State of California
Regional Water Quality Control Board
Santa Ana Region

December 10, 2021

Item: 14

Subject: Resolution R8-2021-0025, Public Hearing to Consider Proposed Amendment to the Water Quality Control Plan for the Santa Ana Region (Basin Plan) to Revise and Update the Total Dissolved Solids and Nitrogen Management program (TDS/N Management Program)

Discussion:

Chapter 5 of the Basin Plan has specified the TDS and Nitrogen Management Program in the Santa Ana Region. The elements of the TDS and Nitrogen Management Program are periodically reviewed, and updated as necessary, as amendments to the Basin Plan. This proposed Basin Plan amendment has the following elements: 1) update the description of the wasteload allocation model that the Santa Ana Water Board would rely on; 2) update TDS and Nitrogen wasteload allocations for permitted dischargers in the Santa Ana River watershed; 3) clarify permitting practices that permit writers need to consider when developing waste discharge requirements for affected waste discharge facilities; 4) identify future planning priorities; and 5) update the regional surface water and groundwater monitoring requirements for the TDS/N Management Program. The supporting documents for this public hearing have been published for public comment during the written comment period, and include the following:

1) Draft Staff Report (the following document),
2) Tentative Resolution R8-2021-0025 and Attachment A – track changes to Basin Plan, and Attachment B – clean version of the revised Basin Plan (Enclosure 1), and
3) Draft Substitute Environmental Document (Enclosure 2).

Draft Staff Report for the Proposed Basin Plan Amendment to Revise and Update the Total Dissolved Solids and Nitrogen Management Program for the Santa Ana River Basin

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Prepared by:

California Regional Water Quality Control Board - Santa Ana Region

October 2021

EXECUTIVE SUMMARY

Federal law requires states to establish water quality standards (beneficial uses, water quality criteria, and an antidegradation policy) for all surface waterbodies within their jurisdiction that are Waters of the United States. Under the State of California's Porter-Cologne Water Quality Control Act (California Water Code, Division 7, Chapter 2 §13050), establishment of water quality standards, including beneficial uses and water quality objectives (objectives), is required for all waters of thestate (surface and groundwater). The State Water Resources Control Board (State Water Board) sets statewide policy, and, together with the nine Regional Water Quality Control Boards (Regional Water Boards), is responsible for the protection and, where possible, the enhancement of the quality of California's waters.

Each of the Regional Water Boards, including the Santa Ana Regional Water Quality Control Board (Santa Ana Water Board), is required to adopt a water quality control plan (Basin Plan) to establish: (a) water quality standards to ensure reasonable protection of beneficial uses of surface waters and groundwaters; and (b) a program of implementation that describes the actions necessary to achieve and maintain water quality objectives. The current Basin Plan for the Santa Ana Region was adopted in 1995 and is periodically updated, with the most recent update occurring in June 2019 (Santa Ana Water Board 2019). The Basin Plan includes a program to manage total dissolved solids (TDS) and nitrogen in the Santa Ana Region, known as "TDS/N Management Program". This program is periodically reviewed and, as needed, revised to ensurecontinued protection of beneficial uses in the region.

Santa Ana Water Board staff recommends that the TDS/N Management Program in Chapter 5 of the Basin Plan be amended to: 1) update the description of the wasteload allocation model that would be relied on by the Santa Ana Water Board; 2) update wasteload allocations for permitted dischargers in the Santa Ana River watershed; 3) clarify permitting practices that permit writers need to consider when developing waste discharge requirements for waste discharge facilities; 4) identify future planning priorities; and 5) update the regional surface water and groundwater monitoring requirements for the TDS/N Management Program.

The proposed Basin Plan amendment is consistent with state and federal policies, including antidegradation policies (State Water Board Resolution No. 68-16 and Title 40 of the Code of Federal Regulations, section 131.12). The proposed Basin Plan amendment would not result in adverse impacts on municipal and domestic water supply or other beneficial uses. Best practicable treatment and control of wastewater discharges that result in water quality consistent with the maximum benefit to the people of the state would continue to be required and implemented. Implementation of the updated wasteload allocations in National Pollutant Discharge Elimination System (NPDES) permits issued for discharges of pollutants to surface waters will be consistent with applicable federal anti-backsliding regulations since the effluent

limitations based on updated WLAs would not be less stringent than those currently in place for permitted wastewater discharges.

The proposed Basin Plan amendment would update the description of the wasteload allocation model (WLAM) that would be relied on by the Santa Ana Water Board as compared to the WLAM that was described in the 2004 Basin Plan Amendment. The Santa Ana Water Board relies on a WLAM to derive appropriate TDS and total inorganic nitrogen (TIN) discharge limitations for recycled water discharges to the Santa Ana River system, while taking into account the nitrate-nitrogen reductions that occur through system mixing, or as a result of geochemical transformation during percolation through the streambed segments. Using the updated WLAM (the 2017 WLAM HSPF, or the 2017 WLAM), the proposed Basin Plan amendment would also update the WLAs for TDS and TIN to be incorporated into waste discharge requirements for facilities discharging in the watershed. In summary, the 2017 WLAM replaces the existing 2004 WLAM, which has been relied on by Santa Ana Water Board staff since 2004 to derive TDS and TIN effluent limitations in waste discharge permits.

The 2017 WLAM was used to assess three different discharge assumptions (Maximum Expected, Minimum Expected, and Most Likely) under two different land use conditions (2020 and 2040), resulting in the analysis of six total scenarios. Daily river flows and TDS/TIN concentrations were estimated for all six scenarios using 67 years of historical precipitation data from 81 precipitation stations located within the 2017 WLAM HSPF model boundary, but ultimately only 19 stations were used based on the completeness of their record (greater than 95% complete). PRISM climate data (average annual precipitation from 1981 through 2010) were then used to distribute the daily precipitation measurements throughout the modeled area. Model simulation results were used to determine if the existing effluent limits and waste discharge requirements would continue to assure compliance with the applicable TDS/Nitrate (as N), or TDS/TIN objectives in each GMZ and the appropriate Santa Ana River reaches.

For each simulation, TIN and TDS concentrations in wastewater discharged from all Publicly-Owned Treatment Works (POTWs) were assumed to be equal to the maximum allowed effluent limitations in each facility's existing permit. This very conservative approach, which is consistent with the approach used in 2004, provides a significant margin-of-safety around the model estimates. In addition, the WLAM output included maximum estimated flow-weighted average TDS and TIN concentrations based on different averaging time periods.

For the purposes of evaluating the impact of the proposed Basin Plan amendment, the 10-year averaging period for 2020 and 2040 was used, as it is long enough to cover a full meteorological or hydrologic cycle and potential near-term climate change impacts. The WLAM output, which provides the maximum streambed recharge concentration under the maximum expected discharge for each facility provides a worst-case scenario of potential impacts from the discharge of treated

effluent from all facilities in the watershed. These same conservative assumptions were applied to the use of the existing WLAM that is in the Basin Plan.

The proposed Basin Plan amendment replaces the existing WLAs in Basin Plan Table 5-5 with the updated WLAs based on the findings from the updated WLAM. Under the proposed Basin Plan amendment, none of the existing facilities in Basin Plan Table 5-5 will have less stringent effluent limits for TIN or TDS. Additional wastewater treatment facilities are proposed to be added to Basin Plan Table 5-5: City of San Bernardino Geothermal Facility [1]- Discharges to Santa Ana River Reach 5 via East Twin Creek and Warm Creek (overlying the Bunker Hill A & B GMZs); Western Municipal Water District Arlington Desalter 6 – Discharges treated effluent to Reach 1a Temescal Creek (within Prado Basin Management Zone). The Corona WWTP-3 wastewater treatment facility is proposed to be removed because it is no longer in operation.

Results from the updated WLAM 10-year rolling average output for the Maximum Expected Discharge Scenario for 2020 or 2040 indicate the potential for there to be impacts to water quality in specific surface waters and associated GMZs. However, these impacts are either temporary, not significant or, in some cases, lead to improved water quality benefits over the long-term.

The proposed Basin Plan amendment also includes direction to permit writers regarding how to assess compliance with TDS/TIN effluent limitations incorporated into the waste discharge requirements. Specifically:

- TIN - Compliance with the effluent limit will be based on a 12-month volume-weighted running average that is updated every month.
- TDS – Compliance with the effluent limit will be based on a 60-month volume-weighted running average that is updated every month.

Compliance is stated on a “monthly” basis rather than “yearly” basis because each month the effluent limitation for TIN and TDS is recalculated based on the previous 12 or 60 months, respectively. These TIN and TDS running-average concentrations will be used as the default approach for evaluating compliance with effluent limitations included in waste discharge requirements. However, the proposed Basin Plan amendment also states that the Santa Ana Water Board retains discretionary authority to impose longer or shorter averaging periods, on a case-by-case basis, when it determines that doing so is necessary and appropriate to protect water quality.

Also included in the proposed Basin Plan amendment is clarification of the Santa Ana WaterBoard’s longstanding policy that the antidegradation reviews required during development of waste discharge requirements should focus on an analysis of TDS rather than individual salt ions. The proposed Basin Plan amendment provides transparency with regard to how waste discharge requirements are

[1] Although this facility is a new addition to Basin Plan Table 5-5 under the Proposed Action, it has had a permit to discharge in the watershed for more than 20 years.

currently being established. Previous Santa Ana Water Board action (Resolution R8-2010-0012) indicates that the antidegradation review should focus on those constituents that have specified objectives in place to protect one or more beneficial uses in the area under review. Although this approach has been used in practice since adoption of the 2010 resolution, the proposed Basin Plan amendment includes revision to the Basin Plan to provide an explicit statement of this permitting practice.

The proposed Basin Plan amendment also includes future planning priorities and updates to regional surface water and groundwater monitoring programs for the TDS/N Management Program.

The proposed Basin Plan amendment updates Chapter 5 of the Basin Plan and does not change or alter any beneficial use designations or water quality objectives. Rather, they update the TDS/N Management Program so that it incorporates changes that have occurred in the region since 2004 and creates more certainty with regards to development of waste discharge requirements. The proposed Basin Plan amendment reflects best available science and data and rely on a model that performs as well or better than the WLAM approved in 2004. In most instances, the updated WLAM demonstrates that continued reliance on existing effluent limits for TIN and TDS would not cause an exceedance of related water quality objectives in groundwater affected by recharges from treated wastewater. Nor is it expected to result in significant lowering of existing water quality. For these reasons, staff recommends that the Basin Plan be amended as proposed.

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1. INTRODUCTION

Efforts to manage salt and nitrogen in the Santa Ana Region date back to the early 1970s. An overview of how the program has changed over time is summarized below.

1971-1995

The Santa Ana Water Board adopted Interim Basin Plans in 1971 and 1973 that included preliminary objectives and beneficial uses for ground and surface waters in theRegion. These interim Basin Plans emphasized efforts to manage the build-up of salts (TDS) and nitrogen in groundwater. The 1975 Basin Plan, which updated the 1973 Interim Plan, included significantly revised TDS and nitrogen objectives for an expanded set of identified groundwater subbasins and a management plan to meet those objectives. This TDS and Nitrogen (TDS/N) Management Plan included wasteload allocations (WLAs) for total inorganic nitrogen (TIN) and TDS discharges to the Santa Ana River, which were to be implemented via effluent limitations in waste discharge requirements. The TDS/N Management Plan and WLAs were significantly revised as part of the adoption of the 1983 Basin Plan.

Following adoption of the 1983 Basin Plan, there was general concern that the WLAs were not equitable. Monitoring data also showed that 1975 water quality objectives were being exceeded. Through collaboration among stakeholders, studies were completed that resulted in revisions to the Basin Plan: (a)revised TIN allocation in 1991; and (b) a revised TDS/N Management Plan in 1995. Neither of these Basin Plan revisions included a review of the 1975 objectives.

During consideration of the 1995 Basin Plan amendment, a number of water supply and wastewater agencies commented that, considering the probable cost of compliance with existing objectives, the objectives should be reviewed to ensure that theywere based on the best available data and science. These wastewater agencies also expressed concern that the adopted TDS/N Management Plan would severelylimit opportunities for wastewater reclamation. The Santa Ana Water Board agreed to prioritize review of the objectives during the next triennial review and stakeholders agreed to provide sufficient resources to perform the necessary studies.

1995-2004

The Santa Ana Watershed Project Authority (SAWPA) convened a Scoping Committee in 1995 to prepare a workplan to guide the proposed TDS and nitrogen studies to evaluate the objectives. SAWPA is a joint powers authority consisting of five member agencies: Eastern Municipal Water District, Inland Empire Utilities Agency,Orange County Water District, San Bernardino Valley Municipal Water District, and Western Municipal Water District. Key questions to be addressed by the Scoping Committee included how to implement the state antidegradation policy (State WaterBoard Resolution 68-16) and how to determine whether any assimilative capacity exists in the watershed for TDS and nitrogen. To determine if assimilative

capacity was available, it was necessary to develop a method to calculate ambient water quality (AWQ). Ultimately, the Scoping Committee recommended review of groundwater subbasin objectives and review of the existing groundwater subbasin boundaries, to assure both their technical and scientific validity.

To implement the Scoping Committee's recommendations, a Nitrogen/TDS Task Force ("Task Force")[2] was established in 1996 to perform the analyses and make recommendations, where appropriate, to revise the Basin Plan. A key outcome of the Task Force was the establishment of a wasteload allocation model (WLAM) for the Santa Ana River watershed. The Santa Ana Water Board relies on the WLAM to derive appropriate effluent limitations for wastewater discharges to the Santa Ana River, its tributaries and the underlying groundwater. The WLAM is a predictive tool that can assess whether projected flows percolating to groundwater from surface streams comply with applicable groundwater subbasin objectives while taking into account the nitrate reductions that occur through system mixing or as a result of percolation through the streambed sediment. The WLAM takes into consideration the quantity and quality of all flows projected to be present in the surface stream including stormwater runoff and discharges of wastewater. Through development of the WLAM and the completion of needed studies, the Task Force made recommendations to significantly update the TDS/N Management Program in the Basin Plan. These recommended updates, which were adopted into the Basin Plan by Santa Ana Water Board Resolution R8-2004-0001 (Santa Ana Water Board 2004), included:

- Revised boundaries for groundwater subbasins (and renaming of these areas as groundwater management zones [GMZs]) with existing and potential beneficial use designations for the GMZs, as appropriate.
- Revised objectives for nitrate-nitrogen and TDS for the new GMZs. Where appropriate, two sets of objectives were specified: (a) one set based on historicalwater quality (antidegradation objectives); and (b) the other set consisting of less stringent objectives are based on the finding that antidegradation requirements have been satisfied, including the demonstration that water quality consistent with "maximum benefit to the people of the State" would be maintained (i.e., maximum benefit objectives). The maximum benefit objectives would apply to permitting actions unless the Santa Ana Water Board makes a finding that the maximum benefit demonstration has not been made. In that case, theantidegradation objectives would apply to permitting.
- Revised narrative objectives for TDS, chloride, hardness, sodium, and sulfate applicable to groundwater.
- Delineated the new "Prado Basin Management Zone" (PBMZ), which would be treated as a surface waterbody for regulatory purposes.

[2] The Task Force has been renamed "Basin Monitoring Program Task Force" and is currently comprised of 20 water supply and wastewater agencies in the Santa Ana Region (https://sawpa.org/task-forces/basin-monitoring-program-taskforce/#stakeholder-effort). Santa Ana Water Board staff participate in the Task Force effort.

- Modified reach designations and, where appropriate, applicable objectives in several waterbodies, including portions of San Timoteo Creek, Chino Creek,and Temescal Creek.
- Incorporated revised WLAs for discharges of TDS and nitrogen to the Santa Ana River.
- Revised Basin Plan Chapter 4 ("Water Quality Objectives") to include: (a) narrative text regarding the reevaluation of TDS and nitrate-nitrogen objectives for groundwater; (b) revisions of the narrative objectives for chloride, TDS, hardness, sodium, and sulfate applicable to groundwater; (c) discussion of the objectives applicable to the PBMZ; and, (d) discussion of the "maximumbenefit" objectives for certain GMZs.
- Revised Basin Plan Chapter 5 ("Implementation") to incorporate: (a) updated narrative concerning TDS and nitrogen studies and management strategies; (b) revised TDS/N management strategies, including the new WLAs based on the findings of the WLAM; (c) findings regarding TDS and nitrogen assimilative capacity in the new GMZs; (d) findings regarding nitrogen loss coefficients and their implementation; (e) special considerations for salt management of subsurface disposal system discharges; and (f) implementation of "maximum benefit" objectives for specific GMZs

<u>2005-2020</u>
Since the adoption of the updated TDS/N Management Program in 2004, additional updates have occurred through the adoption of Santa Ana Water Board resolutions:

- R8-2010-0012 - Declaration of Conformance with State Recycled Water Policy;
- R8-2010-0039 - Resolution Amending the Water Quality Control Plan for the Santa Ana River Basin to Incorporate "Maximum Benefit" Total Dissolved Solids (TDS) and Nitrogen Objectives and a Maximum Benefit Salt Management Plan for the San Jacinto Upper Pressure Management Zone;
- R8-2012-0002 - Resolution Amending the Water Quality Control Plan for the Santa Ana River Basin to incorporate Updates Related to the Salt Management Plan (update boundary of the Prado Basin Management Zone, delete obsolete elements, revise report submittal dates and revise monitoring programs);
- R8-2014-0005 - Resolution Amending the Water Quality Control Plan for the Santa Ana River Basin to incorporate Updates Related to the Salt Management Plan (incorporate Onsite Wastewater Treatment System Policy and other conforming changes);
- R8-2017-0036 – Resolution Amending the Water Quality Control Plan for the Santa Ana River Basin to Revise the Water Quality Objective for Nitrate-as-Nitrogen in the Chino-South Groundwater Management Zone; and,
- R8-2020-0038 – Resolution Amending the Water Quality Control Plan for the Santa Ana River Basin to Establish Upper Temescal Valley Groundwater Management Zone (GMZ) and Associated TDS and Nitrate Water Quality

Objectives, and to specify Implementation tasks in the Salt and Nutrient Management Plan for the GMZ.

These updates to the TDS/N Management Program are incorporated into the Basin Plan Chapter 4, Water Quality Objectives, and Chapter 5, Total Dissolved Solids and Nitrogen Management (TDS/N Management Program).

Since 2004, the Task Force has continued to work collaboratively on the implementation of the Santa Ana Region TDS/N Management Program. Per the Basin Plan, this effort has included preparation of updated AWQ computation and assimilative capacity findings for groundwater every three years. The updated AWQ recomputation and assimilative capacity findings are posted on the Santa Ana Water Board's website and used by the Santa Ana Water Board for permitting and regulatory purposes. The most recent AWQ update, completed in 2020, covers the 20-year period from 1999 through 2018 (WSC 2020).

2. SUMMARY OF PROPOSED BASIN PLAN AMENDMENTS

The TDS/N Management Program is specified in the Implementation Plan of the Basin Plan (Chapter 5). Under the proposed Basin Plan amendment, the TDS/N Management Program provisions remain relatively unchanged except to provide clarifications as appropriate and replace Section III.B.4, which describes the development of WLAs for TDS and TIN. Additional revisions are proposed to clarify implementation of the WLAs and update certain monitoring provisions of Section V of the TDS/N Management Program.

WLAs are used by the Santa Ana Water Board to distribute a share of the total allowable load of TDS and TIN to all major point sources and nonpoint sources. The WLAs are implemented through effluent limitations and other waste discharge requirements imposed on discharges to the Santa Ana River and its tributaries. The WLAs in the Basin Plan are periodically updated to reflect the best available science and data. The first WLAs for TDS and TIN were developed and included in the 1983 Basin Plan using the Basin Planning procedures. The WLA for TIN was then updated in 1991, and the WLA for TDS was revised in 1995. The next update occurred in 2004 for both TDS and TIN, which reflected the results of an updated wasteload allocation model (WLAM). The Santa Ana Water Board has relied on the 2004 WLAM to derive appropriate waste discharge requirements for TIN and TDS from 2004 to the present.

The proposed Basin Plan Amendments include the following modifications to Chapter 5 of the Basin Plan:

- Update the description of the WLAM that provides the basis for the establishment of TDS and TIN WLAs in the Santa Ana River Watershed.
- Update Table 5-5 of the Basin Plan to establish updated WLAs applicable to wastewater treatment facilities in the watershed.
- Provide direction to permit writers regarding how to assess compliance with TDS/TIN effluent limitations included in waste discharge requirements.
- Clarify the use of the mineral increments described in the Basin Plan (Chapter 5, “Total Dissolved Solids and Nitrogen Management,” Section III.B.2) when establishing waste discharge requirements.
- Clarify that the antidegradation review conducted during the permit process for salinity-related constituents should focus on TDS rather than individual salt ions.
- Identify future planning priorities.
- Require updates to monitoring program requirements.

A. Update Wasteload Allocation Model

As previously noted, the Santa Ana Water Board relies on a WLAM to derive appropriate waste discharge requirements for TDS and TIN to the Santa Ana River system, while taking into account the nitrate-nitrogen reductions that occur through system mixing or as a result of percolation through the streambed sediments. The proposed Basin Plan amendment describes the WLAM update, which is then used to update existing WLAs for permitted dischargers in the Santa Ana Watershed. The updated WLAM was completed for the Santa Ana River Watershed in 2020 following a several year process beginning in 2017 (GSSI 2020). Then, in 2021, a supplemental report was prepared for the WLAM that provides results of supplemental WLAM scenarios to evaluate projected TIN concentrations of groundwater recharge in three of the Groundwater Management Zones (GMZs) to reflect changes in original discharge assumptions. The 2017 WLAM (open-source Hydrologic Simulation Program Fortran [HSPF]) replaces the existing 2004 WLAM (proprietary model), which had been relied upon by Santa Ana Water Board staff since 2004 to derive effluent limitations for TIN and TDS in waste discharge requirements for facilities in the watershed.

Development of the 2017 WLAM incorporated the following elements to establish a more robust model:

- *Expanded Model Domain*: The 2004 model domain, which originally ended at Prado Dam, was enlarged to include Reaches 1 and 2 of the Santa Ana River overlying the Orange County GMZ and Reaches 1 through 6 of Temescal Creek overlying the Temescal GMZ and the Upper Temescal Valley GMZ.
- *Longer Precipitation Record*: The range of probable precipitation conditions was expanded from a 50-year historical record (1950-1999) to a 67-year historical record (1950-2016).
- *Improved Calibration Process*: WLAM development included new quantitative statistical metrics to evaluate accuracy and precision during the model calibration process.
- *Validation Step*: Prior to developing the updated model for the entire watershed, 2017 WLAM output for Reaches 3 and 4 of the Santa Ana River (above Metropolitan Water District (MWD) Crossing) was compared with outputs previously obtained from the 2004 WLAM for the same reaches of the Santa Ana River. This step was implemented to verify that the HSPF model results were comparable to the results generated from the existing proprietary model. This analysis effectively showed that, regardless of the model source (proprietary vs. open-source HSPF), they produced functionally-equivalent results. This assures that any differences in modeling outcomes would reflect updated inputs to the model (e.g., land use, hydrologic data) and not differences in modeling methodology.

The calibrated 2017 WLAM was used to assess three different discharge assumptions (Maximum Expected (i.e., design capacity), Minimum Expected and

Most Likely) under two different land use conditions (2020 and 2040), resulting in the analysis of six total scenarios. Daily Santa Ana River and key tributary flows and TDS/TIN concentrations were estimated for all six of these scenarios using 67 years of historical precipitation data from numerous rain gages throughout the watershed. Model simulation results were used to determine if the existing effluent limits at permitted design flows, mostly likely discharge rate, and minimum discharge rate would continue to assure compliance with the applicable TDS/nitrate-nitrogen objectives in each GMZ, and appropriate Santa Ana River reaches. For each simulation, TIN and TDS concentrations in wastewater discharged from all POTWs in the watershed were assumed to be equal to the maximum allowed in each facility's existing discharge permit. For the maximum expected discharge scenarios, the 2020 and 2040 design capacities were assumed to be discharged everyday even though the most likely and minimum expected discharge volumes may be significantly less. These conservative assumptions are consistent with the approach used for the 2004 WLAM and provides a significant margin-of-safety around the model estimates.

B. Summary of WLAM Results

Six predictive scenario runs (Scenario A through Scenario F) were made using the 2017 WLAM HSPF by varying the amount of recycled water discharge to surface water for two land use conditions (2020 and 2040). The three recycled water discharge scenarios are for the maximum permitted discharge (i.e., design capacity), the most likely discharge and minimum expected discharge. Using these three recycled water discharge scenarios for each of the two land use conditions, along with other sources of recharge, the model was run to come up with the maximum TDS and TIN concentration value for the volume-weighted recharge to the groundwater management zones for five different averaging periods (1-year; 5-year; 10-year; 20-year; and, 67-year) for all six scenarios. Summary tables of TDS and TIN Model Results for all scenarios (except the 67-year scenario) are attached as Tables 2-1 and 2-2 to this Staff Report.

From these scenarios and averaging periods, the volume-weighted 10-year average period was selected as the most appropriate period to determine if the wasteload allocations will achieve their intended purposes, with a few noted exceptions. Specifically, the volume-weighted 10-year average period concentrations of TDS and TIN that would percolate through the streambed were compared to relevant water quality objectives and ambient water quality conditions for each groundwater management zone. Where there is a Maximum Benefit objective, it is considered the relevant water quality objective for this purpose. The 10-year weighted average concentration is conservative as compared to water quality objectives, which are based on 20-year volume weighted averages. Notably, a shorter averaging period of 5-years (as a 5-year moving average) is used to evaluate compliance with TDS objectives for Reach 2 of the Santa Ana River, and baseflow conditions are used to evaluate compliance with the baseflow objectives for nitrate-nitrogen and TDS at Santa Ana River Reach 3 Below Prado Dam.

The results of this assessment for each major segment of the Santa Ana River, its key tributaries and the underlying GMZ, are provided here.

Reach 4 of San Timoteo Creek (including Noble Creek and Coopers Creek.) overlying the Beaumont GMZ

The "Maximum Benefit" TDS objective for the Beaumont GMZ is 330 mg/L and the current ambient quality is 280 mg/L. There is 50 mg/L of assimilative capacity available. The volume-weighted 10-year average TDS concentration of the streambed recharge did not exceed either the maximum benefit objective or current ambient water quality in any of thesix simulation scenarios. (See Table 2-1).

The "Maximum Benefit" Nitrate-Nitrogen objective for the Beaumont GMZ is 5 mg/L and the current ambient quality is 2.7 mg/L. There is 2.3 mg/L of assimilative capacity available. The volume-weighted 10-year average TIN concentration of the streambed recharge did not exceed either the maximum benefit objective or current ambient water quality in any of the six simulation scenarios. (See Table 2-2).

Reaches 2, 3, and 4 of San Timoteo Creek overlying the San Timoteo GMZ

The "Maximum Benefit" TDS objective for the San Timoteo GMZ is 400 mg/L and the current ambient quality is 420 mg/L. There is no assimilative capacity available. The volume-weighted 10-year average TDS concentration of the streambed recharge did not exceed either of the maximum benefit objective or current ambient water quality in any ofthe six simulation scenarios. (See Table 2-1).

The "Maximum Benefit" Nitrate-Nitrogen objective for the San Timoteo GMZ is 5 mg/L and the current ambient quality is 1.5 mg/L. There is 3.5 mg/L of assimilative capacity available. The volume-weighted 10-year average TIN concentration of the streambed recharge did not exceed the maximum benefit objective in any of the six simulation scenarios. The volume- weighted 10-year average TIN concentration of the streambed recharge did exceed the current ambient quality in all six simulation scenarios and is expected to result in lower water quality. However, this lowering of water quality was previously authorized by the Santa Ana Water Board provided that the dischargers to this reach (Yucaipa Valley Water District and the City of Beaumont) continue to comply with the conditions established by the Santa Ana Water Board when it approved the Maximum Benefit Demonstration submitted by these dischargers. (See Basin Plan, Chapter 5, pp. 5-63 to 5-74.)

Reach 1 of San Timoteo Creek and Reach 5 of the Santa Ana River overlying Bunker Hill-B GMZ

The TDS objective for the Bunker Hill-B GMZ is 330 mg/L and the current ambient

quality is 280 mg/L. There is 50 mg/L of assimilative capacity available. The volume-weighted 10- year average TDS concentration of the streambed recharge did not exceed the water quality objective in any of the six simulation scenarios. The volume-weighted 10-year average TDS concentration was less than the current ambient quality in 5 of 6 simulation scenarios.

Highest 10-year volume-weighted average value, in the 67-year hydrology simulation, was 287 mg/L under the 2020 Maximum Expected Discharge scenario, which exceeds current ambient water quality of 280 mg/L. The probability of this occurring was only at a 10%; the volume-weighted 10-year average TDS concentration was lower than the current ambient quality in 90% of the rolling 10-year averaging periods.[3] In addition, 100% of the volume-weighted 10-year rolling average TDS concentrations were less than the current ambient quality in the 2040 Maximum Expected Discharge Scenario.[4] Thus, streambed recharge from discharges to this reach are not expected to result in significant lowering of water quality. Rather, any potential degradation is expected to be both minor and temporary.

Pursuant to the provisions of Administrative Procedures Update 90-004, which provides guidance to the Santa Ana Water Board regarding Antidegradation Policy Implementation for NPDES Permitting, the Santa Ana Water Board may proceed with permitting such discharges without requiring a complete antidegradation analysis.

The Nitrate-Nitrogen objective for the Bunker Hill-B GMZ is 7.3 mg/L and the current ambient quality is 5.8 mg/L. There is 1.5 mg/L of assimilative capacity available. The volume-weighted 10-year average TIN concentration of the streambed recharge did not exceed either of these values in any of the six simulation scenarios.

Reach 4 of the Santa Ana River overlying the Colton GMZ

The TDS objective for the Colton GMZ is 410 mg/L and the current ambient quality is 490 mg/L. There is no assimilative capacity available. The volume-weighted 10-year averageTDS concentration of the streambed recharge did not exceed either of these values in anyof the six simulation scenarios.

The Nitrate-Nitrogen objective for the Colton GMZ is 2.7 mg/L and the current ambient quality is 3.3 mg/L. There is no assimilative capacity available. In 2021, the WLAM was updated to reduce the TIN effluent limitation for Yucaipa Valley Water District from 6.7 mg/L(their existing maximum limit) to 5.5 mg/L and to remove previously anticipated discharges to City Creek from the anticipated Sterling Natural Resources Center. By reducing the Yucaipa Valley Water District's maximum limit

[3] Santa Ana River Wasteload Allocation Model Update Summary Report Part 3 of 3, Appendix I, page I-3.
[4] Santa Ana River Wasteload Allocation Model Update Summary Report Part 3 of 3, Appendix I, page I-18.

to 5.5 mg/L, the volume-weighted 10-year average TIN concentration of the streambed recharge did not exceed either the water quality objective or the ambient water quality in any of the six simulation scenarios. Notably,Yucaipa Valley Water District's actual or most likely expected discharge is 3.8 mg/L of TIN, which is well below the proposed maximum limit of 5.5 mg/L.

Reach 4 of the Santa Ana River overlying the Riverside-A GMZ

The TDS objective for the Riverside-A GMZ is 560 mg/L and the current ambient quality is 430 mg/L. There is 130 mg/L of assimilative capacity available. The volume-weighted 10- year average TDS concentration of the streambed recharge did not exceed the water quality objective in any of the six simulation scenarios. The highest projected volume-weighted 10-year average TDS concentration in the streambed recharge was greater than the current ambient quality in five of the six simulation scenarios, ranging from 434 mg/L to 477 mg/L. The only exception was the Minimum Expected Discharge Scenario in 2040, which was only 418 mg/L.

The WLAM modeled TDS for two POTWs discharging to Reach 4 at their maximum permitted TDS effluent limitations of 490 mg/L for the City of Rialto and 550 mg/L for the RIXfacility operated by the City of San Bernardino and the City of Colton, respectively. The TDS effluent limitations are both below the applicable TDS objective of 560 mg/L. Under themaximum discharge scenario, the 10-year volume-weighted recharge remains below the applicable TDS objective of 560 mg/L. In addition, analysis of long-term monitoring data confirms that TDS concentrations in the Riverside-A GMZ have remained extremely steady with no discernable negative trend in water quality.[5]

The Nitrate-Nitrogen objective for the Riverside-A GMZ is 6.2 mg/L and the current ambient quality is 5.7 mg/L. There is 0.5 mg/L of assimilative capacity available. The volume- weighted 10-year average TIN concentration of the streambed recharge exceeded the waterquality objective in two of the six simulation scenarios: the Maximum Expected Discharge Scenarios for 2020 and 2040. The highest projected volume-weighted 10-year average TINconcentration in the streambed recharge was 6.45 mg/L in 2020 and 6.27 mg/L in 2040.

Analysis of long-term water quality monitoring data shows that TIN concentrations in the Riverside-A GMZ have been rising slowly since 1997 but that trend is slowing.[6] Detailed groundwater modeling developed by Geoscience as part of the Imported Water RechargeCooperative Agreement signed by the Santa Ana Water Board in January of 2008 (as amended) shows that the TIN concentration is leveling out and is not expected to exceed 5.9 mg/L at any time between 2020

[5] Water Systems Consulting, Inc. Recomputation of Ambient Water Quality in the Santa Ana River Watershed for the Period 1999 to 2018. July 8, 2020 (see Attachment B13 @ PDF pg. 203 of 259).
[6] Water Systems Consulting, Inc. Recomputation of Ambient Water Quality in the Santa Ana River Watershed for the Period 1999 to 2018. July 8, 2020 (see Attachment B13 @ PDF pg. 203 of 259).

and 2034.[7]

While continued discharge at the current effluent limits may result in slightly lower ambient groundwater quality in the Riverside-A GMZ, there is sufficient assimilative capacity to absorb these discharges with no risk of exceeding the water quality objective for TDS or Nitrate-Nitrogen. Further, these same discharges are found to be improving groundwater quality in the Chino-South GMZ and are providing a critical source of dilution needed to mitigate exceedances of the TDS objective at Prado Dam caused by poor quality groundwater rising into the Prado Basin Management Zone (see discussion below).[8] Flows from these POTWs are also necessary to protect WILD and RARE species and to sustain other important beneficial uses, such as Water Contact Recreation, in Reach 4 of the River.

The Santa Ana Water Board previously determined that imposing more stringent effluent limits for the sole purpose of reducing TIN concentrations by very small amounts (<0.3 mg/L) would result in excessive treatment costs for these particular discharges that would provide negligible benefit to the public or the environment.[9] The State Water Board subsequently approved this finding.[10] As such, the Santa Ana Water Board has determined that these dischargescan continue to be permitted based on the existing effluent limits for TDS and TIN provided that long-term monitoring data continues to demonstrate no significant downward trend in TDS and existing TIN concentrations remain below the water quality objective in the Riverside-A GMZ.

Reach 3 of the Santa Ana River overlying the Chino-South GMZ

The TDS objective for the Chino-South GMZ is 680 mg/L and the current ambient quality is 920 mg/L. There is no assimilative capacity available. The volume-weighted 10-year average TDS concentration of the streambed recharge did not exceed either of these values for any of the six simulation scenarios.

The Nitrate-Nitrogen objective for the Chino-South GMZ is 5.0 mg/L and the current ambient quality is 27.6 mg/L. There is no assimilative capacity available. The volume-weighted 10- year average TIN concentration of the streambed recharge did not exceed either of these values in any of the six simulation scenarios.

Reaches 2 through 6 of Temescal Creek overlying the Upper Temescal Valley GMZ

[7] Geoscience Support Services, Inc. Development of a TDS and Nitrate Lumped-Parameter Model for the Riverside and Arlington Groundwater Basins. August 11, 2015 (see Fig. 14 and Appendix A, Table NO3-S1-A).
[8] Substitute Environmental Document for the Proposed Basin Plan Amendment to Revise the Water Quality Objective for Nitrate-Nitrogen in the Chino South Groundwater Management Zone (March 22, 2017).
[9] Santa Ana Water Board. Res. No. R8-2017-0036 (Aug. 4, 2017).
[10] SWRCB. Res. No. 2018-0004 (Feb. 6, 2018).

The TDS objective for the Upper Temescal Valley GMZ is 820 mg/L and the current ambient quality is 750 mg/L. There is 70 mg/L of assimilative capacity available. The volume-weighted 10-year average TDS concentration of the streambed recharge did not exceed the TDS objective or current ambient water quality in any of the six simulation scenarios.

The Nitrate-Nitrogen objective for the Upper Temescal Valley GMZ is 7.9 mg/L and the current ambient quality is 4.7 mg/L. There is 3.2 mg/L of assimilative capacity available. The volume-weighted 10-year average TIN concentration of the streambed recharge did not exceed the water quality objective in any of the six simulation scenarios. Nor did it exceed the current ambient quality in the Minimum Expected Discharge scenarios for 2020 and 2040 land use conditions.

For the Maximum and Most Likely Expected Discharge scenarios, the highest 10-year volume-weighted average TIN concentration of the streambed recharge was greater than the current ambient quality under both 2020 and 2040 land use conditions. This indicates some potential for lower water quality to occur. The Santa Ana Water Board previously considered this potential and determined that, in accordance with the requirements of the State Water Board's Antidegradation Policy (Res. 68-16), that the amount of degradation that would occur relative to current ambient nitrate concentrations was to the maximum benefit to the people of the state.[11] Accordingly, the Santa Ana Water Board has found that continued discharge of treated municipal wastewater to Temescal Creek is authorized, provided that the related effluent limits are consistent with the wasteload allocations shown in Table 5-5 and the dischargers are otherwise in compliance with any TDS and Nitrogen Management Plan approved by the Santa Ana Water Board.[12]

Reaches 1 and 2 Temescal Creek overlying the Temescal GMZ

The TDS objective for the Temescal GMZ is 770 mg/L and the current ambient quality is 810mg/L; there is no assimilative capacity available. The Nitrate-Nitrogen objective for the Temescal groundwater management zone is 10.0 mg/L and the current ambient quality is 10.2 mg/L; there is no assimilative capacity available. Therefore, consistent with the requirements of prior precedential orders issued by the State Board, Table 2-3 includes effluent limits for discharges (e.g., City of Corona WWTP-1 & WWTP-2) to Temescal Creek that are no greater than the applicable water quality objectives for TDS and Nitrate-Nitrogenin the Temescal GMZ.[13]

Reach 2 of the Santa Ana River overlying the Orange County GMZ

The TDS objective for the Orange County GMZ is 580 mg/L and the current ambient quality is 600 mg/L. There is no assimilative capacity available. The volume-

[11] Santa Ana Regional Water Quality Control Board - Res. No. 2020-0038 (Dec. 4, 2020).
[12] Res. No. R8-2020-0038 (Dec. 4, 2020)
[13] 13. State Water Board; WQO #73-4 (2/1/73) and WQO #81-5 (3/19/81).

weighted 10-year average TDS concentration of the streambed recharge did not exceed either of these values in the Maximum Expected Discharge Scenarios for 2020 and 2040. The volume-weighted 10-year average TDS concentration of the streambed recharge did exceed the water quality objective in the Most Likely Discharge Scenario and the Minimum Expected Discharge Scenario, for both the 2020 and 2040 land use conditions, with values ranging from 593 mg/L to 629 mg/L. However, the 5-year volume-weighted running average TDS concentration in Reach 2 of the Santa Ana River did not exceed the 650 mg/L surface water objective that the Basin Plan assigns to that segment overlying the Orange County GMZ.

A previous investigation and detailed analysis of historical water quality data prepared on behalf of the Basin Monitoring Program Task Force suggests that wastewater discharges from the POTWs are not causing or contributing to elevated TDS concentrations observed inReach 2.[14] Rather, analysis and investigation indicates that these discharges may actually help to dilute higher TDS concentrations coming from other non-point sources such as poor quality groundwater rising into the bottom of Reach 3 of the Santa Ana River and flowing through Prado Dam to Reach 2 overlying the Orange County GMZ.[15]

The Nitrate-Nitrogen objective for the Orange County GMZ is 3.4 mg/L and the current ambient quality is 3.0 mg/L. There is 0.4 mg/L of assimilative capacity available. The volume-weighted 10-year average TIN concentration of the streambed recharge did not exceed the water quality objective for any of the six simulation scenarios. However, the highest estimated volume-weighted 10-year average TIN concentration was greater than thecurrent ambient quality in the Maximum Expected Discharge Scenarios for both 2020 and 2040. The highest estimated value was 3.2 mg/L for the 2020 scenario and 3.13 mg/L for the 2040 scenario. The long-term (67-year) volume-weighted average in both cases was less than 3.0 mg/L. Thus, while there may be short periods when TIN concentrations in the streambed recharge may be slightly higher in the Orange County GMZ than current ambientwater quality, the quality of streambed recharge is expected to improve, and assimilative capacity is expected to increase over the long-term. This projection is supported by long-term water quality monitoring data which shows that TIN concentrations in the Orange County GMZ are very stable with no discernable trend toward degradation.[16]

As cited previously, several evaluations and analysis by local consultants with knowledge of the Santa Ana River watershed suggest that higher volumes of discharge from POTWs at current effluent limits for TDS in existing NPDES permits helps mitigate the adverse effects of poor water quality in the rising groundwater ~~near Prado Dam. This nee~~d, combined with the fact that potential elevated TIN

[14] Wildermuth Environmental Inc. Investigation and Characterization of the Cause(s) of Recent Exceedances of the TDS Concentration Objective for Reach 3 of the Santa Ana River. Feb. 11, 2015.
[15] Wildermuth Environmental Inc. Volume-Weighted TDS Concentration of POTW Discharges above Prado Dam during August-September. June 15, 2015.
[16] Water Systems Consulting, Inc. Recomputation of Ambient Water Quality in the Santa Ana River Watershed for the Period 1999 to 2018. July 8, 2020 (see Attachment B11 @ PDF pg. 184 of 259).

concentrations of ambient water quality in the Orange County GMZ are both very small and do not cause an exceedance of the objective, provides the Santa Ana Water Board with the necessary information to find that the small amount of lowering of water quality for TIN is to the maximum benefit to the people of the state. Thus, the Santa Ana Water Board finds that it is reasonable and appropriate to continue authorizing POTW discharges above Prado Dam consistent with the wasteload allocations for TDS and TIN as shown in Table 5-5.

Reach 3 of the Santa Ana River at Prado Dam

The surface water TDS objective for Reach 3 of the Santa Ana River at Prado Dam is 700 mg/L during baseflow conditions. Baseflow concentrations are evaluated using samples collected immediately below Prado Dam in August and September during dry weather conditions. The data is used to evaluate compliance with the objective on an annual basis.

The highest projected TDS concentration during baseflow conditions did not exceed the water quality objective in the Maximum Expected Discharge Scenarios for either 2020 or 2040. The maximum projected TDS concentration during baseflow conditions did exceed the 700 mg/L objective in the Most Likely Discharge Scenario and the Minimum Expected Discharge Scenario for both 2020 and 2040. Estimated concentrations ranged from 730 mg/L to 774 mg/L with higher values being projected for the Minimum Expected Discharge Scenario compared to the Most Likely Discharge Scenario. The WLAM results are consistent with previous investigations that indicate lower volumes of POTW discharge in surface waters may in fact result in higher TDS concentrations in the Santa Ana River as there is less high quality POTW effluent available to dilute poorer water quality from non-point sources of TDS to the river. Thus, POTW discharges are not causing or contributing to the exceedances other non-point sources.

Notwithstanding the WLAM results and the previous investigations, the Basin Monitoring Task Force intends to conduct special studies to further investigate how long it will take to purge legacy contamination from the Chino-South GMZ and the Prado Basin Management Zone, and to investigate if there are any reasonable mitigation strategies that can be employed within the watershed to prevent these legacy loads from causing or contributing to exceedances of the water quality objectives at Prado Dam.

Pursuant to previous precedential orders by the State Water Board, when there is no assimilative capacity available in the receiving water, a Santa Ana Water Board must issue waste discharge requirements with effluent limits that are no higher than the applicable water quality objective.[17] For all POTW dischargers above Prado Dam, the

[17] State Water Board Order No. 73-4; In the Matter of the Petition of Orange County Water District for Review of Order No. 72-16 of the California Regional Water Quality Control Board - Santa Ana Region Prescribing Waste Discharge Requirements for Rancho Caballero Mobile Home Park; Feb. 1, 1973.

Santa Ana Water Board has already met that requirement. The applicable water quality objective for TDS in Reach 3 is 700 mg/L and all of the POTWs with discharges affecting that reach have effluent limits at or below 700 mg/L. The discharge limits authorized in Table 2-3 (below) are consistent with that requirement. Further, the Santa Ana Water Board continuously monitors compliance with the Santa Ana River surface water objectives through the Annual Surface Water Monitoring reports as well as through the WLAM that is updated periodically. The Santa Ana Water Board will continue to reevaluate compliance with surface water objectives to determine if additional actions are necessary.

The surface water TIN objective for Reach 3 of the Santa Ana River at Prado Dam is 10 mg/L during baseflow conditions. Baseflow concentrations are evaluated using samples collected immediately below Prado Dam in August and September during dry weather conditions. In addition, compliance with the TN objective is determined by measuring Total Nitrogen (TN) in filtered samples. None of the projected values for TIN exceeded the water quality objective of 10 mg/L in any of the six simulation scenarios. Although the WLAM evaluated TIN rather than TN, historical water quality results of concurrent samples indicate that the two values are very similar.

Moreover, the surface water for Reach 3 of the Santa Ana River is monitored annually for both TIN and TN, and an Annual Report is submitted to the Santa Ana Water Board. The Annual Reports confirm that the surface water continues to meet the TN objective for Reach 3 of the Santa Ana River during baseflow conditions and that there is little difference between measured values for TN and TIN in the surface water.

C. Update WLAs for Wastewater Treatment Facilities

Using the results of the updated WLAM model, the proposed Basin Plan amendment updates Basin Plan Table 5-5. Table 2-3 below replicates the proposed amendment to update Basin Plan Table 5-5. Table 2-3 provides the Wasteload Allocations for the identified list of permitted facilities in the watershed. The Wasteload Allocations represent the maximum discharge flows and maximum effluent concentrations for TDS and TIN that can be permitted by the Santa Ana Water Board in its reliance on the WLAM results. For discharges governed by NPDES permits, effluent limits for TDS and TIN shall not be set at levels higher than those shown in Table 2- 3 unless the Santa Ana Water Board authorizes an alternative compliance mechanism through an approved offset program. The Santa Ana Water Board retains its authority and discretion to impose effluent limitations that are more stringent than limits in Table 2-3 when it is necessary to protect beneficial uses or prevent significant water quality degradation. Figure 1 shows the locations of the permitted facilities and the underlying GMZs in the Santa Ana River

See also SWRCB Order No. 81-5; In the Matter of the Petition of the City of Lompoc for Review of Order No. 80-03 (NPDES Permit No. CA 0048127), California Regional Water Quality Control Board - Central Coast Region; March 19, 1981.

Watershed.

Findings from the 2017 WLAM indicate that the updated WLAs under the Proposed Action (a) would not cause an exceedance of objectives in groundwater affected by recharge from treated wastewater; and (b) are not expected to result in a significant lowering of ambient water quality in any part of the Santa Ana River watershed. These findings are based on use of a conservative approach to establish the WLAs. Examples of this conservative approach include: (a) establishing WLAs based on a 10-year volume-weighted averaging period (half the 20-year volume-weighted averaging period used to establish TDS/Nitrate objectives); and (b) using effluent TIN concentrations as a surrogate for assessing compliance with nitrate-nitrogen objectives in groundwater.

The updated WLAs consider the potential need to authorize use of assimilative capacity by the City of Rialto (City of Rialto Wastewater Treatment Plant) and the Cities of Colton and San Bernardino (Rapid Infiltration-Extraction Facility) (“RIX Facility”), which discharge treated effluent to Santa Ana River Reach 4 overlying the Riverside-A GMZ. Although the WLAs take into account the potential need to authorize the use of assimilative capacity, any such authorization would occur through a separate Santa Ana Water Board action, i.e., through the issuance of waste discharge requirements to these facilities.

