.



Figure 3.12: Whitewater Flume System

In average years the Whitewater Flume provides direct water use to the Banning Heights Mutual Water Company, and the rest goes to recharging the groundwater basins, which the City can then pump from as groundwater. A lot of recharged water is received during the Spring.

The Apple Fire of 2020 encompassed the entire Whitewater Flume structure. As of April 2021, the Whitewater Flume remains damaged and unable to deliver water to BHMWC and the City of Banning. SCE, BHMWC, and the City are working together to get the system back in operation as quickly as possible. Southern California

Edison currently owns the Whitewater Flume system.

The City of Banning plans to conserve stormwater flows from tributary creeks within its service area by allowing water to percolate into the ground. A preliminary evaluation by the City indicated that a portion of stormwater flows from creeks in the area could be conserved as "new" water to meet future needs. The Atwell Development (previously known as Butterfield) includes design features that are estimated to capture and recharge approximately 1,370 AF/yr of stormwater flows from Smith Creek. The Rancho San Gorgonio Specific Plan includes design features that are estimated to capture and recharge approximately 199 AF/yr of stormwater at full buildout.

3.7 ALTERNATE WATER SOURCES

This section provides an overview of alternative water sources (non-potable supplemental supplies) and their potential uses. Alternative water sources include recycled water or greywater. A more detailed look into recycled stormwater is found in **Section 4**.

3.7.1 Greywater

Greywater systems have been used in California to provide a source of water supply for subsurface irrigation and also as



a means to reduce overall water use. Greywater consists of water discharged from sinks, bathtubs, dishwashers, and washing machines. Greywater systems consist of an underground tank and pumping system. Greywater is currently legal for subsurface irrigation in the State of California; however, strict regulations and high installation costs have impeded installation of professional greywater systems and have the unintended consequence of undocumented and noncompliant use of greywater. An example of a Greywater System is shown below in **Figure 3.13**.

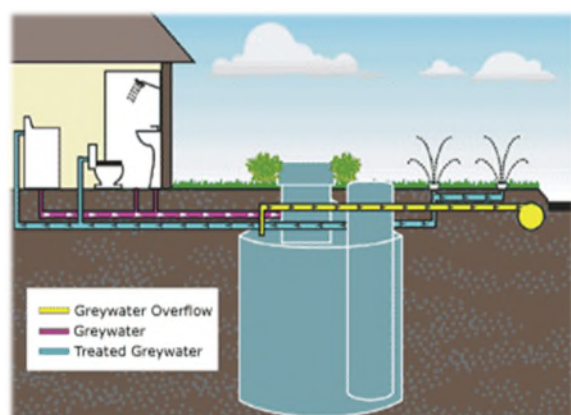


Figure 3.13: Greywater System

The City does not currently have a formal program in place to support greywater use. However, the promotion of greywater systems as a means to reduce the City's overall water use is not recommended since the use of greywater is currently limited to subsurface irrigation and therefore the overall service area-wide reduction in water use (in AF) would be minimal at best.

Additionally, any water diverted to greywater systems would no longer be available to be treated into recycled water.

3.8 TRANSFERS OR EXCHANGES

The City's rights to annual groundwater extraction are shown on **DWR Submittal Table 6-9 of Appendix E**. In light of pending housing growth, this table indicates that preservation of the City's groundwater supplies is imperative for the City. Thus, the leasing of groundwater rights is not feasible for the City. Other than the sale of water to High Valleys Water District, and occasionally to BHMWC, the City is not planning to enter into any groundwater transfer or exchange opportunities with other agencies.

The City has one 12-inch interconnection with BCVWD that is capable of transferring water to the City during emergencies. The emergency connection is located at the intersection of Sun Lakes Blvd. & Highland Springs Ave. During the summer of 2020 the City took water from BCVWD through this interconnection because four (4) wells were out of operation. Before this year, the interconnect had not been used since 2008.

3.9 PLANNED SUPPLY PROJECTS

The City continually reviews practices that will provide its customers with adequate and reliable supplies. Trained staff continues to ensure the water quality is



safe and the water supply will meet present and future needs in an environmentally and economically responsible manner. The City coordinates its long-term water shortage planning with SGPWA and other local agencies through the development of their respective UWMPs. The City also meets bi-monthly with the San Geronio Pass Regional Water Alliance, which is comprised of thirteen (13) local water purveyors, to discuss local issues with different agencies.

Any new City water supply projects will be to add, replace, or upgrade wells to support population growth and new development. The projects that have been identified to improve the City's water supply reliability and enhance the operations of the City's facilities include replacement of water meters, fire hydrants, valves, and pipelines.

3.10 ENERGY INTENSITY OF SUPPLY

According to the City's groundwater production figures shown in **Table 3.3**, the City pumped an average for 5,100 gpm per day in 2020. With an average well capacity of 800 gpm, this means that the well motors ran for a cumulative of six (6) hours each day. With an average horsepower of 80 HP per well, the City uses about 360 kilowatts hours (kWh) per day per operating well, or about 130,000 kWh each year. The typical industrial energy cost in the City is about \$0.10 per kWh. Thus, the typical annual energy costs to run one of the City's

groundwater well motors (one motor) is shown in **Table 3.5** below:

Table 3.5
Annual Energy Costs to Run Well Motor in City

Kilowatt-Hours (kWh)	Cost (\$) per kWh	Total Cost (\$)
130,000	\$0.10	\$13,000

The costs shown in **Table 3.5** above only include energy costs to run the motors of the wells. The costs do not include smaller miscellaneous costs such as lighting, control valves, and instrumentation. However, since the motor is the most significant component of the total energy costs, these costs shown in **Table 3.5** provide a rough idea of what is required to operate the City's groundwater wells each year.

Since the City relies on groundwater for their supplies, the City cannot offset the energy costs required to run the City's water system. In addition, imported water costs from a wholesaler are significantly greater than the total production costs of groundwater, which include not only the energy costs shown above, but also additional costs of treatment and distribution. For any water agency that can produce water locally, it is more economically feasible to produce local water than to purchase imported water. Thus, the City plans to continue to pump groundwater.



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Section 4

Recycled Water Opportunities

The City's Wastewater Treatment Plant (Pictured Below), Treats the City's Wastewater. The Treated Discharge is Used to Replenish the City's Groundwater Basins.





RECYCLED WATER OPPORTUNITIES

Recycled water use has increased overall water supply reliability for agencies that have implemented the necessary upgrades.

4.1 OVERVIEW

"Recycled" or "reclaimed" water is defined as wastewater purified through primary, secondary, and tertiary treatment. Recycled water is acceptable for irrigation and some industrial processes. The Southern California region discharges nearly 2 billion gallons of treated wastewater per day. The treated wastewater is discharged either to the ocean or to permitted areas such as percolation ponds. Recycled water is considered a reliable and drought-proof water source that reduces reliance on imported water. Recycled water will continue to be a critical part of the California water picture because of likelihood of drought. As technological

advancements continue to reduce treatment costs and as legislation expands the use of recycled water, more reuse opportunities should develop.

This Section describes the City's existing wastewater collection and treatment system, and identifies existing and future recycled water opportunities available to the City. The section also includes estimates of recycled water supply through 2045.

4.2 WASTEWATER COLLECTION SYSTEM

City of Banning provides sewer service to the area within City limits and to unincorporated areas of Riverside County that surround the southeast portion of the



City, as shown in **Figure 4.1**. The City of Banning is responsible for the collection, conveyance, treatment, and disposal of wastewater generated within its service area, as depicted in **Figure 4.2**. Municipal wastewater in the City's service area is generated from residential, commercial, and institutional sewer discharges. The City does not currently have any major industrial sewer discharges (i.e. brine). However, there are some cannabis cultivation facilities that will be operational within the next two years, which will need to be monitored and regulated.

The City's wastewater collection system drains primarily from west to east. The wastewater discharged from the City is collected from a network of 112 miles of gravity sewer mains. The local collector sewers discharge into larger sewer trunk mains along Westward Avenue and Porter Street. The trunk mains then carry the wastewater along an unpaved access road to the Banning Wastewater Treatment Plant (WWTP), located in the southeast corner of the City (see **Figure 4.3**). The WWTP has a current capacity of 3.6 MGD and is designed to treat wastewater to secondary standards. Primary and secondary treatment consists of the following processes: headworks, screening, grit removal, primary clarification, filtration, and secondary clarification. The

secondary-treated wastewater is discharged to percolation ponds which recharges the Cabazon Groundwater Basin (Storage Unit). This recharge is provided only through surface percolation, and no injection wells are used by the City.

4.2.1 Wastewater Flows

The quantities of wastewater generated are proportional to the City's population and the water used by its residents. The wastewater flows are metered at the influent point to the WWTP. Total wastewater collected in the City over the past five (5) years is shown in **Table 4.1** below.

Table 4.1
Wastewater Flows Collected in City

Year	Wastewater (AF)	Wastewater (MG)
2020	2,185	712
2019	2,234	728
2018	2,259	736
2017	2,216	722
2016	2,179	710
Avg:	2,215	722

Due to projected housing developments within the City's service area, wastewater flows are expected to significantly change

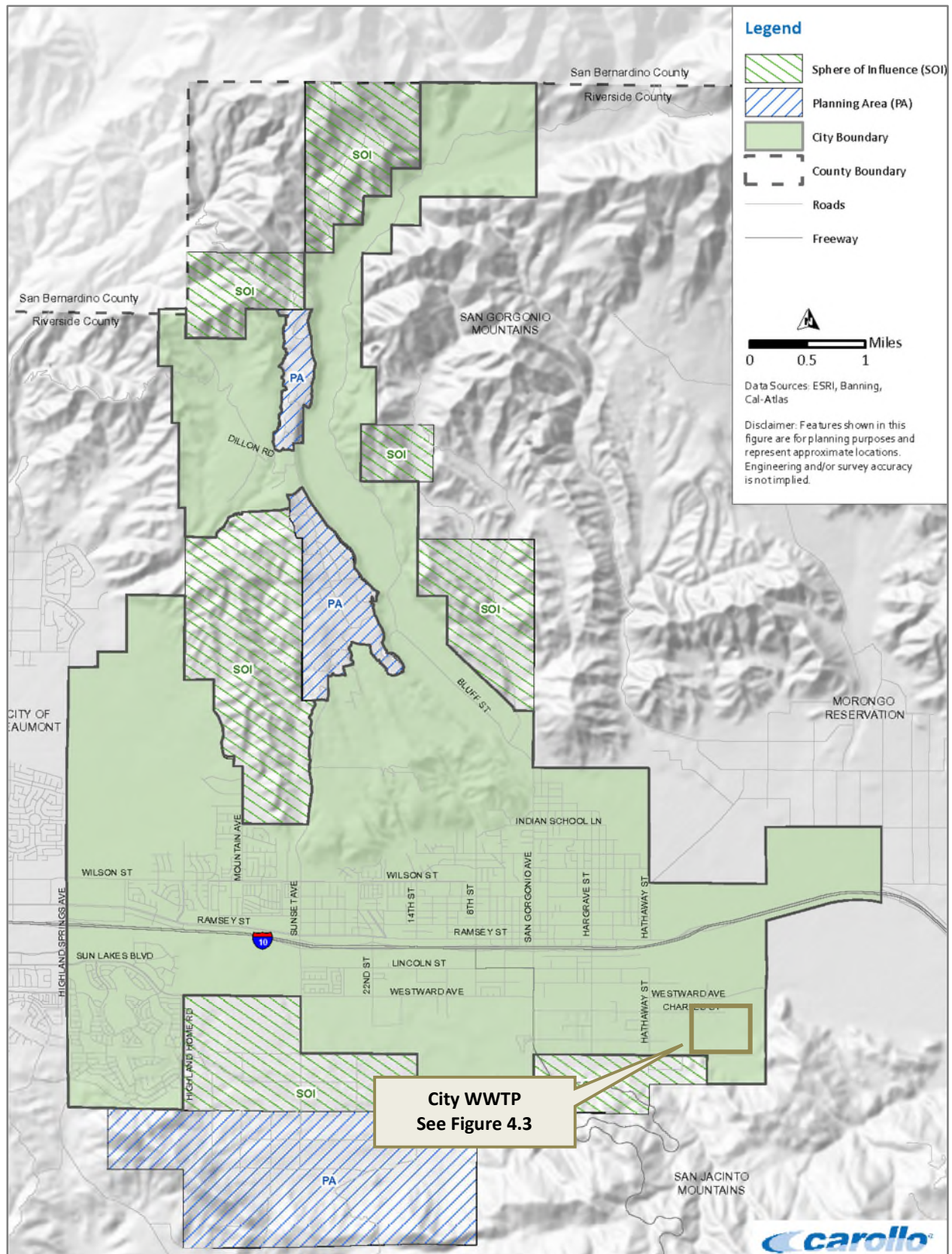


Figure 4.1: City of Banning Wastewater Service Area (with Additional Shaded Planning Areas)

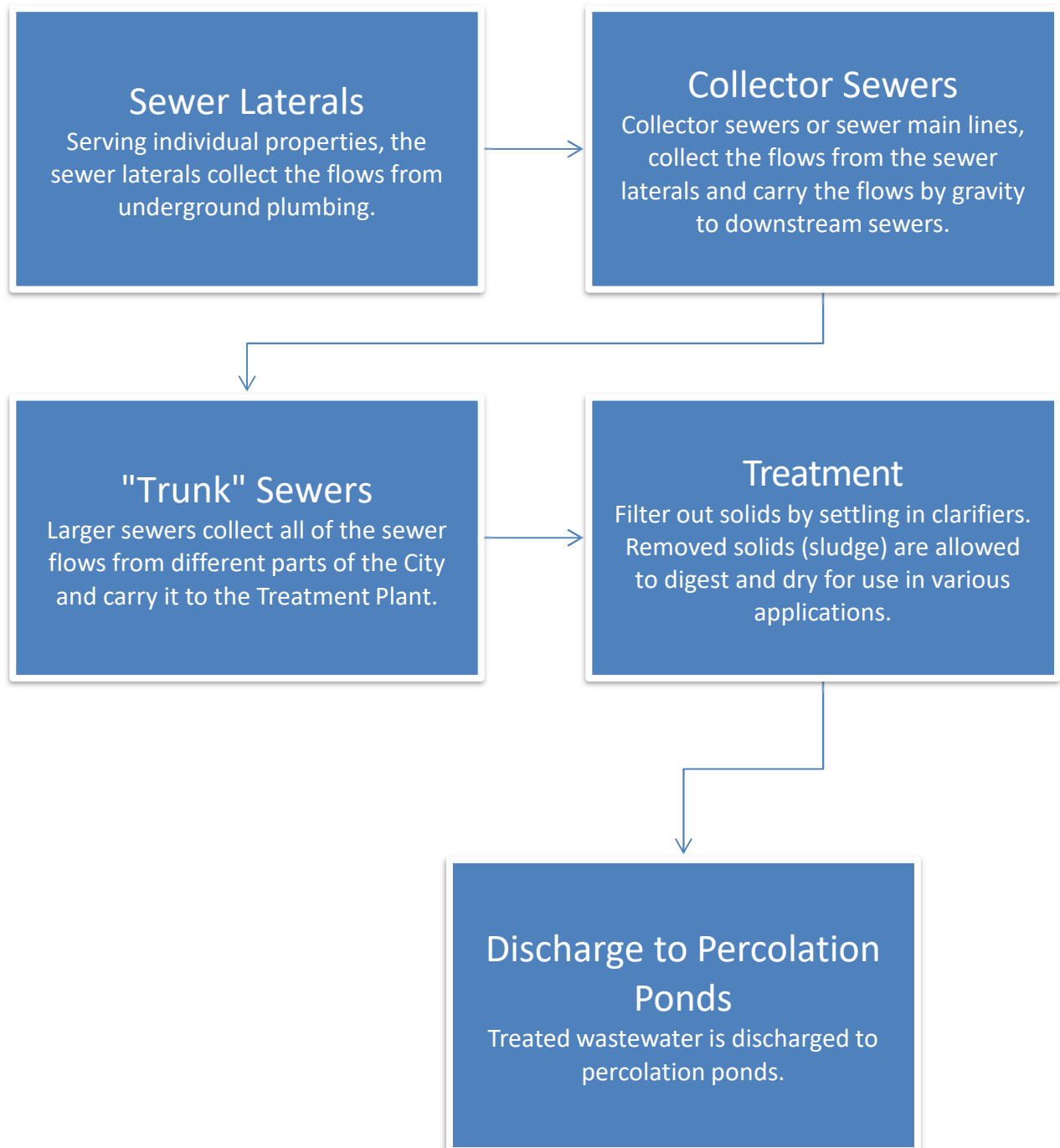


Figure 4.2: Schematic of City of Banning Existing Wastewater Collection and Treatment System



over this UWMP planning period (2045). The City anticipates that future wastewater flows can be estimated using the projected demands shown in **Section 6** multiplied by an increasing return rate from 25 percent (0.25) to 50 percent (0.50). **Table 4.2** below shows the projected wastewater flows:

Table 4.2
Projected Wastewater Flows Collected in City

Year	Flows (AF)	Flows (MG)
2025	2,852	929
2030	3,745	1,220
2035	4,700	1,532
2040	5,702	1,858
2045	6,734	2,194

The estimated 25 percent return rate was generated from the fact that the existing low-density residential customer base in the City uses much of the water for outdoor irrigation. Typical urban areas have return rates ranging from 75 percent to 90 percent. The projected 50 percent return rate by 2045 is higher than the City's current return rate, since newer developments described in **Section 2** should have higher return rates. As the City's population is expected to nearly double through these developments, the return rates from the newer developments should offset the return rates from the existing developments, resulting in an estimated aggregate return rate of 0.50 by 2045.

4.3 RECYCLED WATER

As mentioned in the previous section, the Banning WWTP is the only wastewater treatment facility for the City. The WWTP currently provides only secondary treatment, and the treated wastewater does not meet Title 22 Standards. Further, the City does not use any recycled water produced by any other neighboring agencies. Thus, no wastewater has been "recycled" (re-used) within the City's service area over the past five years, as **Table 4.3** indicates:

Table 4.3
Recycled Water Produced and/or Used in City

Year	Recycled Water Produced or Used (AF)
2020	0
2019	0
2018	0
2017	0
2016	0

The amounts indicated in **Table 4.3** above coincide with the projections in the City's 2015 UWMP. That is, the 2015 UWMP did not project any recycled water use through the year 2020.

4.3.1 Projected Recycled Water Use

According to the City's 2018 Integrated Master Plan, the City has plans to upgrade



the existing WWTP treatment to meet tertiary treatment standards and facilitate infrastructure to supply recycled water. The design of the upgraded WWTP will allow for expansion of the treatment capacity when it becomes necessary. This proposed expansion described in the 2018 Integrated Master Plan (IMP) is also in accordance with the City's 2006 Recycled Water Master Plan.

The proposed WWTP upgrade is projected to enhance secondary treatment and add tertiary treatment in the form of cloth filters in the near-term (2025) and construction of a recycled water distribution system. Facilities to be constructed would include recycled water pipelines to transport recycled water to the recycled water customers. Upon completion of the upgrades, approximately 2,700 AFY of recycled water would be available to recycled water customers. Assuming that the improvements would be completed by year 2025, projected recycled water use would be as shown in **Table 4.4**:

Table 4.4
Projected Recycled Water Production and/or Use

Year	Recycled Water Production/Use (AF)
2025	2,700
2030	2,700
2035	2,700
2040	2,700
2045	2,700

The projected quantities shown in **Table 4.4** above are based on a "Phase I" capacity expansion to the WWTP. The 2018 IMP projected up to 5,760 AFY of recycled water production capacity by 2040. However, the 2018 IMP identified only 2,530 AFY of recycled water demand (including the proposed housing developments). Thus, for conservative planning purposes, the projected recycled water production for this 2020 UWMP planning period (through the year 2045), is 2,700 AFY. The 2018 IMP describes the City's potential recycled water customers and service area in **Figure 4.4**.



Figure 4.3: City of Banning WWTP and Percolation Ponds



4.3.2 Potential Recycled Water Use

From an engineering standpoint, there are no physical barriers or constraints which would cause the construction of recycled water facilities to be unfeasible. The City is relatively flat within the vicinity of potential recycled water customers. The City currently serves one customer (Sun Lakes

Since the Sun Lakes Golf Course provides the City with existing recycled water demand, other potential users can “tap in” to the proposed recycled water pipeline.

Golf Course) with non-potable water from Well M7 and Well M12. Typical annual demand for the Sun Lakes Golf Course is 850 AFY or 0.8 MGD. Since the Sun Lakes Golf Course is located on the westerly end of the City, once the City constructs recycled water pipelines to reach the Sun Lakes Golf Course, other potential customers would be within proximity to receive recycled water. Therefore, construction of recycled water facilities would prove feasible if the funding for recycled water improvements and pipeline infrastructure was covered, at least in-part, by developers, and an agreement was in place for the use of recycled water. The City would then be able to provide recycled water to its customers.

The City’s previous 2006 Recycled Water Master Plan identified potential customers

across the Interstate 10 Freeway. However, the 2018 IMP indicated that these potential customers were not feasible, due to the difficulty with crossing the 10 Freeway and the railroad tracks, and since there are other potential customers south of the 10 Freeway. The potential recycled water customers are listed in **Table 4.5** below:

Table 4.5
Potential Recycled Water Users

Customer	Recycled Water Demand (AF)
Existing Customers	
Sun Lakes Golf Course	850
Banning High School	175
Dysart Park	87
Lions Park	79
Projected Developments	
Atwell Development	864
Rancho San Gorgonio Development	217
Five Bridges Development	223
Neighborhood Park	35
Total	2,530

As noted by **Table 4.5** above, the exception to maintaining only recycled water users below the 10 Freeway would be the Atwell Development (previously known as Butterfield), since this is a relatively large development. In addition, it would be within about a 1-mile distance from the Sun Lakes Golf Course. Assuming the Sun Lakes Golf Course is provided recycled water



service prior to completion of the Atwell Development, the pipeline can be extended to feed the Atwell Development due to the proximity of the pipeline. A recycled water line to the Atwell development may be constructed in the future, but the City does not currently have plans to fund or construct such a project, as reflected in the 2018 Integrated Master Plan.

4.3.3 Recycled Water Alternatives

For the Atwell Development, the City had considered construction of a satellite wastewater treatment facility, but has since moved away from this idea. Instead, Atwell will send all of its sewer discharge to the City's WWTP. However, the City is exploring the option of using excess recycled water (whatever is not used for irrigation) to recharge the West Banning Basin. This would allow the City to make full use of its upgraded treatment capacity.

4.4 ENCOURAGING AND OPTIMIZING RECYCLED WATER USE

Currently, there are no methods in place to encourage the use of recycled water, since recycled water infrastructure has not yet been constructed as of this UWMP. Once the City has the capacity to provide recycle water, then they would consider incentives to encourage and optimize recycled water use. This may include:

- Outreach to general public
- Outreach to potential recycled water customers
- Monitoring, enforcement and training for recycled water use
- Temporary financial incentives, such as free service for the first month

The exact methods will be developed as the City's recycled water system expands. If the City applies for outside funding to construct recycled water infrastructure, the City will need to also secure funding specifically for the purpose of actively promoting recycled water use.