Table 2-1. Summary of TDS Model Results for Scenarios A - F

Reach	Underlying Management Zone	TDS Objective (mg/L)	Ambient TDS (mg/L)	Assimilative Capacity (mg/L)	Averaging Period	Scenario A	Scenario B	Scenario C	Scenario D	Scenario E	Scenario F
						2020 Maximum Expected Discharge	2020 Most Likely Discharge	2020 Minimum Expected Discharge	2040 Maximum Expected Discharge	2040 Most Likely Discharge	2040 Minimum Expected Discharge
Groundwater					Maximum Value for the Volume-Weighted Recharge for the Planning Period Hydrology (mg/L)						
Noble Creek; unnamed tributary to Marshall Creek below Beaumont DP 007; Cooper's Creek; San Timoteo Creek - Reach 4	Beaumont	330[1]/230[2]	280[3]	50[4]	1-year	255	257	259	228	228	228
					5-year	226	227	228	208	208	208
					10-year	218	220	221	204	204	204
					20-year	217	218	219	203	203	203
Cooper's Creek; San Timoteo Creek - Reach 2, 3 and 4	San Timoteo	400[1]/300[2]	420[3]	none	1-year	372	369	369	349	346	329
					5-year	356	353	353	307	304	288
					10-year	338	335	334	281	278	266
					20-year	338	335	332	280	277	266
San Timoteo Creek - Reach 1 and Santa Ana River - Reach 5	Bunker Hill-B	330	280[3]	50	1-year	***329***	***295***	239	***311***	***302***	267
					5-year	***300***	261	226	277	266	230
					10-year	***287***	250	221	265	254	226
					20-year	277	245	216	257	247	220
Santa Ana River - Reach 4	Colton	410	490[3]	none	1-year	399	307	260	346	356	293
					5-year	340	250	221	307	300	237
					10-year	317	246	217	290	281	233
					20-year	305	237	211	282	275	225
Santa Ana River - Reach 4[5]	Riverside-A	560	430[3]	130	1-year	***511***	***488***	***486***	***492***	***478***	***472***
					5-year	***487***	***454***	***450***	***467***	***447***	***433***
					10-year	***477***	***441***	***437***	***457***	***434***	418
					20-year	***472***	***435***	***431***	***452***	428	411
Santa Ana River - Reach 3	Chino-South	680	920[3]	none	1-year	629	644	646	599	618	624
					5-year	497	506	509	461	461	464
					10-year	458	466	468	417	419	422
					20-year	457	465	466	415	418	420
Temescal Creek - Reach 2,3, 4, 5 and 6	Upper Temescal Valley	820[7]	750[8]	70	1-year	676	584	544	662	560	509
					5-year	662	537	469	645	502	445
					10-year	658	519	442	638	481	419
					20-year	654	514	430	631	472	405
Santa Ana River - Reach 2	Orange County	580	600[3]	none	1-year	***603***	***681***	***734***	***589***	***684***	***728***
					5-year	568	***649***	***690***	547	***645***	***677***
					10-year	529	***609***	***629***	510	***593***	***607***
					20-year	525	***604***	***623***	504	***591***	***603***
Wetlands					Maximum Value for the Volume-Weighted Recharge for the Planning Period Hydrology (mg/L)						
Santa Ana River - Reach 3 above River Rd	Prado Basin[9]	na	na[10]	na	1-year	652	662	666	636	650	654
					5-year	637	646	649	622	635	638
					10-year	630	638	640	616	627	629
					20-year	621	629	630	607	617	619

Table 2-1. Summary of TDS Model Results for Scenarios A - F

Reach	Underlying Management Zone	TDS Objective (mg/L)	Ambient TDS (mg/L)	Assimilative Capacity (mg/L)	Averaging Period	Scenario A	Scenario B	Scenario C	Scenario D	Scenario E	Scenario F
						2020 Maximum Expected Discharge	2020 Most Likely Discharge	2020 Minimum Expected Discharge	2040 Maximum Expected Discharge	2040 Most Likely Discharge	2040 Minimum Expected Discharge
Surface Water					Maximum Value for the Volume-Weighted Stream Concentration for the Planning Period Hydrology (mg/L)						
Santa Ana River Reach 3 Below Prado Dam	na	700	na	na[11]	Baseflow Average[12] 5-year moving average of the 1-year volume-weighted average	621	***733***	***774***	618	***730***	***761***
Santa Ana River Reach 2 Below Prado Dam	na	650[13]	na	na[11]	5-year moving average of the 1-year volume-weighted average	525	485	445	521	464	416
Santa Ana River Reach 2 at Santa Ana	na	650[13]	na	na[11]		331	197	146	395	161	135

Notes

This table is a reproduction of Table 24 from the 2017 WLAM Summary Report (Geoscience, 2020). No changes were made to TDS results from the Supplemental WLAM Scenarios.

Bold black values represent concentrations above ambient groundwater quality, but below objective. Bold red values represent concentrations above basin objective

[1] "Maximum benefit" objectives apply unless the Santa Ana Water Board determines that lowering of water quality is not of maximum benefit to the people of the state

[2] "Antidegradation" objectives apply when the Santa Ana Water Board determines that the lowering of water quality is not of maximum benefit to the people of the state

[3] 2018 estimate of ambient water quality (WSC, 2020)

[4] Based on maximum benefit objectives

[5] Due to rising water conditions, no streambed recharge occurs in SAR Reach 3 overlying Riverside-A GMZ.

[6] Proposed Upper Temescal Valley GMZ includes Bedford GMZ, Lee Lake GMZ, Warm Springs Valley GMZ

[7] Proposed TDS objective from June 2018 CEQA Scoping Meeting

[8] Based on Salt and Nutrient Management Plan for the Upper Temescal Valley, Table 6-B (WEI, 2017)

[9] Streambed recharge in Prado Basin Management Zone only occurs above River Rd. This recharge is assumed to be temporary and become rising water farther downstream. Prado Basin Management Zone does not have its own set of water quality objectives, although the objectives of the streams that flow into the Prado Basin Management Zone (presented in the Prado Basin Surface Water Management Zone Section of the 2016 Water Quality Control Plan (Basin Plan) for the Santa Ana River Basin, pg. 4-29) continue to apply. For the purposes of this investigation, no objectives were evaluated for Prado Basin Management Zone. Note: SAR Reach 3 TDS/TIN objectives are identified in the Basin Plan as "baseflow" objectives. According to the 1983 Basin Plan, compliance with these objectives should be assessed without the influence of stormflow events. Model-calculated maximum volume-weighted recharge concentrations for Prado Basin do not represent baseflow conditions. Baseflow Average concentrations for Reach 3, without the influence of storm events, are presented for surface water flow at the Santa Ana River Below Prado Dam.

[10] No Prado Basin ambient TDS was computed after 1997

[11] Currently, the Santa Ana Water Board does not recognize the existence of assimilative capacity for TDS in surface water

[12] SAR Reach 3 TDS/TIN objectives are identified in the Basin Plan as "baseflow" objectives. Model-calculated maximum volume-weighted stream concentrations for Reach 3 in August and September, without the influence of storm events, are used to represent baseflow conditions.

[13] 5-year moving average

Table 2-2. Revised Summary of TIN Model Results for Scenarios A - F

Reach	Underlying Management Zone	TIN Objective (mg/L)	Ambient NO_3-N (mg/L)	Assimilative Capacity (mg/L)	Averaging Period	Scenario A	Scenario B	Scenario C	Scenario D	Scenario E	Scenario F
						2020 Maximum Expected Discharge	2020 Most Likely Discharge	2020 Minimum Expected Discharge	2040 Maximum Expected Discharge	2040 Most Likely Discharge	2040 Minimum Expected Discharge
Groundwater					Maximum Value for the Volume-Weighted Recharge for the Planning Period Hydrology (mg/L)						
Noble Creek; unnamed tributary to Marshall Creek below Beaumont DP 007; Cooper's Creek; San Timoteo Creek - Reach 4	Beaumont	5.0[1]/1.5[2]	2.7[3]	2.3[4]	1-year	2.29	2.32	2.36	1.86	1.87	1.88
					5-year	1.88	1.90	1.92	1.60	1.61	1.61
					10-year	1.77	1.79	1.81	1.54	1.54	1.54
					20-year	1.74	1.75	1.77	1.52	1.52	1.53
Cooper's Creek; San Timoteo Creek - Reach 2, 3 and 4	San Timoteo	5.0[1]/2.7[2]	1.5[3]	3.5[4]	1-year	***3.75***	***3.73***	***3.72***	***3.41***	***3.36***	***3.11***
					5-year	***3.58***	***3.55***	***3.52***	***2.94***	***2.89***	***2.70***
					10-year	***3.39***	***3.35***	***3.32***	***2.68***	***2.65***	***2.49***
					20-year	***3.38***	***3.33***	***3.28***	***2.68***	***2.64***	***2.47***
San Timoteo Creek - Reach 1 and Santa Ana River - Reach 5	Bunker Hill-B	7.3	5.8[3]	1.5	1-year	3.32	3.09	2.83	3.10	3.02	2.76
					5-year	2.84	2.56	2.34	2.57	2.49	2.24
					10-year	2.76	2.48	2.24	2.52	2.43	2.16
					20-year	2.67	2.39	2.17	2.44	2.35	2.10
Santa Ana River - Reach 4	Colton	2.7	3.3[3]	none	1-year	***3.45***	2.34	2.31	***3.11***	***3.06***	2.23
					5-year	***2.83***	1.90	1.82	2.62	2.47	1.82
					10-year	2.70	1.86	1.65	2.53	2.37	1.78
					20-year	2.63	1.76	1.57	2.50	2.36	1.69
Santa Ana River - Reach 4[5]	Riverside-A	6.2	5.7[3]	0.5	1-year	***6.95***	***6.68***	***6.64***	***6.80***	***6.59***	***6.39***
					5-year	***6.60***	***6.16***	***6.10***	***6.42***	***6.09***	***5.79***
					10-year	***6.45***	***5.97***	***5.91***	***6.27***	***5.91***	5.58
					20-year	***6.35***	***5.83***	***5.77***	***6.16***	***5.78***	5.43
Santa Ana River - Reach 3	Chino-South	5.0[6]	27.6[3]	none	1-year	4.47	4.45	4.42	4.35	4.27	4.25
					5-year	3.48	3.47	3.45	3.29	3.12	3.11
					10-year	3.20	3.18	3.16	2.96	2.84	2.82
					20-year	3.20	3.17	3.15	2.95	2.83	2.81
Temescal Creek - Reach 2,3, 4, 5 and 6	Upper Temescal Valley	7.9[8]	4.7[9]	3.2	1-year	***7.20***	***6.38***	***5.47***	***7.05***	***6.09***	***5.38***
					5-year	***7.14***	***5.77***	***4.71***	***6.93***	***5.31***	4.46
					10-year	***7.08***	***5.57***	4.41	***6.82***	***5.05***	4.16
					20-year	***7.02***	***5.49***	4.32	***6.73***	***4.95***	4.03
Santa Ana River - Reach 2	Orange County	3.4	3.0[3]	0.4	1-year	***3.60***	***3.10***	2.66	***3.58***	***3.25***	2.68
					5-year	***3.41***	2.97	2.49	***3.34***	***3.06***	2.52
					10-year	***3.20***	2.81	2.32	***3.13***	2.84	2.30
					20-year	***3.19***	2.78	2.29	***3.11***	2.83	2.27
Wetlands					Maximum Value for the Volume-Weighted Recharge for the Planning Period Hydrology (mg/L)						
Santa Ana River - Reach 3 above River Rd	Prado Basin[10]	na	na[11]	na	1-year	6.46	6.34	6.26	6.53	6.29	6.21
					5-year	6.30	6.18	6.09	6.38	6.13	6.05
					10-year	6.24	6.10	6.00	6.31	6.05	5.97
					20-year	6.16	6.02	5.92	6.24	5.97	5.88

Revised Summary of TIN Model Results for Scenarios A - F

Reach	Underlying Management Zone	TIN Objective (mg/L)	Ambient NO_3-N (mg/L)	Assimilative Capacity (mg/L)	Averaging Period	Scenario A	Scenario B	Scenario C	Scenario D	Scenario E	Scenario F
						2020 Maximum Expected Discharge	2020 Most Likely Discharge	2020 Minimum Expected Discharge	2040 Maximum Expected Discharge	2040 Most Likely Discharge	2040 Minimum Expected Discharge
Surface Water					Maximum Value for the Volume-Weighted Stream Concentration for the Planning Period Hydrology (mg/L)						
Santa Ana River Reach 3 Below Prado Dam	na	10.0	na	na[12]	Baseflow Average[13] 5-year moving averageof the 1-year volume-weighted average	7.05	5.95	5.34	6.99	6.25	5.28
Santa Ana River Reach 2 Below Prado Dam	na	na	na	na[12]	5-year moving averageof the 1-year volume-weighted average	5.90	4.28	3.17	5.89	4.25	3.03
Santa Ana River Reach 2 at Santa Ana	na	na	na	na[12]		2.80	1.29	0.94	3.33	1.33	1.14

Notes

This table represents a revised version of Table 25 from the 2017 WLAM Summary Report (Geoscience, 2020) and includes the results from the Supplemental WLAM Scenarios for San Timoteo, Bunker Hill-B, and Colton Groundwater Management Zones.

Bold black values represent concentrations above ambient groundwater quality, but below objective. Bold red values represent concentrations above basin objective

[1] "Maximum benefit" objectives apply unless the Santa Ana Water Board determines that lowering of water quality is not of maximum benefit to the people of the state

[2] "Antidegradation" objectives apply when the Santa Ana Water Board determines that the lowering of water quality is not of maximum benefit to the people of the state

[3] 2018 estimate of ambient water quality (WSC, 2020)

[4] Based on maximum benefit objectives

[5] Due to rising water conditions, no streambed recharge occurs in SAR Reach 3 overlying Riverside-A GMZ.

[6] On August 4, 2017, the California Regional Water Quality Control Board, Santa Ana Region, adopted Resolution No. R8-2017-0036 revising the water quality objective for nitrate as nitrogen from 4.2 mg/L to 5.0 mg/L in the Chino South Groundwater Management Zone. The State Water Resource Control Board approved the amendment under Resolution No. 2018-0004 on February 6, 2018. The new objective became effective when the Office of Administrative Law approved the Basin Plan amendment on July 2, 2018

[7] Proposed Upper Temescal Valley GMZ includes Bedford GMZ, Lee Lake GMZ, Warm Springs Valley GMZ

[8] Proposed TIN objective from June 2018 CEQA Scoping Meeting

[9] Based on Salt and Nutrient Management Plan for the Upper Temescal Valley, Table 6-B (WEI, 2017)

[10] Streambed recharge in Prado Basin Management Zone only occurs above River Rd. This recharge is assumed to be temporary and become rising water farther downstream. Prado Basin Management Zone does not have its own set of water quality objectives, although the objectives of the streams that flow into the Prado Basin Management Zone (presented in the Prado Basin Surface Water Management Zone Section of the 2016 Water Quality Control Plan (Basin Plan) for the Santa Ana River Basin, pg. 4-29) continue to apply. For the purposes of this investigation, no objectives were evaluated for Prado Basin Management Zone. Note: SAR Reach 3 TDS/TIN objectives are identified in the Basin Plan as “baseflow” objectives. According to the 1983 Basin Plan, compliance with these objectives should be assessed without the influence of stormflow events. Model-calculated maximum volume-weighted recharge concentrations for Prado Basin do not represent baseflow conditions. Baseflow Average concentrations for Reach 3, without the influence of storm events, are presented for surface water flow at the Santa Ana River Below Prado Dam.

[11] No Prado Basin ambient Nitrate as Nitrogen was computed after 1997

[12] Currently, the Santa Ana Water Board does not recognize the existence of assimilative capacity for nitrogen in surface water

[13] SAR Reach 3 TDS/TIN objectives are identified in the Basin Plan as “baseflow” objectives. Model-calculated maximum volume-weighted stream concentrations for Reach 3 in August and September, without the influence of storm events, are used to represent the baseflow conditions.

Table 2-3. Wasteload Allocations for TDS and TIN for Permitted Discharges in the Santa Ana River Watershed, 2020 - 2040 Permitting Period (adapted from GSSI 2020, Table 20)

Permittee/Discharge	Primary Receiving Water(s)		Discharge (mgd)[1]		TDS (mg/L)	TIN (mg/L)
	Surface Stream(s)	Groundwater Management Zones	2020	2040		
City of Beaumont[2]	Noble Creek & Cooper's Creek to San Timoteo Creek Reach 4	Beaumont & San Timoteo	3.8 (1.8)	6.3 (1.8)[3]	300 (400)	3.6 (6.0)
Yucaipa Valley Water District (YVWD)[4]	San Timoteo Creek Reach 3	San Timoteo	8.0	8.0	400	5.5
City of San Bernardino: Geothermal Discharges	East Twin Creek & Warm Creek to Santa Ana River (SAR) Reach 5	Bunker Hill-A & B	1.0	1.0	264	0.7
City of Rialto WWTP	SAR Reach 4	Riverside-A	7.2	18.0	490	10.0
San Bernardino/Colton Rapid Infiltration and Extraction (RIX) Facility	SAR Reach 4	Riverside-A	34.5	34.5	550	10.0
City of Riverside: Regional Water Quality Control Plant (RWQCP)[5]	SAR Reach 3	Chino-South[6]	33.8	46.0	650	10.0[7]
City of Corona: WWTP-1 & WWTP-2	Temescal Creek Reach 1A	N/A (PBMZ)	11.5	15.0	700	10.0
Inland Empire Utilities Agency: Regional Plant (RP) 1, RP4, RP5 and Carbon Canyon Water Reclamation Facility (WRF)	Chino Creek & Cucamonga Creek	Chino-North (or PBMZ)[8]	85.0	107.0[9]	550	8.0
Western Municipal Water District: Western Riverside County Regional Wastewater Authority Plant	SAR Reach 3	N/A (PBMZ)	12.0	15.3	625	10.0
WMWD: Arlington Desalter	Temescal Creek Reach 1A	N/A (PBMZ)	7.25	7.25	260	4.4

Table 2-3. Wasteload Allocations for TDS and TIN for Permitted Discharges in the Santa Ana River Watershed, 2020 - 2040 Permitting Period (adapted from GSSI 2020, Table 20)

Permittee/Discharge	Primary Receiving Water(s)		Discharge (mgd)[1]		TDS (mg/L)	TIN
	Surface Stream(s)	Groundwater Management Zones	2020	2040		
Temescal Valley Water District – Temescal Valley Water Reclamation Facility (TVWRF)	Temescal Creek Reach 2	Upper Temescal Valley	2.3	2.3	650	10.0[10]
Elsinore Valley Municipal Water District (EVMWD): Regional Wastewater Reclamation Facility (WWRF-DP001)	Temescal Creek Reach 5	Upper Temescal Valley	8.0	12.0	700	10.0[11]
Eastern Municipal Water District Regional WRFs: San Jacinto Valley (JV), Moreno Valley (MV), Perris Valley (PV), Sun City (SC), Temecula Valley (TV)	Temescal Creek Reach 5	Upper Temescal Valley	52.5[12]	52.5[12]	650	10.0

[1] Maximum Authorized Discharge = average daily flow in million gallons/day (mgd) discharged to surface waters (expressed as an annualized average)

[2] Effluent limits revert to 320 milligram per liter (mg/L) for TDS and 4.1 mg/L for TIN if the Santa Ana Water Board determines that Beaumont failed to comply with Maximum Benefit conditions

[3] Higher effluent limits apply only to first 1.8 mgd; lower effluent limits apply to discharges greater than 1.8 mgd

[4] Effluent limits revert to 320 mg/L for TDS and 4.1 mg/L for TIN if the Santa Ana Water Board determines that YVWD failed to comply with Maximum Benefit conditions

[5] Includes the City's planned discharges to Anza Drain, Old Farm Road Channel, Tequesquite Arroyo & Evans Drain (all are tributary to SAR Reach 3)

[6] No significant streambed percolation occurs in the upper segment of SAR Reach 3 overlying the Riverside-A GMZ (i.e., the Riverside Narrows area)

[7] Effluent limit for TIN is more stringent than the 2004 WLA but is consistent with the requirements of Order No. R8-2013-0016 and current plant performance

[8] The PBMZ is a surface water feature where no significant groundwater storage or streambed percolation occurs

[9] Compliance with the applicable effluent limit is evaluated collectively based on the volume-weighted average of all four POTWs (aka "bubble permit")

[10] Effluent limit for TIN is more stringent than the 2004 WLA and is based on best practicable treatment or control for TIN by POTWs in the region

[11] Effluent limit for TIN is more stringent than the 2004 WLA and based on the treatment plant's design and demonstrated performance

[12] Discharge occurs only in years where average annual rainfall is greater than the long-term median value and only in the wettest six months of those years

View text description of map.

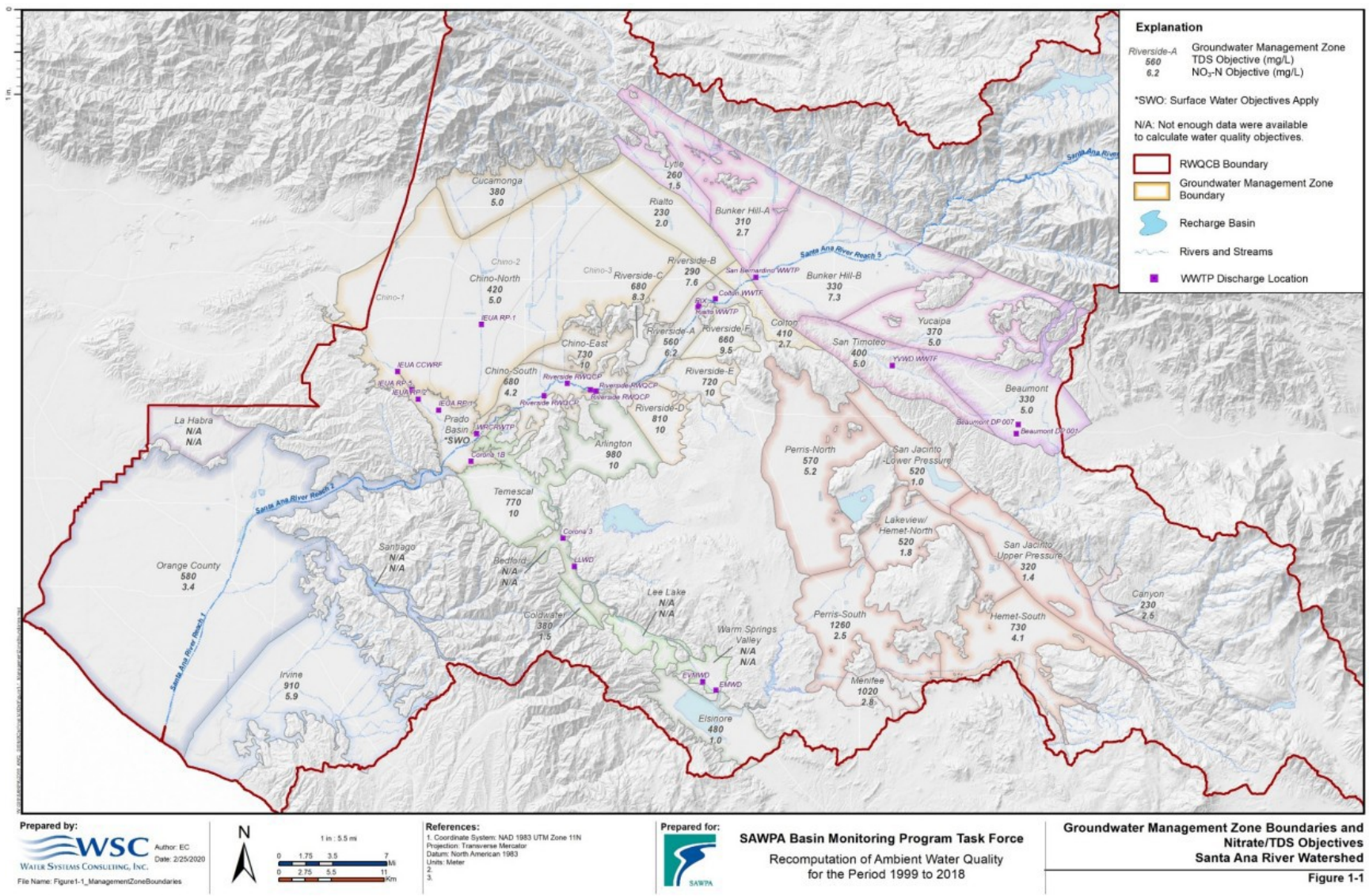

Figure1. Location of the permitted Wastewater Treatment Plants in the Santa Ana Region.

D. Establish Basis for Evaluating Compliance with TDS and TIN Effluent Limits

The proposed Basin Plan amendment includes direction to permit writers regarding how to assess compliance with TDS/TIN effluent limitations incorporated into waste discharge requirements. Specifically:

- TIN - Compliance with the effluent limit should be based on a 12-month (1-year) volume-weighted running average that is updated every month.
- TDS – Compliance with the effluent limit should be based on a 60-month (5-year) volume-weighted running average that is updated every month.

The above direction is the default approach to evaluating compliance. The proposed Basin Plan amendment also states that the Santa Ana Water Board retains discretionary permitting authority to impose longer or shorter averaging periods, on a case-by-case basis, when it determines that doing so is necessary and appropriate to protect water quality.

The use of a default 12-month volume-weighted running average for TIN as the means to measure compliance with an effluent limitation is consistent with current practice for evaluating compliance with TIN effluent limitations as specified in existing waste discharge requirements. The purpose of the proposed Basin Plan amendment is to provide direction to permit writers that this is the default approach to evaluate compliance with TIN effluent limits when establishing waste discharge requirements.

The use of a longer averaging period (60-months) for TDS is consistent with (a) previous findings that the purpose of the WLAs is to protect the underlying groundwater of the region regardless of whether the discharge is directly to groundwater or percolation from a streambed (Santa Ana Water Board 2010, Page 5); and (b) reflects that waste discharge requirements are established for 5-year permit terms. Further, in 2018, the Southern California Salinity Coalition commissioned a study to evaluate long-term trends and variations in average TDS concentrations in wastewater and recycled water.[18] Key findings of the study included, among others, that (1) volume-weighted source water TDS concentration is *the* significant determiner of influent TDS and that source TDS explains more variability in influent/effluent TDS than any other factor, and (2) that the duration of rolling-average periods can determine whether or not an agency is in violation of their permit limits. The Santa Ana Water Board finds that the use of a 60-monthaveraging period as the default standard for TDS effluent limitations is appropriate because it is consistent with current technical understandings regarding TDS variability in the watershed. This longer-term variability is primarily due to regional wet and dry hydrologic cycles that impact the sources of water used in a POTW's service area (e.g.,because of differential usage of imported water versus local groundwater as local source waters [see discussion in Section 4.3.10.1]).

[18] Daniel B. Stephens & Associates, Inc. Study to Evaluate Long-Term Trends and Variations in the Average Total Dissolved Solids Concentration in Wastewater and Recycled Water, March 30, 2018.

E. Clarify that the Antidegradation Review Conducted during the Permitting Process for Salinity-related Constituents will Focus on TDS

The proposed Basin Plan amendment clarifies that the antidegradation review required during development of waste discharge requirements will focus on an analysis of TDS rather than individual salt ions. The updated WLAM focuses exclusively on how combined discharges to the Santa Ana River are likely to affect overall salinity (TDS) in the underlying groundwater basins. The focus of the TDS-only WLAM analysis is consistent with the Santa Ana Water Board's instructions to permit writers in Resolution R8-2010-0012 (Page 7 Santa Ana Water Board 2010):

"Finally, the Santa Ana Water Board streamlined the permitting process by focusing the antidegradation review on TDS as a whole rather than analyzing each and every salt ion separately. However, where a water quality objective has been established to protect certain beneficial uses from the adverse effects of specific salt compounds (e.g., chloride, boron or nitrate), the Santa Ana Water Board will continue to adopt waste discharge requirements designed to assure compliance with these objectives.

Accordingly, compliance with the WLA for TDS is deemed sufficient to demonstrate compliance with objectives for the individual salt ions (see Basin Plan Table 4-1). Moreover, the Basin Plan's objectives for individual salt ions were not designed or intended to protect any specific beneficial use. Instead, they were intended to describe existing baseline water quality at the time of their adoption (in 1975/1983) and were to be used to maintain existing water quality until such time that traditional objectives based on a use impairment threshold could be developed and adopted into the Basin Plan.

F. Clarify Use of Mineral Increments in Establishment of Waste Discharge Requirements

Basin Plan Chapter 5, Total Dissolved Solids and Nitrogen Management, Section III.B.2 ("Mineral Increments") includes California Department of Water Resources (CA DWR) recommended values for the maximum use incremental additions for specific ions (i.e., chloride, sulfate, sodium, hardness, and TDS) that should be allowable through water use (CA DWR 1982). The Basin Plan states that these mineral increments "…will be incorporated into waste discharge requirements when appropriate and necessary."

The proposed Basin Plan amendment would clarify what the Basin Plan means when it states: "[Mineral increments]…will be incorporated into waste discharge requirements when appropriate and necessary." Specifically, the proposed amendment clarifies that in general that it may not be necessary to include mineral increment requirements for POTW discharges to surface water or groundwater where a water quality-based effluent limit has been established based on an approved TDS WLA (e.g., as proposed in Basin Plan Table 5-5). The Santa Ana Water Board maintains the discretion to determine the necessity to establish waste discharge requirements for mineral increments when the Santa Ana Water Board determines that it is appropriate and necessary.

G. Future Planning Priorities

The proposed Basin Plan amendment describes future planning priorities for implementation of the TDS/N Management Program. These priorities include updating the WLAM approximately every 10 years, and evaluating the existing TDS/N Management Program in light of the State Water Board's 2019 Recycled Water Policy (and future updates to the Policy).

H. Monitoring Program Updates

The proposed Basin Plan Amendments make clarifying changes to the TDS/N Management Program – Monitoring Program Requirements (Basin Plan, Chapter 5, TDS/N Management, Section V). The proposed amendment updates the existing language and require that updated surface water and groundwater monitoring programs be submitted to the Santa Ana Water Board by August 1, 2022, for review and approval. The proposed amendment also allows for an alternative methodology for determining ambient groundwater conditions if approved by the Santa Ana Water Board's Executive Officer, and revises the minimum interval for reporting groundwater ambient conditions for consistency with the State Water Board's 2019 Recycled Water Policy.

3. CONSISTENCY WITH OTHER STATE AND FEDERAL REQUIREMENTS

The proposed Basin Plan amendment is consistent with state and federal regulations including requirements for the adoption and amendments of Basin Plans (CWC §13240 et seq) and implementation of state and federal antidegradation policies (Resolution No. 68-16 and 40 Code of Federal Regulations [CFR] 131.12, respectively). The adoption of the proposed Basin Plan amendment would not result in adverse impacts to municipal and domestic supply (MUN) or other beneficial uses, or degrade existing water quality.

4. CALIFORNIA ENVIRONMENTAL QUALITY ACT

The Secretary of Resources has certified the Basin Planning process as functionally equivalent to the preparation of an Environmental Impact Report (EIR) or Negative Declaration pursuant to the California Environmental Quality Act (CEQA). However, in lieu of these documents an environmental analysis is presented in a substitute environmental document that includes, at a minimum, a description of the proposed activities and either: 1) alternatives to the activities and mitigation measures to avoid or reduce any significant or potentially significant effects that the proposed project may have on the environment; or 2) a statement that the proposed project would not have any significant or potentially significant effects on the environment supported by a checklist or other documentation (California Code of Regulations, Title 14, Chapter 3, Section 15000 et seq. (CEQA Guidelines), Section 15252).

This staff report describes the proposed Basin Plan amendment (i.e., the proposed project).

The Substitute Environmental Document (SED) including the Environmental Checklist is attached to this staff report (Enclosure 2). The SED concludes that there could be no potentially significant impacts on the environment caused by adoption of these Basin Plan amendment. Therefore, no alternatives are required to be analyzed and no mitigation measures are required.

5. SCIENTIFIC PEER REVIEW

Pursuant to Health and Safety Code Section 57004, all proposed rules that have a scientific basis or components must be submitted for external scientific peer review. There are no scientific provisions associated with the proposed amendment that trigger the requirement for external scientific peer review.

6. RECOMMENDATION

Board staff recommends that the Board adopt Resolution No. R8-2021-0025 to: 1) certify the Substitute Environmental Document; 2) amend the Basin Plan to update the wasteload allocation model, update the wasteload allocations for permitted dischargers in the Santa Ana River watershed, and make clear the Board's intentions regarding implementation of the updated WLA in waste discharger requirements by providing direction to permit writers; and 3) forward the amendment, and the related Administrative Record, to the State Water Board and the California Office of Administrative Law for final approval.

The Basin Plan amendment will also require the stakeholders to submit updated surface water and groundwater monitoring programs by June 1, 2022 for the TDS/N Management Program.

Enclosure:

Enclosure 1: Tentative Resolution No. R8-2021-0025, including the proposed Basin Plan Amendment

Enclosure 2: California Environmental Quality Act (CEQA) Substitute Environmental Document

Map Description

Figure 3-5. A map illustrating the current GMZ boundaries and existing WQOs for TDS and nitrate for each GMZ. The map includes the RWQCB Boundary, Recharge Basins, Rivers and Streams, and Wastewater Treatment Plant Discharge Locations.

California Regional Water Quality Control Board
Santa Ana Region

RESOLUTION R8-2021-0025

Resolution Amending the Water Quality Control Plan for the Santa Ana River Basin to Revise and Update the Total Dissolved Solids and Nitrogen Management program (TDS/N Management Program)

WHEREAS, the California Regional Water Quality Control Board, Santa Ana Region (hereinafter Santa Ana Water Board), finds that:

1. An updated Water Quality Control Plan for the Santa Ana River Basin (Basin Plan) was adopted by the Santa Ana Water Board on March 11, 1994, approved by the State Water Resources Control Board (State Water Board) on July 21, 1994, and approved by the Office of Administrative Law (OAL) on January 24, 1995.

2. The Basin Plan identifies ground and surface waters within the Santa Ana Region (Region), designates beneficial uses for those waters, establishes water quality objectives for the protection of those uses, prescribes implementation plans to ensure that the objectives are achieved, and established monitoring and surveillance programs.

3. In response to the 1995 Basin Plan, the Santa Ana Watershed Project Authority (SAWPA) convened a Scoping Committee to prepare a workplan to guide proposed TDS and nitrogen studies to evaluate water quality objectives. Ultimately, the scoping committee recommended review of TDS and nitrogen water quality objectives to assure their technical and scientific validity and existing groundwater subbasin boundaries.

4. To implement the Scoping Committee's recommendations, a Nitrogen-TDS Task Force was established to perform analysis and make recommendations, where appropriate, to revise the Basin Plan. A key outcome of the Task Force was the establishment of a wasteload allocation model (WLAM) for the Santa Ana River watershed. The WLAM is a predictive tool that can assess whether project flows percolating to groundwater from surface streams comply with applicable water quality objectives.

5. The Basin Plan was amended by the Santa Ana Water Board in 2004 to establish revised groundwater basin boundaries and revised groundwater quality objectives and update the TDS/N Management Program. These amendments were adopted by the Santa Ana Water Board on January 22, 2004 and were subsequently approved by the SWRCB on September 30, 2004 and by OAL on

December 23, 2004. A water quality monitoring program adequate to implement the revised groundwater objectives was approved by the Santa Ana Water Board on April 15, 2005.

6. As part of the 2004 update to the TDS/N Management Program, the Santa Ana Water Board authorized use of a WLAM to estimate the collective and cumulative concentration of TDS and total inorganic nitrogen (TIN), from all major point and nonpoint sources flowing into the Santa Ana River (SAR) system, and to evaluate whether water percolating from the surface streams to groundwater complies with the water quality objectives for each affected groundwater management zone (GMZ) and to ensure that surface water objectives and most importantly, the objectives for Santa Ana River Reach 3 at Below Prado Dam, were also met. The WLAM is used to derive wasteload allocations (WLAs) to distribute a share of total allowable load of TDS and TIN to major point and nonpoint sources, which are implemented through effluent limitations and other waste discharge requirements imposed on discharges to the Santa Ana River. The WLAM is periodically updated to reflect changes in land use, stormwater runoff, wastewater discharge, and variations in precipitation.

7. Since 2004, the Nitrogen-TDS Task Force (now referred to as the Basin Monitoring Program Task Force) has continued to work collaboratively with the Santa Ana Water Board to implement the TDS/N Management Program, which includes preparation of an update of ambient water quality and assimilative capacity for each GMZ every three years. The Basin Monitoring Task Force also evaluates surface water quality data for the Santa Ana River Reaches 2, 4, and 5, and submits reports annually.

8. In 2017, the Basin Monitoring Program Task Force, which includes Santa Ana Water Board staff, began updating the WLAM. Major components of the update include: moving to an open-source Hydrologic Simulation Program Fortran (HSPF) program, expanding the model domain, expanding the range of precipitation conditions, new metrics for model calibration, and comparison of outputs from the previous model to the updated model. Updates to the WLAM were completed in June of 2020.

9. The updated WLAM was used to assess different volume-based discharge assumptions for publicly owned treatment works (POTWs) under different land use conditions (2020, 2040). Results from model simulations were used to evaluate existing effluent limits and waste discharge requirements for municipal wastewater treatment facilities to determine if discharges from the facilities would continue to assure compliance with water quality objectives for Nitrate-Nitrogen and TDS in each GMZ and surface waterbody for which is affected by wastewater discharges.

10. The WLAM output provides for a worst-case scenario of potential impacts from treated effluent from all POTWs in the watershed (i.e., maximum streambed

recharge concentration under maximum expected discharge for facility). Use of this conservative approach provides for a significant margin-of-safety around the WLAM estimates.

11. The Basin Plan amendment results in revisions to Basin Plan Chapter 5 “Implementation”.

12. The Basin Plan amendment replaces the existing WLAs in Basin Plan Table 5-5 with updated WLAs based on the findings from the updated WLAM. Using the updated WLAs will not result in any existing facility in Basin Plan Table 5-5 from having a less stringent effluent limits for TIN or TDS. Additional permitted POTWs are being added to Basin Plan Table 5-5, and one facility is being removed because it is no longer in operation.

13. The Basin Plan amendment also clarifies Santa Ana Water Board permitting practices for TDS and TIN and update Surface Water and Groundwater monitoring programs for the TDS/N Management Program.

14. The Basin Plan amendment will assure reasonable protection of the beneficial uses of surface water and groundwaters in the Region, will not cause pollution or nuisance, will provide maximum benefit to the people of the State, and is consistent with the State Water Board’s Antidegradation Policy (Res. No. 68-16).

15. The Basin Plan amendment was developed in accordance with Section 13240 et seq. of the California Water Code.

16. The Basin Plan amendment meets the "Necessity" standard of the Administrative Procedure Act, Government Code, Section 11352, subdivision (b).

17. The Basin Plan amendment complies with Water Code section 106.3, in which 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. The Basin Plan Amendment does not lessen water quality protections in any portion of the basin that is currently serving, or is expected to serve, as a domestic or municipal water source.

18. Pursuant to Health and Safety Code Section 57004, all proposed rules that have a scientific basis or components must be submitted for external scientific peer review. There are no scientific provisions associated with the proposed amendment that trigger the requirement for external scientific peer review.

19. The process of basin planning has been certified by the State Secretary for Resources as exempt from California Environmental Quality Act (CEQA) requirement to prepare an Environmental Impact Report or Negative Declaration (Public Resources Code, Section 21000 et seq). The Basin Plan amendment package includes staff reports, an Environmental Checklist and an assessment

of potential environmental impacts. The Basin Plan amendment package and supporting documentation are functionally equivalent to an Environmental Impact Report or Negative Declaration.

20. A CEQA scoping meeting was held on October 26, 2020 to provide interested parties the opportunity to comment on the appropriate scope and content of the draft SED that was prepared for the proposed Basin Plan amendment. Any comments received in response to the scoping meeting were considered in preparing the subsequent environmental analysis.

21. The Santa Ana Water Board notified California Native American tribes in the project area to the proposed Basin Plan amendment on September 25, 2020. Documentation of consultation and responses are attached to the SED.

22. The Santa Ana Water Board prepared and distributed the Notice of Filing, draft Basin Plan amendment, written reports (draft Staff Report including draft Substitute Environmental Document (SED) and Environmental Checklist), regarding adoption of the Basin Plan amendment to interested persons and public agencies in accordance with applicable state and federal environmental regulations (California Code of Regulations (CCR), title 23 section 3720, et seq., and 40 Code of Federal Regulations Parts 25 and 131 et seq.).

23. Consistent with CEQA guidelines (CCR, title 14, section 15187), no analysis of reasonable alternatives to the proposed action was required since the SED concludes that the project could not result in any reasonably foreseeable adverse environmental impacts (See CCR, title 23, section 3777(e).) However, the SED did evaluate the no project alternative.

24. The SED also includes identification of reasonably foreseeable methods of compliance with the Basin Plan amendment and an environmental analysis of any reasonably foreseeable significant environmental impacts associated with those methods. The SED concludes, however, that implementation of the amendment could not result in reasonably foreseeable adverse environmental impacts (CCR, title 23, section 3777(f)).

25. Based on the environmental analyses described in the SED, the Santa Ana Water Board finds that the proposed Basin Plan amendment could not result in any foreseeable adverse environmental impacts.

26. The Final SED consists of the Staff Report (including documents referenced therein), the comments and responses to comments on the Staff Report and Basin Plan amendment, the Environmental Checklist and this Resolution.

27. The Santa Ana Water Board notified all known interested persons by email distribution list and by publication in newspapers within the affected counties

pursuant to Water Code section 13244 and Government Code section 6061, of its intent to hold a public hearing on December 10, 2021.

28. On December 10, 2021, the Santa Ana Water Board held a public for, provided interested parties and the public an opportunity to comment on, and carefully considered all comments received and evidence in the administrative record pertaining to this Resolution and Basin Plan amendment.

29. The Basin Plan amendment must be submitted for review and approval by the State Water Resources Control Board and, then, by the OAL. Because the proposed Basin Plan amendment makes no changes to water quality standards for surface waters or effluent limits in any NPDES permit, U.S. EPA approval is not required. The Basin Plan amendment will become effective upon OAL approval.

NOW, THEREFORE, BE IT RESOLVED THAT:

1. The Santa Ana Water Board has reviewed and considered the record for this matter, including the information contained in the SED, all written comments and written responses, and all oral testimony and responses provided at the public hearing held on December 10, 2021.

2. The Santa Ana Water Board confirms the preliminary determination by the Santa Ana Water Board staff that the proposed amendment could not have a significant adverse effect on the environment and hereby certifies the Environmental Checklist and supporting documentation that is part of the SED.

3. The Santa Ana Water Board hereby adopts the Basin Plan amendment delineated in Attachment 1 (underline/strike-out version) and Attachment 2 ("clean" version) to this resolution which revises Chapter 5 “Implementation”.

4. The Executive Officer is directed to forward copies of the Basin Plan amendment, and related Administrative Record, to the State Water Board in accordance with the requirements in Section 13245 of the California Water Code.

5. The Santa Ana Water Board requests that the State Water Board review and approve the Basin Plan amendment in accordance with the requirements of Sections 13245 and 13246 of the California Water Code and, thereafter, forward the amendments to OAL for approval.

6. If, during its approval process, the State Water Board or OAL determine that minor, non-substantive corrections to the language of the amendments are needed for clarity or consistency, the Executive Officer may make such changes and shall inform the Santa Ana Water Board forthwith.

7. The Executive Officer is directed, at the time of filing and posting the Notice of Decision, to take steps to promptly ensure payment of application fee to the California Department of Fish and Wildlife for its review of the SED for this Basin Plan amendment or to file a Certificate of Fee Exemption, whichever is applicable.

I, Jayne Joy, Executive Officer, do hereby certify that the foregoing is a full, true and correct copy of a resolution adopted by the California Regional Water Quality Control Board - Santa Ana Region on December 10, 2021.

_____

Jayne Joy
Executive Officer

Attachment A to Resolution R8-2021-0025
(Addition is show as underline text, and deletion is shown as ~~strikethrough~~)
(Starting from page 5-13 of Chapter 5 of the Basin Plan)

TOTAL DISSOLVED SOLIDS AND NITROGEN MANAGEMENT

(The following has been modified under Resolution No. R8-2004-0001, R8-2010-0012, No. R8-2010-0039, No. R8-2012-0002,~~and~~ R8-2014-0005, R8-2005-0036, R8-2020-0038 and R8-2021-0025)

I. Background

The 1975 and 1983 Basin Plans for the Santa Ana River Basin reported that the most serious problem in the basin was the build-up of dissolved minerals, or salts, in ~~the~~ groundwater and surface waters. Sampling and computer modeling of groundwaters showed that the levels of dissolved minerals, generally expressed as total dissolved solids (TDS) or total filterable residue (TFR), were exceeding water quality objectives or would do so in the future unless appropriate controls were implemented. Nitrogen levels in the Santa Ana River, largely in the form of nitrate, were likewise projected to exceed water quality objectives. As was discussed in Chapter 4, high levels of TDS and nitrate adversely affect the beneficial uses of groundwater and surface waters. The mineralization of the Region's waters, and its impact on beneficial uses, remains a significant problem.

Each use of water adds an increment of dissolved minerals. Significant increments of salts are added by municipal and industrial use, and the reuse and recycling of the wastewater generated as it moves from the hydrologically higher areas of the Region to the ocean. Wastewater and recycled water percolated into groundwater management zones is typically pumped and reused a number of times before reaching the ocean, resulting in increased salt concentrations. Evaporation or evapotranspiration also can cause an increase in the ~~The~~ concentration of dissolved minerals. ~~can also be increased by evaporation or evapotranspiration.~~

One of the principal causes of the mineralization problem in the Region is historical irrigated agriculture, particularly citrus, which in the past required large applications of water to land, causing large losses by evaporation and evapotranspiration. TDS and nitrate concentrations are increased both by this reduction in the total volume of return water and by the direct application of these salts in fertilizers. Dairy operations, which began in the Region in the 1950s and continue today, also contribute large amounts of salts to the basin.

The implementation chapters of the 1975 and 1983 Basin Plans focused on recommended salt management plans to address the mineralization problem. The 1975 Basin Plan initiated a total watershed approach to ~~salt~~ source control of salinity. Both 1975 and 1983 Basin Plans called for controls of~~n~~ salt loadings from all water

uses including residential, commercial, industrial, and agricultural (including dairies). The salt management plans included the following elements: measures to improve water supply quality, including the import of high quality water from the State Water Project (SWP); waste discharge regulatory strategies (e.g., wasteload allocations, allowable mineral increments for uses of the water supply quality); and recharge projects and other remedial programs to correct problems in specific areas. These salt management Pplans also included carefully limited reclamation activities and the recycling of wastewaters in the local groundwater basins.

These salt management plans were developed for in the 1975 and 1983 Basin Plans were developed by using a complex set of groundwater computer models and programs, known collectively as the Basin Planning Procedure (BPP). The modeling work focused on the TDS concentrations and loading into the upper Santa Ana River Basin and, to a lesser extent, on the San Jacinto Basin, where the BPP was less developed and refined. The constituent modeled in those Plans was TDS.

For the salt management plan specified initially in the 1995 Basin Plan, when the Plan was adopted and approved in 1994 and 1995,The TDS modeling for the salt management plan specified in the 1995 Basin Plan (adopted and approved in 1994 and 1995) was conducted with the BPP for both the upper Santa Ana and San Jacinto Basins. However, mMost of the attention was again directed to the upper Santa Ana Basin, for which significant improvements to the BPP were made under a joint effort by the Santa Ana Watershed Project Authority (SAWPA), the Santa Ana River Dischargers Association (SARDA), the Metropolitan Water District of Southern California (MWDSC), and the Santa Ana Regional Water Quality Control Board (Santa Ana Water Board) (Regional Board). The most significant change to the BPP was the addition of a nitrogen modeling component so that projections of the nitrate-nitrogen (nitrate) quality of groundwater could be made, in addition to TDS groundwater quality. This enabled the development of a management plan for both nitrogen and, as well as TDS.

The BPP has not been used to model groundwater quality conditions in the lower Santa Ana River Basin. (Orange County GMZ). For that Basin, Instead, the Regional Board's Santa Ana Water Board's TDS and nitrogen management plans have relied, in large part, on the control of the quality of the Santa Ana River flows, which are a major source of recharge in the lower Basin. As discussed in Chapter 4, most of the Santa Ana River baseflow (80-90%) is composed of municipal wastewater treatment plant dischargesed sewage effluent; it also includes nonpoint source inputs and rising groundwater. Baseflow generally provides 70 25% or more of the water recharged in the Orange County Groundwater Management Zone (GMZ). In rare wet years, baseflow accounts for a smaller, but still significant, percentage (40%) of the recharge on an annual basis. Therefore, to protect Orange County groundwater, it is essential to control the quality of baseflow. To do so, baseflow TDS and total nitrogen water quality objectives are specified in the Basin Plan for Reach 3 of the River. Wasteload allocations have been established and are periodically revised to meet applicable those and other water quality objectives designated for the Santa Ana

River and its tributaries, and the underlying GMZsobjectives.

For the 1983 Basin Plan, QUAL-II, a surface water model developed initially by the US EPA, was calibrated for the Santa Ana River (River) and used to make detailed projections of River quality (TDS and nitrogen) and flow. The model was used to develop wasteload allocations for TDS and nitrogen discharges to the River that were approved as part of that Plan. (Wasteload allocations are discussed in detail in Section III of this Chapter). An updated version of the model, QUAL-2e, was used to revise these wasteload allocations, which were included as part of the initial salt management plan in the 1995 Basin Plan.

The models were used to integrate the quantity and quality of inputs to the River from various sources, including the headwaters, municipal wastewater treatment plant discharges, and rising groundwater, based on the water supply and wastewater management plans used in the BPP. Data on rising groundwater quality and quantity were provided to the QUAL-II/2e models by the BPP. As with the BPP, the QUAL-II/2e model projections were used to identify the salinity and nitrogen water quality problems and to assess the effectiveness of changes in TDS and nitrogen management strategies.