4 - 10 2020 URBAN WATER MANAGEMENT PLAN
SECTION 4: RECYCLED WATER OPPORTUNITIES

Section 5

Water Quality

The City of Banning tests all groundwater pumped from its twenty wells to ensure high quality water for the City's customers.





WATER QUALITY

The Banning Whitewater Flume (pictured) collects surface water for groundwater recharge for the Banning Canyon storage unit.

5.1 OVERVIEW

The quality of a natural body of water varies over time. During periods of intense rainfall or snowmelt, tributaries for surface water can change, resulting in new constituents or diluting existing constituents in the receiving waters. Conversely, during times of drought, contaminants may increase in concentration without additional flows available to dilute the concentration contaminants. As groundwater levels rise and fall, groundwater will pass through different layers of rock and sediment and will absorb different constituents from those strata. Likewise, groundwater wells that have not been utilized over long

periods of time can see water quality issues resulting from stagnant water. In summary, the quality of water changes over the course of a time and location, and these variables must be recognized by water agencies. For these reasons, City of Banning monitors its wells for water quality as required by State and Federal regulations.

This Section provides a general description of the City's water sources, water quality monitoring and reporting, and water treatment. Groundwater, local surface water, and imported (recharge) water are discussed in this Section. A discussion of potential water quality impacts on the reliability of supplies is also provided.



5.2 WATER QUALITY STANDARDS

5.2.1 Federal Regulations

In 1974, Congress passed the Safe Drinking Water Act (SDWA) to protect public health by regulating the nation's municipal drinking water supply. As part of the SDWA, powers were given to the Federal Environmental Protection Agency (EPA) to

regulate drinking water. The 1996 amendment to the SDWA required monitoring of new types of contaminants. Since the 1996 amendment to the SDWA, the EPA has

identified over 90 contaminants in its National Primary Drinking Water Regulations (NPDWR) or ("primary standards"). The main categories that the EPA identified include biological microorganisms, disinfectants, disinfection byproducts, inorganic chemicals, organic chemicals, and radionuclides. As required by the SDWA, water agencies must provide an annual Water Quality Report to its customers.

5.2.2 State Regulations

Water quality regulations have changed since the SDWA was enacted in 1974.

Several state, regional and county agencies have jurisdiction and responsibility for monitoring water quality. The actual regulations governing water quality have also changed over the years. This is the result of the discovery of new contaminants, changes in the understanding of the health effects of previously known as well as new contaminants, development of new analytical technology, and the introduction of new treatment technology. All water purveyors are subject to the drinking water standards set by the

In 2014, the State's drinking water program was transferred from the Health Department to the State Water Resources Control Board.

Federal EPA and the State Water Resources Control Board (SWRCB). The California Department of Public Health (CDPH) previously oversaw the State's drinking water program and the environmental lab accreditation program. As of July 2014, those programs were transferred to the SWRCB. Under the SWRCB, the Division of Drinking Water (DDW) regulates public drinking water systems, including setting maximum contaminant levels (MCLs) and regulating the operation of water systems. In addition to the SWRCB, several regional and county agencies have jurisdiction and responsibility for monitoring water quality, and contaminant sites.



5.2.3 State Drinking Water Standards

The State of California has established two (2) main types of drinking water standards:

1. Maximum Contaminant Level (MCL)
2. Public Health Goal (PHG)

MCLs are the drinking water standards to be met by public water systems. The levels set by the State consider a contaminant's health risk, detectability, treatability, and costs of treatment. MCLs are further broken down into two (2) types:

1. Primary MCL – Health Related
2. Secondary MCL – Taste & Odor

Secondary MCLs are not federally enforceable according to the most recent SDWA amendments. However, they are regulated by the State of California. DDW publishes a list of Secondary MCLs, which include Copper, Iron, and Zinc.

PHGs are established by the Office of Environmental Health Hazard Assessment (OEHHA). They are concentrations of drinking water contaminants that pose no significant health risk if consumed for a lifetime, provided risk levels are not exceeded. Public water systems sometimes use PHGs to provide information about drinking water contaminants in their annual water quality reports. PHGs are not regulatory standards. However, state law

requires the California State Water Resources Control Board (SWRCB) to set drinking water standards for chemical contaminants as close to the corresponding PHG as is economically and technologically feasible.

5.2.4 City Standards

The main sources of the City's water supply, as mentioned in Section 3, are groundwater pumped from one of five (5) subbasins of the Coachella Valley Groundwater Basin, and surface water (for groundwater recharge) from the State Water Project (SWP) through the San Geronio Pass Water Agency. The City provides on-site "wellhead" treatment and tests samples of water in its wells on a regular basis.

To ensure the quality of its water, the City monitors for a number of threats to drinking water, including: microbial contaminants, inorganic contaminants, pesticides & herbicides, organic chemical contaminants, and other contaminants. The City's Annual Water Quality Report (also known as "Consumer Confidence Report") filed with the DDW identifies regulated substances (Primary MCLs), secondary substances (Secondary MCLs), and unregulated substances (PHGs). The City identifies all detected constituents and the concentrations of contaminants when preparing the report.



5.3 QUALITY OF WATER SOURCES

5.3.1 Groundwater

Groundwater underlying the City's water service area has historically been of high quality. According to DWR's Groundwater Bulletin 118 (California's Groundwater), water quality in the Coachella Valley basin is characterized as predominantly calcium-sodium bicarbonate type (DWR 1987). Total dissolved solids (TDS) content for selected samples from municipal wells ranged from 100 to 200 mg/L. In the City's most recent Annual Water Quality Report (2019), the average level of TDS detected in the City's drinking water 209 mg/L. The secondary maximum contaminant level (MCL) range for TDS concentrations in drinking water is 500-1,000 mg/L.

As of the 2015 UWMP, California had previously established a maximum contaminant level (MCL) of 10 parts per billion (ppb) for hexavalent chromium (Cr6), which took effect on July 1, 2014. This concentration can be described as one drop in an Olympic-size swimming pool. Prior to this, Cr6 was regulated under California's total chromium MCL of 50-ppb. The Federal Standard is currently set at 100-ppb. Based on monitoring results, the City had detected Cr6 at concentrations exceeding the new MCL in water produced by seven (7) of its twenty-one (21) operational groundwater production wells (Wells C2, C3, C4, C6, M10,

M11, and M12). Average concentrations over a three-year period from these wells ranged from 9.8-ppb to 21.2-ppb. In May 2017, a California Superior Court judge ruled that the State Water Resources Control Board (SWRCB) must withdraw the 10-ppb Chromium-6 standard and that it must be reevaluated based on economic feasibility. In August 2017, the SWRCB voted to remove the 10-ppb standard and revert back to the previous 50 ppb standard. As a result, the City is now in compliance with Federal and State drinking water standards related to hexavalent chromium. Besides an occasional detection of constituents above the Secondary MCLs or PHGs, City of Banning's drinking water is of high quality.

In 2017, the SWRCB reversed the requirements for hexavalent chromium back to 50 ppb.

The SWRCB is currently evaluating treatment technologies and cost estimates for Chromium-6 removal. Publication of a Notice of Proposed Rulemaking is projected for late spring or early summer 2021.

5.3.2 Imported Water

SWP water imported from SGPWA originates from the Bay Delta and some additional downstream California regions. The SWP contains specific contaminants



which are characteristic of those areas. Although SWP water meets or exceeds applicable standards, there is concern that some constituents are approaching threshold levels. A few of the main concerns over recent years have been total organic carbon (TOC) and bromide, nutrients, and arsenic. These constituents have not been detected at high levels by the City, but they are constituents to be monitored by the City. This will help the City prepare for future intakes from SGPWA should SWP water quality begin to influence the City's groundwater to a greater degree.

5.4 IMPACTS OF WATER QUALITY

The quality of water dictates the management strategies a water supplier will implement, including, but not limited to, the selection of water sources, treatment alternatives, blending options, and modifications to existing treatment facilities. A direct result of the degradation of a water source, including groundwater, is the need to install wellhead treatment before consumption. That is, the poorer the quality of the source water, the greater the need (and cost) for treatment. This can also decrease water supply reliability.

5.4.1 Impacts of Abandoned Wells

The presence of abandoned groundwater wells represents a potential hazard to the

quality of groundwater aquifers. Abandoned and improperly destroyed wells can act as conduits for contaminants to reach drinking water supplies. It is vital for the long-term protection of the basin that abandoned wells be located and destroyed. While it is the landowner's responsibility to destroy an abandoned well, local water agencies should be proactive about making sure that abandoned wells are in fact destroyed. The destruction of abandoned groundwater wells should be performed in accordance with state standards.

California Water Code
Section 13750.5
requires that those
responsible for the
destruction of water
wells possess a C-57

*Abandoned
private wells can
pose a water
quality concern if
left unaddressed.*

Water Well Contractor's License. Whenever a water well is destroyed, a report of completion must be filed with the California DWR within 60 days of the completion of the work. DDW and Riverside County (County) are responsible for permitting and inspecting construction and destruction of wells.

The City's policy for all functional and abandoned wells is to establish a "well site control zone", the area immediately surrounding the well alternatively referred to as the "wellhead". The purpose of this zone is to provide protection from vandalism, tampering, or other threats at



the well site. The size of this zone can be determined by using a simple radius, or an equivalent area. The well site control zone should be managed to reduce the possibility of surface flows reaching the wellhead and traveling down the unprotected casing. SWRCB-DDW regulations recommend a minimum radius of 50 feet for well site control zones for all public water systems in the state. The requirement applies to abandoned wells as well as functional activities that could potentially lead to “source water contamination” according to EPA regulations. (IWRP, 2007).

5.4.2 Groundwater Contamination Response

Currently, the City has a Water Shortage Contingency Plan (WSCP), Hazard Mitigation Plan (HMP), and an Emergency Operations Plan (EOP) in place to deal with the effects of potential groundwater contamination that reduces supplies. This information is provided in **Section 8**.

5.4.3 DDW Sanitary Surveys

A Watershed Sanitary Survey is a document that examines the potential sources of contaminants in a watershed and includes recommendations for managing these effects. Per DDW guidelines, the Watershed Sanitary Surveys are supposed to be updated every five years. In the City’s case, the City does not use any surface water

directly, so the City does not prepare Watershed Sanitary Surveys. However, the City is still subject to periodic inspections by DDW staff every three years. The Sanitary Survey Inspection conducted by DDW includes evaluation of the following:

1. Water Sources
2. Treatment
3. Distribution System
4. Finished Water Storage
5. Pumping Facilities
6. Monitoring & Reporting
7. System Management/Operation
8. Operator Compliance

The City’s previous Sanitary Survey Inspection occurred in February, 2021.

5.4.4 Impacts on Management & Reliability

As a result of the City’s water quality policies, the City has not experienced any water quality issues that would affect water supplies. Groundwater in the basin has been of high quality. The City’s *2019 Annual Water Quality Report* is provided in the Appendix of this UWMP. The City does not anticipate any significant impacts to water supply reliability due to water quality issues, with the only possible exception being an updated MCL on Chromium-6.

Section 6

Water Use

The residential sector accounts for about two-thirds of total water use in the City. Landscape accounts have the highest rate of usage per connection.





WATER USE

Water use within the City's service area includes residential indoor use, commercial use, and landscape irrigation use.

6.1 OVERVIEW

As a developing City, water consumption is subject to significant change from year to year. Further, water use within the City's service area is also variable over the course of a given month or climate conditions. This section explores the water usage trends within the City and quantifies total water usage per customer type. In addition, the provisions of Senate Bill x7-7 (Water Conservation Act) are explored in detail.

6.2 RECENT WATER USE CHANGES

As a result of the Coronavirus Disease 2019 (COVID-19) Pandemic, Commercial and Institutional water use has declined. On

March 19, 2020, an Executive Order and Public Health Order directed all Californians to stay home, except to go to an essential job or to shop for essential needs. It was then modified on May 4, 2020. The Regional Stay Home Order, announced December 3, 2020, triggered additional restrictions after a region was announced to have less than 15% ICU availability. It prohibited private gatherings of any size, closed sector operations except for critical infrastructure and retail, and required 100% masking (with certain exceptions as indicated in guidance for use of face coverings) and physical distancing. The Regional Stay Home Order was lifted January 25, 2021. During his 2021 State of the State Address Governor Gavin Newsom



reported that California has administered nearly eleven (11) million doses of the vaccine, and that the State was well on its way to seeing an end to this pandemic.

The State Water Resources Control Board – Division of Drinking Water (DDW) has stated that the public water systems (PWS) operations are designated as essential functions and staff and suppliers are not restricted by any current orders. This has allowed for water system operators and maintenance workers to successfully keep the PWS providing safe and clean drinking water to their customers.

The full extent of impacts of the coronavirus pandemic on the water sector are still emerging, but one area that has come to the forefront is the effect on municipal water demand. Available data indicate that

The Covid-19 Pandemic has impacted water use in the residential and commercial sectors.

residential water demand has increased while non-residential demand has decreased. In San Francisco, California, residential demand increased by ten (10) percent, while non-residential demand

declined by 32 percent. Residential communities have experienced either modest increases or the smallest decreases. Utilities where total water use has declined during the coronavirus

pandemic will see a drop in revenue. Moreover, as businesses reopen and implement hygiene and disinfection practices and as temperatures rise, water use may rise dramatically. Such rapid and dramatic changes in water use can exacerbate existing and reveal new system weaknesses.

6.3 CURRENT CITY WATER NEEDS

Prior to incorporation, the City of Banning served as a stagecoach and railroad stop between the Arizona territories and Los Angeles. In 1913 when the City was incorporated, the City's population was under 10,000 persons. In recent decades, City has grown at an average of about 400 persons per year.

Since 2015, the City's population has increased by about 120 persons annually. However, as noted in **Section 2**, there are several new developments that will bring the population growth to an average of 1,411 persons per year for the next 25 years (to 2045). By 2045, the City will be approaching ultimate "built-out" conditions with remaining expected future water demands primarily attributable to possible land use changes in residential densities and in-fill land development projects. As a result of the City's local groundwater sources and imported recharge capacity from SGPWA, the City is in a position of



providing a reliable source of quality water for the built-out conditions.

The City's water use over the past 10 years has been consistent and recent total water consumption reported for calendar year 2020 is slightly less than total water consumption reported for 2010. Since the City is zoned mainly for residential use and most of the residential water consumption in the City is used for non-personal purposes (i.e., irrigation, car washing, etc.), the City has a significant number of residential lots which require consistent irrigation to maintain landscapes. Of the water used for personal purposes, most of the water consumed is attributable to toilet flushing and clothes washing.

In the commercial and institutional sector, water needs vary as customers range from restaurants to offices and from retail stores to schools. Office buildings and retail stores require significantly less water than restaurants and schools and are not usually the key focus of water conservation efforts.

To maintain civic pride and a sense of community, City parks (**Figure 6.1**) and other City right of ways (medians, etc.) require consistent irrigation. To prevent water waste the City follows an irrigation schedule that limits the length of irrigation to avoid overspray runoff and also evapotranspiration from daytime watering.



Figure 6.1: Banning Park

Overall water use characteristics within the City's water service area reflect slightly higher than average regional water use characteristics within Southern California. As a result of the City's water needs, the City has passed a conservation ordinance similar to other agencies which limits or restricts non-personal water use during periods of drought. This will help conserve water use for the more important health and safety needs of its customers. The City's Conservation Ordinance is discussed in greater detail in **Section 8**.

6.4 CLIMATE IMPACTS ON WATER USE

California faces changes in water use habits due to a variety of issues including population growth, regulatory restrictions and climate change (including the recent severe drought of 2011-2016). More specifically, weather unpredictability (more extreme drought and flood events) poses additional challenges to water agencies, not only due to impacts on water supplies but also due to impacts on water demands.



During and since the preparation of the 2015 UWMP, there have been local and statewide influences on water use in the City. In January of 2014, former Governor Brown declared a state of emergency and directed state officials to take all necessary actions to prepare for water shortages. As the drought prolonged into 2015, former Governor Brown gave an executive order in April 2015, as shown in **Figure 6.2**, which mandated a statewide 25% reduction in water use, with each agency assigned specific target reductions.



Figure 6.2: Executive Order B-29-15 (2015)

Changes in water usage habits have a special concern for the State due to the inter-dependence of many agencies for the transfer and use of water. For instance, some agencies are unable to produce water locally and thus entirely dependent on imported water sources, while others are able to produce all water locally (i.e. groundwater). Further, some agencies are able to reduce demands with minimal economic impacts (only water sales

revenues), while other agencies will suffer economically (i.e. agricultural & industrial users) if required by State or local agencies to reduce water consumption. Thus, the State will likely face challenges in the near future to find the correct balance of water supply allocations to meet demands under various weather conditions. For SWP water rights holders, this is an all-too critical issue.

6.4.1 California Water Plan Update 2018

DWR's California Water Plan Update 2018 focuses on sustaining water resources and mitigating harm to the environment. This update presents a vision where all Californians benefit from such desirable conditions as reduced flood risk, more reliable water supplies, reduced groundwater depletion, and greater habitat and species resiliency-all for a more sustainable future. Some challenges to sustainability include communities located in floodplains, inadequate access to sanitation, ecosystem decline, groundwater overdraft, wildfires, and the exacerbating of these challenges by climate change.

6.5 WATER USE

Due to increases in water use efficiency and the lingering effects of the mandatory declaration period, overall water use within the City's service area in recent years has decreased mildly. Annual water consumption from 2016 to 2020 listed in



the **Table 6.1** below ranged from a high of 8,325 AF in 2020 to a low of 6,712 AF in 2016, with an average of 7,648 AF. Water consumption since 2015 has been consistent, with a moderate spike in 2020.

Table 6.1
City Recent Water Use

Year	Total Consumption (AF)	Per Capita (GPCD)
2020	8,369	240
2019	7,297	209
2018	7,927	228
2017	7,381	213
2016	6,997	203
Average (last 5 years):		219
Average (last 10 years):		234
2020 Water Use Target:		252

As indicated by **Table 6.1** above, the City has already reached their 2020 water use reduction target. Furthermore, the table above indicates that the City's water use in recent years has been low due to water conservation.

6.6 WATER USE BY SECTOR

6.6.1 Service Connections/Accounts

The City maintains records of water consumption and bills its customers on a monthly basis for its water service. The City maintains approximately 10,754 service

accounts with a mixture of residential, commercial, institutional, and industrial customers. The City includes both single-family and multi-family accounts under a residential sector; however, for billing purposes, the City does separate water use by single-family and multi-family. As of 2020, the current breakdown of accounts is shown in **Table 6.2**:

Table 6.2
Number of Service Connections (2020)

Sector	Service Accounts
Residential	9,845
Commercial	811
Industrial	54
Institutional/Governmental	35
Landscape Irrigation	9
Other	0
Total Connections:	10,754

About 92 percent of the total service connections are residential (single or multi-family), since the City consists primarily of residential properties. Commercial and institutional accounts comprise about 6 percent of the total accounts. Landscape and "other" accounts comprise less than 1 percent of the City's metered connections.

The total number of accounts does not necessarily represent the total number of actual service connections tapped into the



Figure 6.3: Sun Lakes Country Club

City's distribution mains. The total number of accounts varies on a monthly basis based on occupancy of a dwelling unit or commercial property.

In addition to the customer types listed in **Table 6.2**, the City also provides water to two (2) agencies, including the High Valleys Water District and the Sun Lakes Country Club (shown in **Figure 6.3**). The total combined water use of these two agencies has been about 900 AF/year. However, the City does not account for these two agencies in their demand data since water is considered to be a inter-agency transfer. Also, the water used by Sun Lakes Country

Club is considered non-potable and therefore not counted in this section of the UWMP.

6.6.2 Recent Water Use by Sector

The City records water use per service connection only and bills customers based on a single water rate structure. Water sales data is compiled by City water staff and recorded on the DWR Form No. 38 (Public Water System Statistics) and submitted to DWR annually. The total water consumption by customer type since 2015 is shown on **Table 6.3** below. As noted by the table, Single-Family Residential



Table 6.3
Recent Water Use by Sector (AF)

Sector	2016	2017	2018	2019	2020
Single Family Residential	3,370	3,728	3,775	3,438	3,966
Multi-Family Residential	69	76	77	70	81
Commercial	1,686	1,792	1,944	2,021	1,992
Industrial	94	102	101	95	172
Institutional/Governmental	58	64	58	28	23
Landscape Irrigation (Potable)	539	579	562	505	559
Landscape Irrigation (Non-Potable)	285	306	297	267	301
Other	0	0	0	0	0
Total Water Sales:	6,100	6,648	6,816	6,425	7,094
Unaccounted for Water	897	733	1,111	872	1,275
Total Water Consumption (Total Supply into System):	6,997	7,381	7,927	7,297	8,369

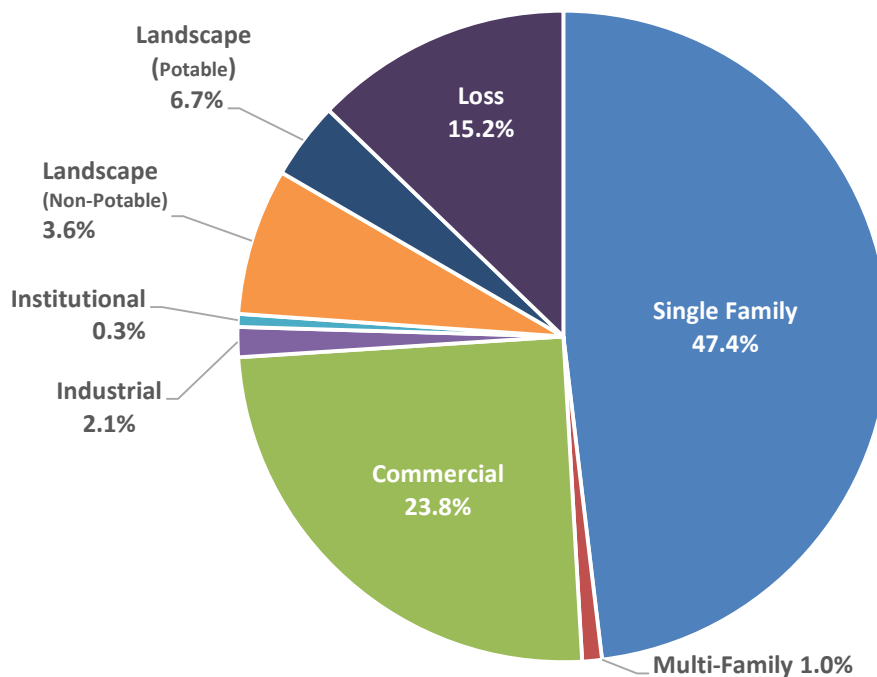


Figure 6.4: Current Water Demand by Sector (2020)



accounts are the highest consuming sector in the City since most of the City is zoned for single-family accounts (with higher densities for multi-family accounts). **Figure 6.4** also shows the Current Water Demand by Sector (2020). As indicated by **Table 6.3**, the City's unaccounted for water ranged from 733 to 1,275 AF, which on average is about 13 percent of the total water supply into the City's distribution system. Unaccounted for water consists of routine flushing, unmetered use, and water losses. Although water losses have cost impacts on water agencies, they cannot be prevented entirely. Instead, effort is given to controlling the quantity of water losses (to a cost-effective extent) in order to reduce the cost impact of water losses on water operations. For this reason, the City has prepared water loss audits using AWWA software. The water audits for 2016 to 2019 are provided in the Appendix of this UWMP. The 2019 Audit shows that the City's Leakage Index (the ratio of real loss to unavoidable loss) was 1.16, which is an excellent score for water agencies.