II. Update of the Total Dissolved Solids/Nitrogen Management Plan in 2004

The studies conducted to update the TDS/Nitrogen Management Plans in the 1983 and 1995 Basin Plans were not designed to validate or revise the TDS or nitrate-nitrogen objectives for groundwater. Rather, the focus of the studies was to determine how best to meet those established objectives. During public hearings to consider adoption of the 1995 Basin Plan, a number of water supply and wastewater agencies in the region commented that the TDS and nitrate-nitrogen objectives for groundwater should be reviewed, considering the estimated cost of complying with them (several billion dollars). In response, the Regional Board Santa Ana Water Board identified the review of these objectives as a high Basin Plan triennial review priority, and stakeholders throughout the Region agreed to provide sufficient resources to perform the necessary studies. In December 1995, these agencies, under the auspices of the Santa Ana Watershed Project Authority (SAWPA), formed the Nitrogen/Total Dissolved Solids (TDS) Task Force (Task Force) to undertake a watershed-wide study (Nitrogen/TDS Study) to review the groundwater objectives and the TDS/Nitrogen Management Plan in the Basin Plan as a whole. SAWPA managed the study, and Risk Sciences and Wildermuth Environmental, Inc., served as project consultants.

Major tasks included review of the groundwater sub-basin boundaries, development of recommendations for revised boundaries, development of appropriate TDS and nitrate-nitrogen objectives for the sub-basins (management zones), and update of the TDS and TIN wasteload allocations to ensure compliance with both the established objectives for the Santa Ana River and its tributaries and the recommended

groundwater quality objectives. A complete list of all tasks completed in Phases 1A & 1B, and 2A & 2B is included in the Appendix. The Task Force effort resulted in substantive proposed changes to the Basin Plan, including new groundwater management zones (Chapter 3) and new nitrate-nitrogen and TDS objectives for the management zones (Chapter 4). These changes necessitated the update and revision of the TDS/Nitrogen Management Plan, which is described below.

The Task Force studies, including the technical methods employed, are documented in a series of reports (Ref. 1-5). The Task Force studies differed from prior efforts to review the TDS and nitrogen management plans in that the BPP was not utilized. A revised model approach, not involving use of the QUAL-2e model, was used to update the wasteload allocations for the Santa Ana River. The Task Force concluded that the BPP no longer remained a viable tool for water quality planning purposes, and also concluded that the development of a new model was beyond the scope and financial capabilities of the Task Force. The efficacy of modeling to formulate and update salt management plans in this Region has been well demonstrated~~;~~. In 2004, the Santa Ana Water Board directed that ~~in the future,~~ priority should be given to the development of a new model that would assist with future Basin Plan reviews.

III. TDS/Nitrogen Management Plan

TDS and nitrogen management in this Region involves both regulatory actions by the Santa Ana Water Board ~~Regional Board~~ and actions by other agencies to control and remediate excess salts and nitrogen. ~~problems.~~ Regulatory actions include the adoption of appropriate TDS and nitrogen limitations in requirements issued for waste disposal and municipal wastewater recycling, and the adoption of waste discharge prohibitions. These regulatory steps are described earlier in this Chapter. Actions by other agencies include projects to improve water supply quality and the construction of groundwater desalters and brine lines to remove highly saline wastes from the watershed. The following sections discuss these programs in greater detail.

A. Water Supply Quality

Water supply quality has a direct effect ~~affect~~ on the quality of discharges from municipal wastewater treatment plants, discrete industrial discharges, returns to groundwater from homes using septic tank systems, returns from irrigation of landscaping in sewered and unsewered areas, and returns to groundwater from commercial irrigated agriculture.

Water supply quality is an important determinant of the extent to which wastewater can be reused and recycled without resulting in adverse impacts on affected receiving waters. This is particularly true for TDS, since it is a conservative constituent, less likely than nitrogen to undergo transformation and loss as wastewater is discharged or recycled, and typically more difficult than nitrogen to treat and remove.

Water supplies cannot be directly regulated by the Santa Ana Water Board ~~Regional Board~~; however, limitations in waste discharge requirements, including NPDES permits, may necessitate efforts to improve source water quality. These efforts may include drilling new wells, implementing alternative blending strategies, capturing stormwater and recharging to groundwater, importing higher quality water when it is available, and constructing desalters to create or augment water supplies.

Imported water supplies are an important part of salt management strategies in the region from both a quantity and quality standpoint. Imported water is needed by many agencies to supplement local sources and satisfy ever-increasing demands. The import of high quality ~~State Water Project~~ SWP water, with a long-term TDS average less than 300 milligram per liter (mg/L), is particularly essential. The use of ~~State Water Project~~ SWP water allows maximum reuse of water supplies without aggravating the mineralization problem. It is also used for recharge and replenishment to improve the quality of local water supply sources, which might otherwise be unusable. Thus, the use of high quality SWP~~State Water Project~~ water in the Region has water supply benefits that extend far beyond the actual quantity of water imported.

In some cases, the TDS quality of available water supplies in a wastewater treatment service area may make it infeasible for the discharger to comply with TDS limits specified in waste discharge requirements. This is particularly true during prolonged drought conditions when the allocations of high quality, low TDS imported water, supplied by the SWP may become severely constrained. In other cases, the discharger may add chemicals that enable compliance with certain discharge limitations, but also result in TDS concentrations in excess of waste discharge requirements. The Board recognizes these problems and incorporates provisions in waste discharge requirements to address them. These and other aspects of the Board's regulatory program are described next.

B. TDS and Nitrogen Regulation

As required by the Water Code (Section 13263), the Santa Ana Water Board ~~Regional Board~~ must assure that its regulatory actions implement the Basin Plan. Waste discharge requirements must specify limitations that, when met, will assure that water quality objectives will be achieved. Where the quality of the water receiving the discharge is better than the established objectives, the Board must assure that the discharge is consistent with the state's antidegradation policy (State Water Resources Control Board (State Water Board) Resolution No. 68-16). The Santa Ana Water Board ~~Regional Board~~ must also separately consider beneficial uses, and where necessary to protect those uses, specify limitations more stringent than those required to meet established water quality objectives. Of course, these obligations apply not only to TDS and nitrogen but also to other constituents that may adversely affect water quality and/or beneficial uses.

As indicated previously, the Santa Ana Water Board's ~~Regional Board's~~ regulatory program includes the adoption of waste discharge prohibitions. The Board has established prohibitions on discharges of excessively saline wastes and, in certain areas, on discharges from subsurface disposal systems (see "Waste Discharge Prohibitions," above). The Board has also adopted other requirements pertaining to the use of subsurface disposal system use, both to assure public health protection and to address TDS and nitrogen-related concerns. These include the Santa Ana Water Board's ~~Regional Board's~~ "Guidelines for Sewage Disposal from Land Developments" [Ref. 6], which are hereby incorporated by reference, and the minimum lot size requirements for septic system use (see Nonpoint Source section of this Chapter). In 2012, the State Water Board adopted the Water Quality Control Policy for Siting, Design, Operation and Maintenance of Onsite Wastewater Treatment Systems (OWTS Policy), which is implemented by the Santa Ana Water Board.

~~However, t~~The principal TDS and nitrogen regulatory tool employed by the Santa Ana Water Board ~~Regional Board~~ is the issuance of appropriate discharge requirements, in conformance with the legal requirements identified above. Several important aspects of this permitting program warrant additional discussion:

1. Salt assimilative capacity
2. Mineral increments
3. Nitrogen loss coefficients
4. TDS and TIN~~nitrogen~~ wasteload allocations
5. Wastewater reclamation
6. Special considerations - subsurface disposal systems

1. Salt Assimilative Capacity

Some waters in the Region have assimilative capacity for additions of TDS and/or nitrate-nitrogen; that is, wastewaters with higher TDS/nitrate-nitrogen concentrations than the receiving waters are diluted sufficiently by natural processes, including rainfall or recharge, such that the TDS and nitrate-nitrogen objectives of the receiving waters are met. The amount of assimilative capacity, if any, varies depending on the individual characteristics of the waterbody in question and must be reevaluated over time.

The 2004 adoption of new groundwater management zone boundaries (Chapter 3) and new TDS and nitrate-nitrogen objectives for these management zones (Chapter 4), pursuant to the work of the Nitrogen/TDS Task Force, necessitated the re-evaluation of the assimilative capacity findings initially incorporated in the 1995 Basin Plan. To conduct this assessment, the Nitrogen-TDS study consultant calculated current ambient TDS and nitrate-nitrogen water quality using the same methods and protocols as were used in the calculation of historical ambient quality (see Chapter 4). The analysis focused on representing current water quality as a 20-year average for the period from 1978 through 1997. [Ref. 1]. For each groundwater

management zone, current TDS and nitrate-nitrogen concentrations ~~water quality~~ were compared to water quality objectives (historical water quality)[1]. Assimilative capacity was also assessed relative to the "maximum benefit" objectives established for certain groundwater management zones. If the current ambient water quality in ~~of~~ a groundwater management zone is the same as or poorer than the specified water quality objectives, then that groundwater management zone does not have assimilative capacity. If the current ambient water quality of the groundwater is better than the specified water quality objectives, then that groundwater management zone has assimilative capacity. The difference between the objectives and current ambient water quality is the amount of assimilative capacity available.

Since adoption of the 2004 Basin Plan amendment and per Basin Plan requirements, ambient water quality and assimilative capacity findings have been~~, and will continue to be,~~ updated every three years. Following Santa Ana Water Board ~~Regional Board~~ acceptance ~~approval~~ at a duly noticed public meeting, ~~Hearing,~~ the updated findings of ambient water quality and assimilative capacity ~~will be~~ have been posted on the Santa Ana Water Board's ~~Regional Board's~~ website and ~~will be~~ used for regulatory purposes, as applicable.

As described in Chapter 4 and later in this Chapter, ~~the~~ application of the "maximum benefit" objectives is contingent on the implementation of certain projects and programs by specific dischargers as part of their maximum benefit demonstrations. Assimilative capacity created by these projects/programs will be allocated to the party(-ies) responsible for implementing them.

Chapter 3 delineates the Prado Basin Management Zone (PBMZ), and Chapter 4 identifies the applicable TDS and ~~nitrate~~ total inorganic nitrogen objectives for the PBMZ ~~this Zone~~ (the objectives for the surface waters that flow in this Zone). No assimilative capacity exists in the PBMZ.~~is zone.~~

These assimilative capacity findings are significant from a regulatory perspective. If there is assimilative capacity in the receiving waters for TDS, nitrogen or other constituents, a waste discharge may be of poorer quality than the objectives for those constituents for the receiving waters, as long as the discharge does not cause violation of the objectives and provided that antidegradation requirements are met. However, if there is no assimilative capacity in the receiving waters, the numerical limits in the discharge requirements cannot exceed the receiving water objectives or the degradation process would be accelerated.[2] This rule was expressed clearly by the State Water ~~Resources Control~~ Board in a decision regarding the appropriate

[1] As noted in Chapter 4, ammonia-nitrogen and nitrite-nitrogen data were also included in the analysis, where available. This occurred for a very limited number of cases and ammonia-nitrogen and nitrite-nitrogen concentrations were insignificant in groundwater.

[2] A discharger may conduct analyses to demonstrate that discharges at levels higher than the water quality objectives would not cause or contribute to the violation of the established objectives. See, for example, the discussion of wasteload allocations for discharges to the Santa Ana River and its tributaries (Section III. B. 4.) If the Santa Ana Water Board ~~Regional Board~~ approves this demonstration, then the discharger would be regulated accordingly.

TDS discharge limitations for the Rancho Caballero Mobile Hhome park located in the Santa Ana Region (State Water BoardWRCB Order No. 73-4, the so called "Rancho Caballero decision") [Ref. 7]. However, this rule is not meant to restrict overlying agricultural irrigation, or similar activities, such as landscape irrigation. Even in groundwater management zones without assimilative capacity, groundwater may be pumped, used for agricultural purposes in the area and returned to the groundwater management zone from which it originated.

In regulating waste discharges to waters with assimilative capacity, the Santa Ana Water Board Regional Board will proceed as follows. (see also Section III.B.6., Special Considerations - Subsurface Disposal Systems).

If a discharger proposes to discharge wastes that are at or below (i.e., better than) the current ambient TDS and/or nitrate-nitrogen water quality, then the discharge will not be expected to result in the lowering of water quality, and no antidegradation analysis will be required. TDS and nitrate-nitrogen objectives are expected to be met. Such discharges clearly implement the Basin Plan and the Santa Ana Water Board Regional Board can permit them to proceed. Of course, other pertinent requirements, such as those of the California Environmental Quality Act (CEQA) must also be satisfied, if applicable. For groundwater management zones, current ambient quality will be determined every three years periodically but no later than once every five years, pursuant to the detailed monitoring program to be conducted by dischargers in the watershed (see Section V., Salt Management Plan – Monitoring program Requirements).

Again, discharges to waters without assimilative capacity for TDS and/or nitrate-nitrogen must be held to the objectives of the affected receiving waters (with the caveat previously identified in footnote 2 previous page). In some cases, compliance with management zone TDS objectives for discharges to waters without assimilative capacity may be difficult to achieve. Poor quality water supplies or the need to add certain salts during the treatment process to achieve compliance with other discharge limitations (e.g., addition of ferric chloride) could render compliance with strict TDS limits very difficult. The Santa Ana Water Board Regional Board addresses such situations by providing dischargers with the opportunity to participate in TDS offset programs, such as the use of desalters, in lieu of compliance with numerical TDS limits. These offset provisions are incorporated into waste discharge requirements. Provided that the discharger takes all reasonable steps to improve the quality of the waters influent to the treatment facility (such as through source control or improved water supplies), and provided that chemical additions are minimized, the discharger can proceed with an acceptable program to offset the effects of TDS discharges in excess of the permit limits.

Similarly, compliance with the nitrate-nitrogen objectives for groundwater management zones specified in this Plan would be difficult in many cases. An oOffset provision may apply to nitrogen discharges as well.

An alternative that dischargers might pursue in these circumstances is revision of the TDS or nitrate-nitrogen water quality objectives, through the Basin Plan amendment process. Consideration of less stringent objectives would necessitate comprehensive antidegradation review, including the demonstrations that beneficial uses would be protected and that water quality consistent with maximum benefit to the people of the State would be maintained. As discussed in Chapter 4 and later in this Chapter, a number of dischargers have pursued this "maximum benefit objective" approach, leading to the inclusion of "maximum benefit" objectives and implementation strategies in this Basin Plan. Discharges to areas where the "maximum benefit" objectives apply will be regulated in conformance with these implementation strategies. Any assimilative capacity created by the maximum benefit programs will be allocated to the parties responsible for implementing them.

2. Mineral Increments

The fundamental philosophy of TDS/Nitrogen management plans in Santa Ana Region Basin Plans to date has been to allow a reasonable use of the water, to treat the wastewater generated appropriately, and to allow it to flow downstream (or to lower groundwater basins) for reuse. "Reasonable use" is defined in terms of appropriate mineral increments that can be addedpplied to water supply quality in setting discharge limitations.

The California Department of Water Resources (DWR) has recommended values for the maximum use incremental additions of specific ions that should be allowed through use, based on detailed study of water supplies and wastewater quality in the Region [Ref. 8]. Their recommendations are as follows:

Sodium	70 mg/L
Sulfate	40 mg/L
Chloride	65 mg/L
TDS	250 mg/L
Total Hardness	30 mg/L

These mineral increments were incorporated into the 1983 Basin Plan. They will be incorporated into waste discharge requirements when appropriate and necessary. In general, it may not be necessary to incorporate mineral increment requirements when a water quality based effluent limitation for salinity is imposed on a Publicly Owned Treatment Work (POTW) in accordance with an approved wasteload allocation for salinity.

3. Nitrogen Loss Coefficients

The Santa Ana Water Board's Regional Board's regulatory program has long recognized that some nitrogen transformation and loss can occur when wastewater is discharged to surface waters, or reused for landscape irrigation, or allowed to

percolate groundwater. For example, the Total Inorganic Nitrogen (TIN) wasteload allocation adopted for the Santa Ana River in 1991 included unidentified nitrogen losses in the surface flows in Reach 3 of the River. Historically, w~~W~~aste discharge requirements have allowed for nitrogen losses due to plant uptake when recycled water is used for crop or landscape irrigation.

One of the tasks included in the Nitrogen/TDS Task Force[3] studies leading to the 2004 update of the ~~N/~~TDS/Nitrogen Management Plan was the consideration of subsurface transformation and loss of nitrogen. One objective of this task was to determine whether dischargers might be required to incur costs for additional treatment to meet the new groundwater management zone nitrate-nitrogen objectives (Chapter 4), or whether natural, subsurface nitrogen losses could achieve any requisite reductions. The second objective was to develop a conservative nitrogen loss coefficient that could be used ~~with certainty~~ to develop appropriate limits for TIN ~~nitrogen~~ discharges throughout the Region.

To meet these objectives, the Nitrogen/TDS study consultant, Wildermuth Environmental, Inc. (WEI), evaluated specific recharge operations (e.g., the Orange County Water District recharge ponds overlying the Orange County Forebay), wastewater treatment wetlands (e.g., the Hidden Valley Wildlife Area, operated by the City of Riverside) and Santa Ana River recharge losses (for the Santa Ana River, water quality in reaches where recharge is occurring ("losing" reaches) was compared with local well data). In each case, WEI evaluated long-term (1954 to 1997) nitrogen surface water quality data and compared those values to long-term nitrogen data for adjacent wells.

Based on this evaluation, a range of nitrogen loss coefficients was identified. [Ref. 1] In light of this variability, the Nitrogen/TDS Task Force recommended that a conservative approach ~~to~~ be taken in establishing a nitrogen loss coefficient. The Task Force recommended that a region-wide default nitrogen loss of 25% be applied to all discharges that affect groundwater in the Region. The Task Force also recommended that confirmatory, follow-up monitoring be required when a discharger requested and was granted the application of a nitrogen loss coefficient greater than 25%, based on site-specific data submitted by that discharger.

The City of Riverside presented data to the Task Force regarding nitrogen transformation and losses associated with wetlands.[4] These data support a nitrogen loss coefficient of 50%, rather than 25%, for the lower portions of Reach 3 of the Santa Ana River that overlie the Chino South groundwater management zone. [Ref. 9]. In fact, the data indicate that nitrogen losses from wetlands in this part of Reach 3 can be greater than 90%. However, given the limited database, the Task Force again recommended a conservative approach, i.e., 50% in this area, with confirmatory

[3] SAWPA's Nitrogen/TDS Task Force was replaced by the Basin Monitoring Program Task Force in 2005. The former was responsible for developing the N/TDS Management Plan and the latter was responsible for coordinating implementation of that plan.

[4] Formerly the Hidden Valley Enhanced Wetlands Treatment Ponds.

monitoring. The Santa Ana Water Board approved the Task Force recommendation in 2005 (Res. R8-2005-0063).

Eastern Municipal Water District (EMWD) also presented data that support a 60% nitrogen loss coefficient in the San Jacinto Basin [Ref 10F]. This 60% nitrogen loss is only applicable to discharges to the following management zones that overlie the San Jacinto Basin: Perris North, Perris South, San Jacinto Lower Pressure, San Jacinto Upper Pressure, Lakeview-Hemet North, Menifee, Canyon, and Hemet South. The Santa Ana Water Board approved this site-specific nitrogen loss coefficient in 2014 (Res. R8-2014-0005).

The 25% and, where appropriate, 50% or 60% nitrogen loss coefficients will be used in developing TIN discharge limits. These coefficients will be applied to discharges that affect groundwater management zones with and without assimilative capacity.

For discharges to groundwater management zones with assimilative capacity, the default TIN discharge limitation would be calculated as follows:

$$\text{TIN Discharge Limit (mg/L)} = \frac{\text{~~management zone~~ nitrate-nitrogen current ambient water quality in the GMZ}}{(1 - \text{nitrogen loss coefficient})}$$

The Santa Ana Water Board ~~Regional Board~~ also has the discretionary authority to adopt ~~will employ its discretion in specifying~~ a higher TIN limit that would allocate some of the available assimilative capacity provided that it exercises that discretion in accordance with the State Water Board's Antidegradation Policy (Res. 68-16).

For discharges to groundwater management zones without assimilative capacity, the TIN discharge limitation would be calculated as follows:

$$\text{TIN Discharge Limit (mg/L)} = \frac{\text{~~management zone~~ nitrate-nitrogen water quality objective in the GMZ}}{(1 - \text{nitrogen loss coefficient})}$$

These coefficients do not apply to discharges with effluent limitations that are based on ~~specifically addressed by~~ the TIN wasteload allocation, described in the next section, since surface and subsurface nitrogen losses were accounted for in developing this allocation.

4. TDS and Nitrogen Wasteload Allocations for the Santa Ana River

Wasteload allocations for regulating discharges of TDS and total inorganic nitrogen (TIN) to the Santa Ana River, and thence to groundwater management zones recharged

by the River, are an important component of salt management for the Santa Ana Basin. As described earlier, the Santa Ana River is a significant source of recharge to groundwater management zones underlying the River and, downstream, to the Orange County groundwater basin. The quality of the River thus has a significant effect on the quality of the Region's groundwater, which is used by more than 5 million people. Control of River quality is appropriately one of the Santa Ana Water Board's ~~Regional Board's~~ highest priorities.

Sampling and modeling analyses conducted in the 1980's and early 1990's indicated that the TDS and total nitrogen water quality objectives for the Santa Ana River were being violated or were in danger of being violated. Under the Clean Water Act (Section 303(d)(1)(c); 33 USC 466 et seq.), violations of water quality objectives for surface waters must be addressed by the calculation of the maximum wasteloads that can be discharged to achieve and maintain compliance. Accordingly, TDS and nitrogen wasteload allocations were developed and included in the 1983 Basin Plan. The nitrogen wasteload allocation was updated in 1991; an updated TDS wasteload allocated was included in the 1995 Basin Plan when it was adopted and approved in 1994/1995.

The wasteload allocations distribute a share of the total TDS and TIN wasteloads to each of the discharges to the River or its tributaries. The allocations are implemented principally through TDS and nitrogen limits in waste discharge requirements issued to municipal wastewater treatment facilities (Publicly Owned Treatment Works or POTWs) that discharge to the River, either directly or indirectly.[5] Nonpoint source inputs of TDS and nitrogen to the River are also considered in the development of these wasteload allocations. Controls on these inputs are more difficult to identify and achieve and may be addressed through the areawide stormwater permits issued to the counties by the Santa Ana Water Board ~~Regional Board~~ or through other programs. For example, the Orange County Water District has constructed and operates more than 400 acres of wetlands ponds in the Prado Basin Management Zone to remove nitrogen in flows diverted from, and then returned to, the Santa Ana River.

Because of the implementation of these wasteload allocations, the Orange County Water District wetlands and other measures, the TDS and TIN water quality objectives for the Santa Ana River at Prado Dam are no longer being violated, as shown by annual sampling of the River at the Dam by Santa Ana Water Board ~~Regional Board~~ staff [Ref. 10A]. However, as part of the Nitrogen/TDS Task Force studies to update the TDS/nitrogen management plan for the Santa Ana Basin, a review of the TDS and TIN wasteload allocations initially contained in this Basin Plan was conducted. In part, this review was necessary in light of the new groundwater management zones and TDS and nitrate-nitrogen objectives for those zones recommended by the Nitrogen/TDS Task

[5] With some exceptions that may result from groundwater pumping practices, the ground and surface waters in the upper Santa Ana Basin (upstream of Prado Dam) eventually enter the Santa Ana River and flow through Prado Dam. Discharges to these waters will therefore eventually affect the quality of the River and must be regulated so as to protect both the immediate receiving waters and other affected waters, including the River.

Force (and now incorporated in Chapters 3 and 4). The wasteload allocations were evaluated and revised to ensure that the POTW discharges would assure compliance with established surface water objectives and would not cause or contribute to violation of the groundwater management zone objectives. The Task Force members also recognized that this evaluation was necessary to determine the economic implications of assuring conformance with the new management zone objectives. Economics is one of the factors that must be considered when establishing new objectives (Water Code Section 13241).

WEI performed the wasteload allocation analysis for both TDS and TIN [Ref. 3, 5]. In contrast to previous wasteload allocation work, the QUAL-2e model was not used for this analysis. Further, the Basin Planning Procedure (BPP) was not used to provide relevant groundwater data. Instead, WEI developed a projection tool using a surface water flow/quality model and a continuous-flow stirred-tank reactor (CFSTR) model for TDS and TIN. The surface water Waste Load Allocation Model (WLAM) is organized into two major components - RUNOFF (RU) and ROUTER (RO). RU computes runoff from the land surface and RO routes the runoff estimated with RU through the drainage system in the upper Santa Ana watershed. Both the RU and RO models contain hydrologic, hydraulic and water quality components.

To ensure that all hydrologic regimes were taken into account, hydrologic and land use data from 1950 through 1999 were used in the analysis. The analysis took into account the TDS and nitrogen quality of wastewater discharges, precipitation and overland runoff, instream flows and groundwater. Off-stream and in-stream percolation rates, rising groundwater quantity and quality, and the 25% and 50% nitrogen loss coefficients described in the preceding section were also factored into the analysis. The purpose of the modeling exercise was to estimate discharge, TDS and TIN concentrations in the Santa Ana River and tributaries and in stream bed recharge. These data were then compared to relevant surface and groundwater quality objectives to determine whether changes in TDS and TIN regulation were necessary.

Discharges from POTWs to the Santa Ana River or its tributaries were the focus of the analysis. POTW discharges to percolation ponds were not considered. The wasteload allocation analysis assumed, correctly, that these direct groundwater discharges will be regulated pursuant to the management zone objectives, findings of assimilative capacity and nitrogen loss coefficients identified in Chapter 4 and earlier in this chapter.

The surface waters evaluated included the Santa Ana River, Reaches 3 and 4, Chino Creek, Cucamonga/Mill Creek and San Timoteo Creek. Groundwater management zones that are directly under the influence of these surface waters and that receive wastewater discharges were evaluated. These included the San Timoteo, Riverside A, Chino South, and Orange County Management Zones. In addition, wastewater discharges to the Prado Basin Management Zone were also evaluated.

WEI performed three model evaluations in order to assess wasteload allocation scenarios through the year 2010. These included a "baseline plan" and two alternative

plans ("2010-A" and "2010-B"). The baseline plan generally assumed the TDS and TIN limits and design flows for POTWs specified in waste discharge requirements as of 2001. These limits implemented the wasteload allocations specified in the 1995 Basin Plan when it was approved in 1995. A TDS limit of 550 mg/L was assumed for the Rapid Infiltration and Extraction Facility (RIX) and the analysis assumed a 540 mg/L TDS for the City of Beaumont. The baseline plan also assumed reclamation activities at the level specified in the 1995 Basin Plan, when it was approved. The purpose of the baseline plan assessment was to provide an accurate basis of comparison for the results of evaluation of the two alternative plans. For alternative 2010-A, it was generally assumed that year 2001 discharge effluent limits for TDS and TIN applied to POTW discharges, but projected year 2010 surface water discharge amounts were applied. TDS limits of 550 mg/L and 540 mg/L were again assumed for RIX and the City of Beaumont discharges. The same limited reclamation and reuse included in the baseline plan was assumed (see R8-2014-0001, 2004 Salt Plan Amendments, Table 5-7 in Section III.B.5.). For alternative 2010-B, POTW discharges were also generally limited to the 2001 TDS and TIN effluent limits (RIX was again held to 550 mg/L and Beaumont to 540 mg/L). However, in this case, large increases in wastewater recycling and reuse were assumed (R8-2014-0001, 2004 Salt Plan Amendments Table 5-7), resulting in the reduced surface water discharges projected for 2010.

Analysis of the model results demonstrated that the TDS and nitrogen objectives of affected surface waters would be met and that water quality consistent with the groundwater management zone objectives would be achieved under both alternatives. It is likely that water supply and wastewater agencies will implement reclamation projects with volumes that are in the range of the two alternatives. The wasteload allocations would be protective throughout the range of surface water discharges identified. The year 2010 flow values are not intended as limits on POTW flows; rather, these flows were derived from population assumptions and agency estimates and are used in the models for quality projections. Surface water discharges significantly different than those projected will necessitate additional model analyses to confirm the propriety of the allocations. The Santa Ana Water Board has relied on this model to derive appropriate waste discharge requirements for TIN and TDS from 2004 through 2021.

The wasteload allocations are periodically updated to reflect the best available science and data. SAWPA's Basin Monitoring Program Task Force, which includes Santa Ana Water Board staff, began updating the WLAM in 2017. As part of that process, a number of significant improvements were made to the 4th generation WLAM developed by Geoscience Support Services, Inc. (Geoscience). Wildermuth Environmental Inc.'s proprietary model was replaced with an open-source Hydrologic Simulation Program Fortran (HSPF) program endorsed by both United States Environmental Protection Agency (USEPA) and United States Geological Survey (USGS).[6] The model domain, which originally ended at Prado Dam, was expanded to include Reaches 1 and 2 of the Santa Ana River overlying the Orange County groundwater management zone. In addition, the model was extended to Reaches 1 through 6 of Temescal Creek overlying the Upper Temescal Valley groundwater management zone. The range of probable

[6] See https://www.epa.gov/ceam/hydrological-simulation-program-fortran-hspf.

precipitation conditions was expanded from a 50-year historical record to 67-year historical record. A number of new quantitative metrics were employed to evaluate accuracy and precision during the model calibration process. In addition, output from Geosciences' new WLAM were compared to outputs produced by the existing WLAM, for Reaches 3 and 4 of the Santa Ana River (above MWD Crossing), to ensure that the results from the HSPF model were comparable to Wildermuth Environmental Inc.'s proprietary model before proceeding to develop the HSPF version for the entire watershed. Following a long and rigorous calibration process, the update process was completed in June of 2020.[7,8] The Task Force concluded that the new HSPF model was performing as well or better than the WLAM previously approved by the Santa Ana Water Board in 2004.

The calibrated HSPF model was used to assess three different volume-based discharge assumptions (maximum expected, minimum expected and most likely) for the municipal wastewater treatment plants (or POTWs) under two different land use conditions (2020, 2040). Daily river flows and TDS/TIN concentrations were estimated for all six of these scenarios using 67 years of historical precipitation data from numerous rain gages throughout the watershed. Results from these modeling simulations were used to determine if the existing effluent limits and waste discharge requirements for municipal wastewater treatment facilities would continue to assure compliance with the applicable water quality objectives for nitrate-nitrogen and TDS water quality objectives in each groundwater management zones beneath the Santa Ana River. During the six simulation runs, TIN and TDS concentrations in wastewater discharged from all POTWs were assumed to be equal to the maximum permitted concentration allowed in each facility's current NPDES permit. This conservative assumption was designed to provide a margin-of-safety around the model estimates and is the same procedure previously approved by the Santa Ana Water Board for the 2004 WLAM.

In order to determine whether the proposed wasteload allocation would achieve its intended purpose, the volume-weighted 10-year average concentration of TIN and TDS percolating through the streambed was compared to the relevant water quality objectives and current ambient qualities in each groundwater management zone. A 10-year volume weighted average concentration was selected as the compliance metric because it was considered conservative as compared to existing objectives, which are based on a 20-year volume weighted average. Notably, a shorter averaging period of 5-years (as a 5-year moving average) is used to evaluate compliance with TDS objectives for Reach 2 of the Santa Ana River, and baseflow conditions are used to evaluate compliance with the baseflow objectives for nitrate-nitrogen and TDS at Santa Ana River Reach 3 Below Prado Dam.[9]

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[7] Geoscience Support Services, Inc. Santa Ana River Waste Load Allocation Model Update Summary Report. June 19, 2020.

[8] As part of calibration for the new HSPF model, Geosciences relied on the Army Corps of Engineers operating rules for both 7 Oaks Dam and Prado Dam. Notably, the operating rules for Prado Dam define ranges of flow rates, not a specific flow rate, that can be released from the dam. As such, it is not possible to achieve "perfect" calibration of the model.

[9] A summary of the simulation results for all six scenarios can be found in the Staff Report as well as in

The updated WLAM demonstrated that continued reliance on existing effluent limits for TIN and TDS would not cause an exceedance of related water quality objectives in groundwaters affected by recharge from treated municipal wastewater; nor is it expected to result in significant lowering of existing water quality. The wasteload allocations for TDS and TIN are specified in Table 5-5.

The WLAM does not evaluate off channel discharges of treated wastewater or off-channel uses of recycled water for landscape or crop irrigation, and thus the wasteload allocations in Table 5-5 are not directly applicable to such discharges. The wasteload allocations in Table 5-5 will be applied only to the surface water discharges of these POTWs to the Santa Ana River and its tributaries. Except as identified in Table 5-5, the results from the updated WLAM as articulated in the June 2020 report may not be used to support new permits or changes to existing effluent limits, until the updated WLAM is further validated using actual precipitation data and actual discharge data to compare WLAM projections to actual observations at Prado Dam. Results from the WLAM for each major segment of the Santa Ana River and key tributaries are discussed in greater detail in the Staff Report.

Implementation of Wasteload Allocations in Waste Discharge Requirements

For discharges regulated by an NPDES permit, the effluent limits for TIN and TDS shall be set no higher than the concentrations shown in Table 5-5 (below) unless the Santa Ana Water Board authorizes an alternative compliance mechanism through an approved offset program. The Santa Ana Water Board retains authority and discretion to impose effluent limits that are more stringent than those shown in Table 5-5 when it is necessary to protect beneficial uses or prevent significant water quality degradation.

Effluent limits that are imposed for the purpose of implementing the approved wasteload allocation for TIN shall require dischargers to demonstrate compliance based on a 12-month volume-weighted running average that is updated every month.[10]

Effluent limits that are imposed for the purpose of implementing the approved wasteload allocation for TDS shall generally require dischargers to demonstrate compliance based on a 60-month running average. The Santa Ana Water Board may consider imposing effluent limitations for TDS identified in Table 5-5 (below) using shorter or longer averaging periods (not to exceed an averaging period of 120-months as a volume-weighted running average) based on case-by-case evaluation that considers the dischargers ongoing actions and activities that are being implemented to address and/or

Tables 2-1 and 2-2 and Tables 4 and 5 of Geosciences Final Santa Ana River Waste Load Allocation Model Update – Supplemental Report dated September 20, 2021.

[10] As part of the 2004 wasteload allocation process, it was determined that effluent limits associated with ensuring compliance with the nitrate-nitrogen water quality objectives in the Basin Plan would be expressed as Total Inorganic Nitrogen (TIN). This decision was done in an effort to be conservative and to provide a small safety factor. In general, the amount of nitrate-nitrogen in TIN is about 85%. Thus, the TIN effluent limits are more conservative than if they were expressed as nitrate-nitrogen.

avoid long-term salinity impacts.[11]

For discharges not otherwise identified in Table 5-5 (below), effluent limits for TIN and TDS shall be set no higher than the applicable water quality objective for the relevant receiving stream or groundwater basin, whichever is lower. If the current ambient quality is better (i.e. lower concentration) than the applicable water quality objective, the discharger may request an allocation of assimilative capacity by making the demonstrations mandated in the State Water Board's Antidegradation Policy (Res. 68-16). The Santa Ana Water Board is not obligated to allocate assimilative capacity but may elect to do so at its discretion.[12]

5. Implementation of Other Salinity-related Water Quality Objectives

In addition to the TDS objectives in the Basin Plan, Table 4-1 also specifies water quality objectives for certain individual salt ions (sodium, chloride, sulfate, hardness, etc.) for several stream segments. These other salinity objectives were developed based on limited sampling data collected in the early 1970's for the purpose of implementing the State Water Board's Antidegradation Policy (Res. 68-16). The objectives for sodium, chloride, sulfate, and hardness (shown in Table 4-1) are intended to represent baseline water quality as it existed back then and are not intended to define use-impairment thresholds.

The history of the Basin Plan also shows that such individual salt ion objectives were established for the intervening period to preserve baseline water quality until such time that appropriate water quality objectives designed to protect beneficial uses could be developed and adopted by the Santa Ana Water Board. Under Porter-Cologne, the term "water quality objectives" is actually defined to mean "the limits or levels of water quality constituents or characteristics which are established for the reasonable protection of beneficial uses of water or the prevention of nuisance within a specified area."[13] Thus, "traditional" water quality objectives should represent use-impairment thresholds rather than baseline water quality. Exceedances of objectives developed from limited sampling data that was designed to represent baseline water quality may indicate that water quality degradation is occurring but should not automatically be construed as evidence that beneficial uses are threatened or impaired.

In 2010, the Santa Ana Water Board determined that it was not necessary to impose separate waste discharge requirements for all of the other individual salt ions if an NPDES permit already contained effluent limits for TDS. This determination is supported by the fact that these effluent limits were intended to serve the same regulatory purpose for protecting existing high quality waters from increases in salinity through implementation of the State Water Board's Antidegradation Policy (Res.

[11] This provision of the Basin Plan is not intended to change or amend other Basin Plan provisions that apply to dischargers subject to Maximum Benefit Implementation Plans for Salt Management that are specified in Chapter 5, TDS/Nitrogen Management Plan, Section VI.
[12] CA Water Code §13263(b).
[13] CA Water Code, §13050(h).

68-16).[14] The State Water Board has also stated that the Santa Ana Water Board has discretion to impose separate effluent limits for TDS and various individual ions or through application of a single effluent limit.[15] Thus, the Santa Ana Water Board may impose effluent limits for both TDS and the individual salt ions that make up TDS but is not required to do so.

The WLAM described above (§III-B-4) focuses exclusively on how combined discharges to the Santa Ana River are likely to affect overall salinity (TDS) in the underlying groundwater basins. The WLAM does not evaluate any of the individual salt ions.

Compliance with the wasteload allocation and related effluent limits for TDS are deemed sufficient to demonstrate compliance with the water quality objectives for individual salt ions shown in Table 4-1 in Chapter 4. In addition, the water quality objectives for individual salt ions (chloride, sodium, sulfate, and hardness) shown in Table 4-1 were established for the purpose of specifying the existing baseline quality and maintaining existing water quality until such time that traditional water quality objectives associated with use impairment could be develop and adopted into the Basin Plan. These levels were believed to be better than necessary to protect the designated beneficial uses at the time they were established. The water quality objectives for individual salt ions were not designed or intended to protect any specific beneficial use such as WARM, COLD, WILD, RARE, AGR or MUN.

6. Future Planning Priorities

Dischargers identified in Table 5-5 (below) are required to prepare and submit an updated wasteload allocation to the Santa Ana Water Board approximately every 10 years - commencing from the effective date of the wasteload allocation most recently approved by the Santa Ana Water Board. Dischargers may elect to undertake and complete this task individually or by participating in a collaborative project like those previously sponsored by SAWPA's Basin Monitoring Program Task Force. The wasteload allocation update shall evaluate compliance with existing water quality objectives and the state Antidegradation Policy for a period of not less than 20 years and shall take into consideration changes in land uses, receiving water quality for both surface water and groundwaters, changes in the volume or quality of discharges from point and non-point sources, variations in precipitation, new or revised regulatory requirements, and any other factors specified by the Santa Ana Water Board.

On December 11, 2018, the State Water Board adopted a revised Water Quality Control Policy for Recycled Water, which became effective on April 8, 2019 (2019 Recycled Water Policy). The 2019 Recycled Water Policy requires the Santa Ana Water Board to evaluate Salt and Nutrient Management Plans adopted as a Basin Plan Amendment prior to April 8, 2019 by April 8, 2024. The TDS/Nitrogen Management Plan as included in the Basin Plan was adopted prior to April 8, 2019, and must be evaluated by the

[14] Santa Ana Water Board Res. No. R8-2010-0012 (March 18, 2010).
[15] State Water Board Order No. 82-5; In the Matter of the Petition of Chino Basin Municipal Water District for Review of Orders 81-27 and 81-28, NPDES Permits Nos. CA0105279 and CA0105287.

Santa Ana Water Board prior to April 8, 2024. From this review, the Santa Ana Water Board, in consultation with stakeholders, must update basin evaluations of available assimilative capacity, projected trends, and concentrations of salts and nutrients in groundwater, then determine whether potential updates or revisions to the TDS/Nitrogen Management Plan may be warranted, or to make the plan consistent with the provisions of the 2019 Recycled Water Policy.

The Santa Ana Water Board, in consultation with the Basin Monitoring Program Task Force, will conduct the review as required by the 2019 Recycled Water Policy. This review will include evaluating the current surface and groundwater monitoring and reporting provisions of the Basin Plan to determine what updates may need to occur to ensure that the Basin Plan is consistent with the 2019 Recycled Water Policy.

Table 5-5: Wasteload Allocations for TDS and TIN in the 2020 - 2040 Permitting Period[16]

Permittee & Discharges	Primary Receiving Water(s)		Discharge *(mgd)*[17]		TDS *(mg/L)*	TIN *(mg/L)*
	Surface Stream(s)	Groundwater MZ(s)	2020	2040		
City of Beaumont[18]	Noble Cr, Cooper's Cr. to San Timoteo Cr.-R4[19]	Beaumont & San Timoteo	3.8 (1.8)	6.3 (1.8)	300 (400)	3.6 (6.0)
Yucaipa Valley Water District[20]	San Timoteo Cr.-R3	San Timoteo	8.0	8.0	400	5.5
City of San Bernardino: Geothermal Discharges	East Twin Cr. & Warm Cr. to SAR-R5	Bunker Hill-A & B	1.0	1.0	264	0.7
City of Rialto	SAR-R4	Riverside-A	7.2	18.0	490	10.0
RIX (Cities of Colton & San Bernardino)	SAR-R4	Riverside-A	34.5	30.1	550	10.0
City of Riverside-RWQCP[21]	SAR-R3	Chino-South[22]	33.8	46.0	650	10.0[23]
City of Corona: WWTP-1	Temescal Cr.-R1A	N/A (PBMZ)	11.5	15.0	700	10.0
Inland Empire Utilities Agency:[24] RP1, RP4, RP5, & CC	Chino Cr. & Cucamonga Cr.	Chino-North (or PBMZ)[25]	85	107.0	550	8.0
Western MWD: WRCRWA	SAR-R3	N/A (PBMZ)	12.0	15.3	625	10.0
Western MWD: Arlington Desalter	Temescal Cr.-R1A	N/A (PBMZ)	7.25	7.25	260	4.4
Temescal Valley Water District-TVWRF	Temescal Cr.-R2	Upper Temescal Vly.	2.3	2.3	650	10.0[26]
Elsinore Valley MWD: RWWRF-DP001	Temescal Cr.-R5	Upper Temescal Vly.	8.0	12.0	700	10.0[27]
Eastern MWD: SJV, MV, PV, SC, TV	Temescal Cr.-R5[28]	Upper Temescal Vly.	52.5	52.5	650	10.0

[16] WLA is reviewed and revised approximately every ten 10 years; next WLA update, for the 2030-2050 planning period, is scheduled to occur in 2030. [17] Maximum Authorized Discharge = average daily flow discharged to surface waters (expressed as an annualized average).

[18] Effluent limits revert to 320 mg/L for TDS and 4.1 mg/L for TIN if Reg. Bd. determines that Beaumont failed to comply with Maximum Benefit conditions.

[19] Higher effluent limits apply only to first 1.8 mgd. Lower effluent limits apply to discharges greater than 1.8 mgd.

[20] Effluent limits revert to 320 mg/L for TDS and 4.1 mg/L for TIN if Reg. Bd. determines that YVWD failed to comply with Maximum Benefit conditions.

[21] Includes the City's planned discharges to Anza Drain, Old Farm Rd. Channel, Tequesquite Arroyo & Evans Drain (all are tributary to SAR-R3).

[22] No significant streambed percolation occurs in the upper segment of SAR-R3 overlying the Riverside-A GMZ (i.e. the Riverside Narrows area).

[23] Effluent limit for TIN is more stringent than the 2004 WLA but is consistent with the requirements of Order No. R8-2013-0016 and current plant performance.

[24] Compliance with the applicable effluent limit is evaluated collectively based on the volume-weighted average of all four POTW (aka "bubble permit"). [25] The Prado Basin Management Zone (PBMZ) is a surface water feature where no significant groundwater storage or streambed percolation occurs. [26] Effluent limit for TIN is more stringent than the 2004 WLA and is based on Best Practicable Treatment or Control for TIN by POTWs in the region. [27] Effluent limit for TIN is more stringent than the 2004 WLA and based on the treatment plant's design and demonstrated performance.

[28] Discharge occurs only in years where average annual rainfall is greater than the long-term median value and only in the wettest 6 months of those years.

Source: Geoscience Support Services, Inc. Santa Ana River Wasteload Allocation Model Update – Summary Report. June 19, 2020 (see Table 20) and Santa Ana River Wasteoad Allocation Model Update – Supplemental Report. September 20, 2021 (see Table X).

Table 5-5

Alternative Wasteload Allocations through 2010 based on "Maximum Benefit" or "Antidegradation" Water Quality[29]

Publicly Owned Treatment Works (POTW)	Alternative 2010A - Reclamation in 1995 Basin Plan			Alternative 2010B - Reclamation Plans Advocated by		
	Surface Water Discharge (MGD)	TDS (mg/L)	TIN (mg/L)	Surface Water Discharge (MGD)	TDS (mg/L)	TIN (mg/L)
Beaumont - "max benefit" [30]	2.3	490	6.0	1.0	490	6.0
Beaumont - "antideg" [2 3]	2.3	320 [31]	4.1[3]	1.0	320[3]	4.1 [3]
YVWD - Wochholz - "max benefit"	5.7	540	6.0	0.0	540	6.0
YVWD - Wochholz - "antideg" [3]	5.7	320[3]	4.1[3]	0.0	320[3]	4.1 [3]
Rialto	12.0	490	10.0	10.0	490	10.0
RIX	49.4	550	10.0	28.2	550	10.0
Riverside Regional WQCP	35.0	650	13.0	26.1	650	13.0
Western Riverside Co. WWTP	4.4	625	10.0	3.3	625	10.0
EMWD[32]	43	650	10.0	6.0	650	10.0
EVMWD - Lake Elsinore Regional	7.2	700	13.0	2.0	700	13.0
Lee Lake WRF	1.6	650	13.0	1.6	650	13.0
Corona WWTP # 1	3.6	700	10.0	2.0	700	10.0
Corona WWTP # 2	0.2	700	10.0	0.5	700	10.0
Corona WWTP # 3	2.0	700	10.0	0.5	700	10.0
IEUA Facilities [33]	80.0	550	8.0	37.4	550	8.0

29 "Antidegradation" wasteload allocation is the default allocation if the Regional Board determines that "maximum benefit" commitments are not being met.

30 Beaumont discharges to Coopers Creek, a tributary of San Timoteo Creek, Reach 4, it is a de facto discharge to San Timoteo Creek/San Timoteo Management Zone.

31 "Antidegradation" wasteload allocations for City of Beaumont and YVWD based on additional model analysis performed by WEI (WEI, October 2002).

32 EMWD discharges are expected to occur only during periods of wet weather.

33 IEUA facilities include the RP#1, Carbon Canyon WRP, RP#4 and RP#5; These facilities are to be regulated as a bubble (see text).

(Starting from page 5-38 of Chapter 5 of the Basin Plan)

V. Salt Management Plan -- Monitoring Program Requirements

California Water Code Section 13242 specifies that Basin Plan implementation plans must contain a description of the monitoring and surveillance programs to be undertaken to determine compliance with water quality objectives. The adoption of ~~new~~ groundwater TDS and nitrate-nitrogen water quality objectives (Chapter 4) in response to the studies sponsored by the N/TDS Task Force triggered the need to develop and implement a ~~new~~ watershed-wide nitrogen/TDS monitoring program. The Task Force provided additional impetus for this comprehensive monitoring program. The Task Force recommended that future review and update of the salt management plan, including findings of assimilative capacity, appropriate changes to the wasteload allocations, etc., should be based on real-time data obtained through a rigorous monitoring program, rather than on model projections. As discussed earlier (see Section II., Update of the Total Dissolved Solids/Nitrogen Management Plan), the Task Force concluded that the development of new, workable modeling tools to assist in this review was beyond the scope and financial capability of the Task Force.

The monitoring program, approved by the Santa Ana Water Board in 2005 (Resolution R8-2005-0063), ~~must~~ consists of both surface water and groundwater components. ~~Some of these area already being implemented, including the annual sampling of the Santa Ana River, Reach 3 at Prado Dam by Regional Board staff (see Chapter 4 and below).~~ Certain agencies have also committed to conduct monitoring of specific water bodies as part of their "maximum benefit" proposals (see Section VI., Maximum Benefit Implementation Plans for Salt Management, below). The N/TDS Task Force members, and other parties as appropriate, are ~~will be~~ required to implement these approved ~~propose a comprehensive~~ monitoring programs. ~~that would integrate these existing commitments with other monitoring recommendations. These parties will be required to implement this program upon approval by the Regional Board.~~

A. Surface Water Monitoring Program Requirements for TDS and Nitrogen

Implementation of a surface water monitoring program is needed to determine compliance with the nitrogen and TDS objectives of the Santa Ana River, and thereby, the effectiveness of the wasteload allocations. It is also needed to provide data required to evaluate the effects of surface water discharges on affected groundwater management zones. ~~In particular, data are needed to confirm the validity fo the 50% nitrogen loss coefficient that will be applied in regulating discharges to that part of Reach 3 of the River that overlies the Chino South groundwater management zone (see Section III.B.3., Nitrogen loss coefficients).~~

As discussed in Chapter 4, the Basin Plan specifies baseflow TDS and total nitrogen objectives for Reach 3 of the River. For Reach 2, a TDS objective based

on a five- year moving average of the annual TDS concentration is specified. Use of this moving average allows the effects of wet and dry years to be integrated over the five- year period and reflects the actual long-term quality of water recharged by Orange County Water District downstream of Prado Dam.

The Basin Plan specifies a monitoring program to determine compliance with the Reach 3 baseflow objectives at Prado Dam (see Chapter 4). As noted above, Santa Ana Water Board ~~Regional Board~~ staff undertakes and supervises ~~conducts~~ this program on an annual basis. Measurement of baseflow quality at below Prado Dam, rather than the quality of flows in Reach 2, has long been used to indicate the effects of recharge of Santa Ana River flows on Orange County groundwater. The efficacy of this approach was evaluated as part of the 2004 update of the TDS/nitrogen management plan in the Basin Plan. At that time, insufficient data were available to draw a direct correlation between the long-term TDS and nitrogen quality of River flows at Prado Dam and that of affected Orange County groundwater. However, the conclusion drawn was that reliance on the Reach 3 baseflow objectives to protect Orange County groundwater, and the existing monitoring program designed to measure compliance, is adequate unless the Santa Ana Water Board elects to adopt a different approach if and when better data becomes available.

In addition to this baseflow sampling program and the surface water monitoring commitments associated with certain agencies' "maximum benefit" programs, the comprehensive monitoring program ~~to be proposed and~~ implemented by the Task Force members, and other agencies as appropriate, ~~must~~ includes an evaluation of compliance with the TDS and nitrogen objectives for Reaches 2, 3, 4 and 5 of the Santa Ana River. Compliance with these ~~Reach 2 TDS~~ objectives is determined by evaluation of data collected by the Santa Ana Water Board ~~Regional Board~~ staff, Santa Ana River Watermaster, Orange County Water District, the United States Geological Survey, and others.

Surface water monitoring program requirements for TDS and nitrogen are as follows:

1. No later than August 1, 2022, ~~March 23, 2005,~~ Orange County Water District, Inland Empire Utilities Agency, Chino Basin Watermaster, City of Riverside, City of Corona, Elsinore Valley Municipal Water District, Eastern Municipal Water District, City of Colton, City of San Bernardino Municipal Water Department, Colton/San Bernardino Regional Tertiary Treatment & Wastewater Reclamation Authority, Jurupa Community Services District, Western Riverside County Regional Wastewater Authority, Temescal Valley ~~Lee Lake~~ Water District, Yucaipa Valley Water District, City of Beaumont, ~~the San Timoteo Watershed Management Authority,~~ City of Banning, Beaumont Cherry Valley Water District, San Gorgonio Pass Water

Agency, and the City of Rialto shall submit to the Santa Ana Water Board ~~Regional Board~~ for approval, ~~a proposed~~ an updated surface water TDS and nitrogen monitoring program that will provide an evaluation of compliance with the TDS and nitrogen objectives for Reaches 2, 3, 4 and 5 of the Santa Ana River.

In lieu of this coordinated monitoring plan, one or more of the parties identified in the preceding paragraph may submit an individual or group monitoring plan. Any such individual or group monitoring plan shall also be submitted no later than August 1, 2022 ~~March 23, 2005~~.

2. By August 1st of each year, the Orange County Water District, Inland Empire Utilities Agency, City of Riverside, City of Corona, Elsinore Valley Municipal Water District, Eastern Municipal Water District, Temescal Valley ~~Lee Lake~~ Water District, City of Colton, City of San Bernardino Municipal Water Department, Colton/San Bernardino Regional Tertiary Treatment & Wastewater Reclamation Authority, Jurupa Community Services District, Western Riverside County Regional Wastewater Authority, Yucaipa Valley Water District, City of Beaumont, City of Banning, Beaumont Cherry Valley Water District, San Gorgonio Pass Water Agency, Chino Basin Watermaster, and the City of Rialto, shall submit an annual report of surface ~~Santa Ana River, Reach 2, 4 and 5~~ water quality for the stream segments identified above. Data evaluated shall include that collected by the Santa Ana Water Board staff, Santa Ana River Watermaster, Orange County Water District, and the US Geologic Survey, at a minimum.

In lieu of this coordinated annual report, one or more of the parties identified in the preceding paragraph may submit an individual or group annual report. Any such individual or group report shall also be submitted by August 1st ~~5th~~ of each year.

Additional surface water monitoring programs may be specified by the Santa Ana Water Board ~~Regional Board~~ depending upon watershed conditions, waste discharge specifications and/or any special studies related to TDS and nitrogen. In addition, the Executive Officer may require other dischargers to comply with the monitoring and reporting obligations described above by issuing an order pursuant to Section 13267 of the California Water Code.

B. Groundwater Monitoring Program for TDS and Nitrogen

Implementation of a watershed-wide TDS/nitrogen groundwater monitoring program is necessary to assess current water quality, to determine whether TDS and nitrate- nitrogen water quality objectives for management zones are being

met or exceeded, and to update assimilative capacity findings. Groundwater monitoring is also needed to fill data gaps for those management zones with insufficient data to calculate TDS and nitrate-nitrogen historical quality and current quality. Finally, groundwater monitoring is needed to assess the effects of POTW discharges to surface waters on affected groundwater management zones.

Groundwater monitoring requirements for TDS and nitrogen are as follows:

No later than August 1, 2022 ~~March 23, 2005,~~ Orange County Water District, Irvine Ranch Water District, Inland Empire Utilities Agency, Chino Basin Watermaster, City of Riverside, City of Corona, Elsinore Valley Municipal Water District, Eastern Municipal Water District, City of Colton, City of San Bernardino Municipal Water Department, Colton/San Bernardino Regional Tertiary Treatment & Wastewater Reclamation Authority, City of Redlands, Jurupa Community Services District, Western Riverside County Regional Wastewater Authority, Temescal Valley ~~Lee Lake~~ Water District, Yucaipa Valley Water District, City of Beaumont, San Gorgonio Pass Water Agency, City of Banning, Beaumont Cherry Valley Water District ~~the San Timoteo Watershed Management Authority~~ and the City of Rialto shall submit to the Santa Ana Water Board ~~Regional Board~~ for approval, ~~a proposed~~ an updated watershed-wide TDS and nitrogen monitoring program that will provide data necessary to implement ~~review and update~~ the TDS/nitrogen management plan. Data to be collected and analyzed shall address, at a minimum: (1) determination of current ambient quality in groundwater management zones; (2) determination of compliance with TDS and nitrate- nitrogen objectives for the management zones; (3) evaluation of assimilative capacity findings for groundwater management zones; ~~and~~ (4) assessment of the effects of recharge of surface water POTW discharges on the quality of affected groundwater management zones; and (5) any other additional requirements specified in the State Water Board's 2019 Recycled Water Policy. The determination of current ambient quality ~~shall~~ can be accomplished using methodology consistent with that employed by the Nitrogen/TDS Task Force (20-year running averages) to develop the TDS and nitrogen water quality objectives included in this Basin Plan [Ref. 1], or an alternative method approved by the Executive Officer of the Santa Ana Water Board. The determination of current ambient groundwater quality ~~throughout the watershed~~ must be reported by October 1, 2023 ~~July 1, 2005~~, and, at a minimum, every ~~three~~ five years thereafter unless the Santa Ana Water Board revises this schedule.

In lieu of this coordinated monitoring plan, one or more of the parties identified in the preceding paragraph may submit an individual or group monitoring plan. Any such individual or group monitoring plan shall also be

due no later than August 1, 2022 ~~June 23, 2005~~.

Details to be included in the proposed monitoring program shall include, but not be limited to, the following:

- monitoring program goals
- responsible agencies
- groundwater water sampling locations
- surface water sampling locations (if appropriate)
- water quality parameters
- sampling frequency
- quality assurance/quality control
- database management
- data analysis and reporting

Within 30 days of Santa Ana Water Board Regional Board approval of the proposed monitoring plan, the updated monitoring plan must be implemented.

Additional groundwater monitoring programs may be specified by the Santa Ana Water Board ~~Regional Board~~ depending upon watershed conditions, waste discharge specifications and/or any special studies related to TDS and nitrogen. In addition, the Executive Officer may require other dischargers to comply with the monitoring and reporting obligations described above by issuing an order pursuant to Section 13267 of the California Water Code.

Basin Monitoring Program Task Force

Subsequent to the approval of the Region's Salt and Nutrient Management Plan in 2004, a new task force, the "Basin Monitoring Program Task Force" (BMPTF) was formed to implement the requisite nitrogen/TDS monitoring and analyses programs described previously. SAWPA serves as the administrator for the BMPTF. The Task Force currently includes the following agencies:

- Eastern Municipal Water District
- Inland Empire Utilities Agency
- Orange County Water District
- Temescal Valley ~~Lee Lake~~ Water District
- Elsinore Valley Municipal Water District
- Irvine Ranch Water District
- Yucaipa Valley Water District
- Jurupa Community Services District
- Western Riverside Co. Regional Wastewater Authority
- Chino Basin Watermaster
- San Bernardino Valley Municipal Water District
- City of Riverside
- City of Beaumont
- City of Corona
- City of Redlands
- City of Rialto
- City of Banning
- Colton/San Bernardino

Regional Tertiary Treatment &
Wastewater Reclamation Authority

- Beaumont Cherry Valley Water District
- San Gorgonio Pass Water Agency

Declaration of Conformance

Another major activity completed by ~~that~~ the BMPTF ~~completed in March 2010~~ was the development of a "Declaration of Conformance" (Declaration) that was approved ~~for approval~~ by the Santa Ana Water Board ~~Regional Board~~ on March 18, 2010 (Resolution R8-2010-0012) and subsequently transmitted to the State Water Board on April 12, 2010. With the Declaration, the Task Force and Santa Ana Water Board ~~Regional Board~~ declared conformance with the then-new State Water Board Recycled Water Policy requirements for the completion of a salt and nutrient management plan for the Santa Ana Region, and other requirements of this Policy. This finding of conformance was based on the work of the Nitrogen/TDS Task Force. That work resulted in the 2004 adoption of Basin Plan amendments to incorporate a revised Salt and Nutrient Management Plan for the Region (Resolution No. R8-2004-0001).

Further, the Declaration documented conformance with the emerging constituents monitoring requirements in the Policy through the "Emerging Constituents Sampling and Investigation Program," submitted to the Santa Ana Water Board ~~Regional Board an annual basis~~ by the Emerging Constituents (EC) Program Task Force. The EC Sampling and Investigation Program is ~~will be~~ reviewed periodically ~~annually~~ and revised as necessary to ~~and will~~ integrate the State Board's recommendations when they become available. Finally, the Declaration of Conformance documents the analyses and procedures that will be used to streamline the permitting process for recycled water projects, as required by the Policy.

~~The Declaration of Conformance was formally adopted by resolution to the Regional Board on March 18, 2010 (Resolution No. R8-2010-0012) and formally submitted to the State Board on April 12, 2010.~~

Salt Monitoring Cooperative Agreement

In January 2008, the Santa Ana Water Board ~~Regional Board~~ entered into a Cooperative Agreement with several water and wastewater agencies in the Santa Ana River Watershed to analyze and report the amount of salt and nitrates entering local groundwater aquifers as a consequence of recharging imported water in the region. The "Cooperative Agreement to Protect Water Quality and Encourage the Conjunctive Use of Imported Water in the Santa Ana River Basin" is Attachment A to Resolution No. R8-2008-0019.

As with the BMPTF effort underwritten by local stakeholders, the Cooperative Agreement obligates signatories to assess current groundwater quality every three years. In addition, the signatories have agreed to estimate every six years the changes that are likely to occur in groundwater quality as a result of on-going and expected projects that recharge imported water. By emphasizing the use of "real-time" monitoring, rather than complex fate and transport models, the Santa Ana Water Board ~~Regional Board~~ is better able to evaluate the effects of these recharge projects.

The parties of the Cooperative Agreement execute the terms of the agreement through a workgroup of the Basin Monitoring Program Task Force that meets regularly under the administration of SAWPA. As the Task Force ~~informal~~ administrator, SAWPA assists in coordination among the signatories of the necessary basin salinity monitoring and modeling reports, along with final compilation and submittal of the reports to the Santa Ana Water Board ~~Regional Board~~ by the deadlines defined in the Cooperative Agreement. On March 3, 2021, the first Amendment to the Cooperative Agreement was executed by the Santa Ana Water Board Executive Officer and the signatory agency representatives.

Attachment B to Resolution R8-2021-0025
(Starting from page 5-13 of Chapter 5 of the Basin Plan)

TOTAL DISSOLVED SOLIDS AND NITROGEN MANAGEMENT

(The following has been modified under Resolution No. R8-2004-0001, R8-2010-0012, No. R8-2010-0039, No. R8-2012-0002, R8-2014-0005, R8-2005-0036, R8-2020-0038 and R8-2021-0025)

I. Background

The 1975 and 1983 Basin Plans for the Santa Ana River Basin reported that the most serious problem in the basin was the build-up of dissolved minerals, or salts, in groundwater and surface waters. Sampling and computer modeling of groundwaters showed that the levels of dissolved minerals, generally expressed as total dissolved solids (TDS) or total filterable residue (TFR), were exceeding water quality objectives or would do so in the future unless appropriate controls were implemented. Nitrogen levels in the Santa Ana River, largely in the form of nitrate, were likewise projected to exceed water quality objectives. As was discussed in Chapter 4, high levels of TDS and nitrate adversely affect the beneficial uses of groundwater and surface waters. The mineralization of the Region's waters, and its impact on beneficial uses, remains a significant problem.

Each use of water adds an increment of dissolved minerals. Significant increments of salts are added by municipal and industrial use, and the reuse and recycling of the wastewater generated as it moves from the hydrologically higher areas of the Region to the ocean. Wastewater and recycled water percolated into groundwater management zones is typically pumped and reused a number of times before reaching the ocean, resulting in increased salt concentrations. Evaporation or evapotranspiration also can cause an increase in the concentration of dissolved minerals.

One of the principal causes of the mineralization problem in the Region is historical irrigated agriculture, particularly citrus, which in the past required large applications of water to land, causing large losses by evaporation and evapotranspiration. TDS and nitrate concentrations are increased both by this reduction in the total volume of return water and by the direct application of these salts in fertilizers. Dairy operations, which began in the Region in the 1950s and continue today, also contribute large amounts of salts to the basin.

The implementation chapters of the 1975 and 1983 Basin Plans focused on recommended salt management plans to address the mineralization problem. The 1975 Basin Plan initiated a total watershed approach to source control of salinity. Both 1975 and 1983 Basin Plans called for controls of salt loadings from all water uses including residential, commercial, industrial, and agricultural (including dairies).

The salt management plans included the following elements: measures to improve water supply quality, including the import of high quality water from the State Water Project (SWP); waste discharge regulatory strategies (e.g., wasteload allocations, allowable mineral increments for uses of the water supply quality); and recharge projects and other remedial programs to correct problems in specific areas. The salt management plans also included carefully limited reclamation activities and the recycling of wastewaters in the local groundwater basins.

The salt management plans in the 1975 and 1983 Basin Plans were developed by using a complex set of groundwater computer models and programs, known collectively as the Basin Planning Procedure (BPP). The modeling work focused on the TDS concentrations and loading into the upper Santa Ana River Basin and, to a lesser extent, on the San Jacinto Basin, where the BPP was less developed and refined.

The TDS modeling for the salt management plan specified in the 1995 Basin Plan (adopted and approved in 1994 and 1995) was conducted with the BPP for both the upper Santa Ana and San Jacinto Basins. Most of the attention was again directed to the upper Santa Ana Basin, for which significant improvements to the BPP were made under a joint effort by the Santa Ana Watershed Project Authority (SAWPA), the Santa Ana River Dischargers Association (SARDA), the Metropolitan Water District of Southern California (MWDSC), and the Santa Ana Regional Water Quality Control Board (Santa Ana Water Board). The most significant change to the BPP was the addition of a nitrogen modeling component so that projections of the nitrate-nitrogen quality of groundwater could be made, in addition to TDS groundwater quality. This enabled the development of a management plan for both nitrogen and TDS.

The BPP has not been used to model groundwater quality conditions in the lower Santa Ana River Basin. Instead, the Santa Ana Water Board's TDS and nitrogen management plans have relied, in large part, on the control of the quality of the Santa Ana River flows, which are a major source of recharge in the lower Basin. As discussed in Chapter 4, most of the Santa Ana River baseflow (80-90%) is composed of municipal wastewater treatment plant discharges; it also includes nonpoint source inputs and rising groundwater. Baseflow generally provides 25% or more of the water recharged in the Orange County Groundwater Management Zone (GMZ). Therefore, to protect Orange County groundwater, it is essential to control the quality of baseflow. To do so, baseflow TDS and total nitrogen water quality objectives are specified in the Basin Plan for Reach 3 of the River. Wasteload allocations have been established and are periodically revised to meet applicable water quality objectives designated for the Santa Ana River and its tributaries, and the underlying GMZs.

For the 1983 Basin Plan, QUAL-II, a surface water model developed initially by the US EPA, was calibrated for the Santa Ana River (River) and used to make detailed projections of River quality (TDS and nitrogen) and flow. The model was used to develop wasteload allocations for TDS and nitrogen discharges to the River that were

approved as part of that Plan. (Wasteload allocations are discussed in detail in Section III of this Chapter.) An updated version of the model, QUAL-2e, was used to revise these wasteload allocations, which were included as part of the initial salt management plan in the 1995 Basin Plan.

The models were used to integrate the quantity and quality of inputs to the River from various sources, including the headwaters, municipal wastewater treatment plant discharges, and rising groundwater, based on the water supply and wastewater management plans used in the BPP. Data on rising groundwater quality and quantity were provided to the QUAL-II/2e models by the BPP. As with the BPP, the QUAL-II/2e model projections were used to identify the salinity and nitrogen water quality problems and to assess the effectiveness of changes in TDS and nitrogen management strategies.

II. Update of the Total Dissolved Solids/Nitrogen Management Plan in 2004

The studies conducted to update the TDS/Nitrogen Management Plans in the 1983 and 1995 Basin Plans were not designed to validate or revise the TDS or nitrate-nitrogen objectives for groundwater. Rather, the focus of the studies was to determine how best to meet those established objectives. During public hearings to consider adoption of the 1995 Basin Plan, a number of water supply and wastewater agencies in the region commented that the TDS and nitrate-nitrogen objectives for groundwater should be reviewed, considering the estimated cost of complying with them (several billion dollars). In response, the Santa Ana Water Board identified the review of these objectives as a high Basin Plan triennial review priority, and stakeholders throughout the Region agreed to provide sufficient resources to perform the necessary studies. In December 1995, these agencies, under the auspices of SAWPA, formed the Nitrogen/Total Dissolved Solids (TDS) Task Force (Task Force) to undertake a watershed-wide study (Nitrogen/TDS Study) to review the groundwater objectives and the TDS/Nitrogen Management Plan in the Basin Plan as a whole. SAWPA managed the study, and Risk Sciences and Wildermuth Environmental, Inc., served as project consultants.

Major tasks included review of the groundwater sub-basin boundaries, development of recommendations for revised boundaries, development of appropriate TDS and nitrate-nitrogen objectives for the sub-basins (management zones), and update of the TDS and TIN wasteload allocations to ensure compliance with both the established objectives for the Santa Ana River and its tributaries and the recommended groundwater quality objectives. A complete list of all tasks completed in Phases 1A & 1B, and 2A & 2B is included in the Appendix. The Task Force effort resulted in substantive proposed changes to the Basin Plan, including new groundwater management zones (Chapter 3) and new nitrate-nitrogen and TDS objectives for the management zones (Chapter 4). These changes necessitated the update and revision of the TDS/Nitrogen Management Plan, which is described below.

The Task Force studies, including the technical methods employed, are documented in a series of reports (Ref. 1-5). The Task Force studies differed from prior efforts to review the TDS and nitrogen management plans in that the BPP was not utilized. A revised model approach, not involving use of the QUAL-2e model, was used to update the wasteload allocations for the Santa Ana River. The Task Force concluded that the BPP no longer remained a viable tool for water quality planning purposes, and also concluded that the development of a new model was beyond the scope and financial capabilities of the Task Force. The efficacy of modeling to formulate and update salt management plans in this Region has been well demonstrated. In 2004, the Santa Ana Water Board directed that priority should be given to the development of a new model that would assist with future Basin Plan reviews.

III. TDS/Nitrogen Management Plan

TDS and nitrogen management in this Region involves both regulatory actions by the Santa Ana Water Board and actions by other agencies to control and remediate excess salts and nitrogen. Regulatory actions include the adoption of appropriate TDS and nitrogen limitations in requirements issued for waste disposal and municipal wastewater recycling, and the adoption of waste discharge prohibitions. These regulatory steps are described earlier in this Chapter. Actions by other agencies include projects to improve water supply quality and the construction of groundwater desalters and brine lines to remove highly saline wastes from the watershed. The following sections discuss these programs in greater detail.

A. Water Supply Quality

Water supply quality has a direct effect on the quality of discharges from municipal wastewater treatment plants, discrete industrial discharges, returns to groundwater from homes using septic tank systems, returns from irrigation of landscaping in sewered and unsewered areas, and returns to groundwater from commercial irrigated agriculture.

Water supply quality is an important determinant of the extent to which wastewater can be reused and recycled without resulting in adverse impacts on affected receiving waters. This is particularly true for TDS, since it is a conservative constituent, less likely than nitrogen to undergo transformation and loss as wastewater is discharged or recycled, and typically more difficult than nitrogen to treat and remove.

Water supplies cannot be directly regulated by the Santa Ana Water Board; however, limitations in waste discharge requirements, including NPDES permits, may necessitate efforts to improve source water quality. These efforts may include drilling new wells, implementing alternative blending strategies, capturing stormwater and recharging to groundwater, importing higher quality water when it is available, and constructing desalters to create or augment water supplies.

Imported water supplies are an important part of salt management strategies in the region from both a quantity and quality standpoint. Imported water is needed by many agencies to supplement local sources and satisfy ever-increasing demands. The import of high quality SWP water, with a long-term TDS average less than 300 milligram per liter (mg/L), is particularly essential. The use of SWP water allows maximum reuse of water supplies without aggravating the mineralization problem. It is also used for recharge and replenishment to improve the quality of local water supply sources, which might otherwise be unusable. Thus, the use of high quality SWP water in the Region has water supply benefits that extend far beyond the actual quantity of water imported.

In some cases, the TDS quality of available water supplies in a wastewater treatment service area may make it infeasible for the discharger to comply with TDS limits specified in waste discharge requirements. This is particularly true during prolonged drought conditions when the allocations of high quality, low TDS imported water, supplied by the SWP may become severely constrained. In other cases, the discharger may add chemicals that enable compliance with certain discharge limitations, but also result in TDS concentrations in excess of waste discharge requirements. The Board recognizes these problems and incorporates provisions in waste discharge requirements to address them. These and other aspects of the Board's regulatory program are described next.

B. TDS and Nitrogen Regulation

As required by the Water Code (Section 13263), the Santa Ana Water Board must assure that its regulatory actions implement the Basin Plan. Waste discharge requirements must specify limitations that, when met, will assure that water quality objectives will be achieved. Where the quality of the water receiving the discharge is better than the established objectives, the Board must assure that the discharge is consistent with the state's antidegradation policy (State Water Resources Control Board (State Water Board) Resolution No. 68-16). The Santa Ana Water Board must also separately consider beneficial uses, and where necessary to protect those uses, specify limitations more stringent than those required to meet established water quality objectives. Of course, these obligations apply not only to TDS and nitrogen but also to other constituents that may adversely affect water quality and/or beneficial uses.

As indicated previously, the Santa Ana Water Board’s regulatory program includes the adoption of waste discharge prohibitions. The Board has established prohibitions on discharges of excessively saline wastes and, in certain areas, on discharges from subsurface disposal systems (see "Waste Discharge Prohibitions," above). The Board has also adopted other requirements pertaining to the use of subsurface disposal system use, both to assure public health protection and to address TDS and nitrogen-related concerns. These include the Santa Ana Water Board’s "Guidelines for Sewage Disposal from Land Developments" [Ref. 6], which are hereby

incorporated by reference, and the minimum lot size requirements for septic system use (see Nonpoint Source section of this Chapter). In 2012, the State Water Board adopted the Water Quality Control Policy for Siting, Design, Operation and Maintenance of Onsite Wastewater Treatment Systems (OWTS Policy), which is implemented by the Santa Ana Water Board.

The principal TDS and nitrogen regulatory tool employed by the Santa Ana Water Board is the issuance of appropriate discharge requirements, in conformance with the legal requirements identified above. Several important aspects of this permitting program warrant additional discussion:

1. Salt assimilative capacity
2. Mineral increments
3. Nitrogen loss coefficients
4. TDS and TIN wasteload allocations
5. Wastewater reclamation
6. Special considerations - subsurface disposal systems

1. Salt Assimilative Capacity

Some waters in the Region have assimilative capacity for additions of TDS and/or nitrate-nitrogen; that is, wastewaters with higher TDS/nitrate-nitrogen concentrations than the receiving waters are diluted sufficiently by natural processes, including rainfall or recharge, such that the TDS and nitrate-nitrogen objectives of the receiving waters are met. The amount of assimilative capacity, if any, varies depending on the individual characteristics of the waterbody in question and must be reevaluated over time.

The 2004 adoption of new groundwater management zone boundaries (Chapter 3) and new TDS and nitrate-nitrogen objectives for these management zones (Chapter 4), pursuant to the work of the Nitrogen/TDS Task Force, necessitated the re-evaluation of the assimilative capacity findings initially incorporated in the 1995 Basin Plan. To conduct this assessment, the Nitrogen-TDS study consultant calculated current ambient TDS and nitrate-nitrogen water quality using the same methods and protocols as were used in the calculation of historical ambient quality (see Chapter 4). The analysis focused on representing current water quality as a 20-year average for the period from 1978 through 1997. [Ref. 1]. For each groundwater management zone, current TDS and nitrate-nitrogen concentrations were compared to water quality objectives (historical water quality)[1]. Assimilative capacity was also assessed relative to the "maximum benefit" objectives established for certain groundwater management zones. If the current ambient water quality in a groundwater management zone is the same as or poorer than the specified water quality objectives, then that groundwater management zone does not have

[1] As noted in Chapter 4, ammonia-nitrogen and nitrite-nitrogen data were also included in the analysis, where available. This occurred for a very limited number of cases and ammonia-nitrogen and nitrite-nitrogen concentrations were insignificant in groundwater.

assimilative capacity. If the current ambient water quality of the groundwater is better than the specified water quality objectives, then that groundwater management zone has assimilative capacity. The difference between the objectives and current ambient water quality is the amount of assimilative capacity available.

Since adoption of the 2004 Basin Plan amendment and per Basin Plan requirements, ambient water quality and assimilative capacity findings have been updated every three years. Following Santa Ana Water Board acceptance at a duly noticed public meeting, the updated findings of ambient water quality and assimilative capacity have been posted on the Santa Ana Water Board's website and used for regulatory purposes, as applicable.

As described in Chapter 4 and later in this Chapter, application of the "maximum benefit" objectives is contingent on the implementation of certain projects and programs by specific dischargers as part of their maximum benefit demonstrations. Assimilative capacity created by these projects/programs will be allocated to the party(-ies) responsible for implementing them.

Chapter 3 delineates the Prado Basin Management Zone (PBMZ), and Chapter 4 identifies the applicable TDS and total inorganic nitrogen objectives for the PBMZ (the objectives for the surface waters that flow in this Zone). No assimilative capacity exists in the PBMZ.

These assimilative capacity findings are significant from a regulatory perspective. If there is assimilative capacity in the receiving waters for TDS, nitrogen or other constituents, a waste discharge may be of poorer quality than the objectives for those constituents for the receiving waters, as long as the discharge does not cause violation of the objectives and provided that antidegradation requirements are met. However, if there is no assimilative capacity in the receiving waters, the numerical limits in the discharge requirements cannot exceed the receiving water objectives or the degradation process would be accelerated.[2] This rule was expressed clearly by the State Water Board in a decision regarding the appropriate TDS discharge limitations for the Rancho Caballero Mobile Home park located in the Santa Ana Region (State Water Board Order No. 73-4, the so called "Rancho Caballero decision") [Ref. 7]. However, this rule is not meant to restrict overlying agricultural irrigation, or similar activities, such as landscape irrigation. Even in groundwater management zones without assimilative capacity, groundwater may be pumped, used for agricultural purposes in the area and returned to the groundwater management zone from which it originated.

In regulating waste discharges to waters with assimilative capacity, the Santa Ana

[2] A discharger may conduct analyses to demonstrate that discharges at levels higher than the water quality objectives would not cause or contribute to the violation of the established objectives. See, for example, the discussion of wasteload allocations for discharges to the Santa Ana River and its tributaries (Section III. B. 4.) If the Santa Ana Water Board approves this demonstration, then the discharger would be regulated accordingly.

Water Board will proceed as follows. (see also Section III.B.6., Special Considerations - Subsurface Disposal Systems).

If a discharger proposes to discharge wastes that are at or below (i.e., better than) the current ambient TDS and/or nitrate-nitrogen water quality, then the discharge will not be expected to result in the lowering of water quality, and no antidegradation analysis will be required. TDS and nitrate-nitrogen objectives are expected to be met. Such discharges clearly implement the Basin Plan and the Santa Ana Water Board can permit them to proceed. Of course, other pertinent requirements, such as those of the California Environmental Quality Act (CEQA) must also be satisfied, if applicable. For groundwater management zones, current ambient quality will be determined periodically but no later than once every five years, pursuant to the detailed monitoring program to be conducted by dischargers in the watershed (see Section V., Salt Management Plan – Monitoring program Requirements).

Again, discharges to waters without assimilative capacity for TDS and/or nitrate-nitrogen must be held to the objectives of the affected receiving waters (with the caveat previously identified in footnote 2). In some cases, compliance with management zone TDS objectives for discharges to waters without assimilative capacity may be difficult to achieve. Poor quality water supplies or the need to add certain salts during the treatment process to achieve compliance with other discharge limitations (e.g., addition of ferric chloride) could render compliance with strict TDS limits very difficult. The Santa Ana Water Board addresses such situations by providing dischargers with the opportunity to participate in TDS offset programs, such as the use of desalters, in lieu of compliance with numerical TDS limits. These offset provisions are incorporated into waste discharge requirements. Provided that the discharger takes all reasonable steps to improve the quality of the waters influent to the treatment facility (such as through source control or improved water supplies), and provided that chemical additions are minimized, the discharger can proceed with an acceptable program to offset the effects of TDS discharges in excess of the permit limits.

Similarly, compliance with the nitrate-nitrogen objectives for groundwater management zones specified in this Plan would be difficult in many cases. An offset provision may apply to nitrogen discharges as well.

An alternative that dischargers might pursue in these circumstances is revision of the TDS or nitrate-nitrogen water quality objectives, through the Basin Plan amendment process. Consideration of less stringent objectives would necessitate comprehensive antidegradation review, including the demonstrations that beneficial uses would be protected and that water quality consistent with maximum benefit to the people of the State would be maintained. As discussed in Chapter 4 and later in this Chapter, a number of dischargers have pursued this "maximum benefit objective" approach, leading to the inclusion of "maximum benefit" objectives and implementation strategies in this Basin Plan. Discharges to areas where the "maximum benefit" objectives apply will be regulated in conformance with these implementation

strategies. Any assimilative capacity created by the maximum benefit programs will be allocated to the parties responsible for implementing them.

2. Mineral Increments

The fundamental philosophy of TDS/Nitrogen management plans in Santa Ana Region Basin Plans to date has been to allow a reasonable use of the water, to treat the wastewater generated appropriately, and to allow it to flow downstream (or to lower groundwater basins) for reuse. "Reasonable use" is defined in terms of appropriate mineral increments that can be added to water supply quality in setting discharge limitations.

The California Department of Water Resources (DWR) has recommended values for the maximum use incremental additions of specific ions that should be allowed through use, based on detailed study of water supplies and wastewater quality in the Region [Ref. 8]. Their recommendations are as follows:

Sodium	70 mg/L
Sulfate	40 mg/L
Chloride	65 mg/L
TDS	250 mg/L
Total Hardness	30 mg/L

These mineral increments were incorporated into the 1983 Basin Plan. They will be incorporated into waste discharge requirements when appropriate and necessary. In general, it may not be necessary to incorporate mineral increment requirements when a water quality based effluent limitation for salinity is imposed on a Publicly Owned Treatment Work (POTW) in accordance with an approved wasteload allocation for salinity.

3. Nitrogen Loss Coefficients

The Santa Ana Water Board's regulatory program has long recognized that some nitrogen transformation and loss can occur when wastewater is discharged to surface waters, or reused for landscape irrigation, or allowed to percolate groundwater. For example, the Total Inorganic Nitrogen (TIN) wasteload allocation adopted for the Santa Ana River in 1991 included unidentified nitrogen losses in the surface flows in Reach 3 of the River. Historically, waste discharge requirements have allowed for nitrogen losses due to plant uptake when recycled water is used for crop or landscape irrigation.

One of the tasks included in the Nitrogen/TDS Task Force[3] studies leading to the 2004 update of the TDS/Nitrogen Management Plan was the consideration of

[3] SAWPA's Nitrogen/TDS Task Force was replaced by the Basin Monitoring Program Task Force in 2005. The former was responsible for developing the N/TDS Management Plan and the latter was responsible for coordinating implementation of that plan.

subsurface transformation and loss of nitrogen. One objective of this task was to determine whether dischargers might be required to incur costs for additional treatment to meet the new groundwater management zone nitrate-nitrogen objectives (Chapter 4), or whether natural, subsurface nitrogen losses could achieve any requisite reductions. The second objective was to develop a conservative nitrogen loss coefficient that could be used to develop appropriate limits for TIN discharges throughout the Region.

To meet these objectives, the Nitrogen/TDS study consultant, Wildermuth Environmental, Inc. (WEI), evaluated specific recharge operations (e.g., the Orange County Water District recharge ponds overlying the Orange County Forebay), wastewater treatment wetlands (e.g., the Hidden Valley Wildlife Area, operated by the City of Riverside) and Santa Ana River recharge losses (for the Santa Ana River, water quality in reaches where recharge is occurring ("losing" reaches) was compared with local well data). In each case, WEI evaluated long-term (1954 to 1997) nitrogen surface water quality data and compared those values to long-term nitrogen data for adjacent wells.

Based on this evaluation, a range of nitrogen loss coefficients was identified. [Ref. 1] In light of this variability, the Nitrogen/TDS Task Force recommended that a conservative approach be taken in establishing a nitrogen loss coefficient. The Task Force recommended that a region-wide default nitrogen loss of 25% be applied to all discharges that affect groundwater in the Region. The Task Force also recommended that confirmatory, follow-up monitoring be required when a discharger requested and was granted the application of a nitrogen loss coefficient greater than 25%, based on site-specific data submitted by that discharger.

The City of Riverside presented data to the Task Force regarding nitrogen transformation and losses associated with wetlands.[4] These data support a nitrogen loss coefficient of 50%, rather than 25%, for the lower portions of Reach 3 of the Santa Ana River that overlie the Chino South groundwater management zone. [Ref. 9]. In fact, the data indicate that nitrogen losses from wetlands in this part of Reach 3 can be greater than 90%. However, given the limited database, the Task Force again recommended a conservative approach, i.e., 50% in this area, with confirmatory monitoring. The Santa Ana Water Board approved the Task Force recommendation in 2005 (Res. R8-2005-0063).

Eastern Municipal Water District (EMWD) also presented data that support a 60% nitrogen loss coefficient in the San Jacinto Basin [Ref 10F]. This 60% nitrogen loss is only applicable to discharges to the following management zones that overlie the San Jacinto Basin: Perris North, Perris South, San Jacinto Lower Pressure, San Jacinto Upper Pressure, Lakeview-Hemet North, Menifee, Canyon, and Hemet South. The Santa Ana Water Board approved this site-specific nitrogen loss coefficient in 2014 (Res. R8-2014-0005).

[4] Formerly the Hidden Valley Enhanced Wetlands Treatment Ponds.

The 25% and, where appropriate, 50% or 60% nitrogen loss coefficients will be used in developing TIN discharge limits. These coefficients will be applied to discharges that affect groundwater management zones with and without assimilative capacity.

For discharges to groundwater management zones with assimilative capacity, the default TIN discharge limitation would be calculated as follows:

$$\text{TIN Discharge Limit (mg/L)} = \frac{\text{nitrate-nitrogen current ambient water quality in the GMZ}}{(1 - \text{nitrogen loss coefficient})}$$

The Santa Ana Water Board also has the discretionary authority to adopt a higher TIN limit that would allocate some of the available assimilative capacity provided that it exercises that discretion in accordance with the State Water Board's Antidegradation Policy (Res. 68-16).

For discharges to groundwater management zones without assimilative capacity, the TIN discharge limitation would be calculated as follows:

$$\text{TIN Discharge Limit (mg/L)} = \frac{\text{nitrate-nitrogen water quality objective in the GMZ}}{(1 - \text{nitrogen loss coefficient})}$$

These coefficients do not apply to discharges with effluent limitations that are based on the TIN wasteload allocation, described in the next section, since surface and subsurface nitrogen losses were accounted for in developing this allocation.

4. TDS and Nitrogen Wasteload Allocations for the Santa Ana River

Wasteload allocations for regulating discharges of TDS and total inorganic nitrogen (TIN) to the Santa Ana River, and thence to groundwater management zones recharged by the River, are an important component of salt management for the Santa Ana Basin. As described earlier, the Santa Ana River is a significant source of recharge to groundwater management zones underlying the River and, downstream, to the Orange County groundwater basin. The quality of the River thus has a significant effect on the quality of the Region's groundwater, which is used by more than 5 million people. Control of River quality is appropriately one of the Santa Ana Water Board's highest priorities.

Sampling and modeling analyses conducted in the 1980's and early 1990's indicated that the TDS and total nitrogen water quality objectives for the Santa Ana River were being violated or were in danger of being violated. Under the Clean Water Act (Section 303(d)(1)(c); 33 USC 466 et seq.), violations of water quality objectives for surface waters must be addressed by the calculation of the maximum wasteloads that can be

discharged to achieve and maintain compliance. Accordingly, TDS and nitrogen wasteload allocations were developed and included in the 1983 Basin Plan. The nitrogen wasteload allocation was updated in 1991; an updated TDS wasteload allocated was included in the 1995 Basin Plan when it was adopted and approved in 1994/1995.

The wasteload allocations distribute a share of the total TDS and TIN wasteloads to each of the discharges to the River or its tributaries. The allocations are implemented principally through TDS and nitrogen limits in waste discharge requirements issued to municipal wastewater treatment facilities (Publicly Owned Treatment Works or POTWs) that discharge to the River, either directly or indirectly.[5] Nonpoint source inputs of TDS and nitrogen to the River are also considered in the development of these wasteload allocations. Controls on these inputs are more difficult to identify and achieve and may be addressed through the areawide stormwater permits issued to the counties by the Santa Ana Water Board or through other programs. For example, the Orange County Water District has constructed and operates more than 400 acres of wetlands ponds in the Prado Basin Management Zone to remove nitrogen in flows diverted from, and then returned to, the Santa Ana River.

Because of the implementation of these wasteload allocations, the Orange County Water District wetlands and other measures, the TDS and TIN water quality objectives for the Santa Ana River at Prado Dam are no longer being violated, as shown by annual sampling of the River at the Dam by Santa Ana Water Board staff [Ref. 10A]. However, as part of the Nitrogen/TDS Task Force studies to update the TDS/nitrogen management plan for the Santa Ana Basin, a review of the TDS and TIN wasteload allocations initially contained in this Basin Plan was conducted. In part, this review was necessary in light of the new groundwater management zones and TDS and nitrate-nitrogen objectives for those zones recommended by the Nitrogen/TDS Task Force (and now incorporated in Chapters 3 and 4). The wasteload allocations were evaluated and revised to ensure that the POTW discharges would assure compliance with established surface water objectives and would not cause or contribute to violation of the groundwater management zone objectives. The Task Force members also recognized that this evaluation was necessary to determine the economic implications of assuring conformance with the new management zone objectives. Economics is one of the factors that must be considered when establishing new objectives (Water Code Section 13241).

WEI performed the wasteload allocation analysis for both TDS and TIN [Ref. 3, 5]. In contrast to previous wasteload allocation work, the QUAL-2e model was not used for this analysis. Further, the Basin Planning Procedure (BPP) was not used to provide relevant groundwater data. Instead, WEI developed a projection tool using a surface

[5] With some exceptions that may result from groundwater pumping practices, the ground and surface waters in the upper Santa Ana Basin (upstream of Prado Dam) eventually enter the Santa Ana River and flow through Prado Dam. Discharges to these waters will therefore eventually affect the quality of the River and must be regulated so as to protect both the immediate receiving waters and other affected waters, including the River.

water flow/quality model and a continuous-flow stirred-tank reactor (CFSTR) model for TDS and TIN. The surface water Waste Load Allocation Model (WLAM) is organized into two major components - RUNOFF (RU) and ROUTER (RO). RU computes runoff from the land surface and RO routes the runoff estimated with RU through the drainage system in the upper Santa Ana watershed. Both the RU and RO models contain hydrologic, hydraulic and water quality components.

To ensure that all hydrologic regimes were taken into account, hydrologic and land use data from 1950 through 1999 were used in the analysis. The analysis took into account the TDS and nitrogen quality of wastewater discharges, precipitation and overland runoff, instream flows and groundwater. Off-stream and in-stream percolation rates, rising groundwater quantity and quality, and the 25% and 50% nitrogen loss coefficients described in the preceding section were also factored into the analysis. The purpose of the modeling exercise was to estimate discharge, TDS and TIN concentrations in the Santa Ana River and tributaries and in stream bed recharge. These data were then compared to relevant surface and groundwater quality objectives to determine whether changes in TDS and TIN regulation were necessary.

Discharges from POTWs to the Santa Ana River or its tributaries were the focus of the analysis. POTW discharges to percolation ponds were not considered. The wasteload allocation analysis assumed, correctly, that these direct groundwater discharges will be regulated pursuant to the management zone objectives, findings of assimilative capacity and nitrogen loss coefficients identified in Chapter 4 and earlier in this chapter.

The surface waters evaluated included the Santa Ana River, Reaches 3 and 4, Chino Creek, Cucamonga/Mill Creek and San Timoteo Creek. Groundwater management zones that are directly under the influence of these surface waters and that receive wastewater discharges were evaluated. These included the San Timoteo, Riverside A, Chino South, and Orange County Management Zones. In addition, wastewater discharges to the Prado Basin Management Zone were also evaluated.

WEI performed three model evaluations in order to assess wasteload allocation scenarios through the year 2010. These included a "baseline plan" and two alternative plans ("2010-A" and "2010-B"). The baseline plan generally assumed the TDS and TIN limits and design flows for POTWs specified in waste discharge requirements as of 2001. These limits implemented the wasteload allocations specified in the 1995 Basin Plan when it was approved in 1995. A TDS limit of 550 mg/L was assumed for the Rapid Infiltration and Extraction Facility (RIX) and the analysis assumed a 540 mg/L TDS for the City of Beaumont. The baseline plan also assumed reclamation activities at the level specified in the 1995 Basin Plan, when it was approved. The purpose of the baseline plan assessment was to provide an accurate basis of comparison for the results of evaluation of the two alternative plans. For alternative 2010-A, it was generally assumed that year 2001 discharge effluent limits for TDS and TIN applied to POTW discharges, but projected year 2010 surface water discharge amounts were applied. TDS limits of 550 mg/L and 540 mg/L were again assumed for RIX and the City of Beaumont discharges. The same limited reclamation and reuse included in the baseline

plan was assumed (see R8-2014-0001, 2004 Salt Plan Amendments, Table 5-7 in Section III.B.5.). For alternative 2010-B, POTW discharges were also generally limited to the 2001 TDS and TIN effluent limits (RIX was again held to 550 mg/L and Beaumont to 540 mg/L). However, in this case, large increases in wastewater recycling and reuse were assumed (R8-2014-0001, 2004 Salt Plan Amendments Table 5-7), resulting in the reduced surface water discharges projected for 2010.

Analysis of the model results demonstrated that the TDS and nitrogen objectives of affected surface waters would be met and that water quality consistent with the groundwater management zone objectives would be achieved under both alternatives. It is likely that water supply and wastewater agencies will implement reclamation projects with volumes that are in the range of the two alternatives. The wasteload allocations would be protective throughout the range of surface water discharges identified. The year 2010 flow values are not intended as limits on POTW flows; rather, these flows were derived from population assumptions and agency estimates and are used in the models for quality projections. Surface water discharges significantly different than those projected will necessitate additional model analyses to confirm the propriety of the allocations. The Santa Ana Water Board has relied on this model to derive appropriate waste discharge requirements for TIN and TDS from 2004 through 2021.

The wasteload allocations are periodically updated to reflect the best available science and data. SAWPA's Basin Monitoring Program Task Force, which includes Santa Ana Water Board staff, began updating the WLAM in 2017. As part of that process, a number of significant improvements were made to the 4th generation WLAM developed by Geoscience Support Services, Inc. (Geoscience). Wildermuth Environmental Inc.'s proprietary model was replaced with an open-source Hydrologic Simulation Program Fortran (HSPF) program endorsed by both United States Environmental Protection Agency (USEPA) and United States Geological Survey (USGS).[6] The model domain, which originally ended at Prado Dam, was expanded to include Reaches 1 and 2 of the Santa Ana River overlying the Orange County groundwater management zone. In addition, the model was extended to Reaches 1 through 6 of Temescal Creek overlying the Upper Temescal Valley groundwater management zone. The range of probable precipitation conditions was expanded from a 50-year historical record to 67-year historical record. A number of new quantitative metrics were employed to evaluate accuracy and precision during the model calibration process. In addition, output from Geosciences' new WLAM were compared to outputs produced by the existing WLAM, for Reaches 3 and 4 of the Santa Ana River (above MWD Crossing), to ensure that the results from the HSPF model were comparable to Wildermuth Environmental Inc.'s proprietary model before proceeding to develop the HSPF version for the entire watershed. Following a long and rigorous calibration process, the update process was completed in June of 2020.[7,8] The Task Force concluded that the new HSPF model

[6] See https://www.epa.gov/ceam/hydrological-simulation-program-fortran-hspf.
[7] Geoscience Support Services, Inc. Santa Ana River Waste Load Allocation Model Update Summary Report. June 19, 2020.
[8] As part of calibration for the new HSPF model, Geosciences relied on the Army Corps of Engineers

was performing as well or better than the WLAM previously approved by the Santa Ana Water Board in 2004.

The calibrated HSPF model was used to assess three different volume-based discharge assumptions (maximum expected, minimum expected and most likely) for the municipal wastewater treatment plants (or POTWs) under two different land use conditions (2020, 2040). Daily river flows and TDS/TIN concentrations were estimated for all six of these scenarios using 67 years of historical precipitation data from numerous rain gages throughout the watershed. Results from these modeling simulations were used to determine if the existing effluent limits and waste discharge requirements for municipal wastewater treatment facilities would continue to assure compliance with the applicable water quality objectives for nitrate-nitrogen and TDS water quality objectives in each groundwater management zones beneath the Santa Ana River. During the six simulation runs, TIN and TDS concentrations in wastewater discharged from all POTWs were assumed to be equal to the maximum permitted concentration allowed in each facility's current NPDES permit. This conservative assumption was designed to provide a margin-of-safety around the model estimates and is the same procedure previously approved by the Santa Ana Water Board for the 2004 WLAM.

In order to determine whether the proposed wasteload allocation would achieve its intended purpose, the volume-weighted 10-year average concentration of TIN and TDS percolating through the streambed was compared to the relevant water quality objectives and current ambient qualities in each groundwater management zone. A 10-year volume weighted average concentration was selected as the compliance metric because it was considered conservative as compared to existing objectives, which are based on a 20-year volume weighted average. Notably, a shorter averaging period of 5-years (as a 5-year moving average) is used to evaluate compliance with TDS objectives for Reach 2 of the Santa Ana River, and baseflow conditions are used to evaluate compliance with the baseflow objectives for nitrate-nitrogen and TDS at Santa Ana River Reach 3 Below Prado Dam.[9]

The updated WLAM demonstrated that continued reliance on existing effluent limits for TIN and TDS would not cause an exceedance of related water quality objectives in groundwaters affected by recharge from treated municipal wastewater; nor is it expected to result in significant lowering of existing water quality. The wasteload allocations for TDS and TIN are specified in Table 5-5.

The WLAM does not evaluate off channel discharges of treated wastewater or off-channel uses of recycled water for landscape or crop irrigation, and thus the wasteload allocations in Table 5-5 are not directly applicable to such discharges. The wasteload

operating rules for both 7 Oaks Dam and Prado Dam. Notably, the operating rules for Prado Dam define ranges of flow rates, not a specific flow rate, that can be released from the dam. As such, it is not possible to achieve “perfect” calibration of the model.

[9] A summary of the simulation results for all six scenarios can be found in the Staff Report as well as in Tables 2-1 and 2-2 and Tables 4 and 5 of Geosciences Final Santa Ana River Waste Load Allocation Model Update – Supplemental Report dated September 20, 2021.

allocations in Table 5-5 will be applied only to the surface water discharges of these POTWs to the Santa Ana River and its tributaries. Except as identified in Table 5-5, the results from the updated WLAM as articulated in the June 2020 report may not be used to support new permits or changes to existing effluent limits, until the updated WLAM is further validated using actual precipitation data and actual discharge data to compare WLAM projections to actual observations at Prado Dam. Results from the WLAM for each major segment of the Santa Ana River and key tributaries are discussed in greater detail in the Staff Report.