6.7 WATER CONSERVATION ACT

6.7.1 Act Background (SBx7-7)

Due to reductions of water in the San Joaquin Delta, the Legislature drafted the Water Conservation Act of 2009 (SBx7-7) to protect statewide water sources. The

legislation called for a 20 percent reduction in water use in California by the year 2020. The legislation amended the water code to call for 2020 and 2015 water use targets in the 2010 UWMPs, updates or revisions to these targets in the 2015 UWMPs and allows the Department of Water Resources (DWR) to enforce compliance to the new water use standards. Beginning in 2016, failure to comply with interim and final targets will make the City ineligible for grants and loans from the State needed to attain water self-sufficiency by 2020.

In addition to an overall statewide 20 percent water use reduction, the objective of SBx7-7 is to reduce water use within each hydrologic region in accordance with the agricultural and urban water needs of each region. Currently, the Department of Water Resources (DWR) recognizes ten (10) separate hydrologic regions in California as shown in **Figure 6.5**. Each hydrologic region has been established for planning purposes and corresponds to the State's major drainage areas. The City of Banning is in the Colorado River Hydrologic Region (HR), which includes most of Riverside County, San Bernardino County. The Colorado River HR is shown in **Figure 6.6**.

Per capita water use, measured in gallons per capita per day (GPCD), in the Colorado River HR varies between different water agencies depending on the geographic and

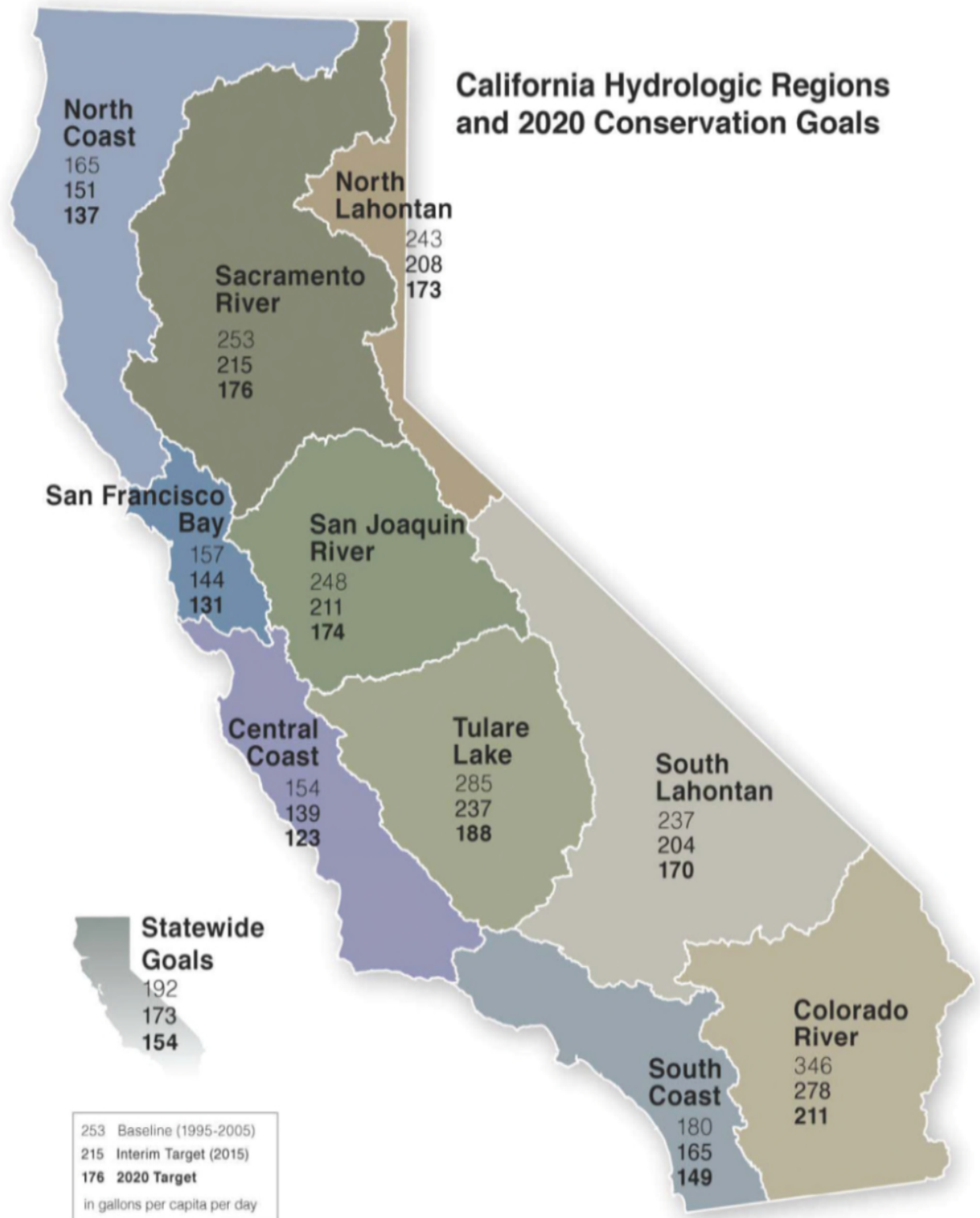


Figure 6.5: California's 2020 Water Conservation Goals



Figure 6.6: Colorado River Hydrologic Region



economic conditions of the agency's service area. The Colorado River HR has an overall baseline per capita water use of 346 GPCD and DWR has established a regional target of 211 GPCD for the region as a compliance target to satisfy SBx7-7 legislation.

The *Methodologies* guidebook made provisions that allowed a water supplier to meet the target requirements by achieving one of four (4) different targets, provided that the water supplier's baseline water use was low enough relative to the region within which it supplies water. For most agencies, the two most common options are 1) 20% reduction or 2) 5% reduction from the Hydrologic Region.

Exempt Agencies

If an agency has a baseline per capita water use of 100 GPCD or less, that agency will not have to adhere to any reduction targets as that agency is already considered water efficient. In such a case, that agency must document in subsequent UWMPs that its water usage is still under 100 GPCD.

6.7.2 SBx7-7 Baseline & Target

The basic procedure for determining the applicable water reduction target is illustrated by **Figures 6.7 and 6.8** on the following page. The City previously established water use targets for 2015 and 2020. DWR provided guidelines for

determining these targets in its *Methodologies* guidebook for the 2010 and 2015 UWMPs. In the 2010 and 2015 UWMPs, the City's baseline water use and targets were determined based on the procedures shown in **Figures 6.7 and 6.8**.

If an agency's 10-year baseline is slightly higher than the Hydrologic Region's target, that agency still must achieve a five percent reduction from its 5-year baseline. If an agency has a per capita water use of 100 GPCD or less, that agency will not have to adhere to any reduction targets as that agency is already considered water efficient.

Since the City does not use recycled water, a 10-year instead of a 15-year rolling average baseline was previously calculated. The City's baseline water use is 315 GPCD, which was obtained from the 10-year period January 1, 2001 to December 31, 2010.

Table 6.4 shows historic (2001 to 2010) water use and provides the base period water use per year used to calculate the baseline water use for the City. The data was used to calculate the 10-year and 5-year baselines. Moreover, regardless of the compliance method adopted by the City, it will need to meet the minimum water use target of 5 percent reduction from a 5-year baseline as calculated.

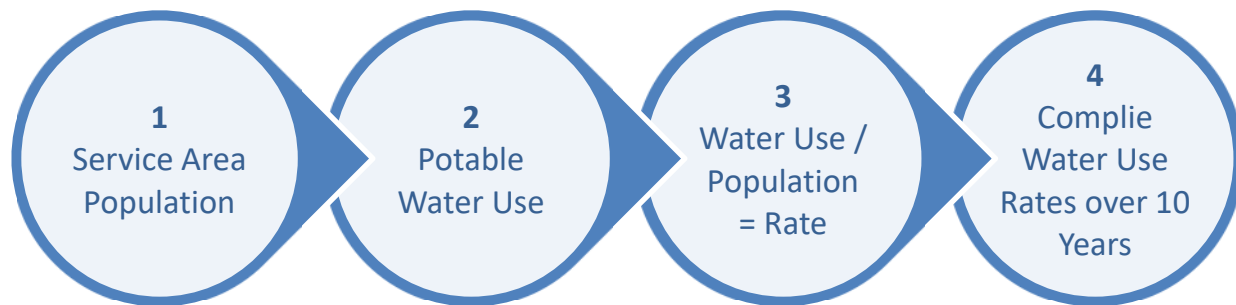


Figure 6.7: Procedure for Determining Baseline Per Capita Water Use

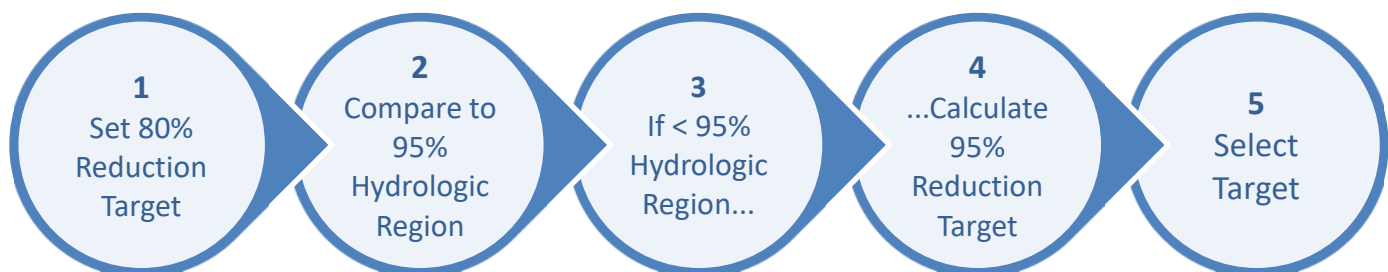


Figure 6.8: Procedure for Determining Target Per Capita Water Use



Table 6.4
City of Banning Water Use (GPCPD)

Year	Total Water Use (AF)	Population	Per Capita (GPCD)
2010	8,485	29,603	256
2009	9,259	28,751	287
2008	9,606	28,551	300
2007	10,245	28,193	324
2006	10,245	28,234	324
2005	9,427	28,250	298
2004	10,424	28,055	332
2003	10,043	27,608	324
2002	9,808	25,662	341
2001	10,032	24,639	363
10-yr. Baseline (2001-2010) (SB7: 10608.20)			315
5-yr. Baseline (2006-2010) (SB7: 10608.22)			298
Colorado River HR:			346

As shown in **Table 6.4** above, the City's 10-yr and 5-yr baselines were determined to be 315 GPCD and 298 GPCD, respectively.

The City's baseline water use was then compared to the regional compliance target to determine the applicable reduction amounts per the SBx7-7 additions to the water code. The legal stipulations applicable to the City and the required target to be enforced by DWR are shown in **Table 6.5**:

Table 6.5
City of Banning
SBx7-7 2020 Water Use Targets (GPCD)

Min. Reduction Requirement (10608.22)	20% Target (10608.20) (b)(1)	5% Reduction from Regional Target (10608.20) (b)(3)
283	252	200
2020 Per Capita Target:		252
Interim (2015) Target:		284

The selected SBx7-7 target is 252 GPCD (20% from its 10-year baseline) because this amount is greater than 200 GPCD (5% reduction from the Colorado River HR's target). Since the City's minimum reduction requirement of 283 GPCD is greater than the regional target of 211 GPCD, the City must select **Method 1** (252 GPCD) as its 2020 water use target. Therefore, the City's compliance target for 2020 per capita water consumption was **252 GPCD** in accordance with Section 10608.22 of the Code.

6.7.3 SBx7-7 Target Compliance

Although the requirements of SBx7-7 seemed stringent, it is noteworthy to mention that the City has seen an increase in water efficiency since the baseline years of 2001 to 2010. This is due in part to State legislation, stricter conservation measures, saturation of water-saving plumbing



fixtures, and overall water conservation awareness. As indicated by **Table 6.1**, the City's consumption rate for 2020 is **240 GPCD**. Thus, the City has achieved its final 2020 target. The City can maintain its consumption rates below the SBx7-7 target by continuing to focus on water conservation.

6.8 PROJECTED WATER DEMAND

Future water use projections must consider significant factors on water demand, such as development and/or redevelopment, and climate patterns, among other less significant factors that affect water demand. Although redevelopment is expected to be an ongoing process, it is not expected to significantly impact water use since the City will experience significant development over the next 25 years. Climate conditions will continue to be a major influence on demand as drought conditions will increase demand at a time when these supplies are limited.

6.8.1 Passive Savings

The City should experience modest increases in its water consumption in spite of significant population increases through 2045. This is due to "passive savings". That is, over time homes will be equipped with water-saving fixtures and landscapes. Also, over time, residents will become more aware of water conservation and City-

specific policies such as limitations on landscape irrigation and car washing. This "passive savings" will help offset new water demands stemming from anticipated population growth in the City.

For the sake of future water demand projections in this UWMP, this "passive savings" is taken into consideration by analyzing the declines in water consumption rates. Beginning with a consumption rate of **234 GPCD** (average of the past 10 years), the rate of decline in GPCD is projected to be 1% annually. It is practical to assume that water use efficiency will continue to increase through water code changes over the next couple of decades.

6.8.2 Low-Income Water Demands

Senate Bill 1087 and Water Code Section 10631.1 require that water use projections of a UWMP include the projected water use for single-family and multi-family residential housing for lower income households as identified in the housing element of any city, county, or city and county in the service area of the supplier. The City has a civic and legal responsibility to provide for the water-related health and safety of the community. One of the City's objectives is to provide its customers with an adequate and reliable supply of high-quality water to meet present and future needs in an environmentally and economically



responsible manner. Water use priority does not differ based on income level, but is classified by the type of use.

The residential sector projections include projected low-income housing in accordance with the City's Housing Element (<http://banning.ca.us/428/Housing-Element>).

Page 14 of the Housing Element is projecting a total of 1,163 additional low-income housing units to meet the City's Housing Needs Assessment. With an estimated 2.5 persons per unit (or about 0.6 AFY per unit), the City will need an additional 717 AF of water per year to

supply water to these projected lower income housing units. These low-income water demands are included in future projections for single family and multi-family homes listed in **Table 6.6** below.

6.8.3 Projected Water Use by Sector

For planning purposes, the City's projected water use for 2025-2045 is broken down by sector in **Table 6.6**. The estimates per sector are based on the ratios of the sectors shown in **Table 6.3** and **Figure 6.4**. **Figure 6.9** on the following page also shows the Projected Water Demand by Sector (in 2045).

Table 6.6
Projected Water Demand by Sector

Sector	2025	2030	2035	2040	2045
Water Service Area Population	38,180	45,235	52,290	59,345	66,400
Consumption Rate (GPCD) <i>Including 1.0% Annual Passive Savings</i>	222	211	201	191	181
Demands					
Single Family Residential	4,505	5,071	5,569	6,004	6,382
Multi-Family Residential	92	103	114	123	130
Commercial	2,263	2,548	2,798	3,016	3,206
Industrial	195	220	241	260	276
Institutional/Governmental	26	29	32	35	37
Landscape Irrigation (Potable)*	635	715	785	846	900
Landscape Irrigation ((Non-Potable)	342	385	423	456	484
Total Water Sales:	8,059	9,070	9,961	10,739	11,415
Unaccounted for Water	1,448	1,630	1,790	1,930	2,052
Total Water Consumption (Total Supply into System):	9,507	10,701	11,751	12,670	13,467

Note: Some projected potable landscape irrigation demands may be switched to the "non-potable" category when recycled water is available

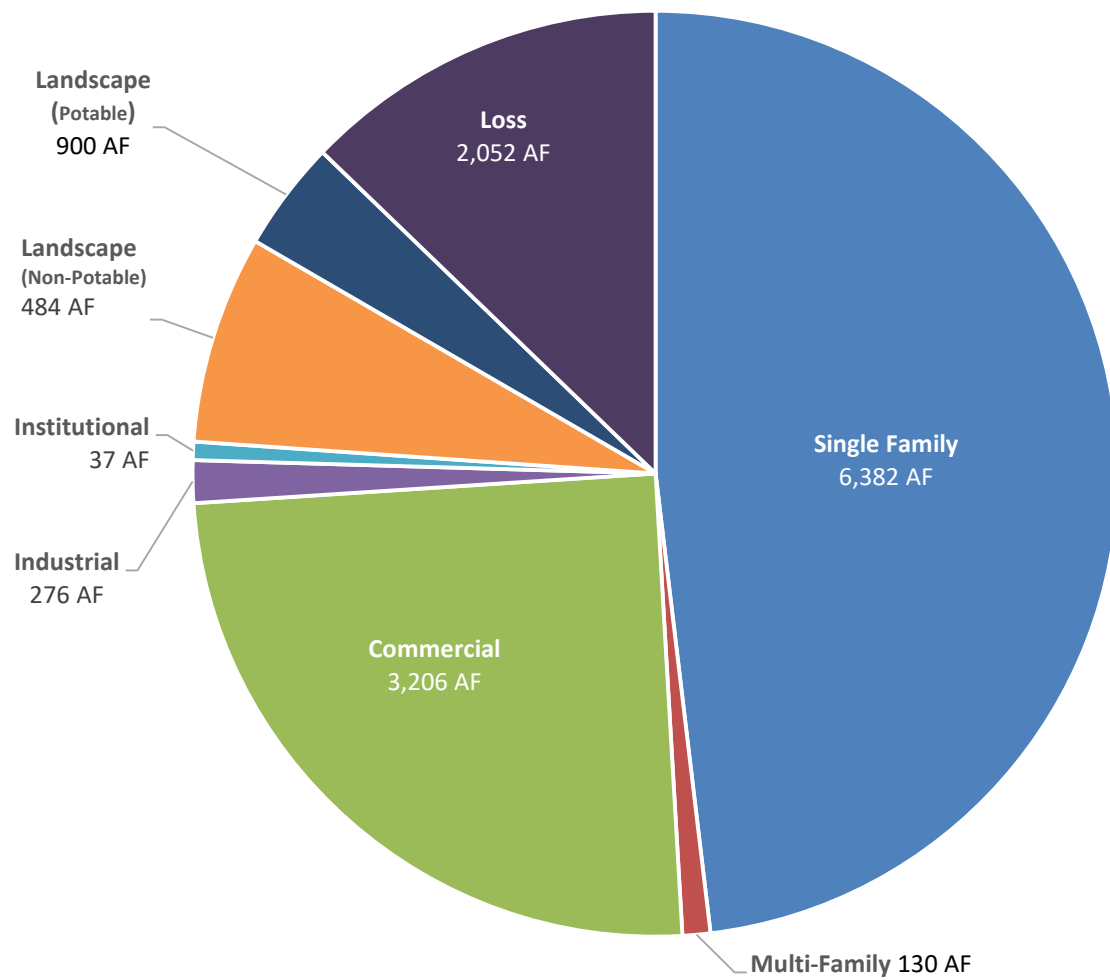


Figure 6.9: Projected Water Demand by Sector (in 2045)

Section 7

Reliability Planning

Former Gov. Schwarzenegger's signing of the 2009 Water Conservation Act enforced mandatory conservation of up to 20% by 2020 that applies to Urban Water Management Plans. Severe droughts, including the most recent State drought, highlights the need for strong water supply management and storage, including the City's San Geronio Tanks 1, 2, & 3 (shown below).





RELIABILITY PLANNING



The City's three San Gorgonio tanks (pictured) store up to 5.6 MG (14 AF) of water for the City.

7.1 OVERVIEW

Drought conditions continue to be a critical issue for Southern California's water supply. The current drought of 2020-2021 is impacting deliveries of imported water to Southern California cities. The documented deliveries of water from the State Water Project (SWP) for Water Year 2020 (October 1st 2019 to September 30 2020) indicate that the volume of water delivered to SWP Contractors was the lowest since Water Year 2015. Therefore, it is important that agencies manage water consumption and reduce reliance on imported water through local groundwater and surface water supplies. Water agencies should prepare for

prolonged droughts for up to five (5) years to ensure a reliable supply of water.

This section discusses local and regional efforts to ensure a reliable supply of water. This section also compares projected supply to projected demand over a 25-year planning period (through 2045) for various climate scenarios. Demand and supply projections are provided in **Tables 7.1 - 7.7**.

7.2 HISTORIC DROUGHTS

Climate data has been recorded in California since 1858. Since then, California has experienced several periods of severe drought, including: 1928-34, 1976-77 and 1987-91, 2007-2009, and most recently in



2011-2017. In addition to these, California has also experienced several periods of less severe drought. Among the aforementioned droughts, the year 1977 is still considered to be the driest year of record in the Four Rivers Basin by DWR (these rivers flow into the Sacramento Delta and are the source of water for the State Water Project).

In 1983, as a result of previous droughts, the State legislature enacted the UWMP Act, which requires the preparation of an UWMP. Several subsequent amendments have been made to the Act to ensure such items as public coordination, recycled water, and contingency response plans are included in UWMPs.

In 1991, as a result of the 1987-1991 drought, over 100 water agencies and environmental groups came together to form the California Urban Water Conservation Council (CUWCC) to manage the impacts of drought and promote water conservation. In January 2018, the CUWCC became the California Water Efficiency Partnership (CalWEP), and consists of over 200 water agencies and private companies. CalWEP assists its member agencies with public policy, research, and education tools.

As a result of the drought of 2007-2009, Governor Schwarzenegger signed the Water Conservation Act of 2009 (SBx7-7), which is perhaps the strongest piece of legislation to

date on water conservation, requiring mandatory water conservation up to 20 percent by 2020.

At the local level, water agencies have enacted their own ordinances to deal with the impacts of droughts. **Section 13.16 of the City's Municipal Code** deals with Water Conservation. Since then, the City has applied the water use prohibitions of the City's code in response to the recent drought of 2011-2017. More on the City's code and ordinances can be found in **Section 8.**

7.3 RECENT DROUGHT (2011-2017)

A significant and prolonged drought hit the state of California in 2011-2017. The drought depleted reservoir levels all across the state, as reflected by **Figure 7.1** on the following page. In January of 2014, former Governor Brown declared a state of emergency and directed state officials to take all necessary actions to prepare for water shortages. As the drought prolonged into 2015, former Governor Brown gave an executive order in April 2015 which mandated a statewide 25% reduction in water use.

In January of 2016, DWR and the U.S. Bureau of Reclamation finalized the 2016 Drought Contingency Plan that outlined State



Figure 7.1: Lake Oroville During Recent State Drought of 2011-2017

Water Project and Central Valley Project operations for February 2016 to November 2016. The plan was developed in coordination with staff from State and Federal agencies. One of the key purposes of the plan was to communicate goals for water management and the potential operations needed to achieve those goals for water resources stakeholders and the public. The plan was updated in 2020 to reflect the dry conditions of 2019-2020.

Although the recent droughts have more significantly impacted northern and central-valley agencies that use SWP water for agriculture, the City is indirectly impacted by the recent drought conditions on Northern California Waters since this water

source is the majority source of water imported from the San Geronio Pass Water Agency (SGPWA).

To date, California agencies have reduced water use by about 25 percent since the emergency conservation regulations took effect in June of 2015. This continues to meet former Governor Brown's 25 percent mandate, despite a decline in the statewide water-savings in the recent year (2020).