Implementation of Wasteload Allocations in Waste Discharge Requirements

For discharges regulated by an NPDES permit, the effluent limits for TIN and TDS shall be set no higher than the concentrations shown in Table 5-5 (below) unless the Santa Ana Water Board authorizes an alternative compliance mechanism through an approved offset program. The Santa Ana Water Board retains authority and discretion to impose effluent limits that are more stringent than those shown in Table 5-5 when it is necessary to protect beneficial uses or prevent significant water quality degradation.

Effluent limits that are imposed for the purpose of implementing the approved wasteload allocation for TIN shall require dischargers to demonstrate compliance based on a 12-month volume-weighted running average that is updated every month.[10]

Effluent limits that are imposed for the purpose of implementing the approved wasteload allocation for TDS shall generally require dischargers to demonstrate compliance based on a 60-month running average. The Santa Ana Water Board may consider imposing effluent limitations for TDS identified in Table 5-5 (below) using shorter or longer averaging periods (not to exceed an averaging period of 120-months as a volume-weighted running average) based on case-by-case evaluation that considers the dischargers ongoing actions and activities that are being implemented to address and/or avoid long-term salinity impacts.[11]

For discharges not otherwise identified in Table 5-5 (below), effluent limits for TIN and TDS shall be set no higher than the applicable water quality objective for the relevant receiving stream or groundwater basin, whichever is lower. If the current ambient quality is better (i.e. lower concentration) than the applicable water quality objective, the discharger may request an allocation of assimilative capacity by making the demonstrations mandated in the State Water Board's Antidegradation Policy (Res. 68-16). The Santa Ana Water Board is not obligated to allocate assimilative capacity but

[10] As part of the 2004 wasteload allocation process, it was determined that effluent limits associated with ensuring compliance with the nitrate-nitrogen water quality objectives in the Basin Plan would be expressed as Total Inorganic Nitrogen (TIN). This decision was done in an effort to be conservative and to provide a small safety factor. In general, the amount of nitrate-nitrogen in TIN is about 85%. Thus, the TIN effluent limits are more conservative than if they were expressed as nitrate-nitrogen.

[11] This provision of the Basin Plan is not intended to change or amend other Basin Plan provisions that apply to dischargers subject to Maximum Benefit Implementation Plans for Salt Management that are specified in Chapter 5, TDS/Nitrogen Management Plan, Section VI.

may elect to do so at its discretion.[12]

5. Implementation of Other Salinity-related Water Quality Objectives

In addition to the TDS objectives in the Basin Plan, Table 4-1 also specifies water quality objectives for certain individual salt ions (sodium, chloride, sulfate, hardness, etc.) for several stream segments. These other salinity objectives were developed based on limited sampling data collected in the early 1970's for the purpose of implementing the State Water Board's Antidegradation Policy (Res. 68-16). The objectives for sodium, chloride, sulfate, and hardness (shown in Table 4-1) are intended to represent baseline water quality as it existed back then and are not intended to define use-impairment thresholds.

The history of the Basin Plan also shows that such individual salt ion objectives were established for the intervening period to preserve baseline water quality until such time that appropriate water quality objectives designed to protect beneficial uses could be developed and adopted by the Santa Ana Water Board. Under Porter-Cologne, the term "water quality objectives" is actually defined to mean "the limits or levels of water quality constituents or characteristics which are established for the reasonable protection of beneficial uses of water or the prevention of nuisance within a specified area."[13] Thus, "traditional" water quality objectives should represent use-impairment thresholds rather than baseline water quality. Exceedances of objectives developed from limited sampling data that was designed to represent baseline water quality may indicate that water quality degradation is occurring but should not automatically be construed as evidence that beneficial uses are threatened or impaired.

In 2010, the Santa Ana Water Board determined that it was not necessary to impose separate waste discharge requirements for all of the other individual salt ions if an NPDES permit already contained effluent limits for TDS. This determination is supported by the fact that these effluent limits were intended to serve the same regulatory purpose for protecting existing high quality waters from increases in salinity through implementation of the State Water Board's Antidegradation Policy (Res. 68-16).[14] The State Water Board has also stated that the Santa Ana Water Board has discretion to impose separate effluent limits for TDS and various individual ions or through application of a single effluent limit.[15] Thus, the Santa Ana Water Board may impose effluent limits for both TDS and the individual salt ions that make up TDS but is not required to do so.

The WLAM described above (§III-B-4) focuses exclusively on how combined discharges to the Santa Ana River are likely to affect overall salinity (TDS) in the underlying groundwater basins. The WLAM does not evaluate any of the individual salt ions.

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[12] CA Water Code §13263(b).
[13] CA Water Code, §13050(h).
[14] Santa Ana Water Board Res. No. R8-2010-0012 (March 18, 2010).
[15] State Water Board Order No. 82-5; In the Matter of the Petition of Chino Basin Municipal Water District for Review of Orders 81-27 and 81-28, NPDES Permits Nos. CA0105279 and CA0105287.

Compliance with the wasteload allocation and related effluent limits for TDS are deemed sufficient to demonstrate compliance with the water quality objectives for individual salt ions shown in Table 4-1 in Chapter 4. In addition, the water quality objectives for individual salt ions (chloride, sodium, sulfate, and hardness) shown in Table 4-1 were established for the purpose of specifying the existing baseline quality and maintaining existing water quality until such time that traditional water quality objectives associated with use impairment could be develop and adopted into the Basin Plan. These levels were believed to be better than necessary to protect the designated beneficial uses at the time they were established. The water quality objectives for individual salt ions were not designed or intended to protect any specific beneficial use such as WARM, COLD, WILD, RARE, AGR or MUN.

6. Future Planning Priorities

Dischargers identified in Table 5-5 (below) are required to prepare and submit an updated wasteload allocation to the Santa Ana Water Board approximately every 10 years - commencing from the effective date of the wasteload allocation most recently approved by the Santa Ana Water Board. Dischargers may elect to undertake and complete this task individually or by participating in a collaborative project like those previously sponsored by SAWPA's Basin Monitoring Program Task Force. The wasteload allocation update shall evaluate compliance with existing water quality objectives and the state Antidegradation Policy for a period of not less than 20 years and shall take into consideration changes in land uses, receiving water quality for both surface water and groundwaters, changes in the volume or quality of discharges from point and non-point sources, variations in precipitation, new or revised regulatory requirements, and any other factors specified by the Santa Ana Water Board.

On December 11, 2018, the State Water Board adopted a revised Water Quality Control Policy for Recycled Water, which became effective on April 8, 2019 (2019 Recycled Water Policy). The 2019 Recycled Water Policy requires the Santa Ana Water Board to evaluate Salt and Nutrient Management Plans adopted as a Basin Plan Amendment prior to April 8, 2019 by April 8, 2024. The TDS/Nitrogen Management Plan as included in the Basin Plan was adopted prior to April 8, 2019, and must be evaluated by the Santa Ana Water Board prior to April 8, 2024. From this review, the Santa Ana Water Board, in consultation with stakeholders, must update basin evaluations of available assimilative capacity, projected trends, and concentrations of salts and nutrients in groundwater, then determine whether potential updates or revisions to the TDS/Nitrogen Management Plan may be warranted, or to make the plan consistent with the provisions of the 2019 Recycled Water Policy.

The Santa Ana Water Board, in consultation with the Basin Monitoring Program Task Force, will conduct the review as required by the 2019 Recycled Water Policy. This review will include evaluating the current surface and groundwater monitoring and reporting provisions of the Basin Plan to determine what updates may need to occur to ensure that the Basin Plan is consistent with the 2019 Recycled Water Policy.

Table 5-5: Wasteload Allocations for TDS and TIN in the 2020 - 2040 Permitting Period[16]

Permittee & Discharges	Primary Receiving Water(s)		Discharge *(mgd)*[17]		TDS *(mg/L)*	TIN *(mg/L)*
	Surface Stream(s)	Groundwater MZ(s)	2020	2040		
City of Beaumont[18]	Noble Cr, Cooper's Cr. to San Timoteo Cr.-R4[19]	Beaumont & San Timoteo	3.8 (1.8)	6.3 (1.8)	300 (400)	3.6 (6.0)
Yucaipa Valley Water District[20]	San Timoteo Cr.-R3	San Timoteo	8.0	8.0	400	5.5
City of San Bernardino: Geothermal Discharges	East Twin Cr. & Warm Cr. to SAR-R5	Bunker Hill-A & B	1.0	1.0	264	0.7
City of Rialto	SAR-R4	Riverside-A	7.2	18.0	490	10.0
RIX (Cities of Colton & San Bernardino)	SAR-R4	Riverside-A	34.5	30.1	550	10.0
City of Riverside-RWQCP[21]	SAR-R3	Chino-South[22]	33.8	46.0	650	10.0[23]
City of Corona: WWTP-1	Temescal Cr.-R1A	N/A (PBMZ)	11.5	15.0	700	10.0
Inland Empire Utilities Agency: [24] RP1, RP4, RP5, & CC	Chino Cr. & Cucamonga Cr.	Chino-North (or PBMZ)[25]	85	107.0	550	8.0
Western MWD: WRCRWA	SAR-R3	N/A (PBMZ)	12.0	15.3	625	10.0
Western MWD: Arlington Desalter	Temescal Cr.-R1A	N/A (PBMZ)	7.25	7.25	260	4.4
Temescal Valley Water District-TVWRF	Temescal Cr.-R2	Upper Temescal Vly.	2.3	2.3	650	10.0[26]
Elsinore Valley MWD: RWWRF-DP001	Temescal Cr.-R5	Upper Temescal Vly.	8.0	12.0	700	10.0[27]
Eastern MWD: SJV, MV, PV, SC, TV	Temescal Cr.-R5[28]	Upper Temescal Vly.	52.5	52.5	650	10.0

[16] WLA is reviewed and revised approximately every ten 10 years; next WLA update, for the 2030-2050 planning period, is scheduled to occur in 2030.
[17] Maximum Authorized Discharge = average daily flow discharged to surface waters (expressed as an annualized average).
[18] Effluent limits revert to 320 mg/L for TDS and 4.1 mg/L for TIN if Reg. Bd. determines that Beaumont failed to comply with Maximum Benefit conditions.
[19] Higher effluent limits apply only to first 1.8 mgd. Lower effluent limits apply to discharges greater than 1.8 mgd.
[20] Effluent limits revert to 320 mg/L for TDS and 4.1 mg/L for TIN if Reg. Bd. determines that YVWD failed to comply with Maximum Benefit conditions.
[21] Includes the City's planned discharges to Anza Drain, Old Farm Rd. Channel, Tequesquite Arroyo & Evans Drain (all are tributary to SAR-R3).
[22] No significant streambed percolation occurs in the upper segment of SAR-R3 overlying the Riverside-A GMZ (i.e. the Riverside Narrows area).
[23] Effluent limit for TIN is more stringent than the 2004 WLA but is consistent with the requirements of Order No. R8-2013-0016 and current plant performance.
[24] Compliance with the applicable effluent limit is evaluated collectively based on the volume-weighted average of all four POTW (aka "bubble permit").
[25] The Prado Basin Management Zone (PBMZ) is a surface water feature where no significant groundwater storage or streambed percolation occurs.
[26] Effluent limit for TIN is more stringent than the 2004 WLA and is based on Best Practicable Treatment or Control for TIN by POTWs in the region.
[27] Effluent limit for TIN is more stringent than the 2004 WLA and based on the treatment plant's design and demonstrated performance.
[28] Discharge occurs only in years where average annual rainfall is greater than the long-term median value and only in the wettest 6 months of those years.

Source: Geoscience Support Services, Inc. Santa Ana River Wasteload Allocation Model Update – Summary Report. June 19, 2020 (see Table 20) and Santa Ana River Wasteoad Allocation Model Update – Supplemental Report. September 20, 2021 (see Table X).

(Starting from page 5-38 of Chapter 5 of the Basin Plan)

V. Salt Management Plan -- Monitoring Program Requirements

California Water Code Section 13242 specifies that Basin Plan implementation plans must contain a description of the monitoring and surveillance programs to be undertaken to determine compliance with water quality objectives. The adoption of groundwater TDS and nitrate-nitrogen water quality objectives (Chapter 4) in response to the studies sponsored by the N/TDS Task Force triggered the need to develop and implement a watershed-wide nitrogen/TDS monitoring program. The Task Force provided additional impetus for this comprehensive monitoring program. The Task Force recommended that future review and update of the salt management plan, including findings of assimilative capacity, appropriate changes to the wasteload allocations, etc., should be based on real-time data obtained through a rigorous monitoring program, rather than on model projections. As discussed earlier (see Section II., Update of the Total Dissolved Solids/Nitrogen Management Plan), the Task Force concluded that the development of new, workable modeling tools to assist in this review was beyond the scope and financial capability of the Task Force.

The monitoring program, approved by the Santa Ana Water Board in 2005 (Resolution R8-2005-0063), consists of both surface water and groundwater components. Certain agencies have also committed to conduct monitoring of specific water bodies as part of their "maximum benefit" proposals (see Section VI., Maximum Benefit Implementation Plans for Salt Management, below). The N/TDS Task Force members, and other parties as appropriate, are required to implement these approved monitoring programs.

A. Surface Water Monitoring Program Requirements for TDS and Nitrogen

Implementation of a surface water monitoring program is needed to determine compliance with the nitrogen and TDS objectives of the Santa Ana River, and thereby, the effectiveness of the wasteload allocations. It is also needed to provide data required to evaluate the effects of surface water discharges on affected groundwater management zones.

As discussed in Chapter 4, the Basin Plan specifies baseflow TDS and total nitrogen objectives for Reach 3 of the River. For Reach 2, a TDS objective based on a five- year moving average of the annual TDS concentration is specified. Use of this moving average allows the effects of wet and dry years to be integrated over the five- year period and reflects the actual long-term quality of water recharged by Orange County Water District downstream of Prado Dam.

The Basin Plan specifies a monitoring program to determine compliance with the Reach 3 baseflow objectives at Prado Dam (see Chapter 4). As noted above,

Santa Ana Water Board staff undertakes and supervises this program on an annual basis. Measurement of baseflow quality at below Prado Dam, rather than the quality of flows in Reach 2, has long been used to indicate the effects of recharge of Santa Ana River flows on Orange County groundwater. The efficacy of this approach was evaluated as part of the 2004 update of the TDS/nitrogen management plan in the Basin Plan. At that time, insufficient data were available to draw a direct correlation between the long-term TDS and nitrogen quality of River flows at Prado Dam and that of affected Orange County groundwater. However, the conclusion drawn was that reliance on the Reach 3 baseflow objectives to protect Orange County groundwater, and the existing monitoring program designed to measure compliance, is adequate unless the Santa Ana Water Board elects to adopt a different approach if and when better data becomes available.

In addition to this baseflow sampling program and the surface water monitoring commitments associated with certain agencies' "maximum benefit" programs, the comprehensive monitoring program implemented by the Task Force members, and other agencies as appropriate, includes an evaluation of compliance with the TDS and nitrogen objectives for Reaches 2, 3, 4 and 5 of the Santa Ana River. Compliance with these objectives is determined by evaluation of data collected by the Santa Ana Water Board staff, Santa Ana River Watermaster, Orange County Water District, the United States Geological Survey, and others.

Surface water monitoring program requirements for TDS and nitrogen are as follows:

1. No later than August 1, 2022, Orange County Water District, Inland Empire Utilities Agency, Chino Basin Watermaster, City of Riverside, City of Corona, Elsinore Valley Municipal Water District, Eastern Municipal Water District, City of Colton, City of San Bernardino Municipal Water Department, Colton/San Bernardino Regional Tertiary Treatment & Wastewater Reclamation Authority, Jurupa Community Services District, Western Riverside County Regional Wastewater Authority, Temescal Valley Water District, Yucaipa Valley Water District, City of Beaumont, City of Banning, Beaumont Cherry Valley Water District, San Gorgonio Pass Water Agency, and the City of Rialto shall submit to the Santa Ana Water Board for approval, an updated surface water TDS and nitrogen monitoring program that will provide an evaluation of compliance with the TDS and nitrogen objectives for Reaches 2, 3, 4 and 5 of the Santa Ana River.

   In lieu of this coordinated monitoring plan, one or more of the parties identified in the preceding paragraph may submit an individual or group monitoring plan. Any such individual or group monitoring plan shall also be submitted no later than August 1, 2022.

2. By August 1st of each year, the Orange County Water District, Inland Empire Utilities Agency, City of Riverside, City of Corona, Elsinore Valley Municipal Water District, Eastern Municipal Water District, Temescal Valley Water District, City of Colton, City of San Bernardino Municipal Water Department, Colton/San Bernardino Regional Tertiary Treatment & Wastewater Reclamation Authority, Jurupa Community Services District, Western Riverside County Regional Wastewater Authority, Yucaipa Valley Water District, City of Beaumont, City of Banning, Beaumont Cherry Valley Water District, San Gorgonio Pass Water Agency, Chino Basin Watermaster, and the City of Rialto, shall submit an annual report of surface water quality for the stream segments identified above. Data evaluated shall include that collected by the Santa Ana Water Board staff, Santa Ana River Watermaster, Orange County Water District, and the US Geologic Survey, at a minimum.

In lieu of this coordinated annual report, one or more of the parties identified in the preceding paragraph may submit an individual or group annual report. Any such individual or group report shall also be submitted by August 1st of each year.

Additional surface water monitoring programs may be specified by the Santa Ana Water Board ~~Regional Board~~ depending upon watershed conditions, waste discharge specifications and/or any special studies related to TDS and nitrogen. In addition, the Executive Officer may require other dischargers to comply with the monitoring and reporting obligations described above by issuing an order pursuant to Section 13267 of the California Water Code.

B. Groundwater Monitoring Program for TDS and Nitrogen

Implementation of a watershed-wide TDS/nitrogen groundwater monitoring program is necessary to assess current water quality, to determine whether TDS and nitrate- nitrogen water quality objectives for management zones are being met or exceeded, and to update assimilative capacity findings. Groundwater monitoring is also needed to fill data gaps for those management zones with insufficient data to calculate TDS and nitrate-nitrogen historical quality and current quality. Finally, groundwater monitoring is needed to assess the effects of POTW discharges to surface waters on affected groundwater management zones.

Groundwater monitoring requirements for TDS and nitrogen are as follows:

No later than August 1, 2022, Orange County Water District, Irvine Ranch

Water District, Inland Empire Utilities Agency, Chino Basin Watermaster, City of Riverside, City of Corona, Elsinore Valley Municipal Water District, Eastern Municipal Water District, City of Colton, City of San Bernardino Municipal Water Department, Colton/San Bernardino Regional Tertiary Treatment & Wastewater Reclamation Authority, City of Redlands, Jurupa Community Services District, Western Riverside County Regional Wastewater Authority, Temescal Valley Water District, Yucaipa Valley Water District, City of Beaumont, San Gorgonio Pass Water Agency, City of Banning, Beaumont Cherry Valley Water District and the City of Rialto shall submit to the Santa Ana Water Board for approval, an updated watershed-wide TDS and nitrogen monitoring program that will provide data necessary to implement the TDS/nitrogen management plan. Data to be collected and analyzed shall address, at a minimum: (1) determination of current ambient quality in groundwater management zones; (2) determination of compliance with TDS and nitrate- nitrogen objectives for the management zones; (3) evaluation of assimilative capacity findings for groundwater management zones; ~~and~~ (4) assessment of the effects of recharge of surface water POTW discharges on the quality of affected groundwater management zones; and (5) any other additional requirements specified in the State Water Board's 2019 Recycled Water Policy. The determination of current ambient quality can be accomplished using methodology consistent with that employed by the Nitrogen/TDS Task Force (20-year running averages) to develop the TDS and nitrogen water quality objectives included in this Basin Plan [Ref. 1], or an alternative method approved by the Executive Officer of the Santa Ana Water Board. The determination of current ambient groundwater quality must be reported by October 1, 2023, and, at a minimum, every five years thereafter unless the Santa Ana Water Board revises this schedule.

In lieu of this coordinated monitoring plan, one or more of the parties identified in the preceding paragraph may submit an individual or group monitoring plan. Any such individual or group monitoring plan shall also be due no later than August 1, 2022.

Details to be included in the proposed monitoring program shall include, but not be limited to, the following:

- monitoring program goals
- responsible agencies
- groundwater water sampling locations
- surface water sampling locations (if appropriate)
- water quality parameters
- sampling frequency
- quality assurance/quality control
- database management

- data analysis and reporting

  Within 30 days of Santa Ana Water Board approval of the proposed monitoring plan, the updated monitoring plan must be implemented.

Additional groundwater monitoring programs may be specified by the Santa Ana Water Board depending upon watershed conditions, waste discharge specifications and/or any special studies related to TDS and nitrogen. In addition, the Executive Officer may require other dischargers to comply with the monitoring and reporting obligations described above by issuing an order pursuant to Section 13267 of the California Water Code.

Basin Monitoring Program Task Force

Subsequent to the approval of the Region's Salt and Nutrient Management Plan in 2004, a new task force, the "Basin Monitoring Program Task Force" (BMPTF) was formed to implement the requisite nitrogen/TDS monitoring and analyses programs described previously. SAWPA serves as the administrator for the BMPTF. The Task Force currently includes the following agencies:

- Eastern Municipal Water District
- Inland Empire Utilities Agency
- Orange County Water District
- Temescal Valley Water District
- Elsinore Valley Municipal Water District
- Irvine Ranch Water District
- Yucaipa Valley Water District
- Jurupa Community Services District
- Western Riverside Co. Regional Wastewater Authority
- Chino Basin Watermaster
- San Bernardino Valley Municipal Water District
- City of Riverside
- City of Beaumont
- City of Corona
- City of Redlands
- City of Rialto
- City of Banning
- Colton/San Bernardino Regional Tertiary Treatment & Wastewater Reclamation Authority
- Beaumont Cherry Valley Water District
- San Gorgonio Pass Water Agency

Declaration of Conformance

Another major activity completed by ~~that~~ the BMPTF was the development of a "Declaration of Conformance" (Declaration) that was approved by the Santa Ana Water Board on March 18, 2010 (Resolution R8-2010-0012) and subsequently transmitted to the State Water Board on April 12, 2010. With the Declaration, the Task Force and Santa Ana Water Board declared conformance with the then-new State Water Board Recycled Water Policy requirements for the completion of a salt and nutrient management plan for the Santa Ana Region, and other requirements of this Policy. This finding of conformance was based on the work of the Nitrogen/TDS Task Force. That work resulted in the 2004 adoption of Basin Plan amendments to incorporate a revised Salt and Nutrient Management Plan for the Region (Resolution No. R8-2004-0001).

Further, the Declaration documented conformance with the emerging constituents monitoring requirements in the Policy through the "Emerging Constituents Sampling and Investigation Program," submitted to the Santa Ana Water Board by the Emerging Constituents (EC) Program Task Force. The EC Sampling and Investigation Program is reviewed periodically and revised as necessary to integrate the State Board's recommendations when they become available. Finally, the Declaration of Conformance documents the analyses and procedures that will be used to streamline the permitting process for recycled water projects, as required by the Policy.

Salt Monitoring Cooperative Agreement

In January 2008, the Santa Ana Water Board entered into a Cooperative Agreement with several water and wastewater agencies in the Santa Ana River Watershed to analyze and report the amount of salt and nitrates entering local groundwater aquifers as a consequence of recharging imported water in the region. The "Cooperative Agreement to Protect Water Quality and Encourage the Conjunctive Use of Imported Water in the Santa Ana River Basin" is Attachment A to Resolution No. R8-2008-0019.

As with the BMPTF effort underwritten by local stakeholders, the Cooperative Agreement obligates signatories to assess current groundwater quality every three years. In addition, the signatories have agreed to estimate every six years the changes that are likely to occur in groundwater quality as a result of on-going and expected projects that recharge imported water. By emphasizing the use of "real-time" monitoring, rather than complex fate and transport models, the Santa Ana Water Board is better able to evaluate the effects of these recharge projects.

The parties of the Cooperative Agreement execute the terms of the agreement through a workgroup of the Basin Monitoring Program Task Force that meets regularly under the administration of SAWPA. As the Task Force administrator, SAWPA assists in coordination among the signatories of the necessary basin salinity monitoring and modeling reports, along with final compilation and submittal of the reports to the Santa

Ana Water Board by the deadlines defined in the Cooperative Agreement. On March 3, 2021, the first Amendment to the Cooperative Agreement was executed by the Santa Ana Water Board Executive Officer and the signatory agency representatives.

Substitute Environmental Document for the Proposed 2020 Total Dissolved Solids and Nitrogen Management Plan Basin Plan Amendment

Submitted to:

Santa Ana Watershed Project Authority

Basin Monitoring Program Task Force

Prepared by:

GEI Consultants, Inc.

In collaboration with:

LeClaire & Associates

October 7, 2021

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Attachments

Acronyms

AQMP	Air Quality Management Plan
AWQ	Ambient Water Quality
Basin Plan	Water Quality Control Plan for the Santa Ana River Basin
BMP	Best Management Practice
BPTC	Best Practicable Treatment or Control
CA DWR	California Department of Water Resources
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CWC	California Water Code
EIR	Environmental Impact Report
EMWD	Eastern Municipal Water District
EVMWD	Elsinore Valley Municipal Water District
GMZ	Groundwater Management Zone
GSSI	Geosciences Support Services Inc.
HSPF	Hydrologic Simulation Program Fortran
IEUA	Inland Empire Utilities Agency
L&A	LeClaire and Associates
MCL	maximum contaminant level
mgd	million gallons per day
mg/L	milligrams per liter
MND	Mitigated Negative Declaration
MUN	Municipal and Domestic Supply
MWD	Metropolitan Water District
MV	Moreno Valley
N	Nitrogen
ND	Negative Declaration
NPDES	National Pollutant Discharge Elimination System
OAL	Office of Administrative Law
OCWD	Orange County Water District
PBMZ	Prado Basin Management Zone
PM	Particulate Matter
POTW	Publicly Owned Treatment Works
Proposed Action	Proposed Amendments to the Basin Plan's Total Dissolved Solids and Nitrogen Management Program
PV	Perris Valley

RARE	Rare and Endangered Species
REC1	Water Contact Recreation
RIX Facility	Rapid Infiltration and Extraction Facility
RP	Regional Plant
RWQCP	Regional Water Quality Control Plant
RWWRF	Regional Wastewater Reclamation Facility
Santa Ana Water Board	California Santa Ana Regional Water Quality Control Board
SAR	Santa Ana River
SAWPA	Santa Ana Watershed Project Authority
SC	Sun City
SCAB	Southern Coast Air Basin
SCAG	Southern California Association of Governments
SCAQMD	Southern Coast Air Quality Management district
SED	Substitute Environmental Document
SJV	San Jacinto Valley
State Water Board	State Water Resources Control Board
Task Force	Nitrogen-TDS Task Force or Basin Monitoring Program Task Force
TDS	Total Dissolved Solids
TDS/N	TDS and Nitrogen
TIN	Total Inorganic Nitrogen
TN	Total Nitrogen
TV	Temecula Valley
WARM	Warm Freshwater Habitat
WEI	Wildermuth Environmental
WILD	Wildlife Habitat
WLA	Wasteload Allocation
WLAM	Wasteload Allocation Model
WMWD	Western Municipal Water District
WQO	Water Quality Objective
WRF	Water Reclamation Facility
WRCRWA	Western Riverside County Regional Wastewater Authority
WSC	Water Systems Consulting, Inc.
WWTP	Wastewater Treatment Plant
Yr	Year

1.0 Introduction

1.1 Background and Purpose

As the Lead Agency[1], the California Santa Ana Regional Water Quality Control Board (Santa Ana Water Board) is required to comply with the California Environmental Quality Act (CEQA) when considering amendments to the Water Quality Control Plan for the Santa Ana River Basin (Basin Plan). The Santa Ana Water Board is proposing to amend the portion of Chapter 5 (Implementation) of the Basin Plan that addresses Total Dissolved Solids and Nitrogen Management. The proposed amendments include the following modifications to this chapter of the Basin Plan:

- Update the Waste Load Allocation Model (WLAM) that provides the basis for the establishment of Total Dissolved Solids (TDS) and Total Inorganic Nitrogen (TIN) wasteload allocations (WLAs) in the Santa Ana River Watershed.
- Update Table 5-5 of the Basin Plan to establish updated WLAs applicable to wastewater treatment facilities in the watershed.
- Provide direction to permit writers regarding how to assess compliance with TDS/TIN effluent limitations included in waste discharge requirements.
- Clarify the use of the mineral increments described in the Basin Plan (Chapter 5, Total Dissolved Solids and Nitrogen Management, Section III.B.2) when establishing waste discharge requirements.
- Clarify that the antidegradation review conducted during the permit process for salinity-related constituents should focus on TDS rather than individual salt ions.

This Substitute Environmental Document (SED) has been prepared to address the potential environmental effects of the proposed amendments to the Basin Plan's Total Dissolved Solids and Nitrogen Management program (Proposed Action). Section 2 provides a more detailed description of the Proposed Action and Section 3 describes the overall environmental setting including current baseline conditions. Section 4 provides the environmental analysis using the CEQA Environmental Checklist that serves as the basis for a systematic evaluation of the potential for the proposed Basin Plan amendment to result in a

[1] "The Lead Agency, as defined by CEQA, is the public agency that has the primary responsibility for carrying out or approving a project. (State CEQA Guidelines §15367.) To be a CEQA Lead Agency, the public agency must have discretionary authority over the proposed project. The Lead Agency also has the primary responsibility for determining what level of CEQA review is required for a project and for preparing and approving the appropriate document (e.g., ND, mitigated negative declaration [MND], or EIR)." https://ceqaportal.org/tp/Lead%20Agency%20Responsible%20Trustee%2003-23-16.pdf

significant impact relative to a variety of environmental factors. Section 5 includes a brief discussion of alternatives to the Proposed Action.

1.2 Regulatory Setting

Pursuant to §15251(g) of the CEQA Guidelines, the Water Quality Control/Section 208 Planning Program of the State and Regional Water Boards is exempt from the requirements of preparing an Environmental Impact Report (EIR), Negative Declaration (ND) or Initial Study. However, the program is subject to other provisions in CEQA, including the policy of avoiding significant adverse effects on the environment where feasible. This is to be presented in an SED which includes, at a minimum, a description of the proposed activities and either: (1) alternatives to the activities and mitigation measures to avoid or reduce any significant or potentially significant effects that the Proposed Action may have on the environment; or (2) a statement that the Proposed Action would not have any significant or potentially significant effects on the environment as supported by a checklist or other documentation.

Preparation of the SED to support an amendment to the Basin Plan requires the completion of an environmental analysis of the Proposed Action (Environmental Checklist) that includes: (1) a brief description of the Proposed Action; (2) reasonable alternatives to the Proposed Action; and (3) mitigation measures to minimize any significant adverse environmental impacts identified during the analysis. The environmental analysis must consider a reasonable range of environmental, economic, and technical factors, population and geographic areas, and sites. Where specific data are not available, a Regional Water Board may utilize numerical ranges and averages but is neither required nor encouraged to engage in speculation or conjecture.

A project-specific level analysis is not required nor is it feasible. Pursuant to California Water Code (CWC) §13360, a Regional Water Board is prohibited from specifying the design, location, type of construction, or particular manner of compliance with waste discharge requirements or other orders. Instead, those entities subject to the proposed Basin Plan amendment are responsible for identifying compliance strategies and conducting the required CEQA analysis of implementation of the selected strategies at the project-level, as applicable. Thus, a Regional Water Board cannot conduct project-level CEQA analyses of strategies that would be implemented by others, nor is it required to do so.

Consistent with the CEQA Guidelines and Water Code Sections identified above, the environmental analysis contained herein includes a written analysis that evaluates reasonably foreseeable environmental effects of the Proposed Action (Section 4) on the range of environmental factors included in the CEQA Environmental Checklist. For each factor analyzed, reasonably foreseeable methods of compliance are described (if any) and findings of significance (if any) are summarized. Section 5 briefly discusses alternatives to the Proposed Action.

Pursuant to Public Resources Code §21080.3.1, the Santa Ana Water Board formally provided notification to California Native American tribes in the project area of the decision to amend the Basin Plan to update the WLAs for the Wastewater Treatment Plants (WWTP) in Chapter 5 of the Basin Plan and to notify them of the consultation opportunity. Pursuant to Public Resources Code §21080.3.1.(d) the notification included a description of the proposed project, a map showing the project location, and the name of the Santa Ana Water Board's project point of contact. **Attachment A** of this SED provides the consultation letters sent to the California Native American tribes and **Attachment B** provides the responses received from the California Native American tribes.

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2.0 Proposed Action Description

2.1 Background

Federal law requires states to establish water quality standards (beneficial uses, water quality criteria, and an antidegradation policy) for all surface waterbodies within their jurisdiction that are Waters of the United States. Under the State of California's Porter-Cologne Water Quality Control Act (California Water Code, Division 7, Chapter 2 §13050), establishment of water quality standards, including beneficial uses and water quality objectives (WQOs), is required for all waters of the state (surface waters and groundwater). The State Water Board sets statewide policy, and, together with the nine Regional Water Boards, are responsible for the protection and, where possible, the enhancement of the quality of California's waters.

Each of the Regional Water Boards, including the Santa Ana Water Board, is required to adopt a Basin Plan to (a) establish water quality standards to protect the beneficial uses of surface waters and groundwaters; and (b) an implementation plan describing the actions necessary to achieve and maintain the water quality standards (Santa Ana Water Board 2019). The Basin Plan includes a program to manage TDS and nitrogen in the Santa Ana Region. This program is periodically reviewed and, as needed, revised to ensure continued protection of beneficial uses in the region.

2.2 Santa Ana Region's Total Dissolved Solids and Nitrogen Management Program

Efforts to manage salt and nitrogen in the Santa Ana Region date back to the early 1970s. Santa Ana Water Board (2004) provides an overview of how the salt and nitrate program has changed over time. Following is an excerpted summary:

1971-1995

The Santa Ana Water Board adopted Interim Basin Plans in 1971 and 1973 that included preliminary WQOs and beneficial uses for groundwater and surface waters in the Region. These interim plans emphasized efforts to manage the build-up of salts (TDS) and nitrogen in groundwater.

The 1975 Basin Plan, which updated the 1973 Interim Plan, included significantly revised TDS and nitrogen objectives for an expanded set of identified groundwater subbasins and a management plan to meet those objectives. This TDS and Nitrogen (TDS/N) Management Plan included WLAs for TIN and TDS discharges to the Santa Ana River, implemented via effluent limitations in waste discharge requirements. The TDS/N Management Plan and WLAs were significantly revised as part of the adoption of the 1983 Basin Plan.

Following adoption of the 1983 Basin Plan, agencies expressed concern that the adopted TDS/N Management Plan would severely limit opportunities for wastewater reclamation, and that the WLAs were not equitable. Monitoring data also showed that the WQOs adopted in 1975 were being exceeded. Through collaboration among stakeholders, studies were completed that resulted in revisions to the Basin Plan: (a) revised TIN allocation in 1991; and (b) a revised TDS/N Management Plan in 1995. Neither of these Basin Plan revisions included a review of the 1975 WQOs.

During consideration of the 1995 Basin Plan amendment, a number of water supply and wastewater agencies commented that, considering the probable cost of compliance with existing WQOs, the WQOs should be reviewed to ensure that they were based on the best available data and science. The Santa Ana Water Board agreed to prioritize review of the WQOs during the next triennial review and stakeholders agreed to provide sufficient resources to perform the necessary studies.

1995-2004

The Santa Ana Watershed Project Authority (SAWPA) convened a Scoping Committee in 1995 to prepare a workplan to guide the proposed TDS and nitrogen studies to evaluate the WQOs. SAWPA is a joint powers authority consisting of five member agencies: Eastern Municipal Water District (EMWD), Inland Empire Utilities Agency (IEUA), Orange County Water District (OCWD), San Bernardino Valley Municipal Water District, and Western Municipal Water District (WMWD). Key questions to be addressed by the Scoping Committee included how to implement the state antidegradation policy (State Water Board 1968) and how to determine whether any assimilative capacity exists in the watershed. To determine if assimilative capacity was available, it was necessary to develop a method to calculate ambient water quality (AWQ). Ultimately, the Scoping Committee recommended a review of (a) the WQOs to assure their technical and scientific validity; and (b) the existing groundwater subbasin boundaries.

To implement the Scoping Committee's recommendations, a Nitrogen-TDS Task Force ("Task Force") was established in 1996 to perform the analyses and make recommendations, where appropriate, to revise the Basin Plan.[2] A key outcome of the Task Force was the establishment of a new WLAM for the Santa Ana River watershed. The Santa Ana Water Board relies on a WLAM to derive appropriate effluent limitations for wastewater discharges to the Santa Ana River, its tributaries and the underlying groundwater. The WLAM is a

[2] The Nitrogen-TDS Task Force was replaced by the Basin Monitoring Program Task Force in 2005. The Nitrogen-TDS Task Force was responsible for developing the TDS/N Management Plan and the BMPTF is responsible for coordinating implementation of the Management Plan. The Task Force is currently comprised of 20 water supply and wastewater agencies in the Santa Ana Region (https://sawpa.org/task-forces/basin-monitoring-program-taskforce/#stakeholder-effort). Santa Ana Water Board staff participate in the Task Force effort.

predictive tool that can assess whether projected flows percolating to groundwater from surface streams comply with applicable WQOs while taking into account the nitrate reductions that occur through system mixing or as a result of percolation through the streambed sediment. The WLAM takes into consideration the quantity and quality of all flows projected to be present in the surface stream including stormwater runoff and discharges of wastewater. Through development of the WLAM and the completion of needed studies, the Task Force made recommendations to significantly update the TDS/N Nitrogen Management Program in the Basin Plan. These recommended updates, which were adopted into the Basin Plan by Santa Ana Water Board Resolution R8-2004-0001 (Santa Ana Water Board 2004), included:

- Revised boundaries for groundwater subbasins (and renaming of these areas as groundwater management zones [GMZ]) with existing and potential beneficial use designations for the management zones, as appropriate.
- Incorporated WQOs for nitrate-nitrogen and TDS for the new GMZs. Where appropriate, two sets of WQOs were specified: (a) one set based on historical water quality (antidegradation objectives); and (b) the other set based on the finding that antidegradation requirements have been satisfied, including the demonstration that water quality consistent with "maximum benefit to the people of the State" would be maintained (i.e., maximum benefit objectives) and assure protection of beneficial uses. The maximum benefit objectives would apply unless the Santa Ana Water Board makes a finding that the maximum benefit demonstration has not been made. In that case, the antidegradation objectives would apply.
- Revised the narrative objectives for TDS, chloride, hardness, sodium and sulfate applicable to groundwater.
- Delineated the new "Prado Basin Management Zone" (PBMZ), which would be treated as a surface waterbody for regulatory purposes.
- Modified reach designations and, where appropriate, applicable WQOs in several waterbodies, including portions of San Timoteo Creek, Chino Creek and Temescal Creek.
- Incorporated revised WLAs for discharges of TDS and nitrogen to the Santa Ana River.
- Revised Basin Plan Chapter 4 (Water Quality Objectives) to include: (a) narrative regarding the reevaluation of TDS and nitrogen WQOs for groundwater; (b) revisions of the narrative objectives for chloride, TDS, hardness, sodium, and sulfate applicable to groundwater; (c) discussion of the objectives applicable to the PBMZ; and (d) discussion of the "maximum benefit" objectives for certain GMZs.
- Revised Basin Plan Chapter 5 (Implementation) to incorporate (a) updated narrative concerning TDS and nitrogen studies and management strategies; (b) revised TDS/N management strategies, including the new WLAs based on the findings of the WLAM; (c) findings regarding TDS and nitrogen assimilative capacity in the new GMZs; (d) findings regarding nitrogen loss coefficients and their implementation; (e) special

considerations for salt management of subsurface disposal system discharges ; and (f) implementation of "maximum benefit" objectives for specific GMZs.

2005-2019

Since the adoption of the updated TDS/N management program in 2004 additional updates have occurred through the adoption of the following Santa Ana Water Board resolutions: R8-2004-0001, R8-2010-0039, R8-2012-0002, R8-2014-0005, R8-2017-0036, and R8-2020-0038 (Santa Ana Water Board 2004, 2010b, 2012, 2014, 2017, and 2020 respectively). The current salt and nitrogen management program may be found in Basin Plan Chapter 5, Total Dissolved Solids and Nitrogen Management.

Since 2004, the Task Force (now named the Basin Monitoring Program Task Force) has continued to work collaboratively on the implementation of the Santa Ana Region TDS/N Management Program. Per the Basin Plan, this effort has included preparation of updated AWQ and assimilative capacity findings every three years. The updated findings of AWQ and assimilative capacity are posted on the Santa Ana Water Board's website and used for regulatory purposes. The most recent AWQ update, completed in 2020, covers the 20-year period from 1999 through 2018 (WSC 2020). The WLAs in the Basin Plan have not changed since their adoption since 2004; however, maximum benefit objectives have been adopted for some GMZs (e.g., see Santa Ana Water Board 2014).

2.3 Proposed Action

The Santa Ana Water Board is proposing to amend the Basin Plan's TDS/N Management Program. The Proposed Action includes adoption of an updated WLAM, updated WLAs for permitted dischargers in the Santa Ana River watershed and, to be clear regarding the Board's intentions regarding how to implement the program in waste discharge requirements, provides direction to permit writers. The following subsections describe the key elements of the Proposed Action.

2.3.1 Update Wasteload Allocation Model

The Santa Ana Water Board proposes to update the WLAs for permitted dischargers in the Santa Ana Watershed using an updated WLAM completed for the Santa Ana River watershed in 2020 (GSSI 2020). This update is further supported by a WLAM Supplemental Report (GSSI 2021). The 2017 WLAM (open-source Hydrologic Simulation Program Fortran [HSPF]) replaced the existing 2004 WLAM (proprietary model), which has been relied on by Santa Ana Water Board staff since 2004 to derive effluent limitations in waste discharge requirements for facilities in the watershed for TIN and TDS. Development of the 2017 WLAM incorporated the following elements to establish a more robust model:

- *Expanded Model Domain*: The 2004 model domain, which originally ended at Prado Dam, was expanded to include Reaches 1 and 2 of the Santa Ana River overlying the

Orange County GMZ and Reaches 1 through 6 of Temescal Creek overlying the Temescal GMZ and the Upper Temescal Valley GMZ.

- *Longer Precipitation Record*: The range of probable precipitation conditions was expanded from a 50-year historical record (1950-1999) to a 67-year historical record (1950-2016). This expanded dataset not only increased the length of the data record but resulted in the inclusion of better-defined low flow critical stream condition for the project area. The existing critical low flow condition in the 2004 WLAM was for the drought period that occurred from 1950 to 1964 (although that drought actually began in 1946). The 2017 WLAM includes the low flow critical stream conditions resulting from the more severe drought that occurred from 1999 to 2016 (**Figure 2-1**, see cumulative departure from mean annual precipitation.
- *Improved Calibration Process*: WLAM development included new quantitative statistical metrics to evaluate accuracy and precision during the model calibration process.
- *Validation Step*: Prior to developing the updated model for the entire watershed, 2017 WLAM output for Reaches 3 and 4 of the Santa Ana River (above Metropolitan Water District [MWD] Crossing) was compared with outputs previously obtained from the 2004 WLAM for the same reaches of the Santa Ana River. This step was implemented to verify that the HSPF model results were comparable to the results generated from the existing proprietary model. This analysis effectively showed that regardless of the model source (proprietary vs. open-source HSPF), the 2004 and 2017 WLAM produced functionally-equivalent results. This ensures that any differences in modeling outcomes would reflect updated inputs to the model (e.g., land use, hydrologic data) and not differences in modeling methodology.

The calibrated 2017 WLAM was used to assess three different wastewater treatment plant (WWTP) discharge assumptions (Maximum Expected, Minimum Expected and Most Likely) under two different land use conditions (2020 and 2040), resulting in the analysis of six total scenarios. Daily river flows and TDS/TIN concentrations were estimated for all six of these scenarios using 67 years of historical precipitation data from numerous rain gages throughout the watershed. Model simulation results were used to determine if the existing effluent limits and waste discharge requirements would continue to ensure compliance with the applicable TDS/TIN WQOs in each GMZ. With exception of one facility, for each simulation, TIN and TDS concentrations in wastewater discharged from all Publicly Owned Treatment Works (POTWs) in the watershed were assumed to be equal to the maximum allowed in each facility's existing discharge permit. For the one exception, the proposed new maximum TIN concentration that will be allowed for the POTW was used in the simulations. These conservative assumptions are consistent with the approach used for the 2004 WLAM and provides a significant margin-of-safety around the model estimates.

2.3.2 Adopt Updated WLAs for Wastewater Treatment Plants

The Santa Ana Water Board proposes to update Basin Plan Table 5-5 based on the 2017 WLAM output. **Table 2-1** below provides the proposed updated Basin Plan Table 5-5 included in the Proposed Action. This proposed table includes an updated list of permitted facilities in the watershed.

Findings from the 2017 WLAM indicate that the updated WLAs under the Proposed Action would (a) not cause an exceedance of WQOs in groundwater affected by recharge from treated wastewater; and (b) are not expected to result in a significant lowering of AWQ in any part of the Santa Ana River watershed. This finding is based on use of a conservative approach to establish the WLAs. Examples of this conservative approach include: (a) establishing WLAs based on a 10-year volume-weighted averaging period (half the 20-year volume-weighted averaging period used to establish TDS/Nitrate WQOs); and (b) using effluent TIN concentrations as a surrogate for assessing compliance with nitrate (as N) WQOs in groundwater given that typically only about 85% of TIN is nitrate (as N).

The updated WLAs consider the potential need to authorize use of assimilative capacity by the City of Rialto (City of Rialto Wastewater Treatment Plant) and the Cities of Colton and San Bernardino (Rapid Infiltration-Extraction Facility) ("RIX Facility"), which discharge treated effluent to Santa Ana River Reach 4 overlying the Riverside-A GMZ. Although the WLAs take into account the potential need to authorize the use of assimilative capacity, any such authorization would occur through a separate Santa Ana Water Board action, i.e., through the issuance of waste discharge requirements to these facilities.

2.3.3 Establish Basis for Evaluating Compliance with TDS and TIN Effluent Limits

The Proposed Action includes providing direction to permit writers regarding how to assess compliance with TDS/TIN effluent limitations incorporated into waste discharge requirements. Specifically:

- TIN - Compliance with the effluent limit should be based on a 12-month (1-year) volume-weighted running average that is updated every month.
- TDS – Compliance with the effluent limit should be based on a 60-month (5-year) volume-weighted running average that is updated every month.

The above requirements are the default approach to evaluating compliance. The Proposed Action also states that the Santa Ana Water Board retains discretionary authority to impose longer or shorter averaging periods, on a case-by-case basis, when it determines that doing so is necessary and appropriate to protect water quality.

Table 2-1. Wasteload Allocations for TDS and TIN for Permitted Discharges in the Santa Ana River Watershed, 2020 - 2040 Permitting Period (adapted from GSSI 2020, Table 20 and GSSI 2021)

Permittee/Discharge	Primary Receiving Water(s)		Discharge (mgd)[1]		TDS (mg/L)	TIN (mg/L)
	Surface Stream(s)	Groundwater Management Zones	2020	2040		
City of Beaumont[2]	Noble Creek & Cooper's Creek to San Timoteo Creek Reach 4	Beaumont & San Timoteo	3.8 (1.8)	6.3 (1.8)[3]	300 (400)	3.6 (6.0)
Yucaipa Valley Water District (YVWD)[4]	San Timoteo Creek Reach 3	San Timoteo	8.0	8.0	400	5.5
City of San Bernardino: Geothermal Discharges	East Twin Creek & Warm Creek to Santa Ana River (SAR) Reach 5	Bunker Hill-A & B	1.0	1.0	264	0.7
City of Rialto WWTP	SAR Reach 4	Riverside-A	7.2	18.0	490	10.0
San Bernardino/Colton Rapid Infiltration and Extraction (RIX) Facility	SAR Reach 4	Riverside-A	34.5	34.5	550	10.0
City of Riverside: Regional Water Quality Control Plant (RWQCP)[5]	SAR Reach 3	Chino-South[6]	33.8	46.0	650	10.0[7]
City of Corona: WWTP-1 & WWTP-2	Temescal Creek Reach 1A	N/A (PBMZ)	11.5	15.0	700	10.0
Inland Empire Utilities Agency: Regional Plant (RP) 1, RP4, RP5 and Carbon Canyon Water Reclamation Facility	Chino Creek & Cucamonga Creek	Chino-North (or PBMZ)[8]	85.0	107.0[9]	550	8.0
Western Municipal Water District: Western Riverside County Regional Wastewater Authority Plant	SAR Reach 3	N/A (PBMZ)	12.0	15.3	625	10.0
WMWD: Arlington Desalter	Temescal Creek Reach 1A	N/A (PBMZ)	7.25	7.25	260	4.4
Temescal Valley Water District – Temescal Valley Water Reclamation Facility (TVWRF)	Temescal Creek Reach 2	Upper Temescal Valley	2.3	2.3	650	10.0[10]

Table 2-1. Wasteload Allocations for TDS and TIN for Permitted Discharges in the Santa Ana River Watershed, 2020 - 2040 Permitting Period (adapted from GSSI 2020, Table 20 and GSSI 2021)

Permittee/Discharge	Primary Receiving Water(s)		Discharge (mgd)[1]		TDS (mg/L)	TIN (mg/L)
	Surface Stream(s)	Groundwater Management Zones	2020	2040		
Elsinore Valley Municipal Water District (EVMWD): Regional Wastewater Reclamation Facility (WWRF-DP001)	Temescal Creek Reach 5	Upper Temescal Valley	8.0	12.0	700	10.0[11]
Eastern Municipal Water District Regional WRFs: San Jacinto Valley (JV), Moreno Valley (MV), Perris Valley (PV), Sun City (SC), Temecula Valley (TV)	Temescal Creek Reach 5	Upper Temescal Valley	52.5[12]	52.5[12]	650	10.0

[1] Maximum Authorized Discharge = average daily flow in million gallons/day (mgd) discharged to surface waters (expressed as an annualized average)

[2] Effluent limits revert to 320 milligrams/Liter (mg/L) for TDS and 4.1 mg/L for TIN if Santa Ana Water Board determines that Beaumont failed to comply with Maximum Benefit conditions

[3] Higher effluent limits apply only to first 1.8 mgd; lower effluent limits apply to discharges greater than 1.8 mgd

[4] Effluent limits revert to 320 mg/L for TDS and 4.1 mg/L for TIN if Santa Ana Water Board determines that YVWD failed to comply with Maximum Benefit conditions

[5] Includes the City's planned discharges to Anza Drain, Old Farm Road Channel, Tequesquite Arroyo & Evans Drain (all are tributary to SAR Reach 3)

[6] No significant streambed percolation occurs in the upper segment of SAR Reach 3 overlying the Riverside-A GMZ (i.e., the Riverside Narrows area)

[7] Effluent limit for TIN is more stringent than the 2004 WLA but is consistent with the requirements of Order No. R8-2013-0016 and current plant performance

[8] The PBMZ is a surface water feature where no significant groundwater storage or streambed percolation occurs

[9] Compliance with the applicable effluent limit is evaluated collectively based on the volume-weighted average of all four POTWs (aka "bubble permit")

[10] Effluent limit for TIN is more stringent than the 2004 WLA and is based on best practicable treatment or control for TIN by POTWs in the region

[11] Effluent limit for TIN is more stringent than the 2004 WLA and based on the treatment plant's design and demonstrated performance

[12] Discharge occurs only in years where average annual rainfall is greater than the long-term median value and only in the wettest six months of those years

View text description of chart.

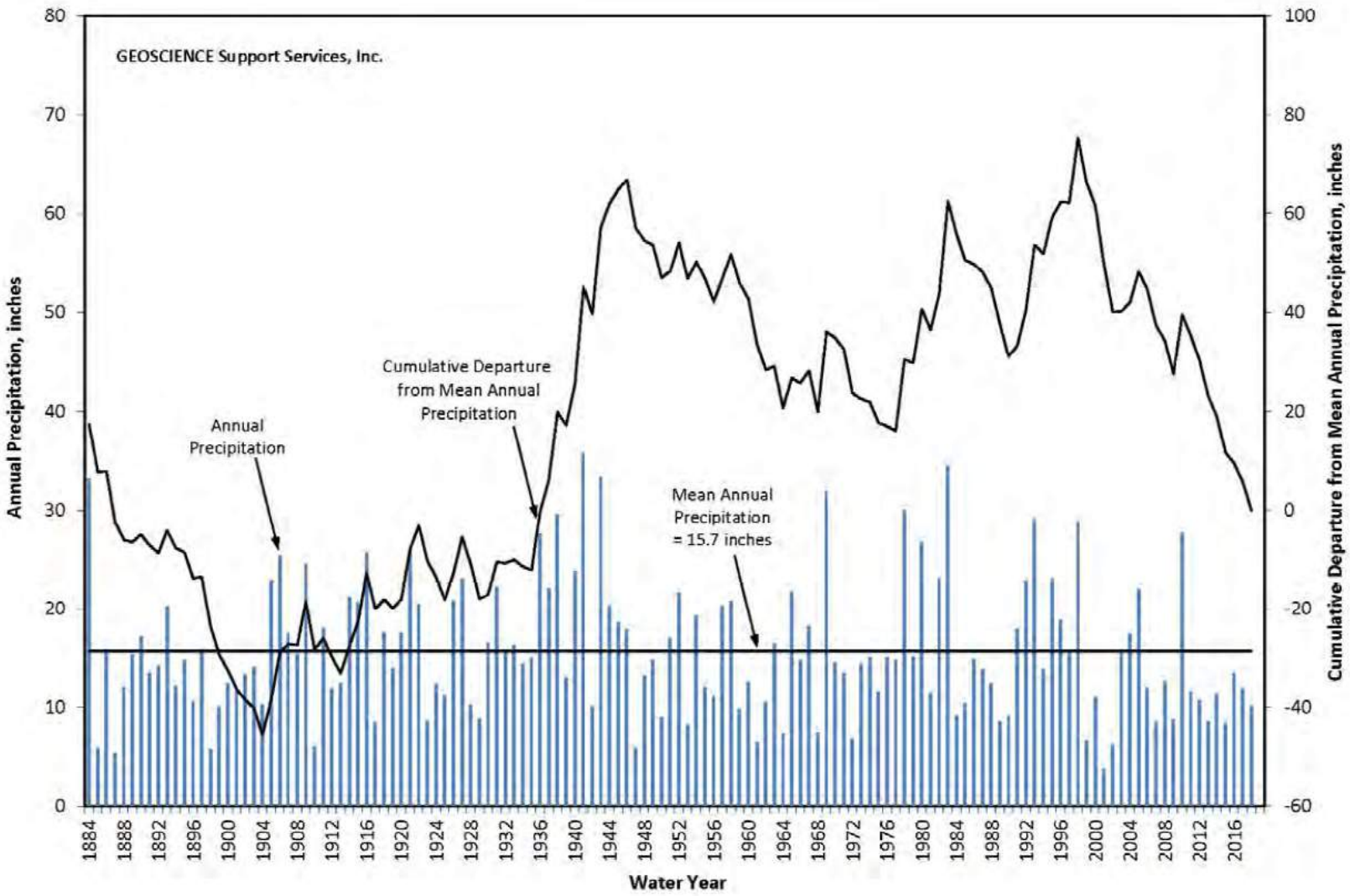

Figure 2-1. Cumulative Departure from Mean Annual Precipitation in Project Area, San Bernardino County Hospital Gage Station (adapted from SAWPA 2020)

The use of a default 12-month volume-weighted running average for TIN as the means to measure compliance with an effluent limitation is consistent with current practice for evaluating compliance with TIN effluent limitations. The purpose of the Proposed Action is to provide direction to the permit writer that this is the default approach to evaluate compliance with TIN effluent limits when establishing waste discharge requirements. The use of a longer averaging period (60-months) for TDS is consistent with (a) previous findings that the purpose of the WLAs is to protect the underlying groundwater of the region regardless of whether the discharge is directly to groundwater or percolation from a streambed (Santa Ana Water Board 2010, Page 5); and (b) reflects that waste discharge requirements are established for 5-year permit terms. Further, in 2018, the Southern California Salinity Coalition commissioned a study to evaluate long-term trends and variations in average TDS concentrations in wastewater and recycled water (Southern California Salinity Coalition 2018). Key findings of the study included, among others, that (1) volume-weighted source water TDS concentration is *the* significant determiner of influent TDS and that source TDS explains more variability in influent/effluent TDS than any other factor, and (2) that the duration of rolling-average periods can determine whether or not an agency is in violation of their permit limits. The Santa Ana Water Board finds that the use of a 60-month averaging period as the default standard for TDS effluent limitations is appropriate because it is consistent with current technical understandings regarding TDS variability in the watershed. This longer-term variability is primarily due to regional wet and dry hydrologic cycles that impact the sources of water used in a POTW's service area (e.g., because of differential usage of imported water versus local groundwater as local source waters [see discussion in Section 4.3.10.1]).

2.3.4 Clarify that the Antidegradation Review Conducted during the Permitting Process for Salinity-related Constituents will Focus on TDS

The Proposed Action clarifies that the antidegradation review required during development of waste discharge requirements will focus on an analysis of TDS rather than individual salt ions. The updated WLAM described above in Section 2.3.1 focuses exclusively on how combined discharges to the Santa Ana River are likely to affect overall salinity (TDS) in the underlying groundwater basins. The focus of the TDS-only WLAM analysis is consistent with the Santa Ana Water Board's instructions to permit writers in Resolution No. R8-2010-0012 (Page 7 Santa Ana Water Board 2010):

> *"Finally, the Regional Board streamlined the permitting process by focusing the antidegradation review on TDS as a whole rather than analyzing each and every salt ion separately. However, where a water quality objective has been established to protect certain beneficial uses from the adverse effects of specific salt compounds (e.g., chloride, boron or nitrate), the Regional Board will continue to adopt waste discharge requirements designed to assure compliance with these objectives.*

Accordingly, compliance with the WLA for TDS is deemed sufficient to demonstrate compliance with WQOs for the individual salt ions (see Basin Plan Table 4-1). Moreover, the Basin Plan's WQOs for individual salt ions were not designed or intended to protect any specific beneficial use. Instead, they were intended to describe existing baseline water quality at the time of their adoption and were to be used to maintain existing water quality until such time that traditional WQOs based on a use impairment threshold could be developed and adopted into the Basin Plan.

2.3.5 Clarify Use of Mineral Increments in Establishment of Waste Discharge Requirements

Basin Plan Chapter 5, Total Dissolved Solids and Nitrogen Management Program, Section III.B.2 (Mineral Increments) includes California Department of Water Resources (CA DWR) recommended values for the maximum use incremental additions for specific ions (i.e., chloride, sulfate, sodium, hardness and TDS) that should be allowable through water use (CA DWR 1982). The existing Basin Plan states that these mineral increments "…will be incorporated into waste discharge requirements when appropriate and necessary."

The Santa Ana Water Board is proposing to clarify what the Basin Plan means when it states: "[Mineral increments]…will be incorporated into waste discharge requirements when appropriate and necessary" (State Water Board 2019, Chapter 5, Section III.B.2). Accordingly, compliance with the WLA for TDS is deemed sufficient to demonstrate compliance with WQOs for the individual salt ions (see Basin Plan Table 4-1). Moreover, the Basin Plan's WQOs for individual salt ions were not designed or intended to protect any specific beneficial use. Instead, they were intended to describe existing baseline water quality at the time of their adoption (in 1975/1983) and were to be used to maintain existing water quality until such time that traditional WQOs based on a use impairment threshold could be developed and adopted into the Basin Plan.

2.4 Consistency with Other State and Federal Requirements

The proposed Basin Plan amendment is consistent with state and federal regulations including requirements for the adoption and amendment of Basin Plans (CWC §13240 et seq) and implementation of state and federal antidegradation policies (State Water Board 1968 and 40 Code of Federal Regulations [CFR] 131.12, respectively). The adoption of the updated WLAs and WLAM would not result in adverse impacts to municipal and domestic supply (MUN) or other beneficial uses. With regards to the Proposed Action, the most important beneficial use is MUN, especially with regards to the nitrate WQO which is equivalent to the federal maximum contaminant level (MCL) for protection of a drinking water source.

2.5 Identification of Reasonably Foreseeable Methods of Compliance

While the Santa Ana Water Board cannot specify the particular manner of compliance, with orders it adopts (CWC §13360), the analysis conducted for this SED must address possible environmental impacts of the reasonably foreseeable methods of compliance, taking into account a range of environmental, economic, and other factors. Currently, a variety of methods are in place and being implemented in an effort to achieve compliance with the Basin Plan WQOs, including source control programs, advanced treatment of effluent (e.g., implementing best practicable treatment or control (BPTC) for TIN and operate advanced nitrification and denitrification systems), reuse of effluent, and programs aimed at reducing urban runoff and stormwater pollution through implementation of structural and non-structural Best Management Practices (BMPs).

3.0 Environmental Setting

3.1 Santa Ana River Watershed

The Santa Ana River watershed is located in southern California, south and east of the City of Los Angeles (**Figure 3-1**). It is the smallest of the State's nine water quality planning regions at approximately 2,800 square miles and includes portions of San Bernardino, Riverside, Los Angeles, and Orange Counties. The Santa Ana River is the main surface water draining the watershed—it flows approximately 100 miles from its headwaters near Big Bear Lake to where it drains to the Pacific Ocean in Huntington Beach. Key subwatersheds include the upper and lower Santa Ana River watersheds, the San Jacinto River watershed, and several other smaller drainage areas. The highest elevations of the watershed occur in the San Bernardino, San Gabriel, and San Jacinto Mountains on the north and east sides. In the central part of the watershed, the Santa Ana Mountains and the Chino Hills form a topographic high before the River flows onto the Coastal Plain and into the Pacific Ocean.

The Santa Ana Region climate is classified as Mediterranean: generally dry in the summer with mild, wet winters. Average annual rainfall is about 15 inches, with most occurring between November and March. Most streams carry minimal flow except in response to rainfall events, or as a result of manmade discharges such as treated effluent discharges or imported water releases. During the winter season, storms can bring significant rainfall resulting in high flow rates within the Santa Ana River and its tributary streams and channels.

The watershed can experience extensive droughts. The most recent extended drought period occurred from 1999 to 2016 (see Figure 2-1). This extended drought period and its impact on the critical low flow stream condition was captured in the 2017 WLAM developed for the project area.

Figure 3-2 illustrates the portion of the Santa Ana River watershed included in the development of the WLAM that provides the basis for the Proposed Action (GSSI 2020). As noted in Section 2.3.1, this boundary was expanded beyond the area covered by previous modeling efforts so that the 2017 WLAM would include additional reaches of the Santa Ana River in Orange County.

3.2 Land Use

Land use ranges from pristine forests in the headwaters of the watershed to highly developed urban areas in the Santa Ana River valley. The project area is subject to potential impacts from a variety of land use activities, including industrial, agricultural, commercial and residential activities. The nature of surface waters in the project area varies considerably in relation to land use. Surface streams in mountainous/undeveloped areas are generally unmodified while surface waters in developed areas are generally modified or armored to varying degrees to ensure protection from flooding.

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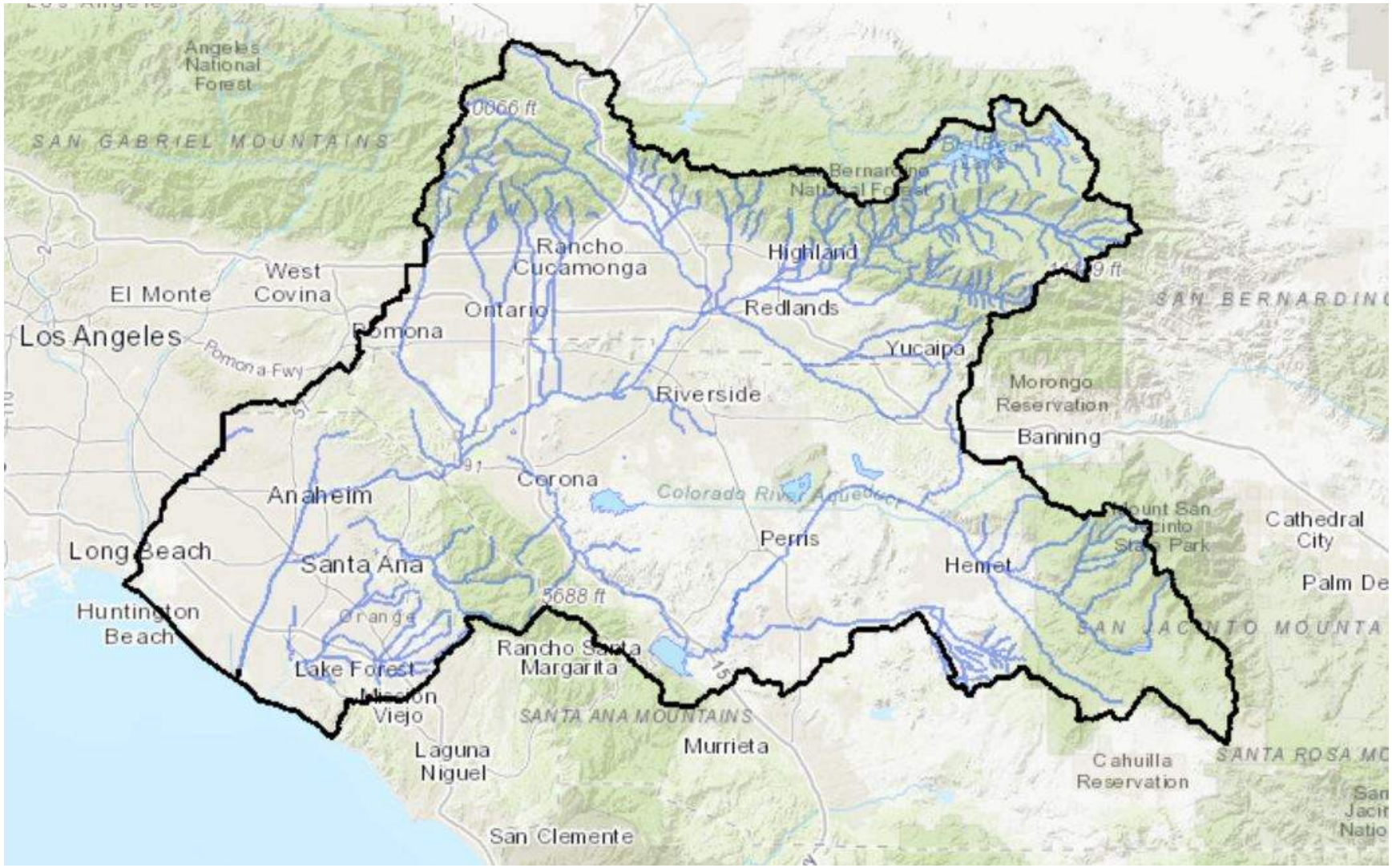

Figure 3-1. Santa Ana River Watershed (adapted from SAWPA, https://www.sawpa.net/gisviewer/basemaps.htm#)

View text description of map.

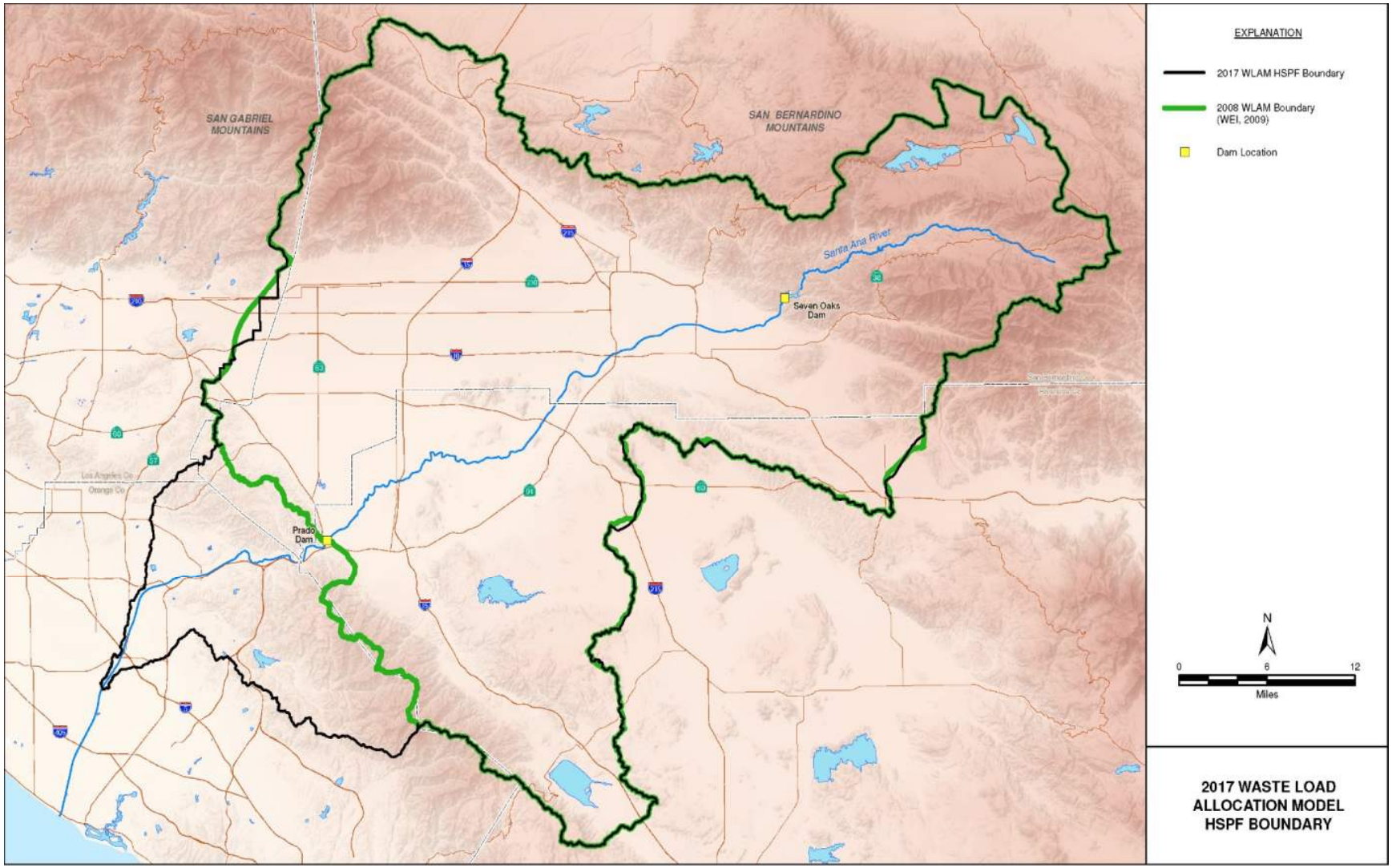

Figure 3-2. Portion of the Santa Ana River Watershed Included in the WLAM (as compared to previous modeling effort) (Source: Figure 2 in GSSI 2020).

The amount of water that infiltrates or runs off varies by land use type due to variability in the amount of permeable areas associated with the land use. Accordingly, land use was a key data input for the HSPF model used to develop the 2017 WLAM. Land use data were obtained from the Southern California Association of Governments (SCAG). Two land use datasets were used for the analysis:

- 2012 land use data were used to calibrate the WLAM for the model's calibration period (Water Years 2007 through 2016) (SCAG 2015a). **Figure 3-3** illustrates this land use coverage in the project area (GSSI 2020).
- General Plan land use data were used to evaluate water quality under two land use conditions: 2020 and 2040 (SCAG 2015b). **Figure 3-4** illustrates this land use coverage (GSSI 2020).

3.3 Water Resources

Figure 3-5 shows the current GMZ boundaries and existing WQOs for TDS and nitrate (as Nitrogen (N)) for each GMZ (Santa Ana Water Board 2019; WSC 2020). Until recently, the Basin Plan identified 37 distinct GMZs in the Santa Ana River Watershed; each GMZ is intended to be a hydrologically-distinct groundwater unit from a groundwater flow and water quality perspective. A recently approved Basin Plan amendment combined three of these GMZs (Bedford, Lee Lake and Warm Springs Valley) into a single Upper Temescal Valley GMZ (R8-2020-0038).

Table 3-1 lists the major surface waters in the project areas within the Santa Ana River watershed and the associated underlying GMZs. **Figure 3-6** illustrates the locations of the major surface water and groundwater water resource features in the watershed, including the key reaches of the Santa Ana River and its major tributaries, the associated GMZs underlying each major surface water and the location of permitted dischargers of treated effluent (see also Table 2-1). A significant percentage of the base surface water flow in the upper watershed is treated effluent from treatment facilities.

3.4 Water Quality Conditions

3.4.1 Groundwater Management Zones

The WQOs for the GMZs are antidegradation objectives based on historical water quality data from the 20-year period 1954 to 1973 (which brackets the adoption of the State's antidegradation policy in 1968). These objectives, established for the purpose of preventing degradation in groundwater, are based on a statistical method that estimates the volume-weighted AWQ concentrations for TDS and nitrate in each GMZ. The Basin Plan requires a triennial update of AWQ with each update evaluating the previous 20-year period. The findings from each triennial AWQ update are used to assess compliance with the WQOs and to determine if any assimilative capacity exists. The Basin Plan defines assimilative capacity

as the difference between the WQO and the current AWQ. Where the AWQ is equal to or greater than the WQO, no assimilative capacity exists.

The first AWQ evaluation was for data collected during the period 1978 to 1997. Subsequent updates have estimated AWQ for the following periods: 1984 to 2003; 1987 to 2006; 1990 to 2009; 1993 to 2012; 1996 to 2015; and 1999 to 2018. The most recent AWQ estimate, 1999 to 2018, was completed in 2020 (WSC 2020). **Table 3-2** provides an excerpt of the TDS/Nitrate AWQ concentrations in the project area for selected GMZs (as relevant to the Proposed Action). As will be noted, only minor changes in AWQ (both positive and negative) have occurred for TDS and nitrate over the last few assessments.

Table 3-1. Major Surface Waters and Associated Groundwater Management Zones in the Project Area

Surface Water Label (Figure 3-6)	Surface Water Name (Basin Plan)	Underlying Groundwater Management Zones (Basin Plan)
SAR-2	Santa Ana River Reach 2	Orange County
SAR-3	Santa Ana River Reach 3	Prado Basin, Chino South, Riverside A
SAR-4	Santa Ana River Reach 4	Riverside-A, Colton
SAR-5	Santa Ana River Reach 5	Bunker Hill B
SAR-6	Santa Ana River Reach 6	None
ST-1	San Timoteo Creek Reach 1	Bunker Hill B
ST-2	San Timoteo Creek Reach 2	San Timoteo
ST-3	San Timoteo Creek Reach 3	San Timoteo
ST-4	San Timoteo Creek Reach 4	San Timoteo, Beaumont
TC-1a	Temescal Creek Reach 1a	Prado Basin
TC-1b	Temescal Creek Reach 1b	None
TC-2	Temescal Creek Reach 2	Upper Temescal Valley (2020 Basin Plan amendment combined the Bedford, Warm Springs and Lee Lake GMZs into this one GMZ)
TC-3	Temescal Creek Reach 3	
TC-4	Temescal Creek Reach 4	
TC-5	Temescal Creek Reach 5	
TC-6	Temescal Creek Reach 6	

Table 3-2. Historical and Baseline TDS/Nitrate Ambient Water Quality (AWQ) in Key Groundwater Management Zones Potentially Impacted by the Proposed Action (? = insufficient data to calculate AWQ; adapted from Tables 3-1 and 3-2, WSC 2020)

Groundwater Management Zone	Year of Analysis								
	Historical	1997	2003	2006	2009	2012	2015	2018	Difference 2015-2018
Total Dissolved Solids (mg/L)									
Beaumont	233	290	260	260	280	290	290	280	-10
San Timoteo	303	300	?[1]	?[1]	420	410	420	420	0
Bunker Hill-A	313	350	320	330	340	340	330	330	0
Bunker Hill-B	332	260	280	280	270	280	290	280	-10
Chino South	676	720	790	940	980	990	940	920	-20
Riverside A	560	440	440	440	430	420	440	430	-10
Colton	407	430	430	450	430	440	480	490	10
Orange County	585	560	560	590	600	610	600	600	0
Upper Temescal Valley[1]	?	?	740[2]	?	?	?	?	?	?
Nitrate as Nitrogen (mg/L)									
Beaumont	1.5	2.6	2.0	1.6	2.5	2.9	2.9	2.7	-0.2
San Timoteo	2.7	2.9	?	?	0.8	2.3	2.0	1.5	-0.5
Bunker Hill-A	2.7	4.5	4.3	4.0	4.0	4.0	3.9	3.8	-0.1
Bunker Hill-B	7.3	5.5	5.8	5.4	5.4	5.6	5.8	5.8	0.0
Chino South	4.2	8.8	15.3	25.7	26.8	28.0	27.8	27.6	-0.2
Riverside A	6.2	4.4	4.9	4.9	5.2	5.4	5.6	5.7	0.1
Colton	2.7	2.9	2.9	2.9	2.8	2.7	3.3	3.3	0.0
Orange County	3.4	3.4	3.1	3.0	3.0	2.9	3.0	3.0	0.0
Upper Temescal Valley[2]	?	?	2.8[2]	?	?	?	?	?	?

[1] Proposed GMZ that combines Bedford, Lee Lake & Warm Springs Valley GMZ

[2] Value is for Bedford GMZ only

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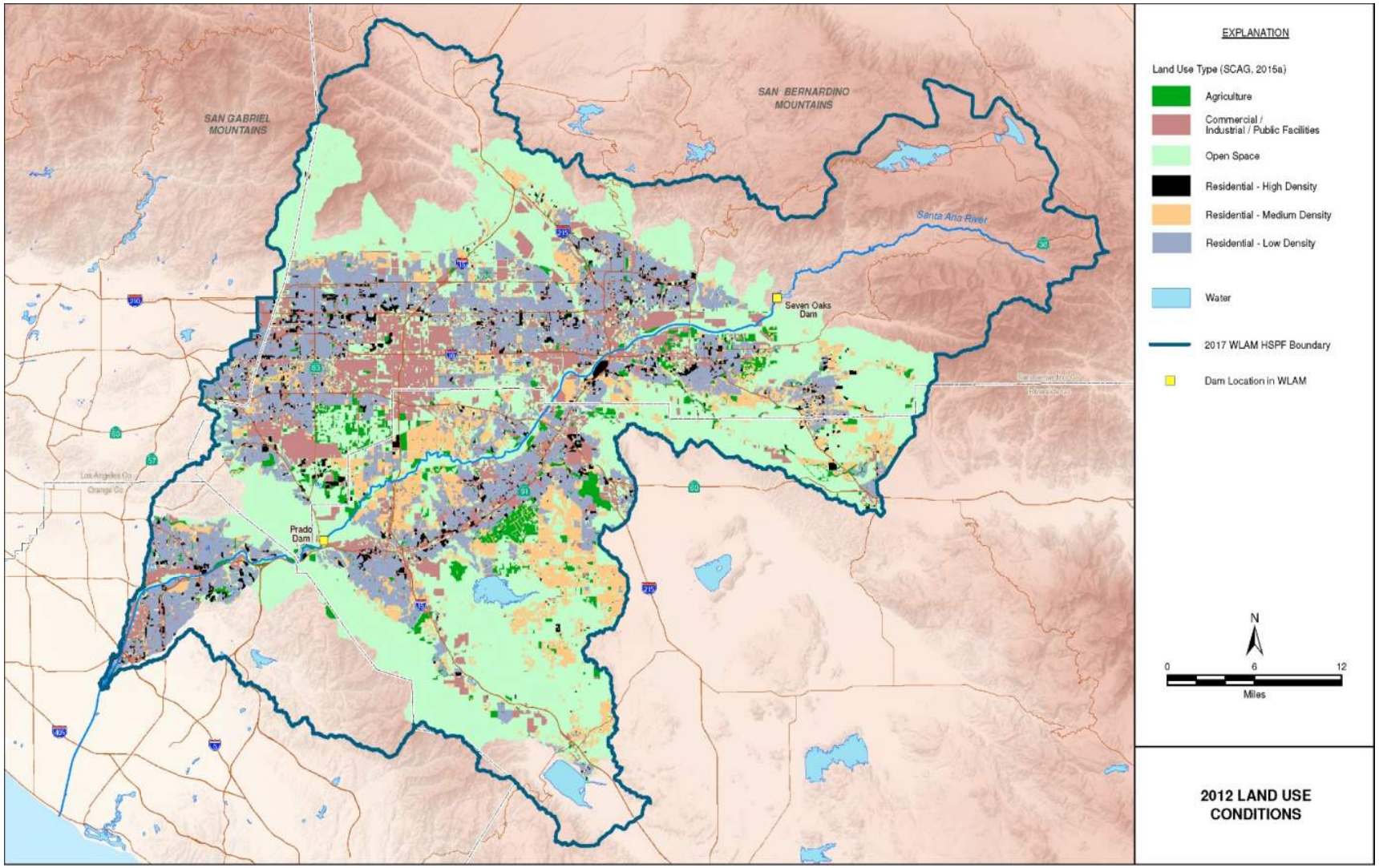

Figure 3-3. 2012 Land Use Conditions in the Project Area (Source: Figure 3 in GSSI 2020)

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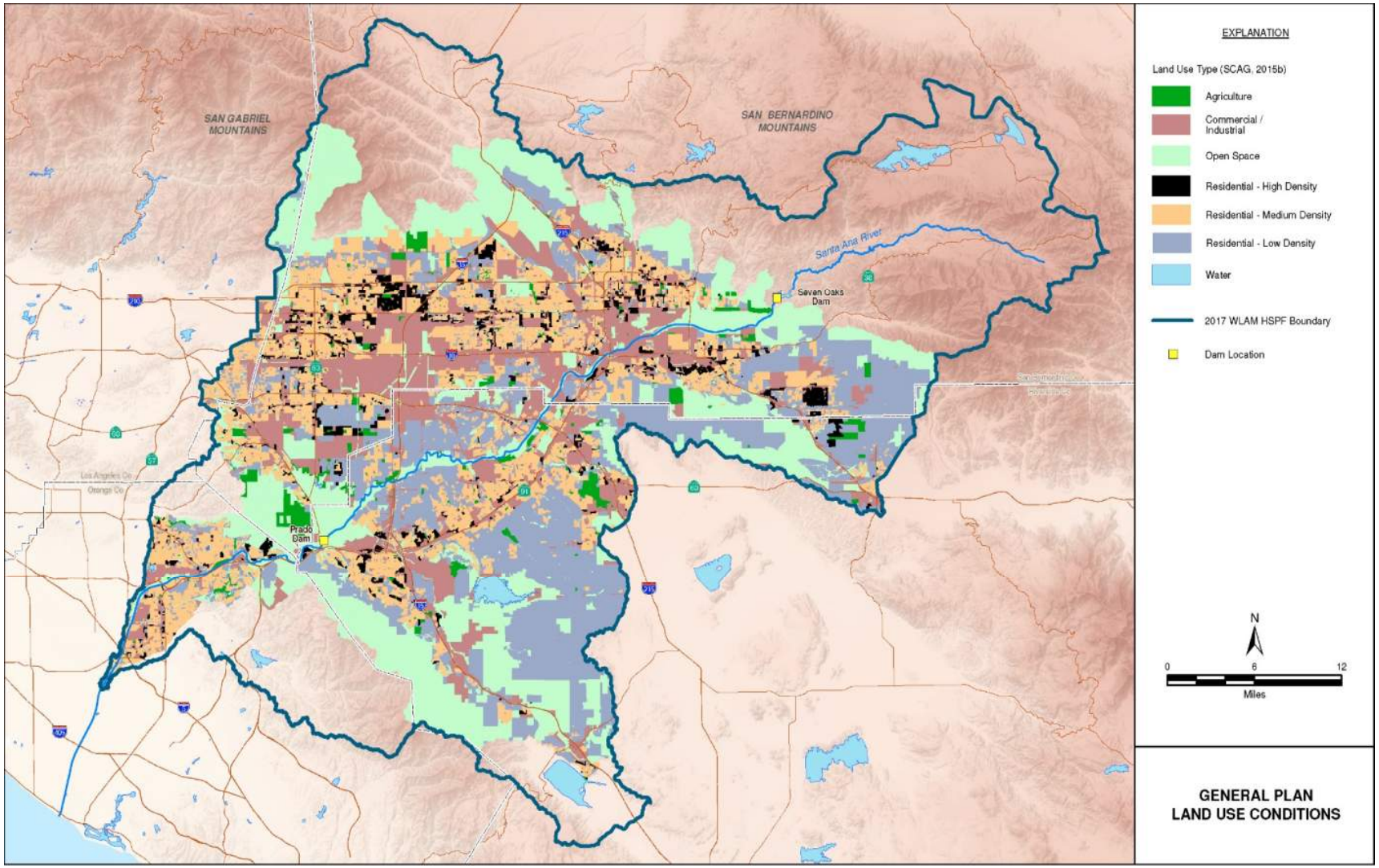

Figure 3-4. Land Use Conditions Based on General Plans in the Project Area (Source: Figure 4 in GSSI 2020)

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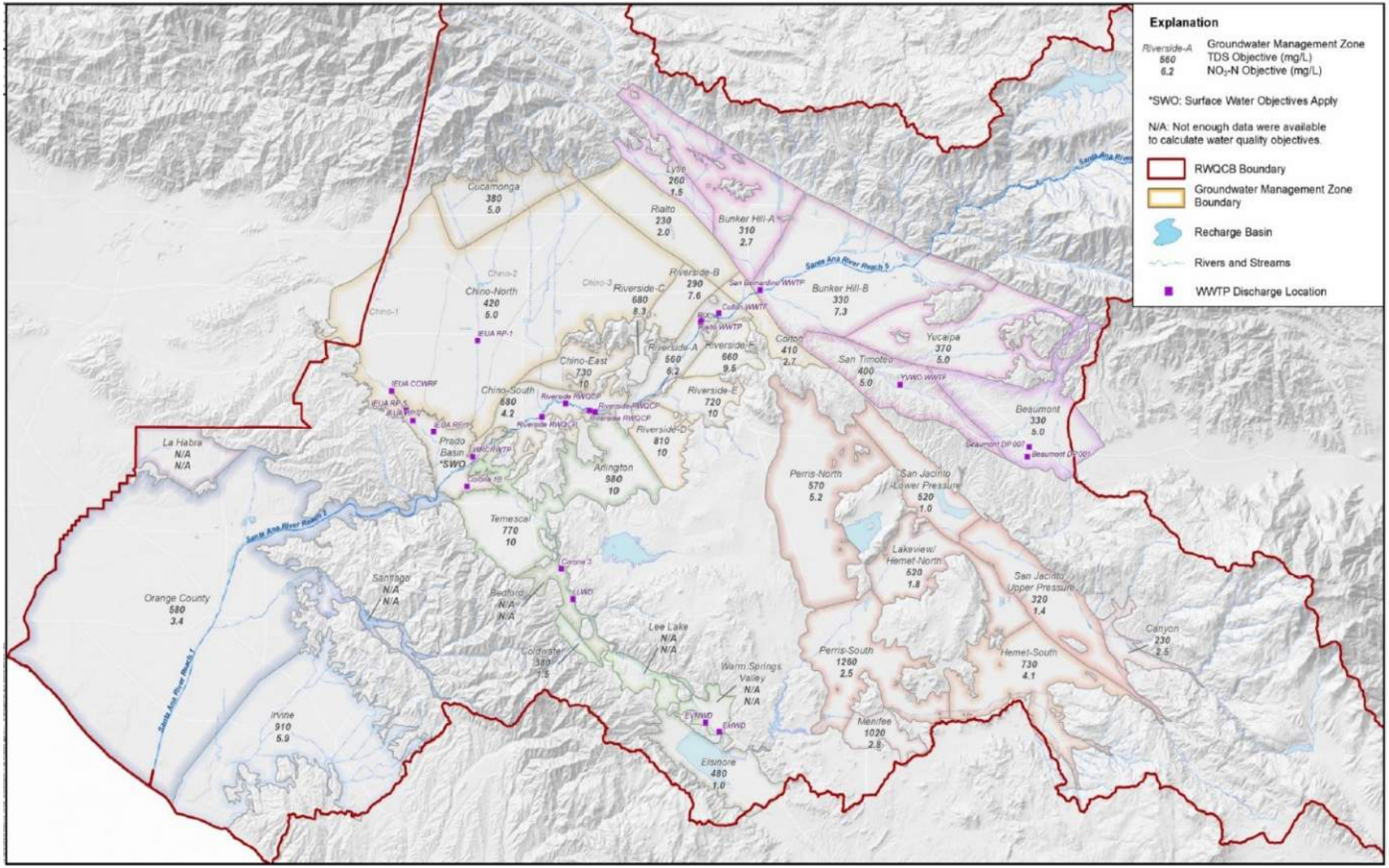

Figure 3-5. Santa Ana River Watershed Groundwater Management Zones and Associated Water Quality Objectives for TDS and TIN (Source: Figure 1-1 in WSC 2020; Note: A 2021 approved Basin Plan Amendment combined the Bedford, Lee Lake and Warm Springs Valley GMZs into the Upper Temescal Valley GMZ)

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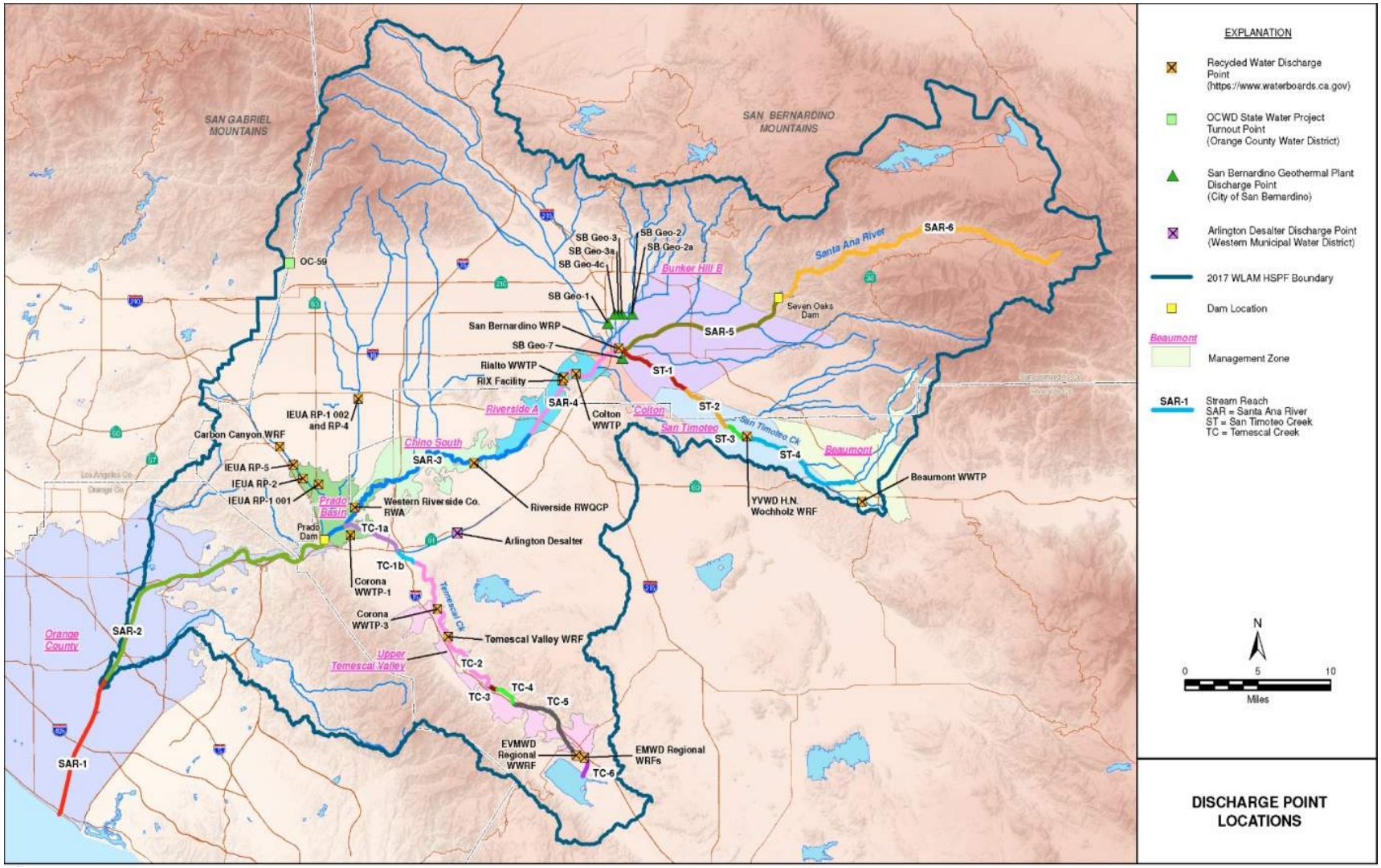

Figure 3-6. Location of Permitted Dischargers in Relation to Surface Waters and Groundwater Management Zones in the Project Area (Source: Figure 9, GSSI 2020)

3.4.2 Surface Waters

Annual monitoring occurs at selected locations in the Santa Ana River in August and September; findings are documented in an Annual Report prepared by SAWPA. Evaluations of compliance with WQOs focus on assessments of water quality at the following two locations: Santa Ana River Below Prado Dam (Reach 2) and Santa Ana River at MWD Crossing (Reach 3) (**Figure 3-7**). The TDS WQO at the site below Prado Dam is 650 mg/L. Compliance with this objective is based on the five-year moving average. TDS and Total Nitrogen (TN) WQOs for the Santa Ana River MWD Crossing site are 700 mg/L and 10.0 mg/L respectively. Compliance with these WQOs is based on the five-year moving average concentration of samples collected during baseflow in August and September.

Figures 3-8 and 3-9 illustrate long-term TDS/TN water quality concentrations at the sample location below Prado Dam. **Figures 3-10 and 3-11** provide the findings for the MWD Crossing sample location. Both sites remain in compliance with applicable WQOs. The Annual Report provides the following overall observations from the 2019 monitoring activities (SAWPA 2020):

- *Total Dissolved Solids* - The five-year moving average TDS concentration, for samples collected immediately below Prado Dam complies with the Santa Ana River Reach 2 WQOs. However, as noted in Figure 3-8 there has been a general increase in average concentrations. The Task Force investigated potential causes for increases in TDS in summer baseflow over time and made the following finding (SAWPA 2020):

  > *"The study [see WEI 2015a] found that average TDS concentrations were increasing because the POTWs, while still meeting their discharge obligations were discharging less treated wastewater to the Santa Ana River system. Additionally, the watershed is in a long term dry period, which makes the interpretation of trend data more difficult…. During the late summer months of August and September, the combined volume-weighted average TDS concentration for the nine municipal effluents that eventually converge at Prado Dam ranges between 535-570 mg/L [see WEI 2015b]. High quality (low TDS) municipal effluent tends to dilute low quality (high TDS) discharges from other sources (e.g., dry weather urban runoff, rising groundwater, etc.) that also contribute flows to Reach 3. In the period from 2005 to 2014, POTWs reduced the total volume of treated wastewater discharged to Reach 3 of the Santa Ana River (and its major tributaries) by 45%; from 145 mgd down to 79 mgd. Additional modeling revealed that, if the total volume of municipal effluent discharge had remained unchanged, average TDS concentrations at Prado Dam would also have remained stable."*

- *Total Nitrogen* - The average baseflow concentration below Prado Dam in 2019 was 4.9 mg/L. Not only is this concentration well below the WQO, but the long-term trend shows a slow decline over time (see Figure 3-9). Because the TN concentration of treated effluent in the watershed ranges from 8-10 mg/L, this declining trend is related to the reduction in the discharge of treated effluent to the Santa Ana River and tributaries. The reduction may also be related to the operation of treatment wetlands located above Prado Dam by the OCWD (SAWPA 2020).

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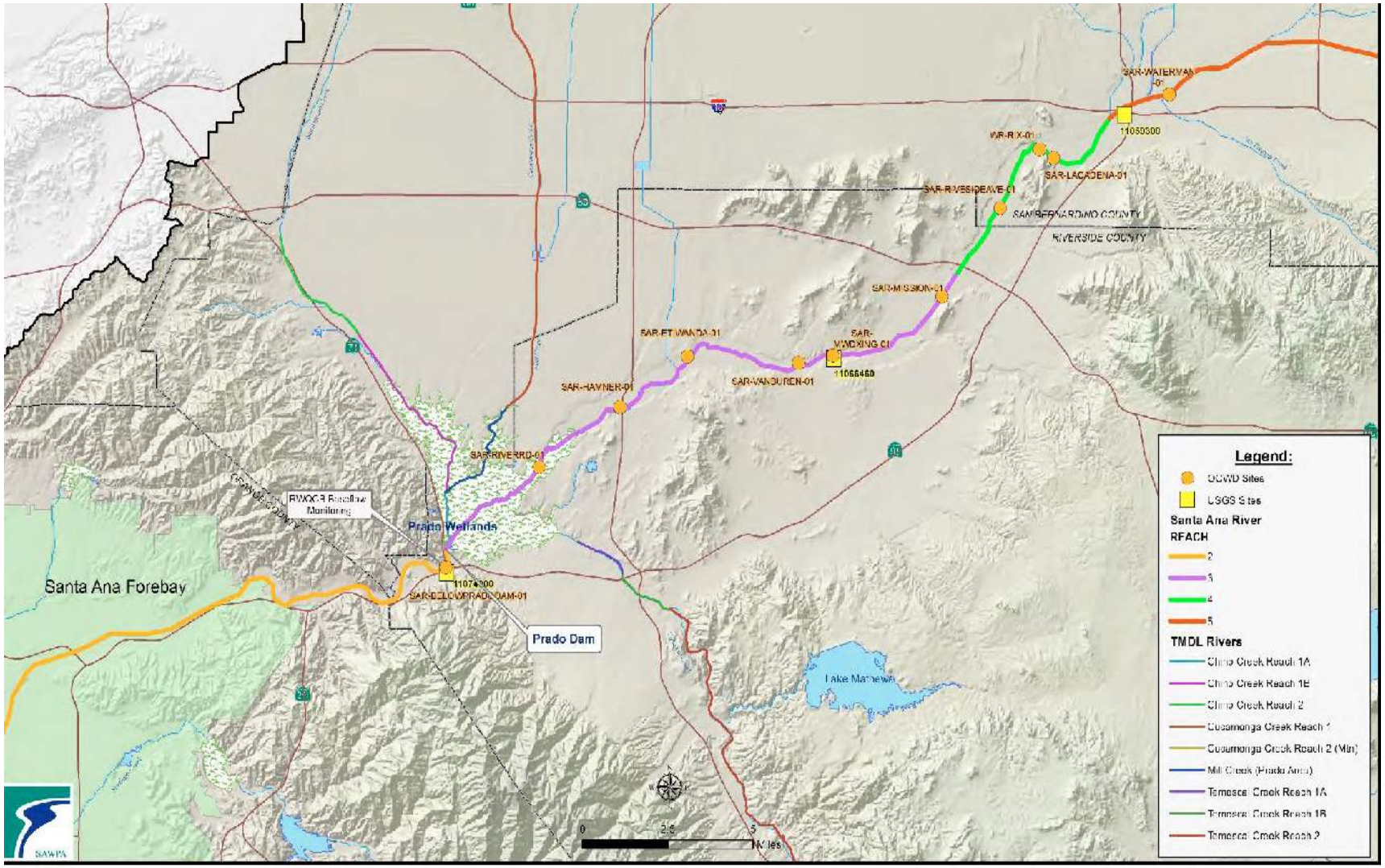

Figure 3-7. Surface Water Quality Monitoring Locations in the Santa Ana River Watershed (adapted from SAWPA 2020)

View text description of chart.