7.4 STATE WATER SUPPLY RELIABILITY

As a result of continued drought challenges to the State's water supplies, SWP Contractors understand the unpredictability of imported water allocations from the SWP.



Figure 7.2: Lake Oroville at End of State Drought (Feb 2017)

With participation of the SWP Contractors, DWR strives to meet the water needs of Southern California by developing new projects to increase the capacity of its supplies while encouraging its member agencies to develop local supply projects to meet the needs of its customers. Also, DWR is committed to developing and maintaining high-capacity storage reservoirs, including both those which are DWR-owned and Contractor-owned (such as Diamond Valley Lake, an MWD-owned reservoir -the largest in Southern California), to meet the needs during times of drought and emergency.

The large reservoirs help to avoid the repercussions of reduced supplies not only

from the SWP but also the Colorado River Aqueduct (CRA). Throughout the Southern California Region, a total of three (3) DWR-owned reservoirs, nine (9) MWD-owned reservoirs, and twenty-four (24) SDCWA reservoirs contain up to 2.2 million acre-feet (MAF) of water storage.

7.4.1 State Water Project (SWP) Reliability

As a SWP contractor, SGPWA has a “Table A” allocation of up to 17,300 AFY (per year). Since SGPWA began receiving SWP water, however, the average amount of water received each year is roughly 58% of the full Table A amount. On an annual basis, each of the 29 SWP Contractors request amounts

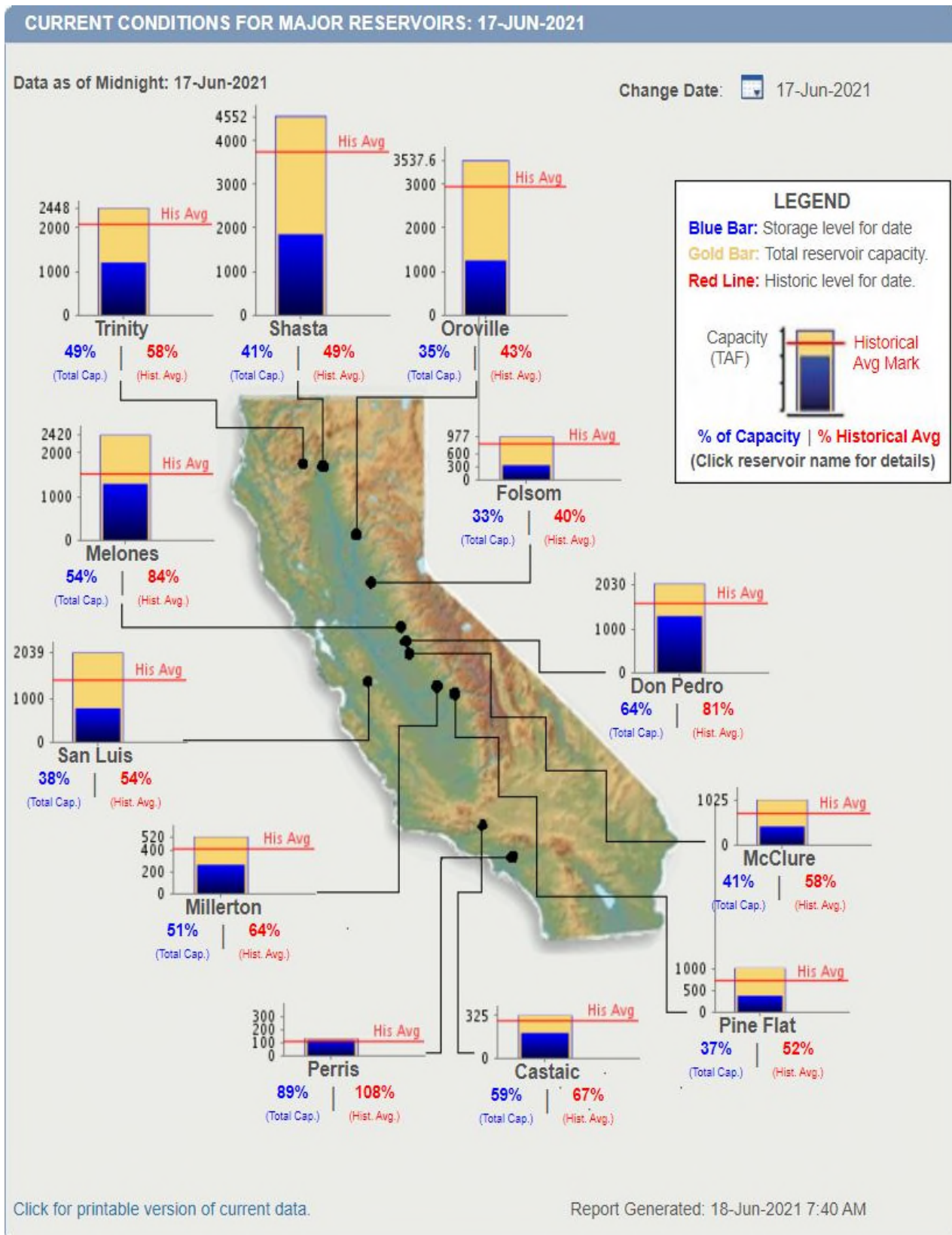


Figure 7.3: California State Reservoir Levels (June 2021)

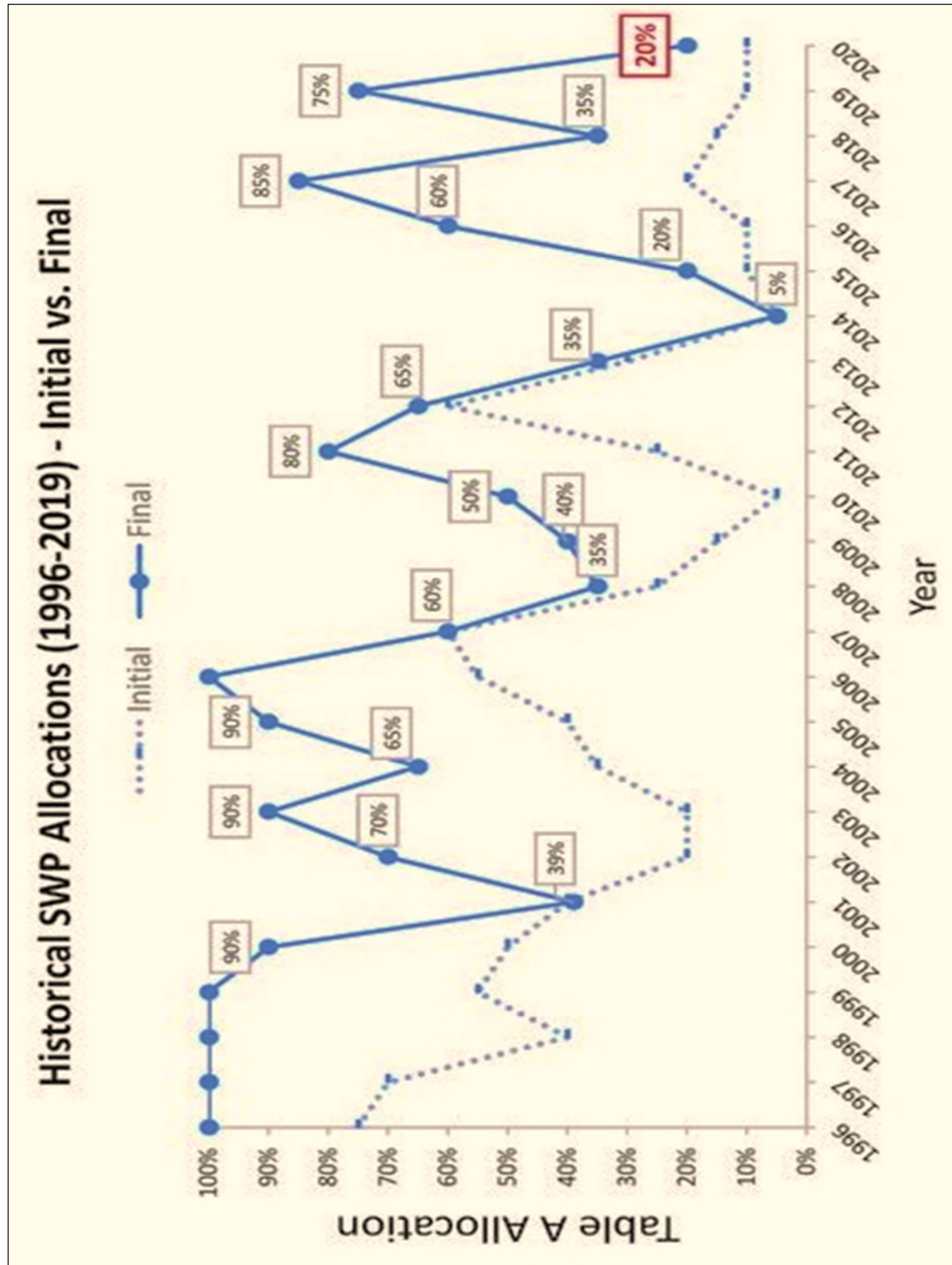


Figure 7.4: SWP Table A Deliveries



of SWP water based on their anticipated yearly demand. Each SWP contractor's Water Supply Contract contains a "Table A" amount that identifies the maximum amount of water that a contractor may request. However, the amount of SWP water actually allocated to contractors each year is dependent on a number of factors

SWP supplies are typically less than the maximum "Table A" amounts requested by the Contractors each year.

that can vary significantly from year to year. The availability of SWP supplies is generally less than their full Table A amounts in many years and can be significantly less in

very dry years. After receiving the requests, DWR assesses the amount of water supply available based on precipitation, snow pack on Northern California watersheds, volume of water in storage, projected carry over storage, and Sacramento-San Joaquin Bay Delta regulatory requirements. For example, according to the State Water Project Delivery Reliability Report 2019, the total SWP annual delivery of water to contractors ranged from a low of 477 thousand acre-feet (TAF) in 2014 to a high of 3.4 million acre-feet (MAF) in 2017.

Due to the uncertainty in water supply, contractors are not typically guaranteed their full Table A amount, but instead a percentage of that amount based on

available supply. For instance, the current DWR Notice to Contractors 20-06 (December 2020) indicates that the initial allocation is set at 10%, which is down from the Contractor's request for a 15% initial allocation. For SGPWA, the initial allocation for this year is set at 1,730 AF.

The reliability of the SWP impacts the Contractors ability to plan for future growth and supply. SWP Contractors can seek out other local supply sources or transfer agreements (such as transfers with Colorado River rights holders). Although not directly important for the City, matters involving the SWP do impact the City indirectly.

7.5 COLORADO RIVER RELIABILITY

Water supply from the Colorado River continues to be a critical issue for Southern California as many agencies compete for both State Water Project water and Colorado River water. The Lower Colorado River Basin has been suffering from its own drought (in addition to the droughts across California). Average flows in the lower basin from 2000 to 2018 have averaged 12.4 million acre-feet per year (MAFY), down from the historical average of about 15 MAFY. Recent data indicates that total Colorado River Basin storage (primarily Lake Powell and Lake Mead) was 29 MAF at the beginning of water year 2021. This was a decrease of about 2.8 MAF of total storage

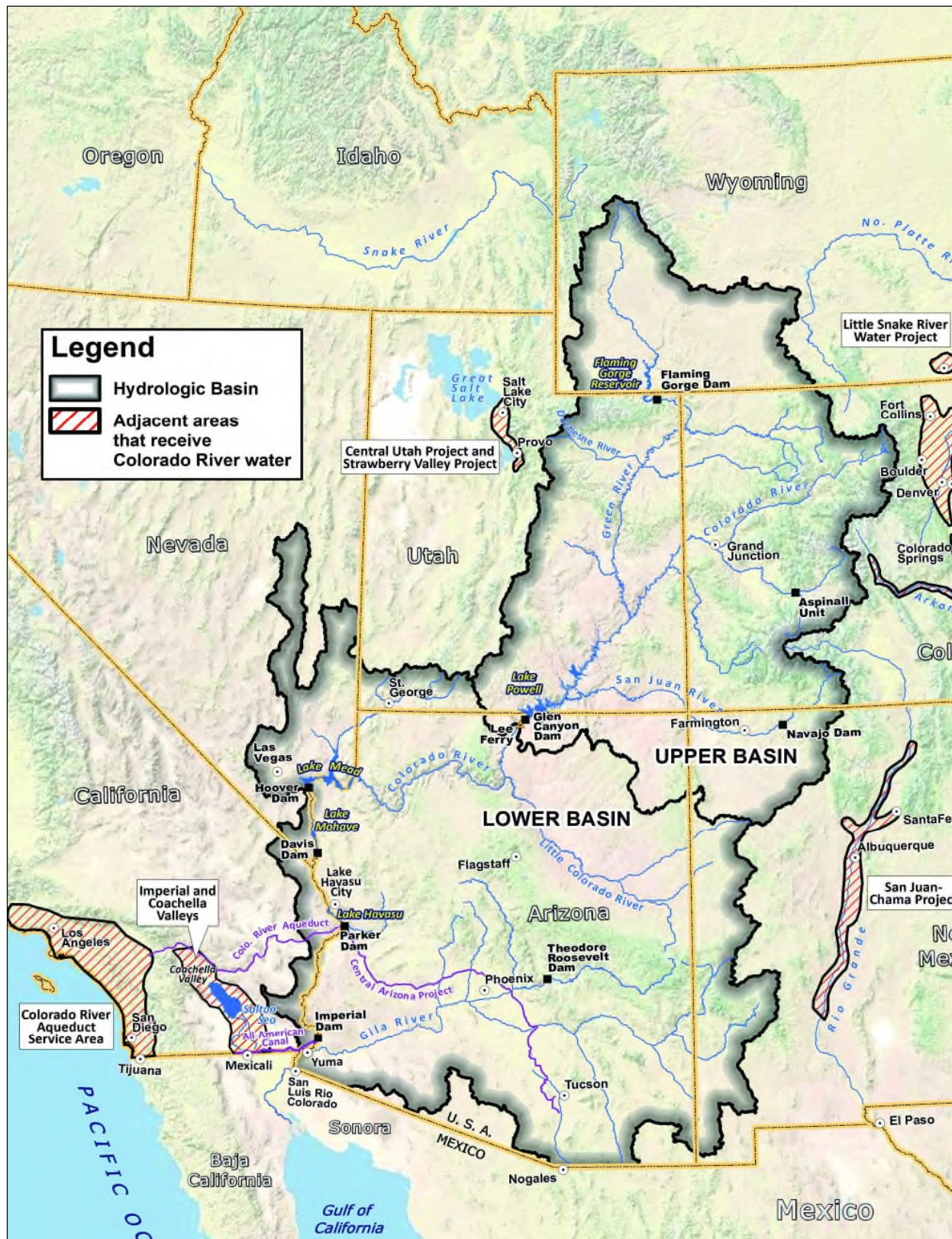


Figure 7.5: Colorado River Basin



that was in the system at the beginning of water year 2020 (about 32 MAF). Both of these volumes are just half of the capacity of the system (about 60 MAF).

As a result of the ongoing drought in the lower basin, in 2014, the Secretary of the Interior tasked the Colorado River Basin States with developing drought contingency plans. As part of this process, the Lower Basin States (California, Arizona, and Nevada) signed a Memorandum of

Colorado River conditions have an indirect impact on the City since some SWP Contractors also have rights to the CRA (such as MWD and CVWD)

Understanding (MOU) which sought to ensure an additional 3.0 MAF of water would be preserved in Lake Mead through 2019. As for California parties, the needs of the Colorado River water users, including

MWD, will continue to be met due to the security provided by the Law of the River as well as effective implementation of conservation and transfer agreements.

7.5.1 Competition for Water Rights

For Colorado River rights holders, the “Law of the River” is essentially a compilation of numerous compacts, state and federal laws, court decisions and decrees, contracts, and regulatory guidelines which define rights to water from the Colorado River. These documents apportion the water and

regulate the use and management of the Colorado River among the seven basin states and Mexico. A brief listing of these compacts and acts include:

- Colorado River Compact (1922)
- Boulder-Canyon Project Act (1928)
- CA Seven Party Agreement (1931)
- Arizona v. California (1964)
- CO River Basin Project Act (1968)
- Arizona v. California (1979)
- Quantification Settlement Agreement (2003)

Per the 2003 Quantification Settlement Agreement (QSA), California's allocation has been confirmed at 4.4 MAF per year, with MWD maintaining just over 1 MAF in rights. Likewise, the Coachella Valley Water District (CVWD) holds rights to the CRA. As SWP contractors, MWD's and CVWD's extractions from the CRA impact their annual requests for SWP Table A amounts.

7.6 CITY SUPPLY RELIABILITY

Since the City imports State Water Project (SWP) water to replenish groundwater supplies, reliability of the SWP has a direct impact on the City. As shown on the previous pages, the SWP is not able to consistently fulfill SWP Contractor's Table A requests during droughts. As mentioned in the 2015 UWMP, the reliability of the SWP



was estimated to be about 58%. The 2019 SWP Delivery Capability Report (published in August 2020), estimated a SWP reliability of 58%. This was down from 62% in 2017.

The reliability of water from the CRA has a lesser, indirect impact on the City, not only due to the annual Table A allocations, but also resulting from potential transfer and exchange agreements between SWP contractors (including SGPWA). During droughts in the Colorado River basin, SWP contractors that also use water from the Colorado River may rely more on the SWP.



Figure 7.6: Suspended Pipe (Whitewater Flume System)

The City's groundwater is not subject to short-term water shortages resulting from temporary dry weather conditions. Further, as part of the Beaumont Basin adjudication, the City has the option of storing up to 80,000 acre-feet of water in the Beaumont Basin. At the end of calendar year 2020, the City of Banning had approximately 50,916 AF of groundwater available in the Beaumont Basin Storage Account, which is utilized as a buffer to make up for dry

weather conditions and will be used in future years to meet demands that exceed local safe yields.

7.6.1 Drought Risk Assessment

The drought risk assessment is an assessment of the reliability of the City's water supplies by comparing projected future water demands with expected available water supplies under three different hydrologic conditions: normal year; a single dry year; and multiple dry years. Future supply and demand conditions can be determined from the following data:

- Population forecasts
- Water supply capacity
- Recent water use trends

The data listed above has been provided in the previous sections of this UWMP.

Basis for Projected Demands

To project future demands, it will be assumed that total demand will change annually based on changes in population multiplied by the individual demand per person (also known as the "per-capita" consumption rate -see **Section 6**). The per-capita rates used in the future projections will be based on actual water use data from the recent past. In particular, the City's averages for the last ten (10) years will be



used as the basis to project demands through the year 2045. To project demands and supplies, the following is assumed:

- Starting consumption rate of **234** gallons per capita per day (**GPCD**). This is based on the average consumption of the City in the last 10 years (see **Table 6.1**)
- *Decreasing* consumption rate from 2021 onward with a passive savings of 1.0% annually (i.e. **232 GPCD** in 2021).

Although a constant consumption rate provides a more conservative approach, the decreasing consumption rate scenario provides a more realistic picture for planning purposes since it considers gradual improvements in water-use efficiency. In the past 20 years for instance, the City has seen a 6% annual decrease in water use. For drought-time demands, it is expected that there will be a small degree of increase due to the lack of rainfall on landscapes. To project demands during single and multiple (five) year drought periods, the following increase factors were assumed:

- Dry Year: 5%
- Multiple Dry Years: 5%, 8%, and 2%

Although the 2015 UWMP did not assume increases in demand during dry years, the increase factors listed above are reasonable for the purposes of demand and supply

projections since the City has seen increases in demands prior to the 2014 Emergency Declaration and 2015 Executive Order.

Basis for Projected Supplies

To project future supplies, the City can expect groundwater supplies to be based on the combined capacity of its groundwater wells, with a maximum safe yield for each subbasin. The City's groundwater basins have a combined safe yield capacity of roughly 9,200 AFY. Further, as part of the Beaumont Basin adjudication, the City has the option of storing up to 80,000 AF of water in the Beaumont Basin.

Although the City can pump up to the safe yield limits, for conservative planning purposes, projected groundwater supplies will be based off the average (proportion) of supplies used by the City in the past 10 years. That is, based on water demands. Due to the lack of development, demands have been relatively flat for the past 10 years. As demands increase, the City's production will increase up to the City's safe yield. This will also be limited to actual production capacity. During times when local safe yields are exceeded, the City will pump from its storage account in the Beaumont Basin, which will be recharged by various sources. This will allow the City to continually rely on groundwater pumping to meet increased demands.



Tabular Comparisons

Tables 7.1 to 7.7, shown on the following pages, provide an analysis of the City's supply and demand projections to the year 2045. **Figure 7.9** shows a visual pie-chart for the Normal Water Year 2045. The data compiled in these Tables reflects the data presented in the standard DWR Data Table 6.9 in **Appendix E**.



Figure 7.7: River Along the Beaumont Basin

Reasonably available volume per Basin is calculated as the total projected water use in Acre-Feet (AF) multiplied by average percentage of total production over last ten years. The City of Banning will pull the differential amounts between the Projected reasonably available volume and safe yield from the Beaumont Basin Storage Account. For example, it is projected that the City will pull 1,740 AF from the West Banning Basin in 2025, but the Safe Yield is only 1,430 AF. Therefore, the City will only pull 1,430 AF from the West Banning Basin and will rely on pulling the remaining 310 AF (1,740-

1,430 AF) from the Beaumont Basin Storage Account.

Water recharged (e.g. imported water, storm water, return flows, etc.) in the Beaumont Basin will also be credited in the City's storage account, allowing for the Reasonably Available Volume to increase.

The City also anticipates that it would recharge more water during wet years. Per the Beaumont Basin Watermaster 2019 Consolidated Annual Report and Engineering Report, the Beaumont Basin Safe Yield of the

basin was reevaluated in 2013. The Beaumont Basin Watermaster Committee re-determined the Safe Yield of the Beaumont Basin to be 6,700 (AF/YR). The Safe Yield will be reevaluated again in 2023.

Water recharged in the Beaumont Basin is credited in the City's storage account.

The amount of unused safe yield not produced in the Beaumont Basin by the Overlying Water Right holders is issued to the retail agencies, with the City of Banning receiving 31.43% of the unused safe yield. 1,491 AF was used as the safe yield value in 2025, because this is the amount of Unused Overlying Water from the Beaumont Basin that will be allocated to the City of Banning in 2024 (2019 Beaumont Watermaster Annual Report) and is projected to decrease by 15% every five years from then on.



For the Banning Bench Basin and Banning Water Canyon Basin it is assumed the most conservative safe yield value from Table 4-1 of the Geoscience Support Services, Inc. 2019 Technical Memorandum (shown in **Figure 7.8** below). The West Banning Basin safe yield value was determined from the same table, but the 2019 updated value determined by the Zero Net Draft was used because it was closer to the actual operating amount for the City.

Historically, large storm events have significantly recharged the Cabazon Basin. Current water levels within the Cabazon

Basin are declining, and only by assuming that a future large storm event will occur can any safe yield be determined. The Cabazon Basin's steady declining water levels are not a result of anthropogenic actions but just the natural process of draining and filling of the basin, which is on a multi-decadal cycle.