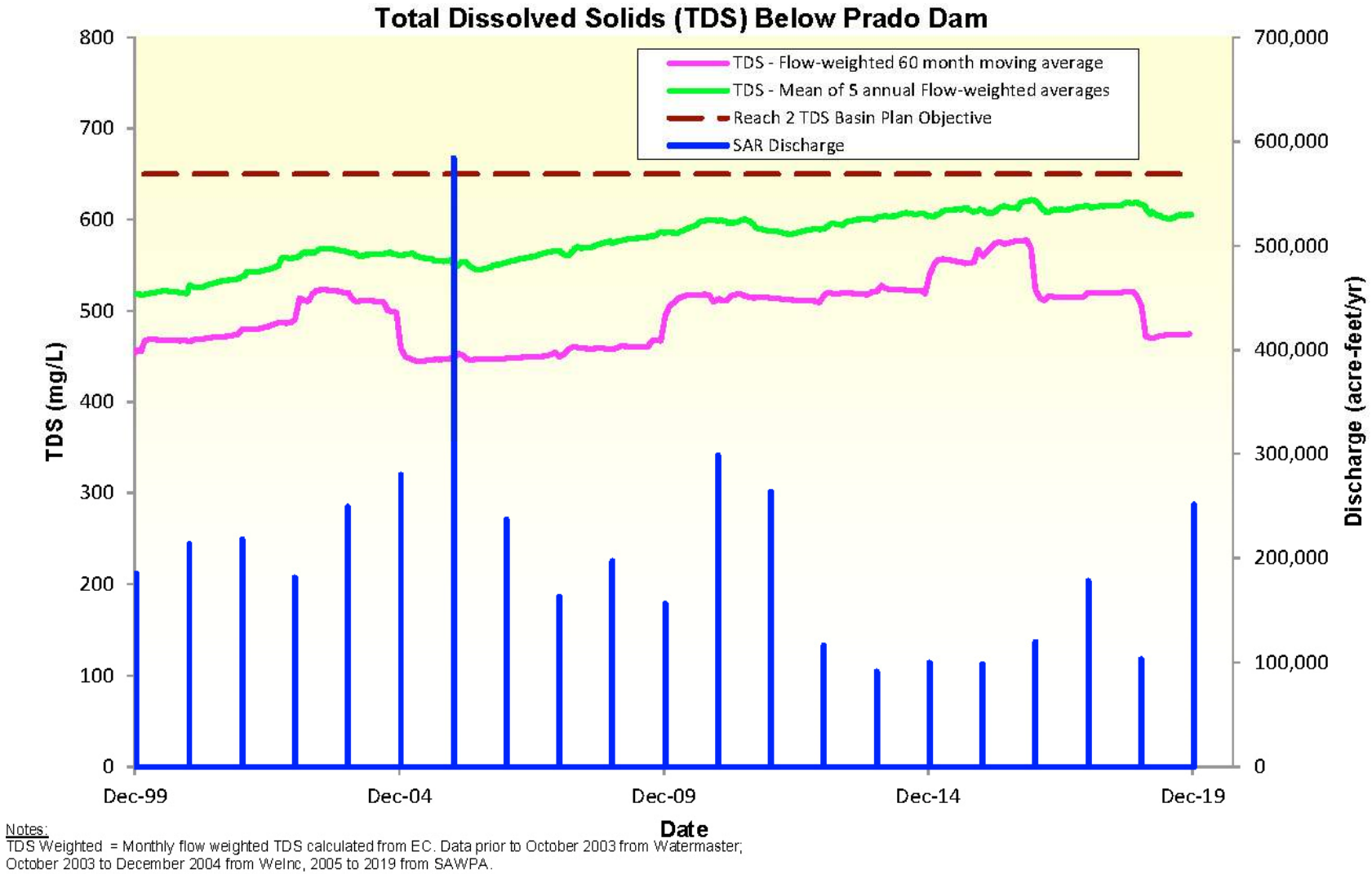

Figure 3-8. Long-term Trend in Total Dissolved Solids Water Quality Conditions at Santa Ana River Below Prado Dam (adapted from SAWPA 2020)

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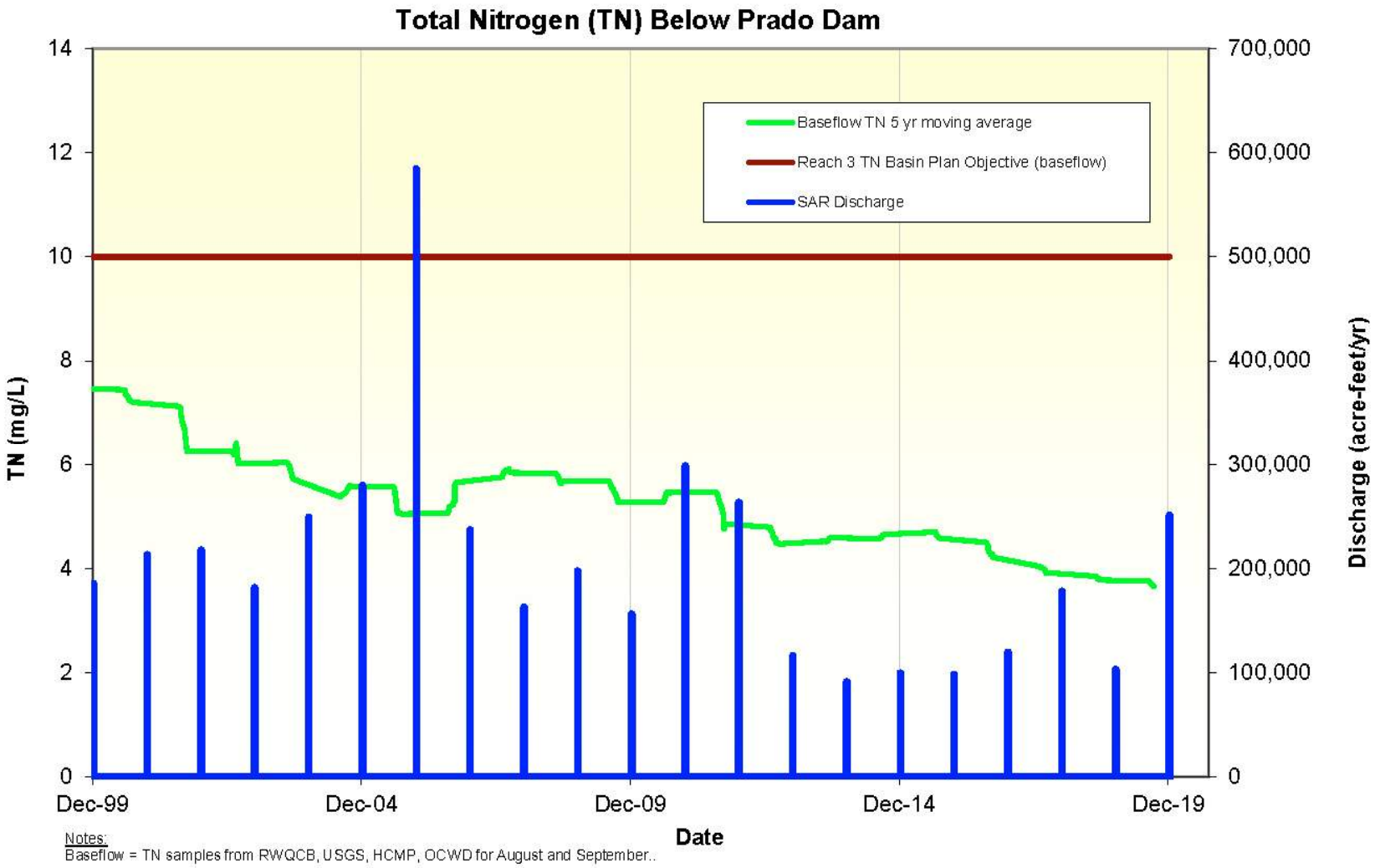

Figure 3-9. Long-term Trend in Total Nitrogen Water Quality Conditions at Santa Ana River Below Prado Dam (adapted from SAWPA 2020)

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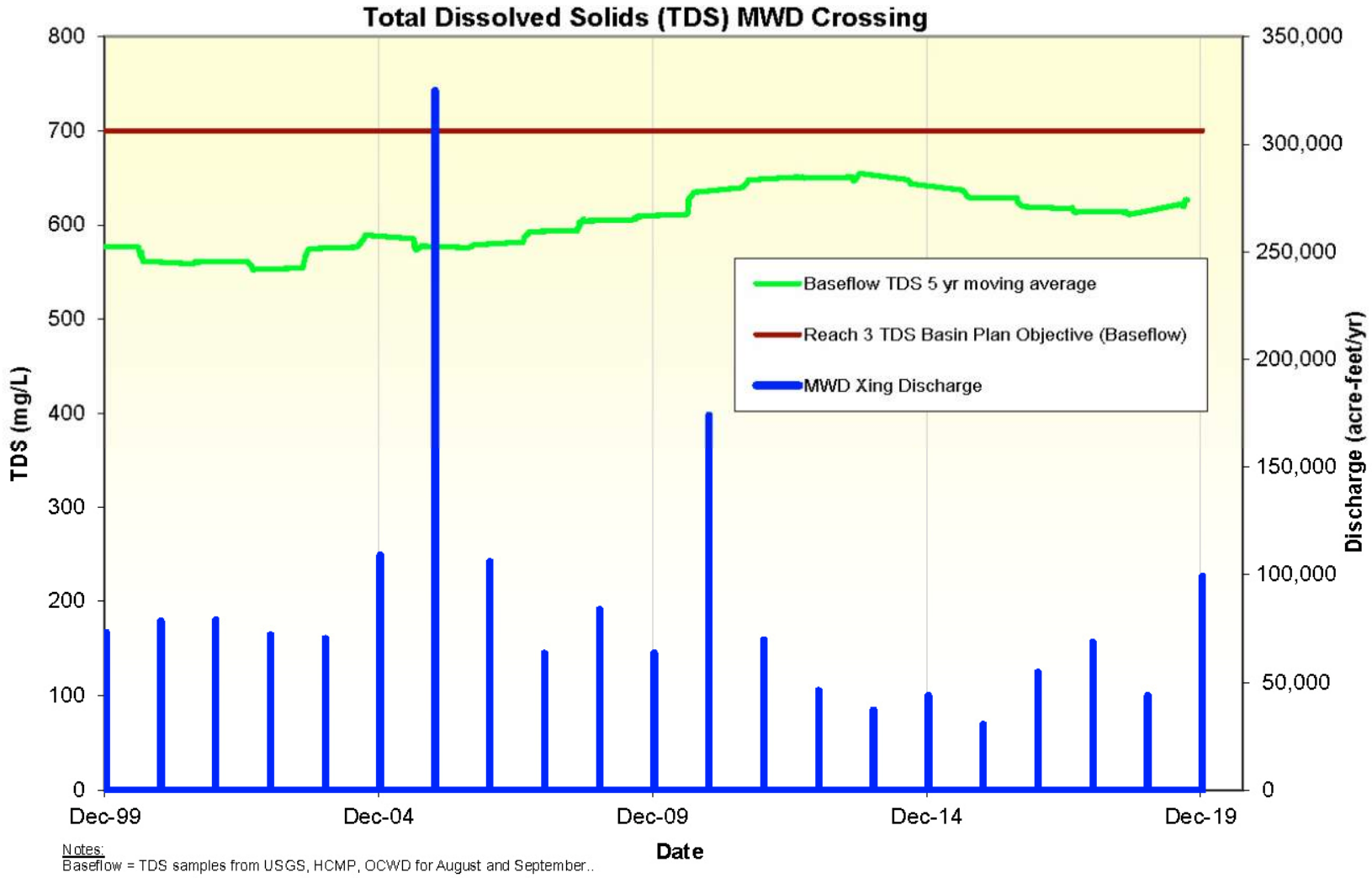

Figure 3-10. Long-term Trend in Total Dissolved Solids Water Quality Conditions at Santa Ana River at MWD Crossing (adapted from SAWPA 2020)

View text description of chart.

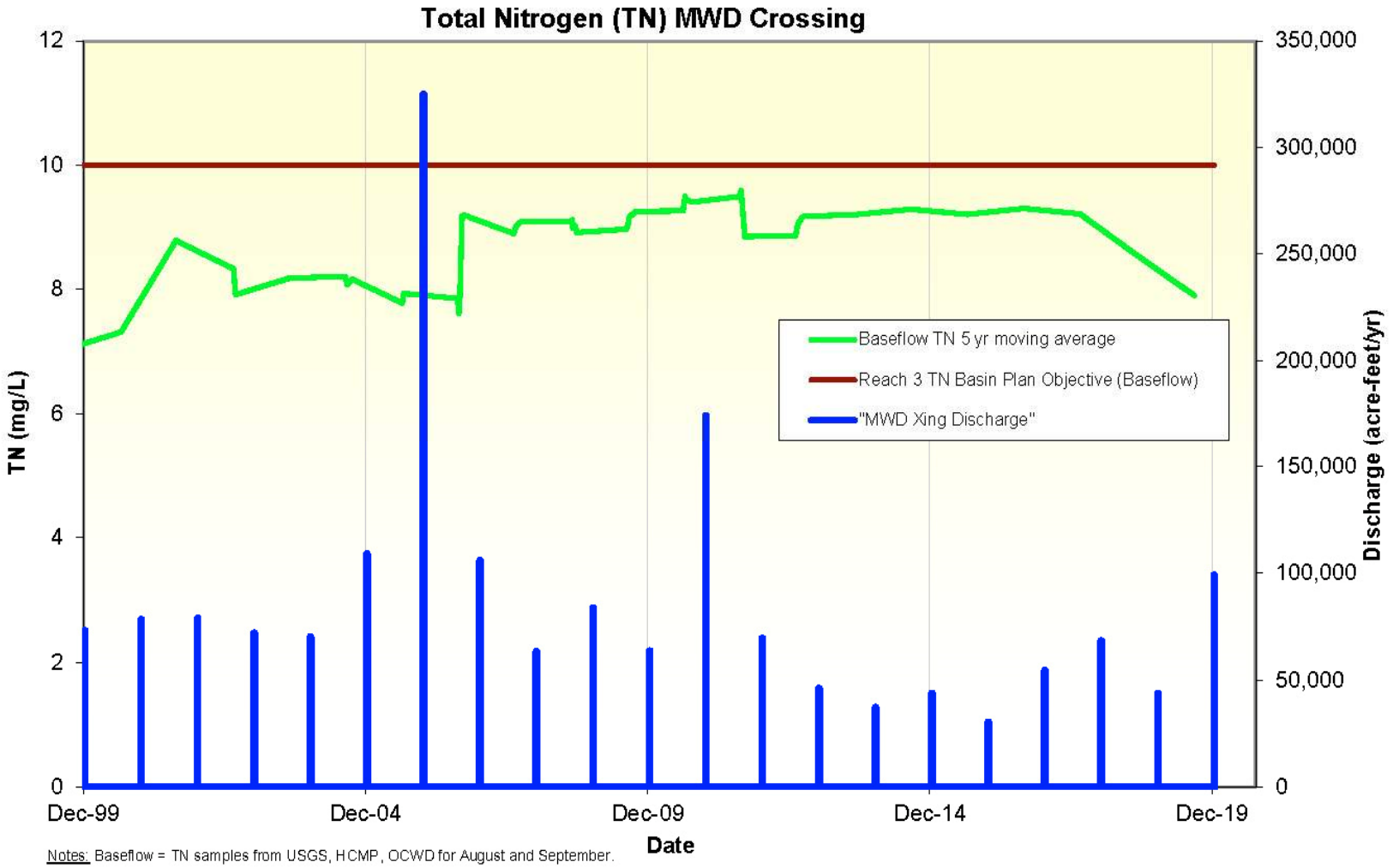

Figure 3-11. Long-term Trend in Total Nitrogen Water Quality Conditions at Santa Ana River at MWD Crossing (adapted from SAWPA 2020)

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4.0 Environmental Checklist

4.1 Overview

This section presents the Environmental Checklist. The purpose of the checklist is to: (a) evaluate the potential impacts of the Proposed Action relative to 20 environmental issue areas; and (b) present mandatory findings of significance, as required under CEQA. In formulating answers to the checklist questions, the environmental effects of the Proposed Action were evaluated in the context of the existing regulatory and environmental setting. Social or economic changes related to a physical change in the environment were also considered in determining whether there would be a significant effect on the environment; however, adverse social and economic impacts alone are not considered significant effects on the environment. §15382 of the CEQA Guidelines defines a significant effect on the environment as:

> *"a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project, including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance. A social or economic change by itself shall not be considered a significant effect on the environment. A social or economic change related to a physical change may be considered in determining whether the physical change is significant."*

The environmental checklist provides an evaluation of the Proposed Action and, where needed, reasonably foreseeable methods of compliance associated with the Proposed Action. As described in Section 2.3, the Basin Plan currently has an existing TDS/N Management Program that will continue to be implemented under the baseline conditions described in Section 3 above whether or not the Proposed Action is adopted. In addition, the proposed revisions to the Basin Plan are not anticipated to substantially change the manner or type of water quality controls currently being implemented in the watershed by permitted dischargers. For example, as will be discussed in Section 4.3.10 below, the proposed revisions to the WLAs are limited in nature and none are less stringent than the current WLAs in the Basin Plan. If any significant changes were to be proposed to a facility that would affect compliance with a proposed WLA, that specific action would be subject to its own review and analysis during the permitting process.

The Santa Ana Water Board staff's review concluded that the Proposed Action and the reasonably foreseeable methods of compliance do not have the potential to result in significant adverse impacts to any of the resource areas included in this analysis. However, pursuant to CWC §13360, the Regional Boards cannot define the specific actions that entities would take to comply with requirements derived from the amendments. While no substantial physical changes resulting from implementation of the Proposed Action are foreseeable at

this time, any future specific compliance actions (e.g., a facility construction activity required to comply with future waste discharge requirements) will be subject to its own CEQA review and/or approval by the Santa Ana Water Board or other responsible agencies once they have been developed. As a result, the Santa Ana Water Board (or other lead/responsible agencies under CEQA) could either disapprove actions with significant and unacceptable environmental impacts, or require implementation of mitigation measures (e.g., best construction management practices) to ensure that potential environmental impacts associated with such actions are reduced to less than significant levels.

4.2 Determination Based on Initial Evaluation

On the basis of this initial evaluation:

X I find that the Proposed Action COULD NOT have a significant effect on the environment.

I find that the Proposed Action MAY have a significant effect on the environment. However, there are feasible alternatives and/or mitigation measures available that will substantially lessen any adverse impact. These alternatives are discussed in the attached written report.

I find that the Proposed Action MAY have a significant effect on the environment. There are no feasible alternatives and/or mitigation measures available that will substantially lessen an adverse impact. See Sections 4 and 5 for a discussion of this determination.

Signature	Date
Printed Name/Title	Date

4.3 Environmental Checklist

The environmental checklist evaluates the potential impacts of the Proposed Action relative to 20 environmental factors and presents mandatory findings of significance required under CEQA. The checklist analysis begins with a summary of each environmental factor (or issue area) addressed in the checklist and a determination of any potential impacts to the environmental factor as a result of the Proposed Action. This summary is followed by a brief discussion that provides the basis for the evaluation of the environmental factor. The substantive elements relevant to this CEQA analysis are listed below; unless otherwise indicated the elements will be evaluated together for each environmental factor.

- Adopt the 2017 WLAM to replace the existing WLAM.
- Adopt updated WLAs in Table 5-5 of the Basin Plan along with the findings from the WLAM for each major segment of the Santa Ana River and key tributaries.

- Provide direction to permit writers regarding: (a) how to assess compliance with TDS/TIN effluent limitations included in waste discharge requirements; (b) how to use the mineral increment values in the Basin Plan when developing waste discharge requirements; and (c) requirements for conducting an antidegradation review with regards to salinity.

4.3.1 Aesthetics

Aesthetics	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
I. AESTHETICS - Except as provided in Public Resources Code §21099, would the project:				
a. Have a substantial adverse effect on a scenic vista?				X
b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?				X
c. In non-urbanized areas, substantially degrade the existing visual character or quality of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?				X
d. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?				X

Discussion

(a) *Would the action have a substantial adverse effect on a scenic vista?*

Proposed Basin Plan Amendment: Adoption of the Proposed Action would result in an updated WLAM and establishment of updated WLAs for treatment facilities in the watershed (see Table 2-1). The updated WLAs are based on the maximum predicted 10-year average streambed recharge concentration using the maximum expected discharge for each facility (2020 or 2040) and taking into account long-term hydrologic cycles. In addition, the Proposed Action will provide direction to permit writers regarding (a) how to evaluate compliance with TDS and TIN effluent limitations; (b) address the applicability of mineral increments in the development of waste discharge requirements; and (c) requirements to prepare the antidegradation analysis to support the establishment of waste discharge requirements. These amendments to the Basin Plan will not result in any physical changes to

any facility that would affect a scenic vista or other aesthetic resources, including scenic resources, visual character of a site or amount of light or glare in the watershed.

Reasonably Foreseeable Methods of Compliance: The Proposed Action would not result in the need for new BPTCs or implementation of other compliance methods that would not otherwise already be required under the existing Basin Plan TDS/N Management Program.

Finding of Significance: No impacts associated with adoption of the Basin Plan amendment or foreseeable methods of compliance are anticipated and no mitigation measures are necessary.

(b) *Would the action substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?*

See Aesthetics Discussion, Part (a) above.

(c) *In non-urbanized areas, substantially degrade the existing visual character or quality of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?*

See Aesthetics Discussion, Part (a) above.

(d) *Would the action create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?*

See Aesthetics Discussion, Part (a) above.

4.3.2 Agriculture and Forest Resources

In determining whether impacts to agricultural resources, are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (California Department of Conservation 1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board.

Agriculture and Forest Resources	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
II. AGRICULTURE AND FOREST RESOURCES - Would the project:				
a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?				X
b. Conflict with existing zoning for agricultural use, or a Williamson Act contract?				X
c. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code §12220(g)), timberland (as defined by Public Resources Code §4526), or timberland zoned a. Timberland Production (as defined by Government Code §51104(g))?				X
d. Result in the loss of forest land or conversion of forest land to non-forest use?				X
e. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?				X

Discussion

(a) *Would the action convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?*

Proposed Basin Plan Amendment: Adoption of the Proposed Action would result in an updated WLAM and establishment of updated WLAs for treatment facilities in the watershed (see Table 2-1). The updated WLAs are based on the maximum predicted 10-year average streambed recharge concentration using the maximum expected discharge for each facility (2020 or 2040) and taking into account long-term hydrologic cycles. In addition, the Proposed Action will provide direction to permit writers regarding (a) how to evaluate compliance with TDS and TIN effluent limitations; (b) address the applicability of mineral increments in the development of waste discharge requirements; and (c) requirements to prepare the antidegradation analysis to support the establishment of waste discharge

requirements. Adoption of the Basin Plan amendment would not result in any physical changes and would not result in impacts to agricultural or forest resources.

Reasonably Foreseeable Methods of Compliance: The Proposed Action would not result in the need for new BPTCs or implementation of other compliance methods that would not otherwise already be required under the existing Basin Plan TDS/N Management Program.

Finding of Significance: No impacts associated with adoption of the Basin Plan amendment or foreseeable methods of compliance are anticipated and no mitigation measures are necessary.

(b) *Would the action conflict with existing zoning for agricultural use or a Williamson Act contract?*

See Agriculture and Forest Resources Discussion, Part (a) above.

(c) *Would the action conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code §12220(g)), timberland (as defined by Public Resources Code §4526), or timberland zoned Timberland Production (as defined by Government Code §51104(g))?*

See Agriculture and Forest Resources Discussion, Part (a) above.

(d) *Would the action result in the loss of forest land or conversion of forest land to non-forest use?*

See Agriculture and Forest Resources Discussion, Part (a) above.

(e) *Would the action involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?*

See Agriculture and Forest Resources Discussion, Part (a) above.

4.3.3 Air Quality

Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations.

Air Quality	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
III. AIR QUALITY - Would the project:				
a. Conflict with or obstruct implementation of the applicable air quality plan?				X
b. Violate any air quality standard or contribute substantially to an existing or projected air quality violation?				X
c. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard.				X
d. Expose sensitive receptors to substantial pollutant concentrations?				X
e. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?				X

Discussion

(a) *Would the action conflict with or obstruct implementation of the applicable air quality plans?*

The Santa Ana Region is within the South Coast Air Basin (SCAB), a 6,600-square mile basin encompassing all of Orange County, most of Los Angeles and Riverside Counties, and the western portion of San Bernardino County. SCAB is under the jurisdiction of the South Coast Air Quality Management District (SCAQMD) and is currently designated as a nonattainment area for both national and state one-hour ozone and particulate matter (PM) standards. SCAQMD is responsible for administering the Air Quality Management Plan (AQMP), which is a comprehensive air pollution control program for attaining federal and state ambient air quality standards.

Proposed Basin Plan Amendment: Adoption of the Proposed Action would result in an updated WLAM and establishment of updated WLAs for treatment facilities in the watershed (see Table 2-1). The updated WLAs are based on the maximum predicted 10-year average streambed recharge concentration using the maximum expected discharge for each facility (2020 or 2040) and taking into account long-term hydrologic cycles. In addition, the Proposed Action will provide direction to permit writers regarding (a) how to evaluate compliance with TDS and TIN effluent limitations; (b) address the applicability of mineral increments in the development of waste discharge requirements; and (c) requirements to prepare the antidegradation analysis to support the establishment of waste discharge requirements. Adoption of the Basin Plan amendment would not conflict with or obstruct implementation of the AQMP or any other air quality plans applicable to the Project Area.

Reasonably Foreseeable Methods of Compliance: The Proposed Action would not result in the need for new BPTCs or implementation of other compliance methods that would not otherwise already be required under the existing Basin Plan TDS/N Management Program.

Finding of Significance: No impacts associated with adoption of the Basin Plan amendment or foreseeable methods of compliance are anticipated and no mitigation measures are necessary.

(b) *Would the action violate any air quality standard or contribute substantially to an existing or projected air quality violation?*

Under the SCAQMD, the SCAB is designed as a nonattainment area for ozone and PM. In addition, the SCAB is designated as a maintenance area for carbon monoxide and nitrogen dioxide and is in attainment for sulfur dioxide. In determining attainment and maintenance of air quality standards, the SCAQMD has established thresholds of significance for these and other criteria pollutants. A significant impact would occur if project operation results in substantial emissions which would exceed the established thresholds.

Proposed Basin Plan Amendment: Adoption of the Proposed Action would result in an updated WLAM and establishment of updated WLAs for treatment facilities in the watershed (see Table 2-1). The updated WLAs are based on the maximum predicted 10-year average streambed recharge concentration using the maximum expected discharge for each facility (2020 or 2040) and taking into account long-term hydrologic cycles. In addition, the Proposed Action will provide direction to permit writers regarding (a) how to evaluate compliance with TDS and TIN effluent limitations; (b) address the applicability of mineral increments in the development of waste discharge requirements; and (c) requirements to prepare the antidegradation analysis to support the establishment of waste discharge requirements. The project would not involve new construction activities, increased traffic generation, or other activities that could generate new or modified emissions or changes to facility operations. Thus, adoption of the proposed amendment would not result in exceedances of established thresholds for criteria pollutants or otherwise result in a violation of air quality standards or substantially contribute to existing or projected air quality violations.

Reasonably Foreseeable Methods of Compliance: The Proposed Action would not result in the need for new BPTCs or implementation of other compliance methods that would not otherwise already be required under the existing Basin Plan TDS/N Management Program.

Finding of Significance: No impacts associated with adoption of the Basin Plan amendment or foreseeable methods of compliance are anticipated and no mitigation measures are necessary.

(c) *Would the action result in a cumulatively considerable net increase of any criteria pollutant for which the region is non-attainment under an applicable federal or state*

ambient air quality standard (including releasing emission which exceeds quantitative thresholds for ozone precursors)?

See Air Quality Discussion, Part (b) above.

(d) *Would the action expose sensitive receptors to substantial pollutant concentrations?*

See Air Quality Discussion, Part (b) above.

(e) *Would the action create objectionable odors affecting a substantial number of people?*

Proposed Basin Plan Amendment: Adoption of the Proposed Action would result in an updated WLAM and establishment of updated WLAs for treatment facilities in the watershed (see Table 2-1). The updated WLAs are based on the maximum predicted 10-year average streambed recharge concentration using the maximum expected discharge for each facility (2020 or 2040) and taking into account long-term hydrologic cycles. In addition, the Proposed Action will provide direction to permit writers regarding (a) how to evaluate compliance with TDS and TIN effluent limitations; (b) address the applicability of mineral increments in the development of waste discharge requirements; and (c) requirements to prepare the antidegradation analysis to support the establishment of waste discharge requirements. The Proposed Action would not involve construction, increased traffic generation, or other activities that could generate objectionable odors affecting a substantial number of people.

Reasonably Foreseeable Methods of Compliance: The Proposed Action would not result in the need for new BPTCs or implementation of other compliance methods that would not otherwise already be required under the existing Basin Plan TDS/N Management Program.

Finding of Significance: No impacts associated with adoption of the Basin Plan amendment or foreseeable methods of compliance are anticipated and no mitigation measures are necessary.

4.3.4 Biological Resources

Biological Resources	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
IV. BIOLOGICAL RESOURCES - Would the project:				
a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California				X

Biological Resources	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
Department of Fish and Game or U.S. Fish and Wildlife Service?				
b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?				X
c. Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?				X
d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?				X
e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?				X
f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?				X

Discussion

(a) *Would the action have a substantial adverse impact, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or the U.S. Fish and Wildlife Service?*

Proposed Basin Plan Amendment. Adoption of the Proposed Action would result in an updated WLAM and establishment of updated WLAs for treatment facilities in the watershed (see Table 2-1). The updated WLAs are based on the maximum predicted 10-year average streambed recharge concentration using the maximum expected discharge for each facility (2020 or 2040) and taking into account long-term hydrologic cycles. In addition, the Proposed Action will provide direction to permit writers regarding (a) how to evaluate compliance with TDS and TIN effluent limitations; (b) address the applicability of mineral increments in the development of waste discharge requirements; and (c) requirements to prepare the antidegradation analysis to support the establishment of waste discharge requirements. The Proposed Action would not result in any impacts that might adversely

affect any species identified as a candidate, sensitive, or special-status species or their respective habitat.

Section 4.3.10 below evaluates potential impacts to the Hydrologic and Water Quality environmental factor. As will be noted in that discussion the Proposed Action will support the continued discharge of highly treated effluent to the Santa Ana River which ensures continued baseflow in the Santa Ana River above Prado Dam. This baseflow provides significant benefits to biological resources in the watershed and support of a number of downstream beneficial uses in Santa Ana River Reaches 3 and 4, including Warm Freshwater Habitat (WARM), Wildlife Habitat (WILD), Rare and Endangered Species (RARE) and Water Contract Recreation (REC1). Thus, the Proposed Action provides important benefits to the overall environment. Not only would it support sensitive species and their habitat, including riparian wetlands, it would not interfere with the movement of any species or impact wildlife corridors, impede the use of wildlife nursery sites, or conflict with any local policies or ordinances protecting biological resources or implementation of adopted habitat conservation plans.

Reasonably Foreseeable Methods of Compliance: he Proposed Action would not result in the need for new BPTCs or implementation of other compliance methods that would not otherwise already be required under the existing Basin Plan TDS/N Management Program.

Finding of Significance: No impacts associated with adoption of the Basin Plan amendment or foreseeable methods of compliance are anticipated and no mitigation measures are necessary.

(b) *Would the action have a substantial adverse impact on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or the U.S. Fish and Wildlife Service?*

See Biological Resources Discussion, Part (a) above.

(c) *Would the action have a substantial adverse effect on federally protected wetlands as defined by §404 of the Clean Water Act (including, but not limited to, marshes, vernal pools, coastal wetlands, etc.) through direct removal, filling, hydrological interruption, or other means?*

See Biological Resources Discussion, Part (a) above.

(d) *Would the action interfere substantially with the movement of any native resident or migratory fish or wildlife species, or with established native resident or migratory wildlife corridors, or impede the use of wildlife nursery sites?*

See Biological Resources Discussion, Part (a) above.

(e) *Would the action conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?*

See Biological Resources Discussion, Part (a) above.

(f) *Would the action conflict with the provisions of adopted habitat conservation plan, natural communities' conservation plan, or any other approved local, regional, or state habitat conservation plan?*

See Biological Resources Discussion, Part (a) above.

4.3.5 Cultural Resources

Cultural Resources	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
V. CULTURAL RESOURCES - Would the action:				
a. Cause a substantial adverse change in the significance of a historical resource as pursuant to §15064.5?				X
b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?				X
c. Disturb any human remains, including those interred outside of formal cemeteries?				X

Discussion

(a) *Would the action cause a substantial adverse change in significance of a historical resource as defined in State CEQA §15064.5?*

Proposed Basin Plan Amendment: Adoption of the Proposed Action would result in an updated WLAM and establishment of updated WLAs for treatment facilities in the watershed (see Table 2-1). The updated WLAs are based on the maximum predicted 10-year average streambed recharge concentration using the maximum expected discharge for each facility (2020 or 2040) and taking into account long-term hydrologic cycles. In addition, the Proposed Action will provide direction to permit writers regarding (a) how to evaluate compliance with TDS and TIN effluent limitations; (b) address the applicability of mineral increments in the development of waste discharge requirements; and (c) requirements to prepare the antidegradation analysis to support the establishment of waste discharge requirements. Adoption of this Basin Plan amendment would not involve construction, earth movement, or other disturbance which could impact any structures or buried cultural resources.

Reasonably Foreseeable Methods of Compliance: The Proposed Action would not result in the need for new BPTCs or implementation of other compliance methods that would not otherwise already be required under the existing Basin Plan TDS/N Management Program.

Finding of Significance: No impacts associated with adoption of the Basin Plan amendment or foreseeable methods of compliance are anticipated and no mitigation measures are necessary.

(b) *Would the action cause a substantial adverse change in significance of an archaeological resource pursuant to State CEQA §15064.5?*

See Cultural Resources Discussion, Part (a) above.

(c) *Would the action disturb any human remains, including those interred outside of formal cemeteries?*

See Cultural Resources Discussion, Part (a) above.

4.3.6 Energy

Energy	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
VI. ENERGY - Would the project:				
a. Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?				X
b. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?				X

Discussion

(a) *Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?*

Proposed Basin Plan Amendment: Adoption of the Proposed Action would result in an updated WLAM and establishment of updated WLAs for treatment facilities in the watershed (see Table 2-1). The updated WLAs are based on the maximum predicted 10-year average streambed recharge concentration using the maximum expected discharge for each facility (2020 or 2040) and taking into account long-term hydrologic cycles. In addition, the Proposed Action will provide direction to permit writers regarding (a) how to evaluate

compliance with TDS and TIN effluent limitations; (b) address the applicability of mineral increments in the development of waste discharge requirements; and (c) requirements to prepare the antidegradation analysis to support the establishment of waste discharge requirements. Adoption of this amendment would not involve construction, earth movement, or other disturbances that may lead to wasteful, inefficient, or unnecessary consumption of energy resources.

Reasonably Foreseeable Methods of Compliance: The Proposed Action would not result in the need for new BPTCs or implementation of other compliance methods that would not otherwise already be required under the existing Basin Plan TDS/N Management Program.

Finding of Significance: No impacts associated with adoption of the Basin Plan amendment or foreseeable methods of compliance are anticipated and no mitigation measures are necessary.

(b) *Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?*

See Energy Discussion, Part (a) above.

4.3.7 Geology and Soils

Geology and Soils	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
VII. GEOLOGY AND SOILS - Would the action:				
a. Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				X
i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.				X
ii. Strong seismic ground shaking?				X
iii. Seismic-related ground failure, including liquefaction?				X
iv. Landslides?				X
b. Result in substantial soil erosion or the loss of topsoil?				X

Geology and Soils	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
c. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?				X
d. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?				X
e. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?				X
f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?				X

Discussion

(a) *Would the action expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:*

i. *Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the state geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.*

Several major earthquake faults are located in the Santa Ana region, including the San Andreas Fault, the San Jacinto Fault, the Elsinore-Whittier Fault, and the Newport-Inglewood Fault.

Proposed Basin Plan Amendment: Adoption of the Proposed Action would result in an updated WLAM and establishment of updated WLAs for treatment facilities in the watershed (see Table 2-1). The updated WLAs are based on the maximum predicted 10-year average streambed recharge concentration using the maximum expected discharge for each facility (2020 or 2040) and taking into account long-term hydrologic cycles. In addition, the Proposed Action will provide direction to permit writers regarding (a) how to evaluate compliance with TDS and TIN effluent limitations; (b) address the applicability of mineral increments in the development of waste discharge requirements; and (c) requirements to prepare the antidegradation analysis to support the establishment of waste discharge requirements. Adoption of this Basin Plan

amendment would not involve the construction of any structures or otherwise result in any human safety risks related to fault rupture, seismic ground-shaking, ground failure, or landslides.

Reasonably Foreseeable Methods of Compliance: The Proposed Action would not result in the need for new BPTCs or implementation of other compliance methods that would not otherwise already be required under the existing Basin Plan TDS/N Management Program.

Finding of Significance: No impacts associated with adoption of the Basin Plan amendment or foreseeable methods of compliance are anticipated and no mitigation measures are necessary.

ii. *Strong seismic ground shaking?*

See Geology and Soils Discussion, Part (a).i. above.

iii. *Seismic-related ground failure, including liquefaction?*

See Geology and Soils Discussion, Part (a).i. above.

iv. *Landslides?*

See Geology and Soils Discussion, Part (a).i. above.

(b) *Would the action result in substantial soil erosion or the loss of topsoil?*

Proposed Basin Plan Amendment: Adoption of the Proposed Action would result in an updated WLAM and establishment of updated WLAs for treatment facilities in the watershed (see Table 2-1). The updated WLAs are based on the maximum predicted 10-year average streambed recharge concentration using the maximum expected discharge for each facility (2020 or 2040) and taking into account long-term hydrologic cycles. In addition, the Proposed Action will provide direction to permit writers regarding (a) how to evaluate compliance with TDS and TIN effluent limitations; (b) address the applicability of mineral increments in the development of waste discharge requirements; and (c) requirements to prepare the antidegradation analysis to support the establishment of waste discharge requirements. Adoption of this amendment would not involve construction or other earthmoving activities that could result in substantial soil erosion or the loss of topsoil.

Reasonably Foreseeable Methods of Compliance: The Proposed Action would not result in the need for new BPTCs or implementation of other compliance methods that would not otherwise already be required under the existing Basin Plan TDS/N Management Program.

Finding of Significance: No impacts associated with adoption of the Basin Plan amendment or foreseeable methods of compliance are anticipated and no mitigation measures are necessary.

(c) *Is the action located on a geologic unit or soil that is unstable, or that would become unstable as a result of the action, and potentially result in onsite or offsite landslides, lateral spreading, subsidence, liquefaction, or collapse?*

Proposed Basin Plan Amendment (See also Geology and Soils Discussion under Parts (a) and (b) above): Adoption of the Proposed Action would result in an updated WLAM and establishment of updated WLAs for treatment facilities in the watershed (see Table 2-1). The updated WLAs are based on the maximum predicted 10-year average streambed recharge concentration using the maximum expected discharge for each facility (2020 or 2040) and taking into account long-term hydrologic cycles. In addition, the Proposed Action will provide direction to permit writers regarding (a) how to evaluate compliance with TDS and TIN effluent limitations; (b) address the applicability of mineral increments in the development of waste discharge requirements; and (c) requirements to prepare the antidegradation analysis to support the establishment of waste discharge requirements. Adoption of this amendment would not involve construction or other earthmoving activities on a geologic unit or soil that is unstable or would be unstable, potentially resulting in landslides, lateral spreading, subsidence, liquefaction, or collapse.

Reasonably Foreseeable Methods of Compliance: The Proposed Action would not result in the need for new BPTCs or implementation of other compliance methods that would not otherwise already be required under the existing Basin Plan TDS/N Management Program.

Finding of Significance: No impacts associated with adoption of the Basin Plan amendment or foreseeable methods of compliance are anticipated and no mitigation measures are necessary.

(d) *Is the action located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?*

See Geology and Soils Discussion, Parts (a), (b) and (c) above.

(e) *Would the action have soils that are incapable of supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?*

Proposed Basin Plan Amendment: Adoption of the Proposed Action would result in an updated WLAM and establishment of updated WLAs for treatment facilities in the watershed (see Table 2-1). The updated WLAs are based on the maximum predicted 10-year average streambed recharge concentration using the maximum expected discharge for each facility (2020 or 2040) and taking into account long-term hydrologic cycles. In addition, the

Proposed Action will provide direction to permit writers regarding (a) how to evaluate compliance with TDS and TIN effluent limitations; (b) address the applicability of mineral increments in the development of waste discharge requirements; and (c) requirements to prepare the antidegradation analysis to support the establishment of waste discharge requirements. The proposed Basin Plan amendment does not entail the construction of on-site wastewater disposal systems.

Reasonably Foreseeable Methods of Compliance: The Proposed Action would not result in the need for new BPTCs or implementation of other compliance methods that would not otherwise already be required under the existing Basin Plan TDS/N Management Program.

Finding of Significance: No impacts associated with adoption of the Basin Plan amendment or foreseeable methods of compliance are anticipated and no mitigation measures are necessary.

4.3.8 Greenhouse Gas Emissions

Greenhouse Gas Emissions	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
VIII. GREENHOUSE GAS EMISSIONS - Would the project:				
a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?				X
b. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?				X

Discussion

(a) *Would the action generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?*

Proposed Basin Plan Amendment: Adoption of the Proposed Action would result in an updated WLAM and establishment of updated WLAs for treatment facilities in the watershed (see Table 2-1). The updated WLAs are based on the maximum predicted 10-year average streambed recharge concentration using the maximum expected discharge for each facility (2020 or 2040) and taking into account long-term hydrologic cycles. In addition, the Proposed Action will provide direction to permit writers regarding (a) how to evaluate compliance with TDS and TIN effluent limitations; (b) address the applicability of mineral increments in the development of waste discharge requirements; and (c) requirements to prepare the antidegradation analysis to support the establishment of waste discharge

requirements. Adoption of this amendment would not result in new construction, generation of new traffic, or other activities that could generate greenhouse gas emissions.

Reasonably Foreseeable Methods of Compliance: The Proposed Action would not result in the need for new BPTCs or implementation of other compliance methods that would not otherwise already be required under the existing Basin Plan TDS/N Management Program.

Finding of Significance: No impacts associated with adoption of the Basin Plan amendment or foreseeable methods of compliance are anticipated and no mitigation measures are necessary.

(b) *Would the action conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?*

Proposed Basin Plan Amendment: Adoption of the Proposed Action would result in an updated WLAM and establishment of updated WLAs for treatment facilities in the watershed (see Table 2-1). The updated WLAs are based on the maximum predicted 10-year average streambed recharge concentration using the maximum expected discharge for each facility (2020 or 2040) and taking into account long-term hydrologic cycles. In addition, the Proposed Action will provide direction to permit writers regarding (a) how to evaluate compliance with TDS and TIN effluent limitations; (b) address the applicability of mineral increments in the development of waste discharge requirements; and (c) requirements to prepare the antidegradation analysis to support the establishment of waste discharge requirements. As discussed in the Greenhouse Gas Emissions Discussion, Part (a) above, the revisions would not result in the generation of greenhouse gas emissions. Additionally, the amendment would not otherwise conflict with an applicable plan, policy or regulation adopted for the purpose of reducing greenhouse gas emissions.

Reasonably Foreseeable Methods of Compliance: The Proposed Action would not result in the need for new BPTCs or implementation of other compliance methods that would not otherwise already be required under the existing Basin Plan TDS/N Management Program.

Finding of Significance: No impacts associated with adoption of the Basin Plan amendment or foreseeable methods of compliance are anticipated and no mitigation measures are necessary.

4.3.9 Hazards and Hazardous Materials

Hazards and Hazardous Materials	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
IX. HAZARDS AND HAZARDOUS MATERIALS - Would the project:				
a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?				X

Hazards and Hazardous Materials	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?				X
c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?				X
d. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code §65962.5 and, as a result, would it create a significant hazard to the public or the environment?				X
e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?				X
f. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?				X
g. Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?				X

Discussion

(a) *Would the action create a significant hazard to the public or the environment through the routine transport, use or disposal of hazardous materials?*

Proposed Basin Plan Amendment: Adoption of the Proposed Action would result in an updated WLAM and establishment of updated WLAs for treatment facilities in the watershed (see Table 2-1). The updated WLAs are based on the maximum predicted 10-year average streambed recharge concentration using the maximum expected discharge for each facility (2020 or 2040) and taking into account long-term hydrologic cycles. In addition, the Proposed Action will provide direction to permit writers regarding (a) how to evaluate compliance with TDS and TIN effluent limitations; (b) address the applicability of mineral

increments in the development of waste discharge requirements; and (c) requirements to prepare the antidegradation analysis to support the establishment of waste discharge requirements. Adoption of this Basin Plan Amendment would not involve the transport, use, disposal, release, or transmission of hazardous materials.

Reasonably Foreseeable Methods of Compliance: The Proposed Action would not result in the need for new BPTCs or implementation of other compliance methods that would not otherwise already be required under the existing Basin Plan TDS/N Management Program.

Finding of Significance: No impacts associated with adoption of the Basin Plan amendment or foreseeable methods of compliance are anticipated and no mitigation measures are necessary.

(b) *Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?*

See Hazards and Hazardous Materials Discussion, Part (a) above.

(c) *Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?*

See Hazards and Hazardous Materials Discussion, Part (a) above.

(d) *Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code §65962.5 and, as a result, would it create a significant hazard to the public or the environment?*

Proposed Basin Plan Amendment: Adoption of the Proposed Action would result in an updated WLAM and establishment of updated WLAs for treatment facilities in the watershed (see Table 2-1). The updated WLAs are based on the maximum predicted 10-year average streambed recharge concentration using the maximum expected discharge for each facility (2020 or 2040) and taking into account long-term hydrologic cycles. In addition, the Proposed Action will provide direction to permit writers regarding (a) how to evaluate compliance with TDS and TIN effluent limitations; (b) address the applicability of mineral increments in the development of waste discharge requirements; and (c) requirements to prepare the antidegradation analysis to support the establishment of waste discharge requirements. Adoption of this amendment would not involve construction or other disturbance at a hazardous site such that a significant hazard to the public or the environment would be created.

Reasonably Foreseeable Methods of Compliance: The Proposed Action would not result in the need for new BPTCs or implementation of other compliance methods that would not otherwise already be required under the existing Basin Plan TDS/N Management Program.

Finding of Significance: No impacts associated with adoption of the Basin Plan amendment or foreseeable methods of compliance are anticipated and no mitigation measures are necessary.

(e) *For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?*

Proposed Basin Plan Amendment: Adoption of the Proposed Action would result in an updated WLAM and establishment of updated WLAs for treatment facilities in the watershed (see Table 2-1). The updated WLAs are based on the maximum predicted 10-year average streambed recharge concentration using the maximum expected discharge for each facility (2020 or 2040) and taking into account long-term hydrologic cycles. In addition, the Proposed Action will provide direction to permit writers regarding (a) how to evaluate compliance with TDS and TIN effluent limitations; (b) address the applicability of mineral increments in the development of waste discharge requirements; and (c) requirements to prepare the antidegradation analysis to support the establishment of waste discharge requirements. Adoption of this amendment would not result in exposing people to a safety hazard associated with a public or private airport.

Reasonably Foreseeable Methods of Compliance: The Proposed Action would not result in the need for new BPTCs or implementation of other compliance methods that would not otherwise already be required under the existing Basin Plan TDS/N Management Program.

Finding of Significance: No impacts associated with adoption of the Basin Plan amendment or foreseeable methods of compliance are anticipated and no mitigation measures are necessary.