Based on the data contained in these tables, the City can expect to meet future demands for all climate conditions through 2045. The surplus in available supply for the City indicates that the City can focus its efforts more on water conservation as opposed to new water supply projects.

Maximum Perennial Yield Estimates for Banning Storage Units

Storage Unit	Method	2011 Estimate (acre-ft/yr)	2019 Update (acre-ft/yr)
Banning	Zero Net Draft	1,580	1,430
	Hill	680	580
Banning Bench	Zero Net Draft	1,980	1,740
	Hill	1,930	1,330
Banning Canyon	Zero Net Draft	4,310	3,985
	Hill	3,830	3,730

Figure 7.8: Table 4-1 of the Geoscience Support Services, Inc. 2019 Technical Memorandum

The following is noted in DWR's standard Table 6.9, and repeated here for clarity:



Table 7.1
City of Banning Water Supply Availability & Demand Projections
Normal Water Year (AF)

Water Sources	2025	2030	2035	2040	2045
Population					
Water Service Area Population	38,180	45,235	52,290	59,345	66,400
Consumption Rate (GPCD) <i>Including 1% Annual Passive Savings</i>	222	211	201	191	181
Supply					
Groundwater Pumped (Total)	8,508	8,574	8,595	8,542	8,476
Pumped from Beaumont Basin Storage Account ³	999	2,126	3,156	4,128	4,991
Total Anticipated Use of Supplies (Estimated Production)	9,507	10,700	11,751	12,670	13,467
Total Available Supply ⁴	56,358	52,388	44,066	33,124	21,098
Demand					
Total Estimated Demand¹	9,507	10,701	11,751	12,670	13,467
Compare to Avg. Demand for Previous 10 Yrs. (7,985 AF)	119%	134%	147%	159%	169%
Supply/Demand Comparison					
Supply-Demand (Difference)	0	0	0	0	0
Supply/Demand (%)	100%	100%	100%	100%	100%
Available Leftover Supply Capacity	46,851	41,687	32,315	20,454	7,631

Footnotes (see number references in table above):

- Total Demand = Consumption Rate x Population.
 - Average consumption rate of last 10 years = 234 gallons per capita per day.
 - Consumption rate in 2001: 363 gpcd.
 - Consumption rate in 2020: 240 gpcd.
 - Approximate "passive" savings over past 20 years: 6 gpcd per year.
 - Projected "passive" savings: 1 gpcd per year = 181 gpcd by 2045.**
- The data compiled in these Tables reflects the data presented in the standard DWR Data Table 6.9.
- The Beaumont Basin Storage Account currently (at end of 2020) contains approximately 50,916 AF of groundwater.
- Total Available Supply = [Safe Yield for each Basin (Beaumont Basin's reasonably available volume for that year; Cabazon Basin's maximum reasonably available volume, which takes place in 2045) + Beaumont Basin Storage Account].
 - Imported water purchased from SGPWA is recharged into the Beaumont Basin, and will be credited to the City in their storage account, allowing for the Reasonably Available Volume to increase. The projections for Imported water purchased is based on the City's recent purchases from SGPWA:
 - Low of 250 AF in 2025
 - High of 2,500 AF in 2045



Table 7.2
City of Banning Water Supply Availability & Demand Projections
Single Dry Year (AF)

Water Sources	2025	2030	2035	2040	2045
Population					
Water Service Area Population	38,180	45,235	52,290	59,345	66,400
Consumption Rate (GPCD) <i>Including 1% Annual Passive Savings</i>	222	211	201	191	181
Supply					
Groundwater Pumped (Total)	8,508	8,574	8,595	8,542	8,476
Pumped from Beaumont Basin Storage Account ³	1,461	2,652	3,767	4,790	5,659
Total Anticipated Use of Supplies (Estimated Production)	9,969	11,226	12,362	13,332	14,135
Total Available Supply ⁴	56,344	52,360	43,774	32,068	18,528
Normal Year Supply	9,507	10,700	11,751	12,670	13,467
% of Normal Year	105%	105%	105%	105%	105%
Demand					
Total Dry Demand¹	9,969	11,226	12,362	13,332	14,135
Normal Year Demand	9,494	10,691	11,773	12,697	13,462
% of Normal Year	105%	105%	105%	105%	105%
Supply/Demand Comparison					
Supply-Demand (Difference) ⁵	0	0	0	0	0
Supply/Demand (%)	100%	100%	100%	100%	100%
Available Leftover Supply Capacity	46,375	41,134	31,412	18,736	4,393

Footnotes (see number references in table above):

1. Total Demand = Consumption Rate x Population x Single Dry Year Increase of 105%.
4. Imported water purchased from SGPWA and recharged into the Beaumont Basin during a Single Dry Year will be 236 AF.
5. A net-zero Supply-Demand (Difference) reveals that an additional amount of groundwater will be taken out of the Beaumont Basin Storage Account to meet the Total Dry Demand, on top of the Normal Water Year amount. A positive difference will be added to the Available Leftover Supply Capacity (Total Available Supply - Total Dry Demand + Difference) of subsequent years, as a surplus of water that was not pumped due to a low Total Dry Demand. For all cases there is more than enough in storage, as shown by the Available Leftover Supply Capacity.
6. All other items derived in similitude to Table 7.1.



Table 7.3
City of Banning Water Supply Availability & Demand Projections
Multiple Dry Years (2021-2025) (AF)

Water Sources	2021	2022	2023	2024	2025
Population					
Water Service Area Population	32,536	33,947	35,358	36,769	38,180
Consumption Rate (GPCD) <i>Including 1% Annual Passive Savings</i>	232	229	227	225	222
Supply					
Groundwater Pumped (Total)	8,508	8,508	8,508	8,508	8,508
Pumped from Beaumont Basin Storage Account ³	999	999	999	999	1,176
Total Anticipated Use of Supplies (Estimated Production)	9,507	9,507	9,507	9,507	9,684
Total Available Supply ⁴	60,105	60,759	59,996	59,233	59,179
Normal Year Supply	9,507	9,507	9,507	9,507	9,507
% of Normal Year	100%	100%	100%	100%	102%
Demand					
Total Dry Demand¹	8,865	9,419	9,172	9,443	9,684
Normal Year Demand	8,443	8,721	8,993	9,258	9,494
% of Normal Year	105%	108%	102%	102%	102%
Supply/Demand Comparison					
Supply-Demand (Difference) ⁵	642	88	335	64	0
Supply/Demand (%)	107%	101%	104%	101%	100%
Available Leftover Supply Capacity	51,240	51,982	50,912	50,124	49,559

Footnotes (see number references in table above):

1. Total Demand = Consumption Rate x Population x Multiple Dry Year Increases of 105%, 108%, and 102%.
4. Imported water purchased from SGPWA and recharged into the Beaumont Basin during Multiple Dry Years will be as follows:
 - a. Dry Year 1: 1,653 AF
 - b. Dry Year 2: 236 AF
 - c. Dry Year 3: 236 AF
 - d. Dry Year 4: 945 AF
 - e. Dry Year 5: 1,653 AF
5. A net-zero Supply-Demand (Difference) reveals that an additional amount of groundwater will be taken out of the Beaumont Basin Storage Account to meet the Total Dry Demand, on top of the Normal Water Year amount. A positive difference will be added to the Available Leftover Supply Capacity (Total Available Supply - Total Dry Demand + Difference) of subsequent years, as a surplus of water that was not pumped due to a low Total Dry Demand. For all cases there is more than enough in storage, as shown by the Available Leftover Supply Capacity.
6. All other items derived in similitude to Table 7.1.



Table 7.4
City of Banning Water Supply Availability & Demand Projections
Multiple Dry Years (2026-2030) (AF)

Water Sources	2026	2027	2028	2029	2030
Population					
Water Service Area Population	39,591	41,002	42,413	43,824	45,235
Consumption Rate (GPCD) <i>Including 1% Annual Passive Savings</i>	220	218	215	213	211
Supply					
Groundwater Pumped (Total)	8,521	8,534	8,548	8,561	8,574
Pumped from Beaumont Basin Storage Account ³	1,713	2,259	1,890	2,117	2,337
Total Anticipated Use of Supplies (Estimated Production)	10,234	10,793	10,438	10,678	10,911
Total Available Supply ⁴	56,358	56,298	54,275	52,621	51,449
Normal Year Supply	10,045	10,334	10,623	10,912	11,200
% of Normal Year	100%	100%	100%	100%	100%
Demand					
Total Dry Demand¹	10,234	10,793	10,438	10,678	10,911
Normal Year Demand	9,747	9,993	10,234	10,468	10,697
% of Normal Year	105%	108%	102%	102%	102%
Supply/Demand Comparison					
Supply-Demand (Difference) ⁵	0	0	0	0	0
Supply/Demand (%)	100%	100%	100%	100%	100%
Available Leftover Supply Capacity	46,124	45,505	43,837	41,943	40,538

Footnotes (see number references in table above):

1. Total Demand = Consumption Rate x Population x Multiple Dry Year Increases of 105%, 108%, and 102%
4. Imported water purchased from SGPWA and recharged into the Beaumont Basin during Multiple Dry Years will be as follows:
 - a. Dry Year 1: 1,653 AF
 - b. Dry Year 2: 236 AF
 - c. Dry Year 3: 236 AF
 - d. Dry Year 4: 945 AF
 - e. Dry Year 5: 1,653 AF
5. A net-zero Supply-Demand (Difference) reveals that an additional amount of groundwater will be taken out of the Beaumont Basin Storage Account to meet the Total Dry Demand, on top of the Normal Water Year amount. A positive difference will be added to the Available Leftover Supply Capacity (Total Available Supply - Total Dry Demand + Difference) of subsequent years, as a surplus of water that was not pumped due to a low Total Dry Demand. For all cases there is more than enough in storage, as shown by the Available Leftover Supply Capacity.
6. All other items derived in similitude to Table 7.1.



Table 7.5
City of Banning Water Supply Availability & Demand Projections
Multiple Dry Years (2031-2035) (AF)

Water Sources	2031	2032	2033	2034	2035
Population					
Water Service Area Population	46,646	48,057	49,468	50,879	52,290
Consumption Rate (GPCD) <i>Including 1% Annual Passive Savings</i>	209	207	205	203	201
Supply					
Groundwater Pumped (Total)	8,578	8,582	8,587	8,591	8,595
Pumped from Beaumont Basin Storage Account ³	2,889	3,448	2,991	3,198	3,400
Total Anticipated Use of Supplies <i>(Estimated Production)</i>	11,467	12,030	11,578	11,789	11,995
Total Available Supply ⁴	52,388	51,152	47,941	45,186	42,932
Normal Year Supply	11,510	11,820	12,131	12,441	12,751
% of Normal Year	100%	100%	100%	100%	100%
Demand					
Total Dry Demand¹	11,467	12,030	11,578	11,789	11,995
Normal Year Demand	10,921	11,139	11,351	11,558	11,760
% of Normal Year	105%	108%	102%	102%	102%
Supply/Demand Comparison					
Supply-Demand (Difference) ⁵	0	0	0	0	0
Supply/Demand (%)	100%	100%	100%	100%	100%
Available Leftover Supply Capacity	40,921	39,123	36,363	33,396	30,937

Footnotes (see number references in table above):

1. Total Demand = Consumption Rate x Population x Multiple Dry Year Increases of 105%, 108%, and 102%.
4. Imported water purchased from SGPWA and recharged into the Beaumont Basin during Multiple Dry Years will be as follows:
 - a. Dry Year 1: 1,653 AF
 - b. Dry Year 2: 236 AF
 - c. Dry Year 3: 236 AF
 - d. Dry Year 4: 945 AF
 - e. Dry Year 5: 1,653 AF
5. A net-zero Supply-Demand (Difference) reveals that an additional amount of groundwater will be taken out of the Beaumont Basin Storage Account to meet the Total Dry Demand, on top of the Normal Water Year amount. A positive difference will be added to the Available Leftover Supply Capacity (Total Available Supply - Total Dry Demand + Difference) of subsequent years, as a surplus of water that was not pumped due to a low Total Dry Demand. For all cases there is more than enough in storage, as shown by the Available Leftover Supply Capacity.
6. All other items derived in similitude to Table 7.1.



Table 7.6
City of Banning Water Supply Availability & Demand Projections
Multiple Dry Years (2036-2040) (AF)

Water Sources	2036	2037	2038	2039	2040
Population					
Water Service Area Population	53,701	55,112	56,523	57,934	59,345
Consumption Rate (GPCD) <i>Including 1% Annual Passive Savings</i>	199	197	195	193	191
Supply					
Groundwater Pumped (Total)	8,584	8,574	8,563	8,553	8,542
Pumped from Beaumont Basin Storage Account ³	3,970	4,546	4,018	4,213	4,404
Total Anticipated Use of Supplies <i>(Estimated Production)</i>	12,554	13,120	12,581	12,766	12,946
Total Available Supply ⁴	44,066	41,749	37,439	33,658	30,390
Normal Year Supply	13,084	13,419	13,752	14,087	14,420
% of Normal Year	100%	100%	100%	100%	100%
Demand					
Total Dry Demand¹	12,554	13,120	12,581	12,766	12,946
Normal Year Demand	11,956	12,148	12,334	12,516	12,692
% of Normal Year	105%	108%	102%	102%	102%
Supply/Demand Comparison					
Supply-Demand (Difference) ⁵	0	0	0	0	0
Supply/Demand (%)	100%	100%	100%	100%	100%
Available Leftover Supply Capacity	31,512	28,629	24,859	20,892	17,443

Footnotes (see number references in table above):

1. Total Demand = Consumption Rate x Population x Multiple Dry Year Increases of 105%, 108%, and 102%.
4. Imported water purchased from SGPWA and recharged into the Beaumont Basin during Multiple Dry Years will be as follows:
 - a. Dry Year 1: 1,653 AF
 - b. Dry Year 2: 236 AF
 - c. Dry Year 3: 236 AF
 - d. Dry Year 4: 945 AF
 - e. Dry Year 5: 1,653 AF
5. A net-zero Supply-Demand (Difference) reveals that an additional amount of groundwater will be taken out of the Beaumont Basin Storage Account to meet the Total Dry Demand, on top of the Normal Water Year amount. A positive difference will be added to the Available Leftover Supply Capacity (Total Available Supply - Total Dry Demand + Difference) of subsequent years, as a surplus of water that was not pumped due to a low Total Dry Demand. For all cases there is more than enough in storage, as shown by the Available Leftover Supply Capacity.
6. All other items derived in similitude to Table 7.1.



Table 7.7
City of Banning Water Supply Availability & Demand Projections
Multiple Dry Years (2041-2045) (AF)

Water Sources	2041	2042	2043	2044	2045
Population					
Water Service Area Population	60,756	62,167	63,578	64,989	66,400
Consumption Rate (GPCD) <i>Including 1% Annual Passive Savings</i>	189	187	185	183	181
Supply					
Groundwater Pumped (Total)	8,529	8,516	8,502	8,489	8,476
Pumped from Beaumont Basin Storage Account ³	4,978	5,558	4,956	5,130	5,256
Total Anticipated Use of Supplies (Estimated Production)	13,507	14,074	13,458	13,619	13,732
Total Available Supply ⁴	33,124	29,799	24,477	19,757	15,573
Normal Year Supply	14,730	15,039	15,348	15,657	15,967
% of Normal Year	100%	100%	100%	100%	100%
Demand					
Total Dry Demand¹	13,507	14,074	13,458	13,619	13,732
Normal Year Demand	12,864	13,031	13,194	13,352	13,462
% of Normal Year	105%	108%	102%	102%	102%
Supply/Demand Comparison					
Supply-Demand (Difference) ⁵	0	0	0	0	0
Supply/Demand (%)	100%	100%	100%	100%	100%
Available Leftover Supply Capacity	19,617	15,725	11,019	6,139	1,841

Footnotes (see number references in table above):

1. Total Demand = Consumption Rate x Population x Multiple Dry Year Increases of 105%, 108%, and 102%.
4. Imported water purchased from SGPWA and recharged into the Beaumont Basin during Multiple Dry Years will be as follows:
 - a. Dry Year 1: 1,653 AF
 - b. Dry Year 2: 236 AF
 - c. Dry Year 3: 236 AF
 - d. Dry Year 4: 945 AF
 - e. Dry Year 5: 1,653 AF
5. A net-zero Supply-Demand (Difference) reveals that an additional amount of groundwater will be taken out of the Beaumont Basin Storage Account to meet the Total Dry Demand, on top of the Normal Water Year amount. A positive difference will be added to the Available Leftover Supply Capacity (Total Available Supply - Total Dry Demand + Difference) of subsequent years, as a surplus of water that was not pumped due to a low Total Dry Demand. For all cases there is more than enough in storage, as shown by the Available Leftover Supply Capacity.
6. All other items derived in similitude to Table 7.1.

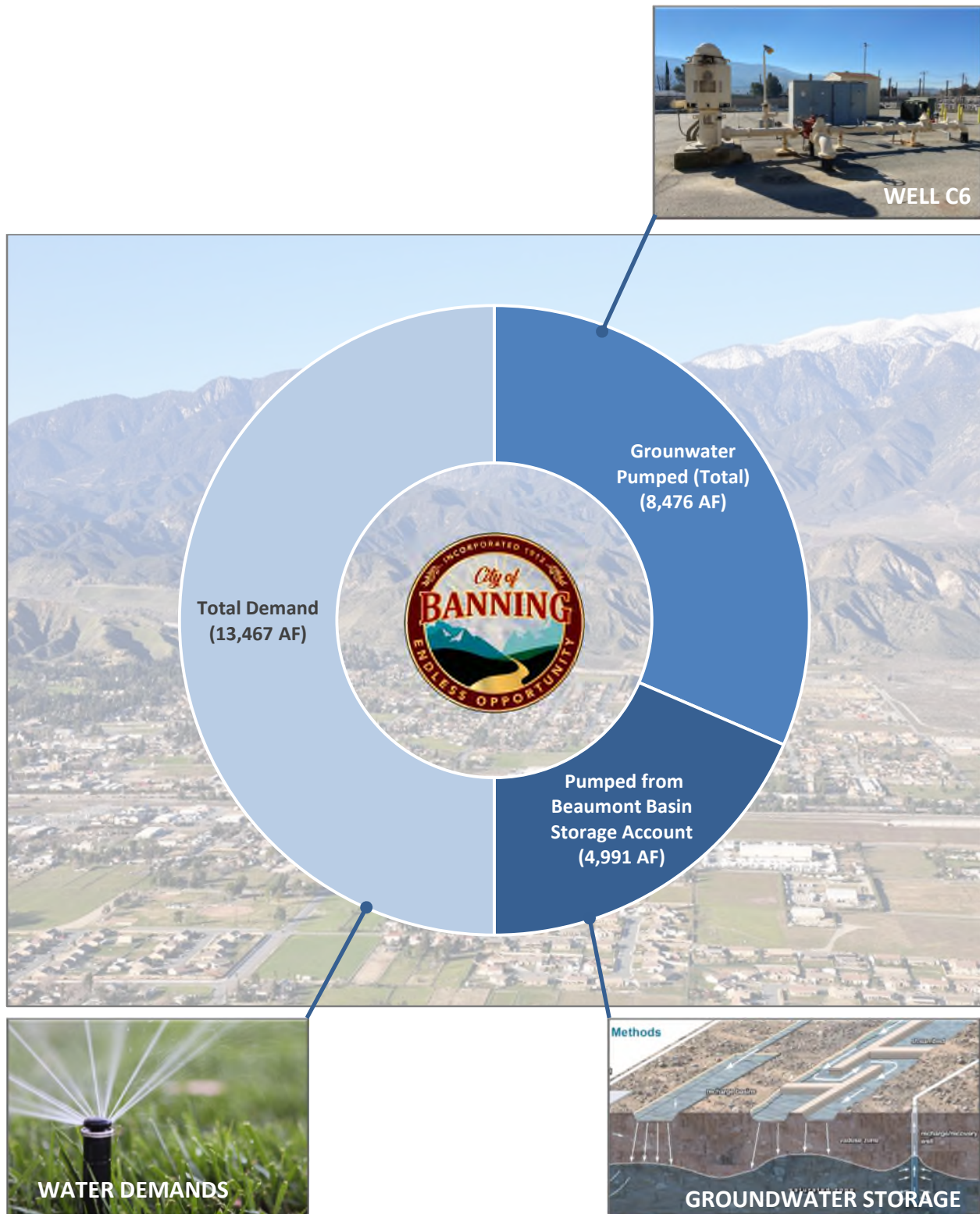


Figure 7.9: Projected Supply v. Demand Scenario: Normal Water Year 2045



Figure 7.10: Whitewater River Near City of Banning

7.7 ENSURING ADEQUATE SUPPLY

As indicated by the tables on the following pages, the City does not expect to have a water supply shortage through 2045. To be clear, although the tables show that local groundwater pumping will not be sufficient for certain years (during dry years through 2032), the City has additional groundwater supplies available based on the safe yield of the subbasins and the City's storage account. Furthermore, the City's subbasin safe yield and storage account volumes are not expected to be affected during droughts lasting up to five years. Finally, droughts will be addressed by following the criteria of the City's Water Shortage Contingency Plan (WSCP) along with implementation of the regional contingency

plans. These programs are discussed in **Section 8**. For these reasons, the City is confident that water supplies are adequate to meet demands for all weather conditions through 2045.

7.8 WSCP SUPPLY AUGMENTATION

Although the City does not expect to have a water supply shortage through 2045, as indicated by **Tables 7.1 to 7.7**, severe and extent droughts may cause the WSCP to be enacted. The City will rely on the implementation of the WSCP to augment the City's reduced supply during consecutively dry years. The WSCP supply augmentation benefits during a five-year drought are shown in standard DWR Table 7-5 in **Appendix E**.

Section 8

Contingency Planning

Diesel-powered pumps, such as the one pictured below, can provide a backup supply of water in the event that water wells or booster station pumps are out of service.



CONTINGENCY PLANNING

Diesel-powered pumps can provide emergency water supplies during sudden catastrophes.



8.1 INTRODUCTION

In addition to prolonged droughts that can gradually decrease water supplies, water supplies may be interrupted in a number of sudden, catastrophic ways. Sudden catastrophes may include earthquakes, power outages, pumping equipment failures, or spikes in groundwater contaminants that cannot be remedied expeditiously. Water shortages can also be a result of intentional or accidental manmade catastrophes, such as acts of terrorism or chemical spills into nearby canals or groundwater spreading grounds. It is important that the City has a plan in place to manage its water system during short or

long-term water shortages. Long term, water shortages can be addressed through conservation and supply augmentation. Short term, water shortages are best handled through a “Contingency Plan”. A Water Shortage Contingency Plan (WSCP) is a required component of the City’s UWMP, which provides guidance on stages of action to be undertaken by the City in response to water supply shortages. A WSCP is an independent document that is incorporated into the City’s UWMP.

This Section serves as the City’s WSCP. The City’s response to water shortages will be a coordinated effort between its own staff and other local and regional water agencies



Figure 8.1: Lake Oroville Failure (February 2017)

During a water shortage emergency, the City will activate this WSCP, which coincides with **Section 13.16.020 of the City's Municipal Code**. The intent of the plan is to reduce the effect of shortages on the City's customers. In compliance with the Water Code requirements, this plan imposes a 50 percent reduction in the total water supply.

8.2 NEED FOR CONTINGENCY PLANS

The recent drought of 2011-2017 significantly depleted the State's supply of water and posed a challenge to many agencies throughout the State. Following the drought, the State experienced a wet

winter in 2017. This resulted in flooding in parts of the State. Several dams overflowed and caused the evacuation of thousands of residents. The most visible example of dam failures was the failure of the Oroville Dam in February of 2017. Structural failure of the Oroville Dam spillway resulted in heavy flooding, damage to farmland, and the evacuation of nearly 200,000 residents. As a result of the crisis, the Department of Water Resources (DWR) prepared a Lake Oroville Flood Season Operations Plan in order to operate the reservoir during construction of the repairs. The failure of the reservoir highlighted the need for improvements to regional and local contingency plans.



8.2.1 Recent State Water Code Amendments

As a result of the recent drought and flooding in the State, the following changes were made to the Water Code in 2018 which affect WSCPs:

- *CWC § 10632 (a)(1)*: WSCPs must include attributes of its Water Supply Reliability Analysis, or reliability of water supplies under five consecutive drought years.
- *CWC § 10632 (a)(3)(A)*: WSCPs must include six (6) Standard Stages, including a shortage of greater than 50 percent of “normal” water supply.
- *CWC § 10632 (a)(4)*: WSCPs must include shortage response actions, and the extent of which the action will address the shortage, based on the severity level of the shortage.
- *CWC § 10632 (a)(2)*: WSCPs must include a plan for preparing annual water supply and demand assessments.
- *CWC § 10632.5 (a)(5)*: WSCPs must include communication protocols to inform customers and the general public of current or predicted water shortages stages.
- *CWC § 10632.5 (a)(9)*: WSCPs must include monitoring and reporting

procedures to assure the agencies’ ability to monitor customer compliance and report data to the State/DWR.

- *CWC § 10632.5 (a)(10)*: WSCPs must include a procedure for evaluation of the WSCP and an outline or procedure to adjust the UWMP in subsequent cycles (i.e. 2025).

The water code changes listed above were added to the Water Code in 2018. In addition, the following measures were taken in recent years that affect WSCPs:

- In 2014, the State Water Resources Control Board (SWRCB) issued Resolution 2014-0038, which aims to enhance customer awareness of their personal water use and establish incentives to reduce demand, such as tiered or drought rate structures.
- In 2015, Gov. Brown issued Executive Order B-29-15, which calls for a temporary reduction in statewide water use by up to 25 percent.

The SWRCB extended Executive Order B-29-15 in February of 2017. In April 2017, the SWRCB rescinded the mandatory conservation requirements of the Order. The action was in response to the ending the drought state of emergency and transitioning to a permanent framework for making water conservation a California way of life.



8.3 LEGAL AUTHORITY

As indicated by **Sections 8.1** and **8.2**, the City has the legal obligation to prepare and implement a WSCP during times of drought or sudden supply interruptions. Response to water shortages is also codified into City Municipal Code (**Section 13.16**, "Water Conservation"). **Section 8.6.5** and **Tables 8.8 and 8.9** of this WSCP include a listing of shortage response actions per CWC § 10632 (a)(3)(A), including the means by which the City will declare a water shortage and authorize response actions. The remaining Sections of this WSCP describe the City's response actions in greater detail.

8.4 WATER SUPPLY RELIABILITY ANALYSIS

In general, groundwater is a drought-resistant source of supply. The City also maintains a current storage of 50,000 AF in the Beaumont Basin. For this reason, the City's UWMP does not anticipate a water supply shortage due to drought conditions through 2045. To mitigate loss of storage, the City can implement the provisions of this WSCP. The results of the City's Drought Risk Assessment (DRA) are shown in **Figure 8.2** and **Table 8.1** on the following page (also **Appendix E**, Table 7-5).

Due to the number of groundwater wells in the City's water system, the City has redundancy in the event of water quality

impairments with a particular well. **Figure 8.3** shows a general procedure that the City may take if any wells are detected to have water quality concerns. If necessary, the City has the ability to increase pumping from other wells to account for loss of production. The City may also construct additional wells over the course of this UWMP planning period (2045), to improve operational flexibility and redundancy. Therefore, the City does not anticipate any significant impacts to water supply reliability as a result of water quality.

Other events which may create a water shortage condition are discussed in **Section 8.7** of this WSCP. These events may include, but not be limited to:

- Regional Power Outage
- Earthquake
- Terrorism Incident

If any of the above events occur, the City will work in conjunction with the County of Riverside (County) and the neighboring agencies listed in **Section 8.7** (Page 8-15) to address the effects of potential water shortages. **Section 8.7** of this WSCP provides a brief overview of the City's response actions to these types of emergencies. Regional response actions are also outlined in Regional Planning documents on the County's website, and as referenced in this WSCP.

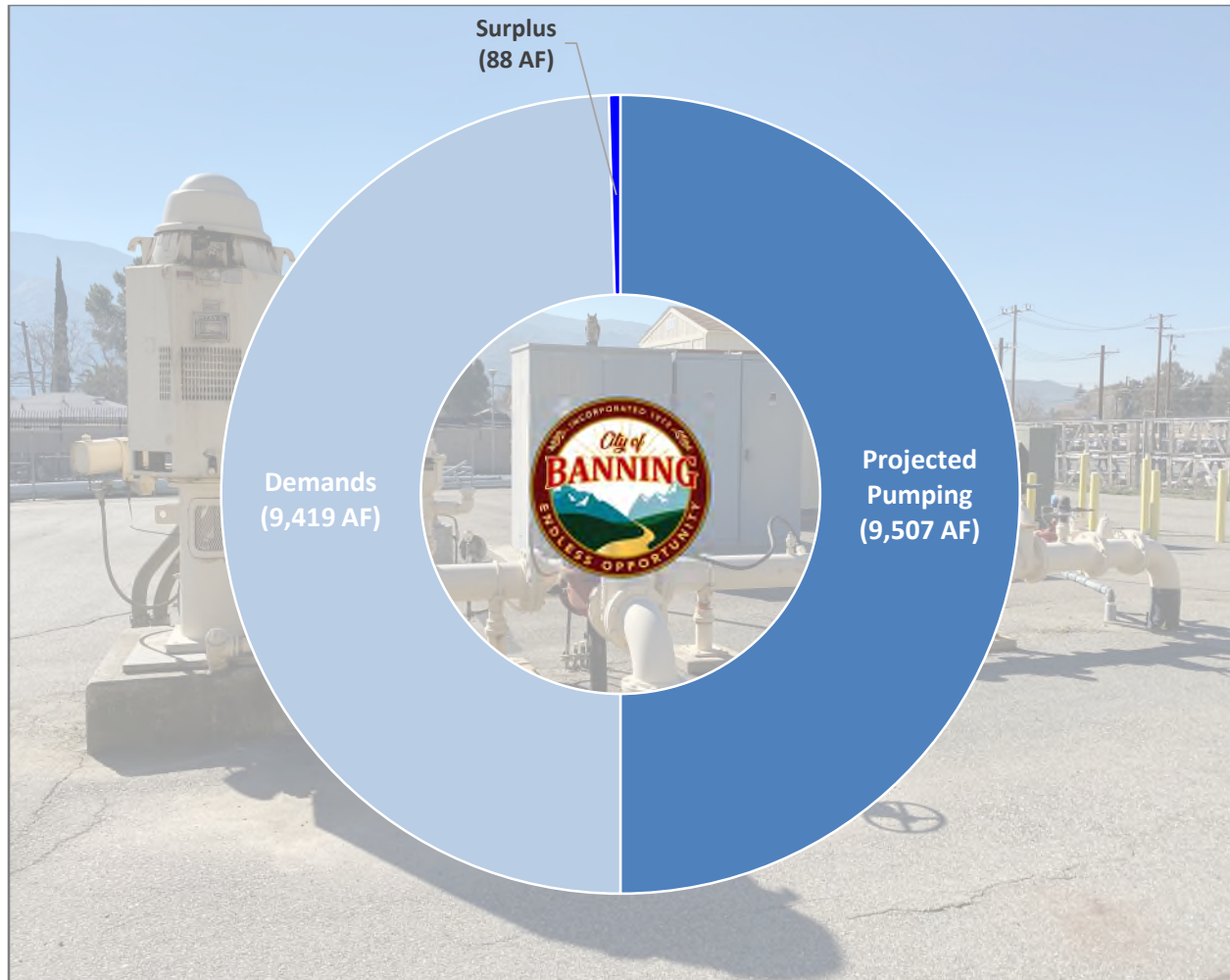
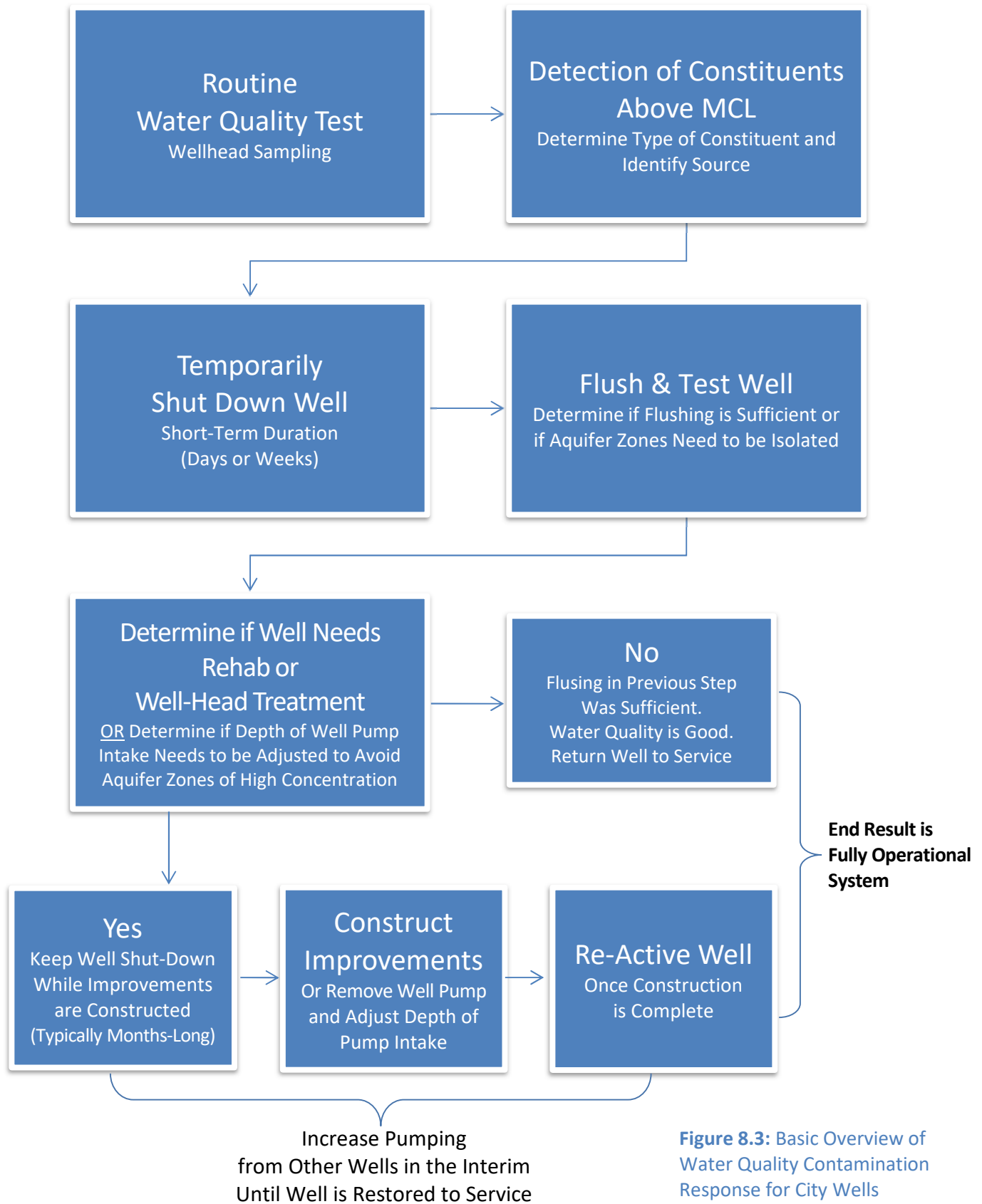


Figure 8.2: Drought Risk Assessment (Next Five Years). Numbers Shown for Next Year (2022)*

Table 8.1
Drought Risk Assessment (Next Five Years)*

Year	Total Dry-Year Water Use (AF)	Total Dry-Year Supply (AF)	Difference (AF)	WSCP Net Benefit (AF)	Potential Difference (AF)
2021	8,865	9,507	642	887	1,529
2022	9,419	9,507	88	942	1,030
2023	9,172	9,507	335	917	1,252
2024	9,443	9,507	64	944	1,008
2025	9,684	9,684	0	968	968

*Note: The results shown in **Figure 8.2** and **Table 8.1** above provide a conservative result with only a small amount of storage water supplied. The City has additional storage capacity to which it may dip into during the next five (5) years to “close the gap” if necessary. See **Table 7.3 of the City’s UWMP** for additional leftover supply capacity.





8.5 ANNUAL ASSESSMENTS

Agencies typically prepare Water Supply Assessments (WSAs) when housing developments are proposed by developers. WSAs provide an estimated of available supplies for a proposed development in order to confirm the possibility of serving water to a particular development. Over the next few decades, the City's water service area population will nearly double due to housing development. Thus, the City will need to refine its procedure for developing WSAs and for assessing water demands in its service area.

Similar to a development-driven WSA, a system-wide assessment of supplies and demands will be required of all water agencies in the State. According to CWC § 10632 (a)(2), the City will be required to prepare an "Annual Assessment" of supplies and demands, including an Annual Water Shortage Assessment Report, by July 1st of each year. At this time, DWR requires that the City include a guideline for preparation of an Annual Assessment in this WSCP.

8.5.1 Decision Making Process

The City's Annual Assessment will be based on metered data from active wells and from customer meters. These figures are available to the City on a monthly basis, or

more frequently if the City desires. The City can also rely on quarterly or annual reports. With AMI technology, the City can adjust to changing conditions (such as rainfall) and can adjust its reporting leading up to the submittal of the Annual Assessments. As of next year (2022), City staff will review water production data and water consumption data starting in January, with the intent to prepare an Annual Water Shortage Assessment Report to the City Council by May each year. The Final Report can then be submitted to DWR by July 1 of each year.

8.5.2 Key Data Inputs

The Annual Assessment will be based on the forecasted demands and estimated water supply availability, including any known infrastructure constraints. The Annual Assessment will also consider weather, population growth, and other influencing factors, such as state or local policies that will impact water demands, or regulations affecting water supplies.

The following data are typically available to City staff and can be relied on when preparing the Annual Assessments:

1. Estimated dry-year demand without any conservation measures. Dry-year demands will be determined by adding an increase factor of 5% to normal demands.



2. Estimated total water supply availability under dry-year scenarios. The water supply available will be based on what is available to the City, regardless of pumping capacity. Groundwater supplies can be estimated from annual WRD Basin Reports prepared under the 2014 Sustainable Groundwater Management Act (SGMA) and from local groundwater level monitoring by WRD.
3. Estimated capacity of water production infrastructure. Any known or forecasted issues affecting the City's water production infrastructure can be considered, such as:
 - o Mechanical or electrical issues with groundwater well pumps.
 - o Possible power outages for operation and maintenance
 - o New construction and repairs

The potential constraints on supply capacity listed under Item 3 above are subject to change from year to year. As such, the City should inspect its water system for the condition of its groundwater wells before making a determination on potential restrictions in groundwater supplies. In

addition, the City should coordinate with the San Geronio Pass Water Agency (SGPWA) and/or DWR to determine the projected imported water allocations from the State Water Project (SWP). This is an important step in the preparation of a water supply assessment since imported water provides recharge to local groundwater spreading grounds in the Beaumont Basin.

8.5.3 Current Forecast

In general, the total available water supply for the City will be based on either the capacity of its wells or pumping rights (safe yields), whichever is more restrictive. At this time (2021), the total groundwater pumping safe yield is roughly 9,000 AFY. This is based on the most-recent reports prepared on the City's groundwater basins. The actual supply into the City's water system will be based on the projected demands. **Table 8.1** provides the projected supply capacity volumes along with the projected water demands (9,419 AF in 2022). The projected supplies in other years shown in **Table 8.1** likewise exceed the City's total safe yield. To compensate for exceeding the safe yield(s) of the individual basins, the City anticipates dipping into its storage account of the Beaumont Basin, and passively or actively recharging the basin(s) during wet years. This is described in further detail in **Sections 3 and 7** of the UWMP.



8.6 CONTINGENCY PLANS

Currently the City relies entirely on local groundwater to meet its demand. The City's purchase of imported water (i.e. State Project Water (SWP), private contracts, Yuba Water) from the San Geronio Pass Water Agency (SGPWA) is used only to recharge the City's storage account in the Beaumont Basin. In the short term, the City's groundwater supplies can be pumped as needed, within the safe yields, to meet demands. In the long term, the supply from SGPWA can be used as a supplementary source if demands exceed local supplies. Thus, only in the long-term shortage scenario will the reliability of the City's water supply be affected by (i.e. contingent upon) the actions of the SWP Contractors.

8.6.1 City Contingency Plan

Since the drought period of the early 1990s, the City has implemented a water conservation plan to reduce water use during shortages. The "Water Conservation Plan" was originally adopted as **Section 13.16** of the City's Municipal Code. The Plan is currently being updated to provide the City with the authority and guidance to implement a phased approach depending on the severity of a water shortage. In the event of a water shortage, the City Council will implement the appropriate water conservation phase by resolution.

The objectives of the response plan are to:

1. Prioritize essential uses of water
2. Maximize local municipal water supplies
3. Eliminate water waste city-wide
4. Minimize adverse financial effects

Regarding Objective No. 1, priorities for use of available potable water during shortages are based partly on California Water Code, Sections 350-358. Water allocations are established for all customers according to the following ranking system:

1. **First Priority:** Minimum health and safety allocations for interior residential needs
2. **Second Priority:** Commercial, industrial, institutional/governmental operations
3. **Third Priority:** Existing landscaping
4. **Fourth Priority:** New customers, proposed projects, etc.

Regarding the 1st Priority specified above, as noted in **Section 6** of the City's UWMP, about 90% of the City's water service connections consist of residential accounts. As a result, the City can use its population estimates to assess water use needs during a shortage.



8.6.2 Health & Safety (1st Priority)

In 2018, the State adopted Assembly Bill 1668, which amends Section 10608.20 of the Water Code to stipulate an indoor water use standard of 55 gallons per capita per day. The City is obligated to determine the minimum health and safety water needs for its residents. To assess the minimum amount of water that should be available (1st Priority Level), the amount of personal hygiene household water use must be quantified. Based on common indoor residential water use in the United States, health and safety water use is estimated to be as shown in **Table 8.2** below:

Table 8.2
Health & Safety Personal Use (gal/day)

Item	Regular	Voluntary Conservation
Toilet	14	10.5
Shower	15	12
Washer	12	11
Kitchen	4	3
Other	4	4
Total	49 gal	40.5 gal

Since the City has a population of about 30,000 residents, at a rate of 40 GPCD, the City will need up to **3.7 AF (1.2 MG) per day** to provide for the health and safety of its residents (if conservation is voluntary). Since the City's above-ground storage has a total (combined) capacity of nearly 20 MG,

the City can provide for about one week of water supply to its residents. However, the ability to meet the most basic water needs of its residents during a severe shortage may be difficult unless the City's citizens are aware of the water supply shortage. Thus, public outreach must be a top priority for the City during a water shortage.

8.6.3 Stages of Action

The City's Annual Assessments prepared under **Section 8.5** can be used to predict shortages. The City's WSCP imposes six (6) stages of response actions based on the severity of the City's water supply shortage. The stages are based on DWR's established criteria as shown in **Table 8.3** below:

Table 8.3
Water Shortage Stages & Reduction Targets

Shortage Stage	Restriction Type	Water Supply Reduction Target
I	Mandatory	10%
II	Mandatory	20%
III	Mandatory	30%
IV	Mandatory	40%
V	Mandatory	50%
VI	Mandatory	>50%

To lessen confusion on City customers, the first four stages (Stages 1 to 4) regulate customer responses to shortages, while the latter two stages (Stages 5 to 6) regulate City water staff response efforts.



The Banning City Council will formally declare the stage of the water shortage, following a public hearing, upon determination from City water staff that a water shortage exists and the WSCP should be implemented. Following Council declaration of a shortage stage, the WSCP will become effective no sooner than the first billing period on or after the date of publication of the Council Resolution.



Figure 8.4: City Council Can Declare Shortage Stages

The WSCP will remain in effect until Council declares the water shortage emergency has ended. Alternatively, Council may also change the water shortage stage as appropriate. However, Council will not impose mandatory measures without first conducting a duly-noticed public hearing pursuant to CWC § 350 or § 375.

8.6.4 Communication Protocols

A common understanding of the water supply situation is essential for the WSCP to be effective. During a water shortage, the City will be able to allocate staffing and

resources to inform its customers of the Council-declared water shortage. In particular, the City will inform its water service customers of the following:

- Water Shortage Stage
- Water Use Prohibitions
- City Water Staff Response Actions

The communication protocol will be in place prior to formal declaration of a water supply shortage. The frequency and extent of coordination will be based on the shortage severity. The City will use the following resources to communicate with its customers:

- City Website
- Social Media (i.e. Twitter/Facebook)
- Bill Inserts/Postcard Notices
- Billboard or Digital Message Boards
- Advertisements (Radio & Print)

The goal of the communication efforts will be to raise awareness of the drought and to motivate customers to conserve water. The City should also prepare customers for possible increases in water shortage severity. Finally, as mentioned under Priority 1 in **Section 8.6**, the key goal of communication is to promote available water resources, provide specialized outreach for impacted industries, including instructions on how to receive bottled water, and how to participate in public hearings with City staff.

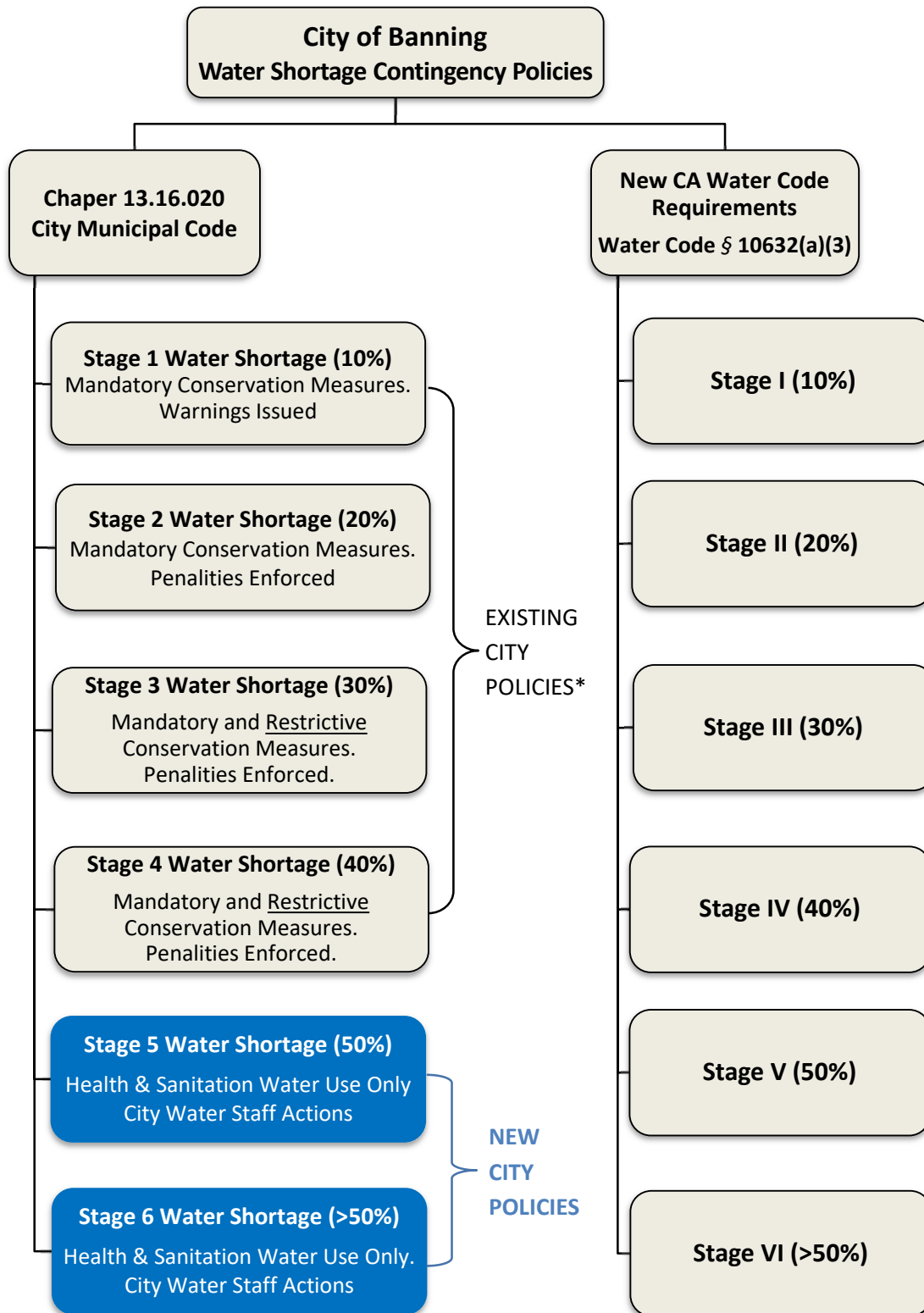


Figure 8.5: City Water Shortage Contingency Plan



8.6.5 Limitations/Prohibitions

Per **Section 13.16** of the City's Municipal Code, prohibitions on water use, include, but are not limited to, the following:

1. Irrigation runoff
2. Landscape irrigation for more than 15 minutes (except drip irrigation)
3. Irrigation on rainy days or within specified hours of a rain event
4. Failure to repair leaks in a timely manner
5. Washing of automobiles without a bucket or hand-held hose equipped with a positive shutoff nozzle
6. Restaurants serving water to their customers, except when specifically requested by their customers
7. Operating a decorative water fountain without re-circulated water
8. Operating a commercial car wash without re-circulated water
9. Hotels, motels and other commercial lodging establishments shall not launder towels and linens daily, except when specifically requested by their customer

Additional prohibitions may also be enforced, depending on the declared stage shown in **Table 8.2**. Moreover, the prohibitions listed above may also be adjusted depending on the severity of the declared stage, or until the shortage is rescinded by City Council.

8.6.6 Penalties for Non-Compliance

Per City Code 13.16.020:

"Civil proceedings for violation. In addition to criminal penalties, violators of the mandatory provisions of this section shall be subject to civil action initiated by the City"

1. **First violation.** For a first violation, the city shall issue a written notice of violation to the water user violating the provisions of this chapter
2. **Second violation:** 25 percent surcharge
3. **Third violation:** 50 percent surcharge; installation of flow restrictor
4. **Subsequent violations:**
Discontinuance of service

The penalties listed above may be waived if a customer completes an application for exception permit. Hardship, safety, or health conditions are among the reasons granted for the exception.



8.7 DISASTER MANAGEMENT

During a water shortage, the City has the following tools available to restrict water use to health and safety uses only:

- Expanding public outreach
- More frequent meter readings
- Fines and penalties
- Flow-restriction devices
- Moratorium on service connections

The City's Local Hazard Mitigation Plan (LHMP) in **Appendix N**, prepared in May of 2017, addresses the planned response to extraordinary emergencies associated with natural disasters, including seismic risks. Other City planning tools, such as the City's

The City's LHMP & EOP provide guidance for the City in dealing with local disasters.

Emergency Operations Plan (EOP), updated in 2012, provides for the most effective and economical allocation of resources for the maximum benefit and protection of life,

property, and the environment during an emergency. The EOP supersedes the City's prior Multi-Hazard Functional Planning Guidance document that was prepared in 1996. These documents provide the City with: 1) An Emergency Plan; 2) Functional

Annexes that describe the emergency response organization; and a 3) Listing of operational data such as resources, key personnel, and essential facilities and contacts. During a disaster, the City's water department staff will maintain water operations as follows:

- All on-duty personnel will remain on duty until relieved of duty
- Off-duty personnel will be expected to return to work or be "on-call"
- While in a disaster mode, working shifts will be 12 hours

In the event that any portions of the City's water system are without water, the City's water department staff will act as a "field response unit" under the City's EOP in order to begin "Response Phase" and "Recovery Phase" activities, including:

- Assess impact of incident
- Communication with adjacent water agencies
- Identify need for and prioritize locations for water distribution
- Provide for water quality assurance or prepare notices for water quality
- Evaluate, plan, and implement actions to acquire and distribute water



- Determine the need to staff a water task group and to secure resources
- Provide informational status to nearby water agencies, including:
 - SGPWA
 - BCVWD
 - Cabazon Water District
 - Yucaipa Valley Water District
 - Morongo Band of Mission Indians
 - Banning Heights Mutual Water
 - High Valleys Water District
- Provide information to media as appropriate

This WSCP provides a general guide of City response actions to catastrophes. Other planning documents, including the City's LHMP, provide additional details which supplement this UWMP.

8.7.1 Seismic Risk and Emergency Backup

According to the maps provided on the California Office of Emergency Services' online planning tool (My Plan) and the California Geological Survey's online earthquake hazards zone application (EQ Zapp), several faults, including the Banning Fault and portions of the San Gorgonio Fault Zone, are present within the City's sphere of influence. The known fault lines are shown in **Figure 8.6**.

An earthquake has the potential to damage to drinking water and wastewater utilities. Impacts to the City's water system may include, but not be limited to:

- Damage to wells/well houses
- Water tank damage or collapse
- Damage to water distribution system

Damage to distribution lines due to shifting ground and soil liquefaction can result in potential water loss, water service interruptions, low pressure, contamination and sinkholes and/or large pools of water throughout the service area. For these reasons, earthquakes can potentially restrict water supplies for a longer period of time than a power outage or man-made catastrophe. In the event that an earthquake damages portions of the City's pumping or distribution system, the City can provide temporary drinking water to customers through potable water trucks as noted in **Section 8.7.2**.

Even if an earthquake does not result in damage to water production or distribution facilities, an earthquake could result in a power outage or damage to the water system facilities. The City's water operations staff will be on standby alert during an emergency to respond promptly to water supply interruptions. The City's water operations staff will work with SCE to restore power to water supply facilities.

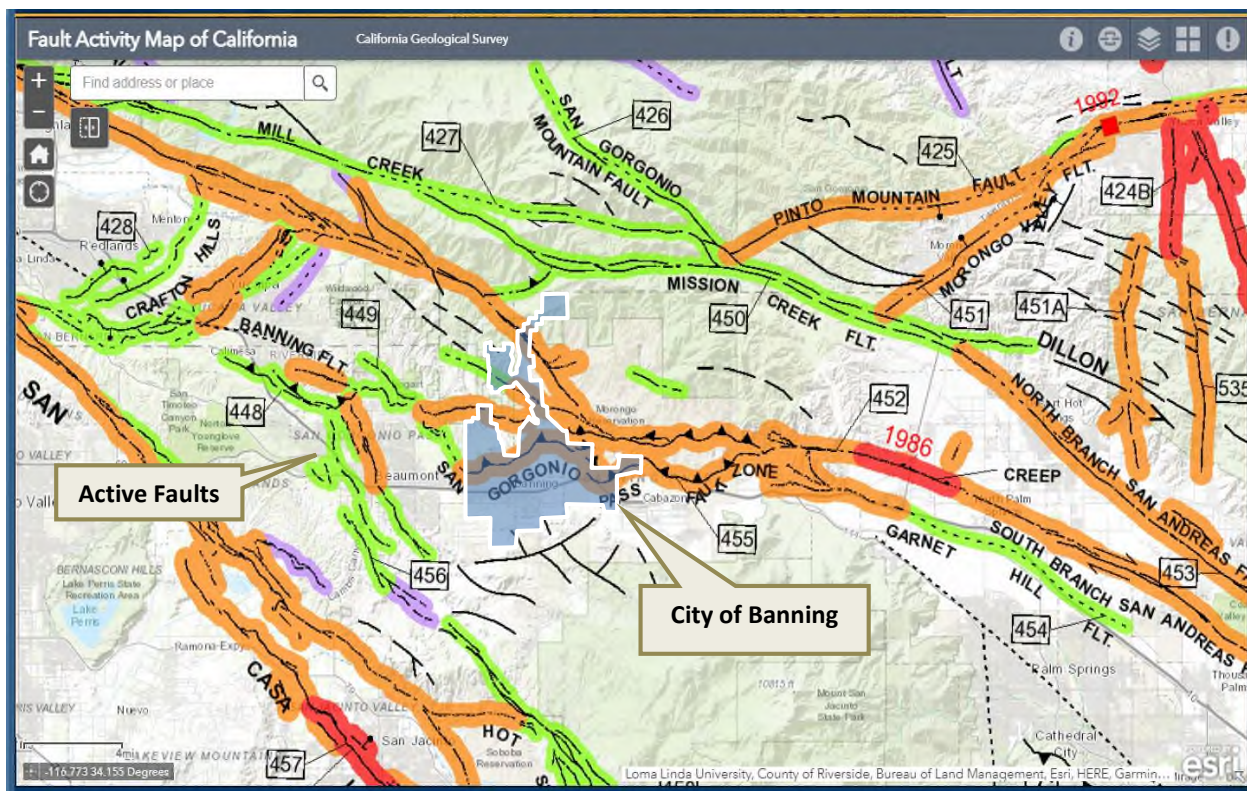


Figure 8.6: Fault Zones Near the City

In the interim, the City's Wells 8, 9, 10, C-2, and C-4 have an emergency power source available to continue to operate when the power fails. Wells 1, 3, 4, and 5 do not have an emergency power supply, but they have the ability to provide water during an emergency. **Table 8.4** summarizes the City's wells with emergency power source and anticipated capacity during auxiliary backup. The total water available from the use of these nine wells is 7,110 gpm (31.4 AF/day), based on City of Banning dry-year capacities, City of Banning Public Works (2011). These quantities would be sufficient to meet the maximum day demand of approximately 30 AF/day. If however additional water supply capacity is needed,

portable generators can be obtained to operate other remaining wells and booster stations.

It should be noted that the backup systems for Wells 8, 9, and 10 require manual turn on. Additionally, Wells 1 and 3 are equipped with both electric pumps and Pelton wheels, and Wells 4 and 5 are equipped with only a Pelton wheel pump (see **Figure 8.7**), which also allows these wells to provide water in the event of an emergency. Pelton wheel pumps allow these wells to be operated by a hydraulic-driven pump using existing water under pressure in the distribution system.



Table 8.4
Wells with Emergency Generators and Backup Systems

Well	Location	Total Capacity		Remarks
		GPM	AF/Day	
1	Banning Bench Storage Unit	950	4.2	Pelton Wheel
3	Banning Bench Storage Unit	660	2.9	Pelton Wheel
4	Banning Water Canyon Storage Unit	600	2.7	Pelton Wheel
5	Banning Water Canyon Storage Unit	550	2.4	Pelton Wheel
8	Banning Water Canyon Storage Unit	1,000	4.4	Backup Portable Generator
9	Banning Water Canyon Storage Unit	1,000	4.4	Backup Portable Generator
10	Banning Water Canyon Storage Unit	600	2.7	Diesel Engine Drive
C-2	Beaumont Basin	650	2.9	Generator
C-4	Beaumont Basin	1,100	4.9	Generator
Total		7,110	31.4	

Table 8.5
Available Emergency Reservoir Storage

Available Reservoirs	Total Aboveground Storage (MG)	Total Aboveground Storage (AF)
Brinton Reservoir	8.0	24.6
C2 Tank	0.22	0.7
C3 Tank	0.06	0.2
C4 Tank	0.05	0.2
C5 Tank	0.05	0.2
Mountain Tank	0.25	0.77
Well 1 Receiving	0.024	0.1
San Gorgonio Reservoir No. 1	2.60	8.0
San Gorgonio Reservoir No. 2	2.00	6.1
San Gorgonio Reservoir No. 3	1.00	3.1
Southwest Reservoir	1.50	4.5
Sunset Reservoir No. 1	2.1	6.4
Sunset Reservoir No. 2	2.1	6.4
Total	19.95	61.2



Figure 8.7: Pelton Wheel Pump

8.7.2 Emergency Water Supply

If necessary, additional water is available in the City's storage tanks, as listed in **Table 8.5** on the preceding page. The total water storage capacity is approximately 61.2 AF. Combined with a total backup pumping capacity of 31.4 AF/day (**Table 8.4** wells with emergency power), the combined emergency supply from production wells and aboveground storage reservoirs/tanks is approximately 93 AF.

In addition to the City's own sources, the City has a 12-inch emergency interconnection with the Beaumont Cherry Valley Water

District (BCVWD) at the western boundary of the City's service area, located at the intersection of Highland Springs Avenue and Sun Lakes Boulevard. In the event of damage to any of the City's wells, water could be supplied from BCVWD until the well(s) are back online.

If an earthquake renders the adjacent agencies unable to provide emergency water to the City, the City can obtain emergency water through portable means. This would involve vehicles equipped with potable water tanks. The City would have to obtain potable water trucks from nearby suppliers.



The California Department of Public Health maintains a list of Licensed Water Haulers that includes Riverside County. According to the most recent data provided by the State, the closest supplier of potable water tanks and trucks in Riverside County is Mack's Water Trucks® of Temecula, located about 45 miles from the City. In San Bernardino County, there is T&B Water Trucks® of Rialto, located about 35 miles from the City.



Figure 8.8: Potable Water Tank Trailer

The City can also consider purchasing large tanks (500 gallons or more), and securing them to the back of City trucks. This will allow the City to distribute water to customers during an emergency.

8.7.3 Additional Aid

Additional emergency services in the State of California include the Master Mutual Aid Agreement and the California Water Agency Response Network (CalWARN). The Master Mutual Aid Agreement includes all public agencies that have signed the agreement and is planned out of the California Office of

Emergency Services. CalWARN includes all public agencies that have signed the agreement to WARN and provides mutual aid assistance. CalWARN provides member utilities with:

- Mutual assistance agreement and process for sharing emergency resources
- Resources to respond and recover more quickly from a disaster
- Mutual assistance program consistent with other statewide mutual aid programs and the Standardized Emergency Management System (SEMS) and the National Incident Management System (NIMS)

In addition to CalWARN, the City of Banning also has a mutual aid agreement in place with the Morongo Band of Mission Indians, who own and operate their own Water System and Fire Department.

8.8 WSCP ENFORCEMENT & EVALUATION

To properly assess the effectiveness of this WSCP, the City will need to monitor metered consumption and production. The City will also need to track its billing system to see if fines for violations of water-use prohibitions have been issued.



8.8.1 Monitoring

Using the City's water billing records, the City will be able to identify not only the conserved volumes, but also the customers which are in violation of the provisions of this chapter. In particular, the City can review data from the following sources:

- **Production Meters:** Provides an account of daily water production
- **Customer Meters:** Provides an account of monthly consumption

With AMI/AMR meter technology, if the City desires to determine irrigation violations, the City can monitor meters which will allow the City to view consumption on a daily or hourly basis.

In addition to monitoring customer use, the City also has the ability to monitor production volumes to determine if the well supplies have been reduced. Under normal conditions, potable water production figures are recorded daily. Weekly and monthly reports are prepared and monitored. This data will be used as a baseline to measure the effectiveness of any water shortage contingency stage that may be implemented.

During rationing conditions, the water budget will be monitored on a weekly, daily, or hourly basis depending on the severity of

the drought. During a disaster shortage, production figures will be monitored on an ongoing basis. The City's Supervisory Control and Data Acquisition (SCADA) system will warn of any critical conditions instantly. In addition, manual meter readings will be performed more frequently than the normal monthly schedule.

8.8.2 Enforcement

During shortage conditions, the City can implement water-waste patrols, or increase the frequency of existing water waste patrols. If City staff are unable to conduct additional water waste patrols, the City can contract with outside support to conduct water waste patrols. However, contracting with an outside firm would incur additional costs at a time when revenue is impacted. If violations are observed, fines/penalties per **Section 8.6.6** can be applied.

8.8.3 Reporting

During a declared water shortage, City water staff will report water production and consumption figures to City Council on a monthly basis. Pending regulations from the SWRCB will also require the City to report data to SWRCB on a monthly basis. Thus, during a declared shortage of the WSCP, City staff will report water production and consumption figures to both City Council and the SWRCB on a monthly basis.



8.9 FISCAL IMPACTS

8.9.1 Impacts to Revenue

Based on the City's total water revenue and operating expenses, demand reductions will likely result in negative net cash provided by operating activities. **Table 8.6** below lists the current residential water rates:

Table 8.6
Current Residential Water Rates

Account	Pricing (per HCF)
Tier 1 (0-12 HCF)	\$2.01
Tier 2 (13-25 HCF)	\$2.56
Tier 3 (26+ HCF)	\$2.88

Based on the rates shown, a 50% decrease in residential use (about 2,500 AF or 327,000 HCF) would result in:

- **\$180,000** in lost revenue per month
- **\$2.2 million** annual lost revenue

The City has fixed base charges currently in the rate structure that generates some revenue even if no water is used. These rates range from \$22.88 per month for a 5/8-inch meter to \$949.39 per month for an 8-inch meter. Most residential customers use a 3/4-inch meter, which has a rate of \$22.88 per month. The base rates allow the City to not be impacted by revenue losses during water shortages. The following

actions could take place under such circumstances:

- Implement a conservation surcharge
- Delay capital improvement projects
- Consider temporary increase of water rates to meet operation and maintenance costs

A combination of the measures outlined above may be used to offset or diminish the effects of lost revenues. However, any increases in the City's water rates would require a Prop 218 process to implement the rates. For this reason, the City is planning on including the implementation of temporary rate increases (and temporary fees & surcharges) in its upcoming rate study.

8.9.2 Impacts to Reserve Funds

The City carries reserves in the water system accounts, to fund for needed improvements to its water system. The balance of reserves for the City is maintained primarily for facility repair and replacement. Under a shortage crisis, some flexibility would exist to dip into these reserves to help offset loss of revenue.

8.10 THREE-YEAR MINIMUM SUPPLY

The City's groundwater supplies are mostly resilient to droughts. However, recharge



water from SGPWA is subject to restrictions by DWR. Nevertheless, the City has anticipated a minimally reliable volume of water from SGPWA. This is reflected in **Section 7** of the UWMP. **Table 8.7** below displays the minimum water supply available to the City based on a drought period over the next three years:

Table 8.7
Three-Year Minimum Supply (AF)

Category	2021	2022	2023
Supply	9,507	9,507	9,507
Dry Demand	8,865	9,419	9,172
Difference	642	88	335

Based on the above analysis, the City's water supply will be reliable over the next (3) years. However, if dry demands increase more than expected during a given year, the City can pump additional water from its groundwater storage account during these years while it develops its well system to maximize its safe yield of the basins.

It is important to note that the 3-year minimum supplies shown in **Table 8.7** above are worst-case drought scenarios. This does not take into consideration catastrophic interruptions to local or imported supplies, or emergency power outages. Such catastrophic scenarios may limit supplies to a greater degree.

8.11 WSCP ADOPTION AND REFINEMENT

8.11.1 Council Resolution

On June 8, 2021, the City Council adopted Resolution No. 2021-51 (included in **Appendix B**) approving this WSCP. The City will be updating **Section 13.16** of the City's municipal code in the following weeks to coincide with this WSCP. **Tables 8.8 & 8.9** on the following pages provide a summary of the prohibitions and City response actions to the water shortage stages listed in **Table 8.3** on Page 8-10.

8.11.2 WSCP Refinement Procedures

The City intends to update and refine this WSCP as necessary. The WSCP can be updated in one of the following ways:

- Cyclical Updates
- Data-Driven Updates
- Externally-Driven Updates

The following is a guideline for how the City will update this WSCP:

Cyclical Updates

The cyclical updates will be handled by City staff internally with the assistance of an outside engineering consultant. Once the WSCP is implemented, the City will document the effectiveness of the customer water use prohibitions listed in



Figure 8.9: High Valleys Tank

Tables 8.8 and the City water staff response actions listed in **Table 8.9**. The effectiveness will be evaluated using the methodologies described in **Section 8.8**. The WSCP effectiveness will be documented over the course of five (5) years, until the next UWMP update. It is the City's intent to update the WSCP every 5 years, alongside the City's UWMP. The City will conduct an internal review of the WSCP prior to releasing a Request for Proposals (RFP) for the UWMP and WSCP. The RFP process will provide the City with an opportunity to revise the WSCP as-needed.

Data-Driven Updates

Data-driven updates to the WSCP will likely occur mid-cycle or at some point between

the 5-year cycle. The data-driven updates can be prepared entirely by City staff (internally) due to the urgency of such updates. For example, if the City finds that the fines/penalties covered under **Section 8.6.6** are not effective at reducing overall demand, the City may increase the fines through an amendment to **Section 13.16** of the City Municipal Code, and revise **Section 8.6.6** (Code Section 13.16.020) to reflect the new fines. Other items of this WSCP can be updated in a similar manner.

Externally-Driven Updates

Conversely, if the fines are found by the City's customers to be too punitive, and Council is petitioned to reduce the fines, the City can adjust **Section 13.16** of the City



Municipal Code, and revise **Section 8.6.6** herein to reflect the new fines. Other items of this WSCP can be updated in like manner.

8.11.3 WSCP Re-Adoption

Once the WSCP is revised, the City Council will be required to re-adopt the revised WSCP. This will require a public hearing to receive public comments on the WSCP. The revised WSCP will replace the former WSCP, and will then remain effective until the City elects to update the WSCP

Perhaps the most critical task in the City's response to shutdowns in water is the distribution of water to customers. As noted in the caption to the cover of this Section, portable pumps and water trucks can be used to distribute water to customers. Due to the time and planning involved in procuring these types of vehicles, this task is identified only in the most severe type of shortage (Stage VI).



Table 8.8
City Code Prohibitions on Water Use During Water Shortages

Stage	Prohibition/Restriction	Penalty
Stage 1 (<10%)	• No Irrigation between 10 am to 8 pm • No Person Shall Operate a Decorative Water Feature (Fountains, Ponds, etc.) that Does Not have a Recirculating System • All Landscape Irrigation Limited to No More than Three (3) Days per Week • All Landscape Irrigation Limited to No More than 15 minutes per Station per Watering Day • Repair or Isolate Leaks within 72 Hours of Notification by the City • No Washing Sidewalks and Driveways with Water • Car Washing Only with Bucket or a Hose with Shutoff Valve or Nozzle • Excess Irrigation Runoff is Prohibited • No Landscape Irrigation During or Within 48 hours of a Rain Event • Restaurants to Serve Water Only Upon Request • Restaurants to Wash Kitchen and Dining Room with Bucket or Specialized Water Broom Only • Hotels/Motels to Provide Customer Option of Daily Laundry • Automobile Wash Business Must Use Water Recycling Systems	Yes
Stage 2 (10% to 20%)	• All landscape irrigation limited to no more than 2 days per week from June 1 to October 31 and no more than once per week from Nov 1 to May 31 • All landscape irrigation limited to no more than 10 minutes per station per watering day • No filling or refilling of ornamental lakes or ponds, except to sustain aquatic life • Repair or isolate leaks within 48 hours of notification by the city • Pools or spas to have a cover to prevent evaporation • Cease all operation of decorative water features (fountains, ponds, etc.) • No landscape irrigation during or withing 72 hours of a rain event • Commercial nurseries shall use water during the hours from midnight to 6am • Commercial landowners to allow tenants the option of replacing lawns & landscapes	Yes
Stage 3 (20% to 30%)	• All landscape irrigation limited to no more than 2 days per week from June 1 to Oct 31 and no more than once per week from Nov 2 to May 31 • All landscape irrigation limited to no more than 10 minutes per station per watering day • Repair or isolate leaks within 24 hours of notification by the city • Car washing limited to only automobile washes that use water recycling systems • No landscape irrigation during or within 1 week of a rain event • Restaurants to wash dining room once daily (after close of business) and only with bucket or specialized water broom • Restaurants to pre-soak dishes • Restaurants to install solenoid valve for sinks with garbage disposals • No commercial window washing	Yes



Table 8.8
City Code Prohibitions on Water Use During Water Shortages

Stage	Prohibition/Restriction	Penalty
Stage 3 (20% to 30%)	• Apartment buildings to certify low-flow fixtures (showerheads and faucets) are installed prior to leasing apartments • Commercial buildings and restaurants to replace/install waterless urinals • Commercial buildings and restaurants to replace/install low-flow toilets • Hotels/Motels to wash laundry only after change of customer	Yes
Stage 4 (30% to 40%)	• Cease all irrigation except by reclaimed water or except for crops or horticulture (nurseries) for fire or erosion maintenance • No Refilling of Pools or Spas • Commercial Landscape to be Replaced with CA-Friendly Landscape	Yes
Stages 5 & 6 (50% or more)	• N/A (Same Requirements as Stages 1 to 4 Above) • This Stage Involves Only Operational/Management Response Actions	Yes



Table 8.9
City Water Department Response Actions

Stage	City Water Department Response Action	Additional Info
Stage 1 (<10%)	• Begin an Enhanced Public Awareness Campaign	Increased Expense for City Use Financial Reserve Funds
Stage 2 (10% to 20%)	• No Filling or Refilling of Municipal Ornamental Lakes or Ponds, Except as Necessary to Sustain Aquatic Life • Reduced Flushing Frequency • Notify customers immediately of suspected leaks in their plumbing	Increased Expense for City Use Financial Reserve Funds
Stage 3 (20% to 30%)	• Increase Groundwater Pumping • No statements of immediate ability to serve or provide potable water service • Establish a water allocation for certain properties within the city's jurisdiction • Repair or Isolate Water Main Leaks within 24 Hours • Provide Letters to Certain Properties for Allocations Established in Stage 3 Informing Reduction of 10% in Allocation of Tiered Rate • Elimination of Specific Municipal Uses such as Hydrant Flushing, Street Cleaning, and Water-Based Recreation	Increased Expense for City Use Financial Reserve Funds
Stage 4 (30% to 40%)	• Rate Increase Study to Mitigate Loss of Revenue • No new potable water service • No new temporary meter or permanent meters • Will serve letters, certificates, or letter of availability • Suspend considerations of annexations to the city's water service area • Prop 218 process to implement rates increases • Increase Frequency of Meter Readings to Twice Monthly in Order to Allow Staff and Customers to Track Progress • Implement Water Waste Patrols (Once Monthly) • Coordinate with Adjacent Agencies to Receive Emergency Water via Emergency Interconnections • Defer Flushing of Mains Until Maximum Allowable Time for Quality/Safety • Coordinate with Manufacturers and/or Governing Agencies to Receive Fleet of Potable Water Trucks	Increased Expense for City Use Financial Reserve Funds Defer Capital Projects
Stage 5 (40% to 50%)	• Systemwide Rate Increase to Achieve Necessary Reduction and to Mitigate Loss of Revenue • Issue water quality notices (if necessary) in case additional pumping creates water quality issues • Coordinate with adjacent agencies to prepare for possible need of emergency water when/if conditions worsen	Increased Expense for City Use Financial Reserve Funds Defer Capital Projects



Table 8.9
City Water Department Response Actions

Stage	City Water Department Response Action	Additional Info
	• Notices on Government Access Channel (TV) • Hand-Post Drought Notices on all Customer Properties (Residential Homes & Commercial Buildings)	
Stage 6 (>50%)	• Mobilize Potable Water Trucks • Decrease Pressure in Water Mains	Increased Expense for City Use Financial Reserve Funds Defer Capital Projects

Section 9

Conservation Measures

The City's ordinances, adopted by Council, have strict provisions which encourage the efficient use of water while penalizing wasteful use. The City's water staff are also committed to water use efficiency through the use of management practices and customer assistance programs.





CONSERVATION MEASURES

Conservation measures, including those aimed at leak detection and excessive runoff (pictured) are an essential part of the City's policies.



9.1 OVERVIEW

As a result of seasonal droughts and continued urban development, water conservation is important to California's sustainability. To help conserve California's water resources, several public water agencies came together to form the California Urban Water Conservation Council (CUWCC). The CUWCC was officially formed in 1991 when the agencies signed a Memorandum of Understanding (MOU) on urban water conservation. In January 2018, the CUWCC became the California Water Efficiency Partnership (CalWEP). Currently, over 200 water agencies are members of CalWEP. The main focus of CalWEP is to assist its member agencies with public

policy, research, and education tools. Regarding the UWMPs, CalWEP works with DWR in order to help form BMP/DMM policies contained in the UWMPs.

The CUWCC MOU established 14 Best Management Practices (BMPs) which were defined roughly as policies, programs, practices, rules, regulations, or ordinances that resulted in a more efficient use or conservation of water. The BMPs were equivalent to the 14 Demand Management Measures (DMMs) defined in the UWMP Act, until 2015. As of the 2015 UWMPs, the Department of Water Resources (DWR) streamlined the 14 DMMs into six (6) generalized categories, with an additional seventh (7th) optional category. The 2020



UWMP Guidebook continues the same DMM categories for the 2020 UWMPs.

The City acknowledges that efficient water use is the foundation of its current and future water planning and operations policies. The City implements water conservation through a combination of programs, resources, and policies.

9.2 DWR DMMs FOR 2020 UWMPs

The DMMs are intended to reduce long-term urban demands from what they would have been without their implementation. The DMMs are in addition to programs which may be instituted during occasional water supply shortages.

- i. Water Waste Prevention Ordinances
- ii. Metering
- iii. Conservation Pricing
- iv. Public Education & Outreach
- v. Programs to Assess and Manage Distribution System Real Loss
- vi. Water Conservation Program Coordination and Staffing Support
- vii. Other Demand Management Measures that have a significant impact on water use

As with previous UWMPs, agencies that are members of CalWEP can submit the BMP annual reports in lieu of providing a description of each DMM in the UWMP.

9.3 CalWEP BMPs

An active member of the CalWEP is one that has signed the MOU and implements the water conservation measures stipulated by the CalWEP (**Figure 9.1**). According to CalWEP, an agency “implements” a conservation measure by achieving *and* maintaining the level of activity called for in each BMP's definition, as described in the MOU. This requires a minimum level of staffing and funding efforts. To document the implementation of a BMP, an agency is required to submit annual BMP reports to CalWEP that document the implementation of each BMP.



Figure 9.1: CUWCC became CalWEP in January 2018

The City is not currently a member of CalWEP. However, the City is implementing the same conservation measures as described in the previous sub-section.



9.4 CITY CONSERVATION MEASURES

The City of Banning is committed to implementing water conservation programs and encourages its customers to conserve water whenever possible. The CalWEP BMPs are broad measures aimed at reducing water use either directly (rebates and fixture changes), or indirectly (through awareness). As a smaller, low-density community surrounded by miles of open space, the City is unique compared to many of the other urban, “built-out” member agencies. As such, the City’s conservation efforts are tailored to address the characteristics of their specific community. Over the past several years, the City has focused primarily on public information efforts, irrigation and landscape limitations, and reducing water losses/waste. The City has focused less on rebates and retrofits as water efficient appliance and fixtures have saturated the market over the past few decades. Nevertheless, the City is committed to using “good faith effort” to implement all of the BMPs as described in this section.

DMM No. 1 Water Waste Prevention Ordinances

City Ordinance No. 1039 was adopted by the City Council in 1991, prohibiting the waste of water. Ordinance No. 1039 describes actions that are considered a waste of water and the subsequent

penalties if a violation were to occur. In 1998, this Ordinance was incorporated into City Ordinance No. 1231.

In 2006, Assembly Bill No. 1881 was passed, requiring local agencies, beginning January 1, 2010, to adopt a model water efficiency landscape ordinance that is at least as effective as the State's model water efficiency landscape ordinance. The City Council adopted Resolution No. 2010-06 on January 26, 2010 to meet this requirement.



Figure 9.2: Water Waste

Most recently, the City adopted Ordinance No. 1489 pertaining to drought water conservation. This ordinance sets forth mandatory prohibitions and additional restrictions on water use during drought conditions to comply with the executive orders issued by former Gov. Brown related to the declared drought emergency and with the emergency water conservation regulations promulgated by the State Water Resources Control Board. This resolution was codified into Section 13.16 of the City’s



Municipal Code. This section establishes a “Water Shortage Contingency Plan” which stipulates specific prohibition on water use, with penalties for non-compliance.

DMM No. 2: Metering

All of the City's water service connections, for all customer sectors, are metered. The City has investigated the feasibility of separately metering each of the multi-family dwelling units in its Water Service Area; however, it was determined that doing so was not feasible. The City has also installed dedicated landscape irrigation meters for Sun Lakes Country Club, Caltrans, the City park system, and City school district facilities. New non-residential developments are also now required to have a separate water meter dedicated for landscape use. The City will continue to meter all new water service connections.

The City previously debated transitioning to either a fixed base or drive-by Automatic Meter Read (AMR) system that allows the City to monitor each individual customer account for water conservation. The fixed base system, often referred to as Advanced Metering Infrastructure (AMI), involves placing antennas throughout the City that collect data from the water meters at set intervals. The data is then transferred to a desktop computer. The data is used for individual users for billing purposes or for

alerting the City if a set water use threshold has been exceeded, signaling a possible leak on the property. If this condition arises, the owner of the property would be notified by either email or a phone call.

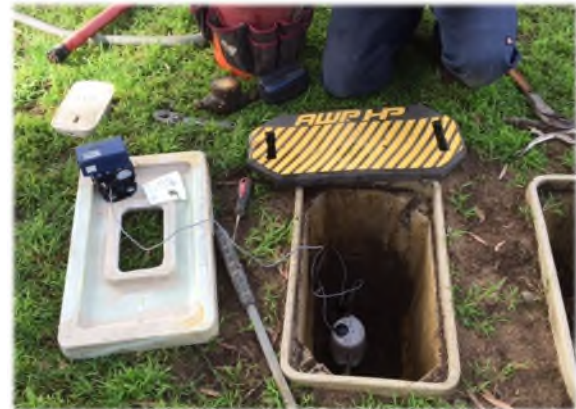


Figure 9.3: AMI-Style Water Meter

The drive-by system is similar to the fixed base system, but instead of using a network of antennas, meter readings are picked up by driving by the meters with specially equipped vehicles and then downloading the readings after returning to the office. This delays the ability to collect the information immediately and be able to alert the customer of possible leaks within the shortest amount of time. The implementation of either AMR system would facilitate the review of water records and evaluation of the effectiveness of conservation programs.

As of this 2020 UWMP, the City is in the process of installing new “Zenner” brand Stealth AMI meters. Meters smaller than 4 inches will be of the “multi-jet” design.



Meters 4 inches and larger will be ultrasonic meters. The City's AMI program is just finishing its 1st year, and is expected to be completed by January 2022. All work has been done in-house, with the exception of software programming to integrate the AMI and Billing Systems.

DMM No. 3: Conservation Pricing

The City has a three-tiered increasing rate structure that applies to all customers. The City's current water rates (as of July 2020), are shown in **Table 9.1** below:

Table 9.1
City of Banning Current Water Rates

Tier	Pricing (per HCF)
Tier 1 (0-12 HCF)	\$2.01
Tier 2 (13-25 HCF)	\$2.56
Tier 3 (26+ HCF)	\$2.88

The new rate structure was established as part of a Water Rate Study completed in 2018. The measure of effectiveness of the rate structure, in terms of acting as a catalyst for water conservation, will be assessed based on decreases in the total amount of consumption, since the charges are based on total consumption rates.

DMM No. 4: Public Education & Outreach

The City has initiated several water conservation programs to educate its water

service customers in regards to various approaches to conserve water. At City Hall, water conservation pamphlets are displayed year-round as well as at public City-wide events. Public Works Department staff plan to visit school classrooms and make presentations on water conservation and distribute brochures with additional conservation information. The Public Works Superintendent is in continuous contact with the staff of Sun Lakes Country Club golf course to manage water more efficiently. The City will continue to expand public education on water resources.

Additionally, the City makes an effort to have Public Works staff visit local schools to make presentations on water conditions in the San Geronio Pass area, emphasizing the value of water and water conservation. Educational brochures are also made available to the students.

DMM No. 5: Programs to Assess and Manage Distribution System Real Loss

The City's surveillance of its water system to detect leaks is an on-going operation. The City recognizes the urgency of repairing leaks and responds to any leak in an expedient manner. Field employees are trained in detecting leaks and signs of unauthorized uses of water. In addition, the customer billing system flags high or unusual water bills, which are then



investigated for possible leaks in customer's piping. When a leak is first noticed, the pipeline is inspected and promptly repaired.

The City has prepared water audits since the 2015 UWMP. The audits were prepared in accordance with CWC Section 10631(e)(3), using methods and a worksheet developed by the American Water Works Association (AWWA). The AWWA audit worksheets require a detailed approach to separate apparent water losses from overall water loss totals to reveal the actual "Real Losses" as well as the "Non-Revenue Water". The AWWA audit defines the following:

- Water Losses: Water supplied minus authorized (metered) consumption
- Apparent Losses: Unauthorized or unmetered consumption and inaccuracies or errors
- Real Losses: Water losses minus apparent losses, equaling the actual volume of water lost through leaks, breaks, etc.
- Non-Revenue Water: Real water losses plus apparent losses plus unbilled metered and unbilled unmetered consumption

Based on the results of the 2016-2020 water audits, copies of which are included

in the Appendix, the City's water system losses are shown in **Table 9.2** below.

Table 9.2
Distribution System Losses (AF)

Year	Loss (AF)	Percent of Total
2016	897	13.5%
2017	734	11.3%
2018	1,108	15.7%
2019	871	12.8%
2020	1,275	15.2%

The results of the last few audits indicate that the City has made improvements on testing, repairs, and record keeping. In addition, the City has recently replaced older, leaky water mains. The City has also purchased a meter test bench to enable the City to test meters in-house.

DMM No. 6: Water Conservation Program Coordination and Staffing Support

The City's Superintendent of Water & Wastewater serves as a part-time water conservation coordinator. The City's Public Works staff also assists with coordinating conservation efforts and providing public information about water conservation. Should the need arise, the City will designate the following full-time positions: water conservation coordinator, additional staff support, or both.



DMM No. 7: Other Demand Management Measures

In addition to the DMMs described above, the City posts water conservation tips and other information on its website, www.banningca.gov. Although the Website page may be updated, the following URL currently provides such tips and information: [Making Water Conversation a Way of Life | Banning, CA - Official Website](http://www.banningca.gov/Community/Conservation/Making-Water-Conservation-a-Way-of-Life). The City provides additional conservation information and answers questions from its customers upon request. The City has developed a hotline for customer use in reporting leaks, overwatering, and other misuse of water.

9.5 CONTINUED IMPLEMENTATION

As described in Chapter 6 herein, the City's per capita water use in 2020 was 247 GPCD, which demonstrates that the **City has met its 2020 urban water use target** of 252 GPCD. Although the City has met its target year water use, the City plans to continue its conservation efforts described herein for at least the next five years. The City will continue to track all program activities. Program effectiveness and per capita water use will be monitored through the billing system. For example, the City can measure impacts of infrastructure, repairs and replacements, including leaky mains, by comparing apparent water losses from the previous month. For this reason, the City will continue to develop its AMI system as a tool to measure effectiveness of all the DMMs.



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APPENDICES A – O





Appendix A: Council Resolution Adopting 2020 UWMP

City of Banning 2020 Urban Water Management Plan



Appendix B: Council Resolution Adopting 2020 WSCP

City of Banning 2020 Urban Water Management Plan



Appendix C: UWMP Act

City of Banning 2020 Urban Water Management Plan



Appendix D: Dept. of Water Resources UWMP Checklist

City of Banning 2020 Urban Water Management Plan



Appendix E: Dept. of Water Resources UWMP Data Tables

City of Banning 2020 Urban Water Management Plan



Appendix F: Dept. of Water Resources SBx7-7 Tables

City of Banning 2020 Urban Water Management Plan



Appendix G: AWWA Water Audits (2015-2020)

City of Banning 2020 Urban Water Management Plan



Appendix H: Land Use and Planning Element City General Plan

City of Banning 2020 Urban Water Management Plan



Appendix I:

2013-2021 Housing Element – City General Plan

City of Banning 2020 Urban Water Management Plan



Appendix J: 2019 Consumer Confidence Report (Water Quality Report)

City of Banning 2020 Urban Water Management Plan



Appendix K: UWMP Notices: 60-Day, 2-Week, & 1-Week

City of Banning 2020 Urban Water Management Plan



Appendix L: Beaumont Basin Judgment

City of Banning 2020 Urban Water Management Plan



Appendix M: Riverside County Climate Action Plan Update 2019

City of Banning 2020 Urban Water Management Plan



Appendix N: 2017 Local Hazard Mitigation Plan

City of Banning 2020 Urban Water Management Plan



Appendix O: Final Transmittals to County and State Library

City of Banning 2020 Urban Water Management Plan



RESOLUTION 2022-14 UA

A RESOLUTION OF THE UTILITY AUTHORITY OF THE CITY OF BANNING, CALIFORNIA AWARDED A PROFESSIONAL SERVICES AGREEMENT TO N2W ENGINEERING TO PROVIDE OWNER ADVISOR SERVICES AND PRELIMINARY ENGINEERING FOR THE WASTEWATER TREATMENT PLANT IMPROVEMENT PROJECT IN A NOT-TO-EXCEED AMOUNT OF \$1,576,430

WHEREAS, the City of Banning owns and operates a wastewater treatment plant (WWTP) also known as the Water Reclamation Facility which includes a current treatment process consisting of preliminary, primary, secondary, disinfection and sludge disposal; and

WHEREAS, the WWTP has a design treatment capacity of 3.6 million gallons per day (MGD) and typical average daily discharges ranging from 2.0 MGD to 2.1 MGD into 10 unlined evaporation/percolation ponds; and

WHEREAS, the City has recognized a need to construct major improvements to the WWTP in order to comply with California Regional Water Quality Control Board, Colorado River Basin Region (RWQCB) Board Order R7-2016-0015; to increase treatment capacity to support increasing demands; and to enhance the City's water supply portfolio by developing a recycled water supply; and

WHEREAS, due to staff resources the City desires to hire an Owner Advisor to manage the WWTP improvement project as it progresses through the various phases (i.e. planning, environmental, design and construction); and

WHEREAS, on July 21, 2022 the City released a request for qualifications (RFQ) and received one submittal from N2W Engineering. Based on the qualifications of N2W Engineering and the results of an interview conducted by City staff, it has been determined that N2W Engineering has the qualifications and experience to successfully complete the scope of services as the City's Owner Advisor on the WWTP improvement project; and

WHEREAS, the Professional Services Agreement with N2W Engineering to provide Owner Advisor services for the WWTP Improvement project is in an amount of "not-to-exceed" \$1,576,430; and

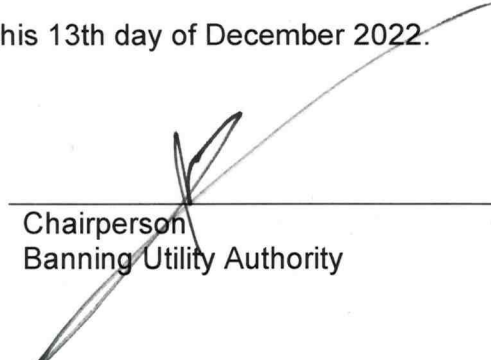
WHEREAS, appropriations in the amount of \$460,000 from Fund 680 (Wastewater Operations) and \$756,430 from Fund 681 (Wastewater Capital Facility) are required to fund the Professional Services Agreement.

NOW, THEREFORE, BE IT RESOLVED by the Banning Utility Authority of the City of Banning as follows:

SECTION 1. Resolution 2022-14 UA is hereby adopted awarding a Professional Services Agreement to N2W Engineering to provide Owner Advisor services for the Wastewater Treatment Plant Improvement project in the "not-to-exceed" amount of \$1,576,430.

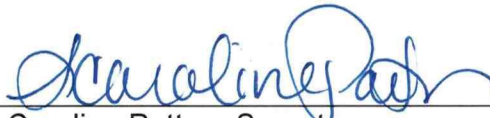
SECTION 2. The City Manager or his designee is hereby authorized and directed to execute the Professional Services Agreement with N2W Engineering of Irvine, CA and to make all necessary budget adjustments, appropriations and transfers related to the Professional Services Agreement.

PASSED, APPROVED AND ADOPTED this 13th day of December 2022.



Chairperson
Banning Utility Authority

ATTEST:



Caroline Patton, Secretary
Banning Utility Authority

**APPROVED AS TO FORM AND
LEGAL CONTENT:**



Serita R. Young, Authority Counsel
Richards, Watson & Gershon

CERTIFICATION:

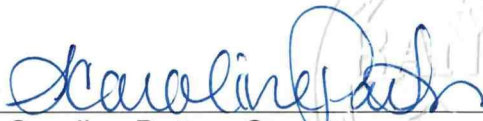
I, Caroline Patton, Secretary of the Banning Utility Authority, do hereby certify that the foregoing Resolution 2022-14 UA, was duly adopted by the Utility Authority of the City of Banning, California, at a regular meeting thereof held on the 13th day of December 2022 by the following vote, to wit:

AYES: Gonzales, Minjares, Sanchez, and Wallace.

NOES:

ABSENT:

ABSTAIN:



Caroline Patton, Secretary
Banning Utility Authority