(f) *Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?*

See Hazards and Hazardous Materials Discussion, Part (e) above

(g) *Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?*

Proposed Basin Plan Amendment: Adoption of the Proposed Action would result in an updated WLAM and establishment of updated WLAs for treatment facilities in the watershed (see Table 2-1). The updated WLAs are based on the maximum predicted 10-year average streambed recharge concentration using the maximum expected discharge for each facility (2020 or 2040) and taking into account long-term hydrologic cycles. In addition, the Proposed Action will provide direction to permit writers regarding (a) how to evaluate compliance with TDS and TIN effluent limitations; (b) address the applicability of mineral

increments in the development of waste discharge requirements; and (c) requirements to prepare the antidegradation analysis to support the establishment of waste discharge requirements. Adoption of this amendment would not involve construction or other activities that could impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.

Reasonably Foreseeable Methods of Compliance: The Proposed Action would not result in the need for new BPTCs or implementation of other compliance methods that would not otherwise already be required under the existing Basin Plan TDS/N Management Program.

Finding of Significance: No impacts associated with adoption of the Basin Plan amendment or foreseeable methods of compliance are anticipated and no mitigation measures are necessary.

4.3.10 Hydrology and Water Quality

The analysis for this Environmental Checklist factor will be conducted in two parts:

- Section 4.3.10.1 below discusses findings for waterbodies in the project area within the Santa Ana River Watershed where a potential impact was identified (e.g., the maximum predicted streambed recharge concentration for the Maximum Expected or Most Likely Discharge Scenarios exceeded a WQO or AWQ based on the results of the 2017 WLAM outputs). These waterbodies include:
  - Bunker Hill-B GMZ Underlying San Timoteo Creek Reach 1 and Santa Ana River Reach 5
  - Riverside-A GMZ underlying Santa Ana River Reach 4
  - Upper Temescal Valley GMZ underlying Temescal Creek Reaches 2, 3, 4, 5 & 6 (and downgradient Temescal Valley GMZ)
  - Orange County GMZ underlying Santa Ana River Reach 2
  - Reach 3 of the Santa Ana River at Prado Dam

- Section 4.3.10.2 below provides a comparable environmental analysis, but for waterbodies where no potential impact was identified based on 2017 WLAM outputs. These waterbodies include:
  - Beaumont GMZ underlying Noble Creek and San Timoteo Creek Reach 4
  - Colton GMZ underlying Santa Ana River Reach 4
  - San Timoteo GMZ underlying San Timoteo Creek Reaches 2, 3 & 4
  - Chino-South GMZ underlying Santa Ana River Reach 3
  - Temescal GMZ underlying Temescal Creek Reaches 1 and 2

The Basin Plan WQO applicable to GMZs with regard to nitrogen management is nitrate (as nitrogen [N]). Nitrate (as N) is used as the WQO for groundwater because it is a federal primary MCL established to protect the MUN beneficial use. The federal primary MCL does not apply to surface waters in this watershed. Instead, nitrogen-related WQOs and WLAs are expressed as TIN (Santa Ana Water Board 2019). TIN represents the total of nitrite, nitrate and ammonia nitrogen combined. The analysis below of potential impacts to groundwater quality from the Proposed Action will be based on TIN findings even though the WQO is expressed as nitrate. Because TIN includes nitrogen species other than nitrate, its use to evaluate compliance with the groundwater nitrate WQO adds a safety factor to the analysis. More specifically, because nitrate (as N) makes up only approximately 85% of TIN, this approach to evaluating compliance with groundwater WQO provides an approximate 15% margin of safety.

4.3.10.1 Waterbodies Potentially Impacted by the Proposed Action

Hydrology and Water Quality	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
X. HYDROLOGY AND WATER QUALITY - Would the project:				
a. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?			X[1]	
b. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin.				X
c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:				X
i. result in substantial erosion or siltation on- or off-site;				X
ii. substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;				X
iii. create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or				X
iv. impede or redirect flood flows?				X

Hydrology and Water Quality	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
d. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?				X
e. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?				X

[1] Less than significant impact is the finding for only selected GMZs evaluated in this Section, see waterbody-specific discussion below under Part (a)

Discussion

(a) *Would the project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?*

Proposed Basin Plan Amendment: Adoption of the Proposed Action would result in an updated WLAM and establishment of updated WLAs for treatment facilities in the watershed (see Table 2-1). The updated WLAs are based on the maximum predicted 10-year average streambed recharge concentration using the maximum expected discharge for each facility (2020 or 2040) and taking into account long-term hydrologic cycles. In addition, the Proposed Action will provide direction to permit writers regarding (a) how to evaluate compliance with TDS and TIN effluent limitations; (b) address the applicability of mineral increments in the development of waste discharge requirements; and (c) requirements to prepare the antidegradation analysis to support the establishment of waste discharge requirements. The potential impact of each of these elements of the Proposed Action to amend the Basin Plan for this environmental factor is discussed below.

***Proposed Action*: Establish Approach to Evaluate Compliance with TDS/TIN Effluent Limitations in Waste Discharge Requirements**

The proposed Basin Plan amendment includes direction to permit writers regarding how to assess compliance with TDS/TIN effluent limitations incorporated into the waste discharge requirements. Specifically:

- TIN - Compliance with the effluent limit will be based on a 12-month volume-weighted running average that is updated every month.
- TDS – Compliance with the effluent limit will be based on a 60-month volume-weighted running average that is updated every month.

Compliance is stated on a "month" basis rather than "year" basis because each month the effluent limitation for TIN and TDS is recalculated based on the previous 12 or 60 months,

respectively. These TIN and TDS running averages will be used as the default approach for evaluating compliance with effluent limitations included in waste discharge requirements. However, the Proposed Action also states that the Santa Ana Water Board retains discretionary authority to impose longer or shorter averaging periods, on a case-by-case basis, when it determines that doing so is necessary and appropriate to protect water quality.

The use of a default 12-month volume-weighted running average for TIN as the means to measure compliance with an effluent limitation is the current practice for evaluating compliance with TIN effluent limitations in waste discharge requirements. The purpose of the Proposed Action is to explicitly state in the Basin Plan that this is the default approach to evaluate compliance with WLAs. Given that the Proposed Action will not change how compliance with TIN effluent limitations is evaluated, adoption of this element of the Proposed Action will not violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality.

The 60-month averaging period, updated on a monthly basis, takes into account potential external impacts to water quality related to changes in source water that may not be captured by use of shorter averaging periods. The Proposed Action provides direction to permit writers to use the 60-month averaging period to evaluate compliance with TDS effluent limitations as the default approach. This action will ensure that a consistent approach for evaluating TIN/TDS compliance is applied to all POTWs in the Santa Ana Region. The use of the 60-month averaging period as the default approach takes into account the following:

- A 12-month averaging period is too short to identify AWQ trends. AWQ in GMZs has historically been recomputed in the Santa Ana River watershed every three years, and may subsequently be recalculated for a longer period of time not to exceed five years. Findings from these water quality assessments show that for many GMZs changes in TDS occur slowly over a long period of time (e.g., see Table 3-1 in WSC 2020, which shows how little TDS changes at 3-year intervals).
- The quality of source waters within a service area and associated variation in TDS vary dramatically from year to year depending on water conditions. Therefore, use of a 5-year averaging period is appropriate to capture a larger range of variation of TDS in POTW influent and any potential impacts to AWQ. In addition, it is a conservative approach to evaluating compliance because the WQOs for each GMZ are based on a 20-year (240 month) average.
- TDS concentrations in a POTW's influent are variable over time, primarily due to differences in the TDS concentrations of source waters in the service area of a POTW. For example, during wet periods the Santa Ana River watershed relies more on imported water than would occur during dry periods when State Water Project deliveries (which typically has a relatively low TDS concentration) to southern California are reduced and water utilities must increasingly rely on groundwater. State Water Project water typically has a lower TDS concentration than groundwater. At other times, imported Colorado

River water may be relied on, which typically has high TDS concentrations. In addition to source water differences, increased implementation of water conservation measures in the watershed can also result in higher TDS in wastewater influent.

The impact of variation in the source water on TDS concentrations in POTW influent was documented for a number of facilities in the Santa Ana River watershed using data from a 10-year period from 2002 to 2011.[3] This study found that the TDS concentration of the influent varied among the evaluated facilities with some showing small increases over time while others remained the same or declined. It was postulated that this variability was related to variable TDS concentrations in the source water. A more recent study confirmed this finding and also documented the role water conservation practices have on TDS concentrations in wastewater influent (Southern California Salinity Coalition 2018). This study found that the volume-weighted TDS concentration of source water and the degree of indoor per capita water used (i.e., as impacted by water conservation practices) were the most significant variables influencing TDS influent concentrations. Of these two variables the most important was the TDS concentration of the source water. Given the ability of these factors to influence TDS influent concentrations in the short-term, the proposed longer-term rolling 5-year average for evaluating compliance with effluent limits provides a better measure of TDS conditions as compared to the 1-year average.

- The rolling 5-year average incorporates the impact of periods of prolonged drought which as described above can result in wastewater influent having a higher TDS concentration. Considering the potential impact of periods of prolonged drought takes into account what might be expected to occur in response to projected climate change impacts in the region.

Finally, federal NPDES regulations require that permits be no longer than five years in length. (40 CFR 122.46(a). Although effluent limit averaging periods and other NPDES permit provisions may extend the 5-year term of an NPDES permit, use of a 60-month (5-year) volume-weighted running average as the default standard for evaluating compliance with effluent limits in waste discharge requirements is consistent federal regulations governing the length of permit terms. Notably, the Proposed Action recognizes that the Santa Ana Water Board maintains the discretion to adopt TDS effluent limitations for periods longer than 60-months (not to exceed 120-months) on a case-by-case basis.

Given all of the above, the Proposed Action to state that the default approach to evaluate compliance with TDS effluent limitations will be a 60-month volume-weighted running average (updated monthly) will not result in a violation of a WQO or waste discharge requirements or otherwise substantially degrade surface water or groundwater quality.

[3] Draft study presented to SAWPA on behalf of SARDA, October 2012

<u>Proposed Action</u>: Clarify that Focus of Antidegradation Reviews Should be on TDS Rather than Individual Salt Ions

The Proposed Action clarifies the Santa Ana Water Board's longstanding policy that the antidegradation reviews required during development of waste discharge requirements should focus on an analysis of TDS rather than individual salt ions. Accordingly, the Proposed Action is not to establish a new permitting approach, but instead to provide transparency with regards to how waste discharge requirements are currently being established. This approach to completing the required POTW antidegradation analysis is consistent with the streamlined permitting process described in the resolution adopted to establish that the Basin Plan's TDS/N Management Program is compliant with the State Recycled Water Policy (State Water Board 2018; Santa Ana Water Board 2010):

> *"Finally, the Regional Board streamlined the permitting process by focusing the antidegradation review on TDS as a whole rather than analyzing each and every salt ion separately. However, where a water quality objective has been established to protect certain beneficial uses from the adverse effects of specific salt compounds (e.g., chloride, boron or nitrate), the Regional Board will continue to adopt waste discharge requirements designed to assure compliance with these objectives* (Santa Ana Water Board 2010, Page 7).

This statement indicates that the antidegradation review should focus on those constituents that have an established WQO to protect a beneficial use in the area under review. Although this approach has been used in practice since adoption of the 2010 resolution, the Proposed Action includes a revision to the Basin Plan to provide an explicit statement of this permitting practice.

Previous watershed water quality analyses have affirmed the technical basis for relying on TDS as the surrogate measure for all salinity-related constituents. For example, **Figures 4-1 through 4-4** illustrate analyses completed in 2002 that demonstrated the close correlation between TDS concentrations and the concentrations of other salinity-related constituents (sodium, chloride, hardness, sulfate and total hardness), especially at TDS concentrations of less than 1,000 mg/L.[4]

[4] Figures were prepared by Wildermuth Environmental, Inc., January 22, 2002, provided by Tim Moore, Risk Sciences, via email August 6, 2020.

View text description of chart.

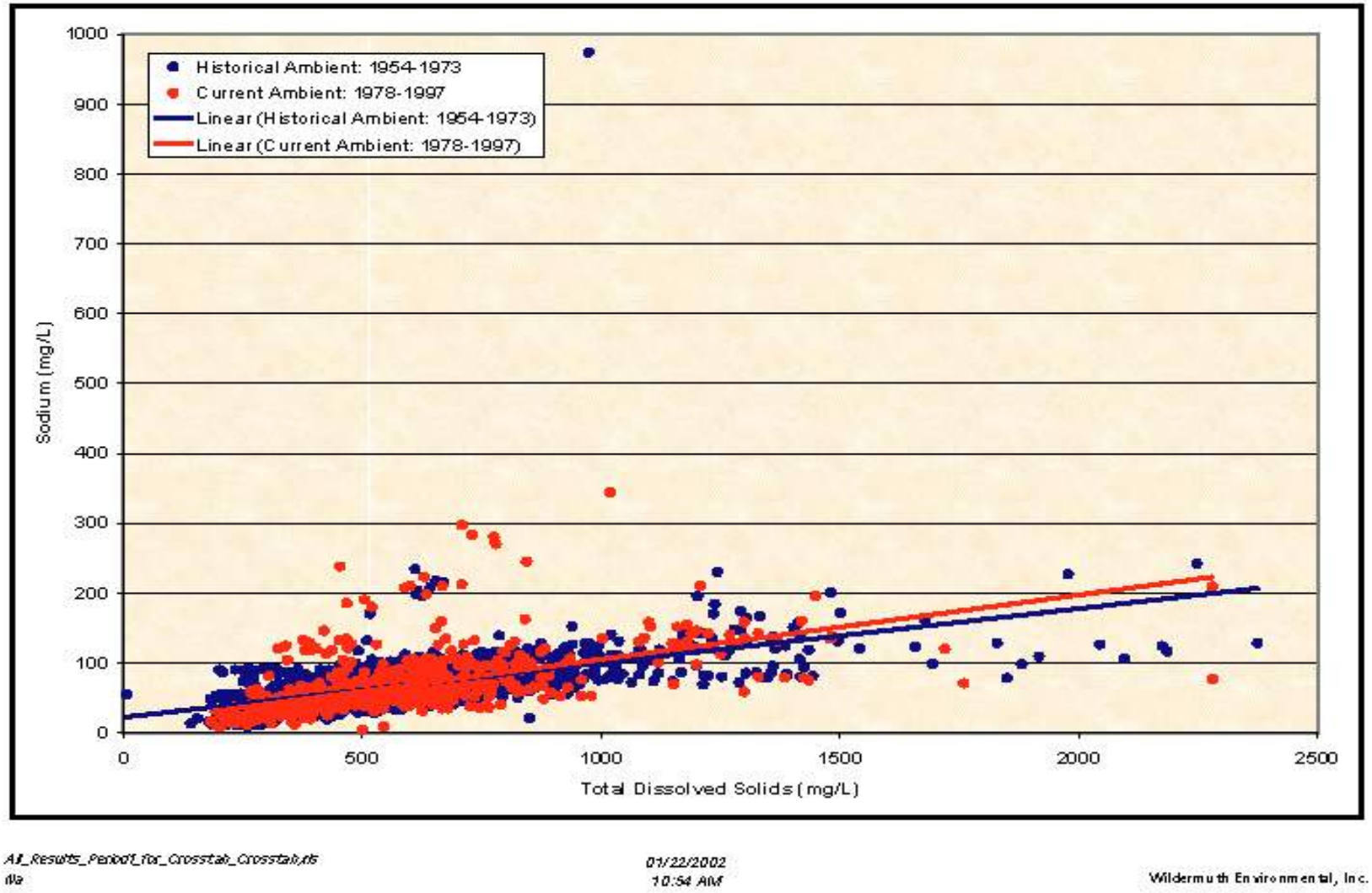

Figure 4-1. Correlation Between TDS and Sodium Concentrations, Santa Ana River Watershed (adapted from figure prepared by Wildermuth Environmental, Inc. January 22, 2002)

View text description of chart.

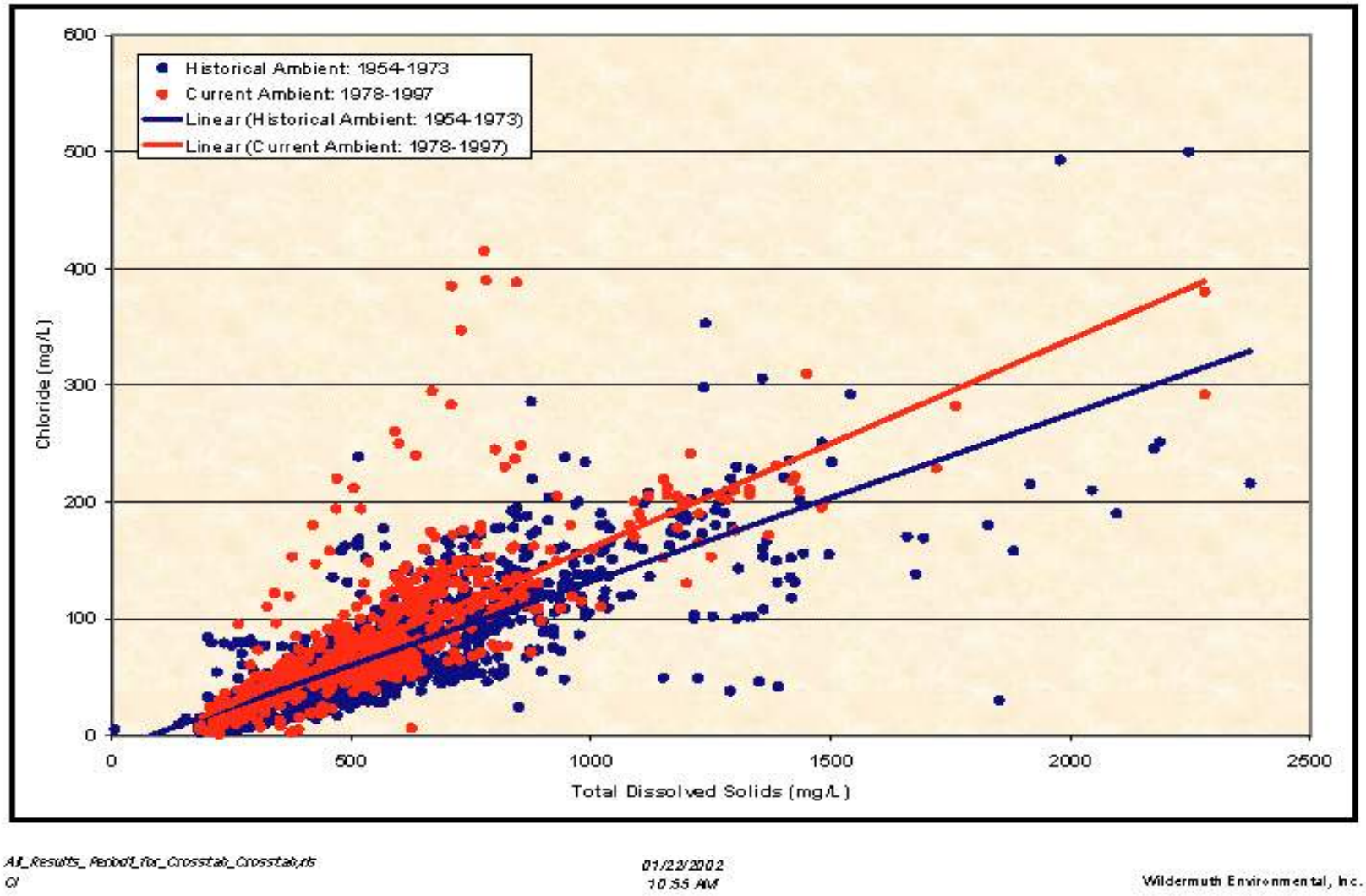

Figure 4-2. Correlation Between TDS and Chloride Concentrations, Santa Ana River Watershed (adapted from figure prepared by Wildermuth Environmental, Inc. January 22, 2002)

View text description of chart.

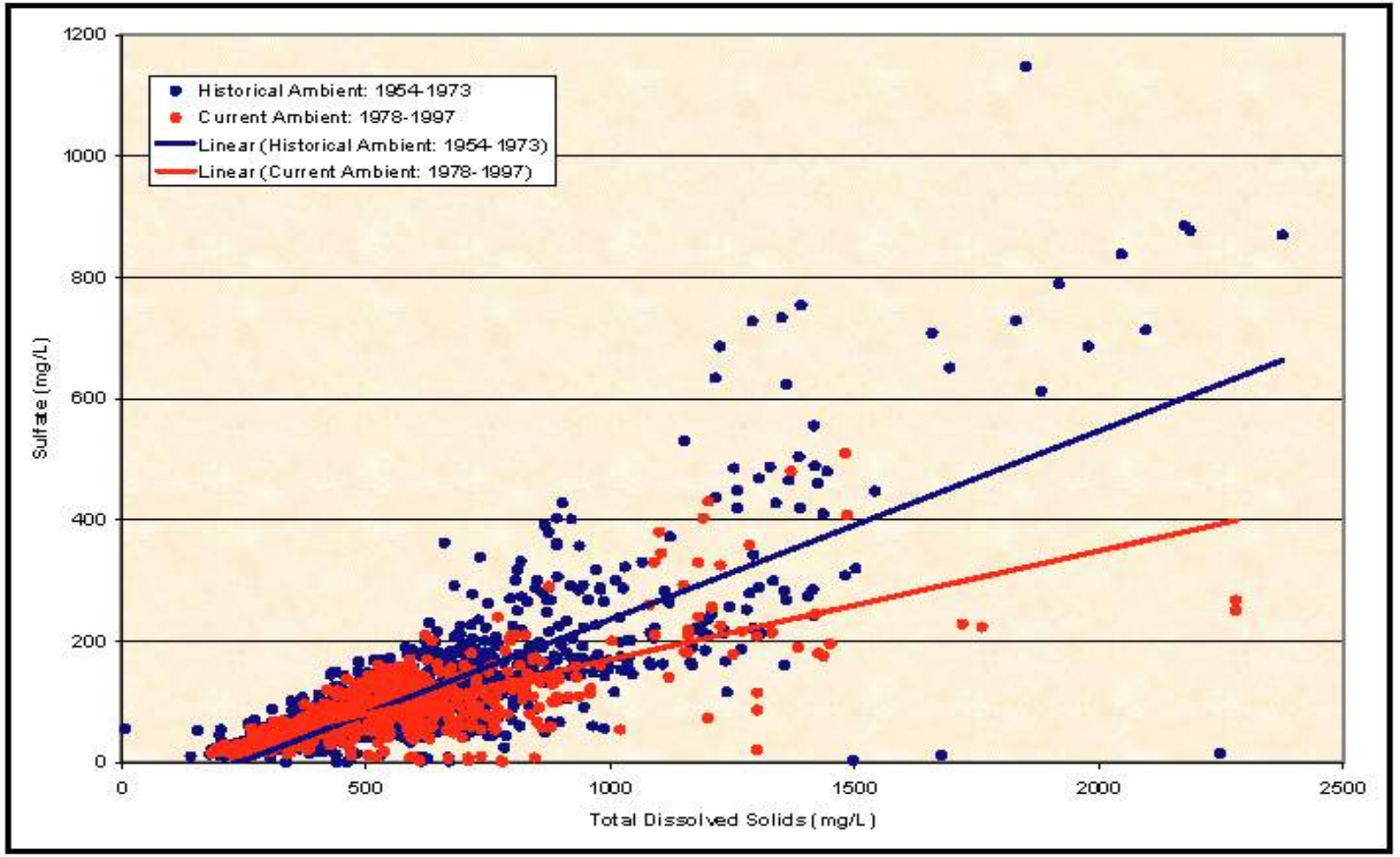

Figure 4-3. Correlation Between TDS and Sulfate Concentrations, Santa Ana River Watershed (adapted from figure prepared by Wildermuth Environmental, Inc. January 22, 2002)

View text description of chart.

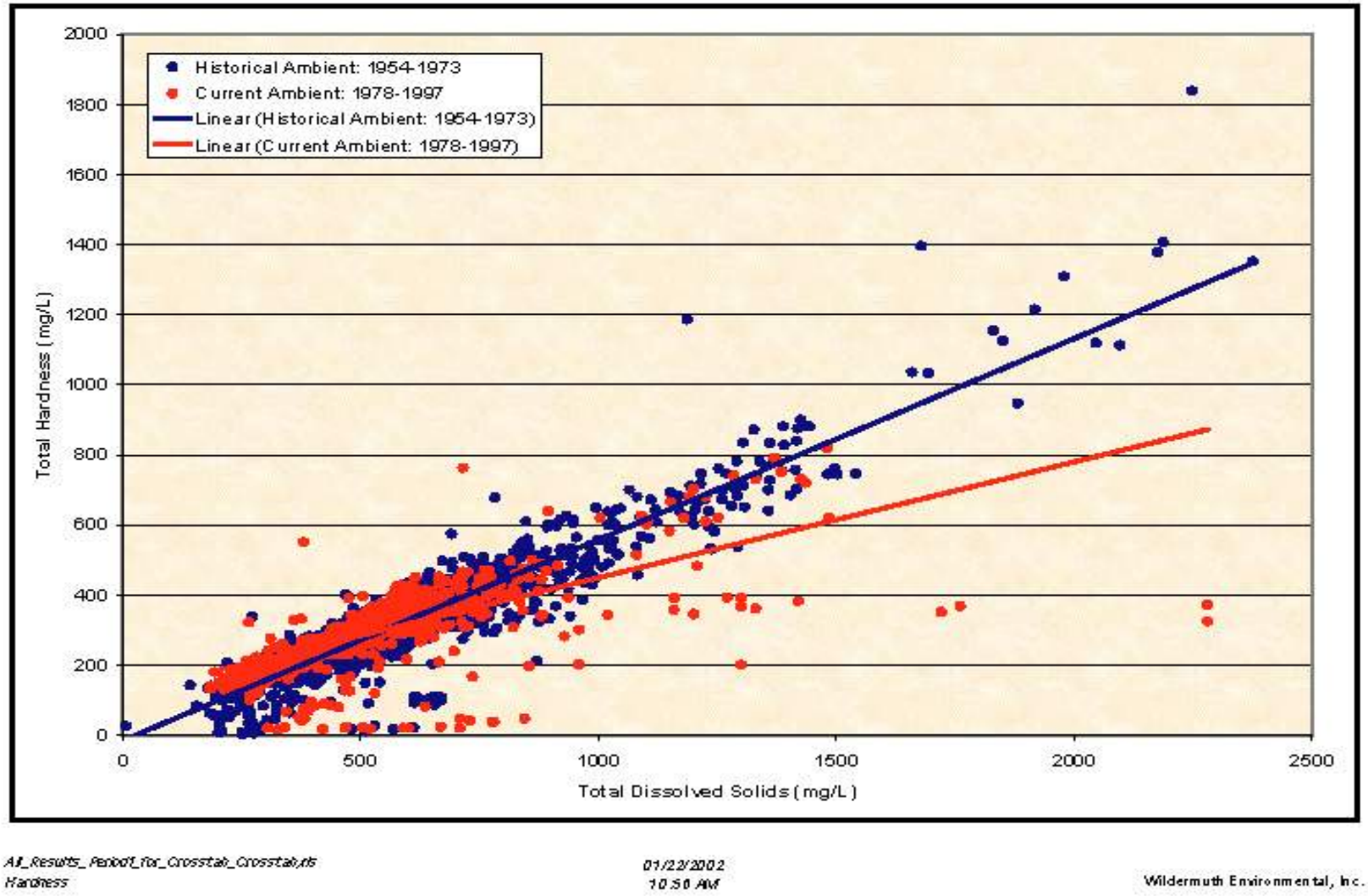

Figure 4-4. Correlation Between TDS and Total Hardness Concentrations, Santa Ana River Watershed (adapted from figure prepared by Wildermuth Environmental, Inc. January 22, 2002)

The findings from the analysis of salinity-related constituents demonstrate that reliance on TDS as a surrogate for other salinity-related ions provides necessary protection of beneficial uses. At the same time, the Task Force was engaged in significant policy discussions regarding the appropriateness of using TDS as a surrogate for other salinity-related ions. Minutes and handouts from Task Force meetings in 2001 to 2002 document the history of use of salinity-related ions and the nature of the discussion and policy decisions on this issues (Risk Sciences 2002; SAWPA 2001, 2002a, b).[5]

Basin Plan Table 4-1 identifies the TDS WQOs applicable to the Santa Ana River region GMZs. Table 4-1 also specifies WQOs for certain individual salt ions (sodium, chloride, sulfate, hardness, etc.) for selected GMZs. These objectives were developed based on limited data from the early 1970s for the purpose of implementing the antidegradation policy (State Water Board 1968). These other objectives were intended to (a) represent baseline water quality as it existed at the time; and (b) were essentially placeholders until appropriate WQOs could be developed to protect beneficial uses. They were not intended to represent use-impairment thresholds designed to protect any particular beneficial use. In contrast, the TDS WQOs represent use-impairment thresholds rather than thresholds to protect baseline water quality. Therefore, reliance on TDS rather than the other Basin Plan Table 4-1 objectives is an appropriate means to ensure water quality is protected in the Santa Ana River watershed.

Given these findings, adoption of the Proposed Action to provide clarity in the Basin Plan regarding use of TDS WQOs as a surrogate for other salt-related ions will not result in a violation of a WQO (as intended to protect a beneficial use) or waste discharge requirements or otherwise substantially degrade surface water or groundwater quality.

***Proposed Action*: Clarify Use of Basin Plan's Mineral Increments in Development of Waste Discharge Requirements**

Basin Plan Chapter 5, Total Dissolved Solids and Nitrogen Management Program, Section III.B.2 (Mineral Increments) includes California Department of Water Resources (CA DWR) recommended values for the maximum use incremental additions for specific ions (i.e., chloride, sulfate, sodium, hardness and TDS) that should be allowable through water use (CA DWR 1982). The existing Basin Plan states that these mineral increments "…will be incorporated into waste discharge requirements when appropriate and necessary."

The Proposed Action would revise the Basin Plan to provide direction to permit writers regarding the application of mineral increment limits permits. Specifically, the proposed amendments clarify that in general that it may not be necessary to include mineral increment requirements for POTW discharges to surface water or groundwater where a water quality-based effluent limit has been established based on an approved TDS WLA (e.g., as proposed in Basin Plan Table 5-5). The Regional Board maintains the discretion to determine the

[5] Personal communication, Tim Moore, Risk Sciences. Relevant documents provided via email August 6, 2020.

necessity to establish waste discharge requirements for mineral increments when the Regional Board determines that it is appropriate and necessary.

The Basin Plan's mineral use increment values are based on 1982 CA DWR recommendations (CA DWR 1982). The purpose of the values was to establish limits on how much a regulated waste discharge could increase concentrations of salt-related ions in the receiving water. These values were based on "best practices" in use at the time of the CA DWR study. Since then what is considered "best practices" has changed considerably as a result of substantial improvements in water conservation throughout the watershed. For example, since the CA DWR Study was completed the increment of use has increased significantly because per capita water use has declined by half while the amount of per capita waste (salt) in a POTW's influent has essentially remained the same.

The mineral use increment values were adopted into the Basin Plan long before the adoption of the existing TDS WQOs for each GMZ and establishment of policies to rely on a single salinity measure, i.e., TDS, as the means to regulate salinity discharges in the Santa Ana River watershed. Figures 4-1 through 4-4 and associated references above demonstrate that a close correlation exists between TDS concentrations and other salt-related constituents. These findings indicate that TDS is an appropriate water quality surrogate for these other constituents. That is, a program that focuses on the management of salinity based on TDS will also result in the management of other salt-related constituents.

In 2010 the Santa Ana Water Board adopted Resolution No. R8-2010-0012 which included proposals to streamline the permitting process (Santa Ana Water Board 2010). This resolution stated that the Board would focus on TDS when conducting the antidegradation review as part of the permitting process, rather than analyzing "each and every salt ion separately" (see additional discussion above). While this finding is directed at providing data to evaluate the potential for a permitted discharge to degrade water quality, a natural extension of this finding is that the development of effluent limitations for salinity-related constituents as waste discharge requirements should be based on the TDS antidegradation review findings.

The development of waste discharge requirements based on establishment of TDS effluent limitations rather than the approach of regulating waste discharges through application of mineral use increments is the current standard practice being implemented by the Santa Ana Water Board. Adoption of the Proposed Action to provide clarity in the Basin Plan regarding application of mineral use increments will not result in a violation of a WQO or waste discharge requirements or otherwise substantially degrade surface water or groundwater quality.

Proposed Action: Adopt Updated WLAs Based on Updated WLAM Findings

The Proposed Action relies on the 2017 WLAM to establish TDS and TIN WLAs in waste discharge requirements for facilities discharging in the watershed. The 2017 WLAM replaces

the existing 2004 WLAM, which has been relied on by Santa Ana Water Board staff since 2004 to derive effluent limitations in permits.

The 2017 WLAM was used to assess three different discharge assumptions (Maximum Expected, Minimum Expected and Most Likely) under two different land use conditions (2020 and 2040), resulting in the analysis of six total scenarios. Daily river flows and TDS/TIN concentrations were estimated for all six of these scenarios using 67 years of historical precipitation data from 81 precipitation stations located within the 2017 WLAM HSPF model boundary, but ultimately only 19 were used based on the completeness of their record (greater than 95% complete). PRISM climate data (average annual precipitation from 1981 through 2010) were then used to distribute the daily precipitation measurements throughout the model area. Model simulation results were used to determine if the existing effluent limits and waste discharge requirements would continue to assure compliance with the applicable TDS/Nitrate (as N) WQOs in each GMZ.

For each simulation, TIN and TDS concentrations in wastewater discharged from all POTWs were assumed to be equal to the maximum allowed discharge in each facility's existing permit. This very conservative approach, which is consistent with the approach used for the 2004 WLAM, provides a significant margin-of-safety around the model estimates. The WLAM output included maximum estimated flow-weighted average TDS and TIN concentrations based on different averaging time periods. These different averaging periods provide the basis for evaluating compliance depending on the planning objective (GSSI 2020):

- *1-year averaging period* - Representative of the existing assessment period for evaluating compliance with effluent limits in permits
- *5-year averaging period* – Typical duration of waste discharge requirements for a permitted facility.
- *10-year averaging period* - Useful for identifying possible future compliance issues because it represents a period of time that is typically long enough to cover one meteorological or hydrological cycle (i.e., contains both wet and dry periods). This period is a useful indicator of how different discharge assumptions will affect the GMZs. The rolling 10-year average is intended to identify periods of prolonged drought and provide a surrogate indication of what might be expected to occur in response to projected climate change in the region.
- *20-year averaging period* - Represents the amount of time over which AWQ concentrations are generally computed. WQOs are also based on a 20-year computation (1954-1973). As noted in Section 3.4.1, the first 20-year averaging period in the Santa Ana River watershed was 1978-1997; the most recent averaging period is for 1999-2018 (WSC 2020).
- *67-year averaging period* - Covers the entire predictive scenario duration of the WLAM and is useful for very long-term planning.

For the purposes of evaluating the impact of the Proposed Action, the 10-year averaging period for 2020 and 2040 was used as it is long enough to cover a full meteorological or hydrologic cycle and potential near-term climate change impacts. The WLAM output, which provides the maximum streambed recharge concentration under the maximum expected discharge for each facility provides a worst-case scenario of potential impacts from the discharge of treated effluent from all facilities in the watershed. This is a very conservative approach that provides a significant margin-of-safety around the WLAM estimates. These same conservative assumptions were applied to the use of the existing 2004 WLAM, previously approved by the Santa Ana Water Board (Santa Ana Water Board 2004).

The Proposed Action will replace the existing WLAs in Basin Plan Table 5-5 with the updated WLAs based on the findings from the 2017 WLAM, as revised by the Supplemental Report from 2021 (GSSI 2021). **Table 4-1** below provides a comparison between existing WLAs and proposed WLAs. Following is a summary of the Proposed Action as it applies to updating Basin Plan Table 5-5:

- Through implementation of the Proposed Action, none of the existing facilities in Basin Plan Table 5-5 (see Table 2-1 above) will have less stringent effluent limits for TIN or TDS.
  - City of San Bernardino Geothermal Facility[6] - Discharges to Santa Ana River Reach 5 via East Twin Creek and Warm Creek (overlying the Bunker Hill A & B GMZs).
  - WMWD Arlington Desalter[8] – Discharges treated effluent to Reach 1a Temescal Creek (within Prado Basin Management Zone). The Corona WWTP-3 wastewater treatment facility was removed because it is no longer in operation.
- Four of the existing facilities in Basin Plan Table 5-5 will have more stringent WLAs for TIN. These facilities and the basis for the change include:
  - Yucaipa Valley Water District's Henry N. Woccholz WRF – Discharges to Santa Ana River Reach 4 (overlying Colton GMZ). TIN WLA reduced from 6.7 mg/L to 5.5 mg/L (to ensure that the WQO of 2.7 mg/L is not exceeded).
  - City of Riverside RWQCP – Discharges to Santa Ana River Reach 3 (overlying Chino-South GMZ). TIN WLA reduced from 13.0 mg/L to 10.0 mg/L (consistent with the requirements of Santa Ana Water Board Order No. R8-2013-0016 and current plant performance).
  - Temescal Valley WRF (previously listed as Lee Lake WRF in the existing Basin Plan Table 5-5) – Discharges to Temescal Creek Reach 2 (overlying Upper Temescal Valley GMZ). TIN WLA reduced from 13.0 mg/L to 10.0 mg/L (based on BPTC for TIN by POTWs in the region).

[6] Although this facility is a new addition to Basin Plan Table 5-5 under the Proposed Action, it has had a permit to discharge in the watershed for more than 20 years.

Table 4-1. Comparison between Existing WLAs and Updated WLAs in the Proposed Action

Permittee/Discharge	Existing WLAs (mg/L)		Updated WLAs (mg/L)		Comment
	TDS	TIN	TDS	TIN	
City of Beaumont (maximum benefit)	490	6.0	300 (400)[1]	3.6 (6.0)[1]	WLAs revert to previous WLAs (see existing column) if Santa Ana Water Board determines that City of Beaumont failed to comply with Maximum Benefit condition
City of Beaumont (antidegradation)	320	4.1			
Yucaipa Valley Water District (maximum benefit)	540	8.0	400	5.5	
Yucaipa Valley Water District (antidegradation)	320	4.1			
City of San Bernardino: Geothermal Discharges	N/A	N/A	264	0.7	Unintentionally omitted from Basin Plan Table 5-5 in 2004
City of Rialto	490	10.0	490	10.0	--
RIX (Cities of Colton & San Bernardino)	550	10.0	550	10.0	--
City of Riverside RWQCP	650	13.0	650	10.0	Effluent limit for TIN is more stringent than the 2004 WLA but is consistent with the requirements of Order No. R8-2013-0016 and current plant performance.
City of Corona: WWTP-1	700	10.0	700	10.0	WWTP-2 removed from existing Basin Plan Table 5-5 because effluent is permitted through WWTP-1 waste discharge requirements; WWTP-3 in existing Basin Plan has been decommissioned
Inland Empire Utilities Agency: RP1, RP4, RP5, & CC	550	8.0	550	8.0	Compliance with the applicable effluent limit is evaluated collectively based on the volume-weighted average of all four POTW (aka "bubble permit").
Western Municipal Water District: WRCRWA	625	10.0	625	10.0	--
Western Municipal Water District: Arlington Desalter	N/A	N/A	260	4.4	Unintentionally omitted from Basin Plan Table 5-5 in 2004
Temescal Valley Water District: TVWRF	650	13.0	650	10.0	Identified as Lee Lake in existing Basin Plan Table 5-5). Effluent limit for TIN is more stringent than the 2004 WLA and is based on BPTC for TIN by POTWs in the region.
Elsinore Valley Municipal Water District: RWWRF-DP001	700	13.0	700	10.0	Effluent limit for TIN is more stringent than the 2004 WLA and based on the treatment plant's design and demonstrated performance.
Eastern Municipal Water District: SJV, MV, PV, SC, TV	650	10.0	650	10.0	--

[1] Higher effluent limits apply only to first 1.8 mgd. Lower effluent limits apply to discharges greater than 1.8 mgd

- Elsinore Valley Municipal Water District RWWRF – Discharges to Temescal Creek Reach 5 (overlying Upper Temescal Valley GMZ). TIN WLA reduced from 13.0 mg/L to 10.0 mg/L (based on the wastewater facility's design and demonstrated performance).

Results from the 2017 WLAM 10-year rolling average output for the Maximum Expected Discharge Scenario for 2020 or 2040 indicated the potential for the Proposed Action to impact water quality in specific surface waters and associated GMZs. However, these impacts are either temporary, not significant or, in some cases, lead to improved water quality benefits over the long-term. **Table 4-2** summarizes the overall 2017 WLAM findings regarding potential exceedances of TDS/Nitrogen (as N) WQOs or impacts to AWQ for the 10-year averaging period for surface waters and associated underlying groundwaters in the watershed. Potential impacts were identified for three surface waters and their underlying GMZs:

- Bunker Hill-B GMZ Underlying San Timoteo Creek Reach 1 and Santa Ana River Reach 5
- Riverside-A GMZ underlying Santa Ana River Reach 4
- Upper Temescal Valley GMZ underlying Temescal Creek Reaches 2, 3, 4, 5 & 6 (and downgradient Temescal Valley GMZ)
- Orange County GMZ underlying Santa Ana River Reach 2
- Reach 3 of the Santa Ana River (at below Prado Dam)

The potential significance of the findings for the GMZs associated with each of the surface waters listed above is discussed below. To facilitate this discussion, **Table 4-3** summarizes the 2017 WLAM predicted maximum average streambed recharge concentrations for the 10-year, 20-year and 67-year planning periods (additional 1-year and 5-year results are available in GSSI [2020]). Results are summarized for both the Maximum Expected and Most Likely Discharge scenarios (GSSI [2020] provides results for the Minimum Expected Discharge scenarios). Where a predicted maximum average streambed recharge concentration exceeds the WQO, the value is shown with red bold italics; where a predicted concentration exceeds the estimated 2018 AWQ value concentration (WSC 2020; see additional discussion of baseline water quality in Section 3.4 above), the value is shown with black bold italics.

Table 4-2. TDS/Nitrate (as N) Findings from WLAM Simulation Scenarios for Water Quality Objectives (WQO), Ambient Water Quality (AWQ) and Assimilative Capacity (2020 to 2040) in Waterbodies Potentially Impacted by Proposed Action (GSSI 2020, 2021)

Surface Waterbody and Underlying GMZ	Total Dissolved Solids (TDS) (mg/L)				Nitrate (as N) (mg/L)				Potential to Exceed WQO or Degrade AWQ?
	WQO	AWQ	AC	Exceedance Potential (Volume-weighted 10-Yr Average)	WQO	AWQ	AC	Exceedance Potential (Volume-weighted 10-Yr Average)[1]	
Reach 1 of San Timoteo Creek And Reach 5 of the Santa Ana River overlying Bunker Hill-B GMZ	330	280	50	• Streambed recharge did not exceed the WQO in any simulation scenario • Stream bed recharge concentration was less than the current AWQ in 5 of 6 simulation scenarios	7.3	5.8	1.5	Streambed recharge did not exceed either the WQO or AWQ in any simulation scenario	Yes for TDS AWQ, but potential for degradation is expected to minor and temporary
Reach 4 of the Santa Ana River overlying the Riverside-A GMZ	560	430	130	• Streambed recharge did not exceed either the WQO in any simulation scenario • Stream bed recharge concentration was greater than the current AWQ in 5 of 6 simulation scenarios	6.2	5.7	0.5	• Streambed recharge exceeded WQO in two of six simulation scenarios (Maximum Discharge, 2020 and 2040)	Yes for TDS and nitrate AWQ
Temescal Creek Reaches 2, 3, 4, 5 & 6 overlying Upper Temescal Valley GMZ[2]	820	750	70	Streambed recharge did not exceed either the WQO or AWQ in any simulation scenario	7.9	4.7	3.2	• Streambed recharge exceeded the current AWQ in the Maximum Expected and Most Likely discharge scenarios and could result in lower water quality	Yes for nitrate AWQ

Table 4-2. TDS/Nitrate (as N) Findings from WLAM Simulation Scenarios for Water Quality Objectives (WQO), Ambient Water Quality (AWQ) and Assimilative Capacity (2020 to 2040) in Waterbodies Potentially Impacted by Proposed Action (GSSI 2020, 2021)

Surface Waterbody and Underlying GMZ	Total Dissolved Solids (TDS) (mg/L)				Nitrate (as N) (mg/L)				Potential to Exceed WQO or Degrade AWQ?
	WQO	AWQ	AC	Exceedance Potential (Volume-weighted 10-Yr Average)	WQO	AWQ	AC	Exceedance Potential (Volume-weighted 10-Yr Average)[1]	
Reach 2 of the Santa Ana River overlying the Orange County GMZ	580	600	NA	• Stream bed recharge concentration exceeded the WQO in 4 of 6 simulation scenarios (Minimum and Most Likely Discharge scenarios in 2020 and 2040) • Concentration (5-year volume-weighted running average) did not exceed the 650 mg/L objective applicable to Reach 2 of the Santa Ana River	3.4	3.0	0.4	• Streambed recharge did not exceed WQO in any simulation scenario • Streambed recharge concentration exceeded the current AWQ in two simulation scenarios (Maximum Discharge, 2020 and 2040)	Yes for TDS WQO and Nitrate AWQ

[1] - Evaluation of exceedance potential based on WLAM outputs for TIN rather than nitrate (see text).

[2] - Santa Ana Water Board Resolution No. R8-2020-0038 recently amended the Basin Plan to combine existing Bedford, Lee Lake and Warm Springs GMZs into a single Upper Temescal Valley GMZ. Basin Plan Amendment, which included the WQO and AWQ values shown in this table, was approved by the Office of Administrative Law (OAL) on September 21, 2021.

Table 4-3. Waterbodies where Potential Impacts to Water Quality May Occur: Predicted Maximum TDS and TIN Concentrations for Volume-Weighted Recharge Based on 2017 WLAM Results for the Maximum Expected Discharge (Scenarios A and D) and Most Likely Discharge (Scenarios B and E) Under 2020 and 2040 Land Use Conditions (GSSI 2020, 2021) (AWQ based on 2018 estimate [WSC 2020])

Waterbody	Constituent[1]	WQO (mg/L)	AWQ (mg/L)	AC (mg/L)	Planning Period (Years)	Maximum Predicted Average Streambed Recharge TIN Concentration[2]			
						2020 Conditions		2040 Conditions	
						Scenario A (mg/L)	Scenario B (mg/L)	Scenario D (mg/L)	Scenario E (mg/L)
Bunker Hill-B GMZ underlying San Timoteo Creek Reach 1 and Santa Ana River Reach 5[3]	TDS	330	280	50	10-Yr	***287***	250	265	254
					20-Yr	277	245	257	247
					67-Yr	252	226	239	229
	TIN	7.3	5.8	1.5	10-Yr	2.76	2.48	2.52	2.43
					20-Yr	2.67	239	2.44	2.35
					67-Yr	2.45	2.18	2.27	2.19
Riverside-A GMZ underlying Santa Ana River Reach 4[4]	TDS	560	430	130	10-Yr	***477***	***441***	***457***	***434***
					20-Yr	***472***	***435***	***452***	428
					67-Yr	***443***	400	425	398
	TIN	6.2	5.7	0.5	10-Yr	***6.45***	***5.97***	***6.27***	***5.91***
					20-Yr	***6.35***	***5.83***	***6.16***	***5.78***
					67-Yr	***5.87***	5.25	***5.71***	5.26
Upper Temescal Valley GMZ[5]	TDS	820[6]	750[7]	70	10-Yr	658	519	638	481
					20-Yr	654	414	631	472
					67-Yr	634	448	605	413
	TIN	7.9[6]	4.7[7]	3.2	10-Yr	***7.08***	***5.57***	***6.82***	***5.05***
					20-Yr	***7.02***	***5.49***	***6.73***	***4.95***
					67-Yr	***6.76***	4.58	***6.39***	4.13

Table 4-3. Waterbodies where Potential Impacts to Water Quality May Occur: Predicted Maximum TDS and TIN Concentrations for Volume-Weighted Recharge Based on 2017 WLAM Results for the Maximum Expected Discharge (Scenarios A and D) and Most Likely Discharge (Scenarios B and E) Under 2020 and 2040 Land Use Conditions (GSSI 2020, 2021) (AWQ based on 2018 estimate [WSC 2020])

Waterbody	Constituent[1]	WQO (mg/L)	AWQ (mg/L)	AC (mg/L)	Planning Period (Years)	Maximum Predicted Average Streambed Recharge TIN Concentration[2]			
						2020 Conditions		2040 Conditions	
						Scenario A (mg/L)	Scenario B (mg/L)	Scenario D (mg/L)	Scenario E (mg/L)
Orange County GMZ underlying Santa Ana River Reach 2[9]	TDS	580	600	None	10-Yr	529	***609***	510	***607***
					20-Yr	525	***604***	504	***603***
					67-Yr	471	520	458	506
	TIN	3.4	3.0	0.4	10-Yr	***3.20***	2.81	***3.13***	2.30
					20-Yr	***3.19***	2.78	***3.11***	2.27
					67-Yr	2.88	2.44	2.85	1.99

[1] Nitrogen WQOs and AWQ values are for nitrate (as N); however, the maximum predicted average streambed recharge concentrations produced by the 2017 WLAM are reported as TIN. Because TIN includes nitrogen species other than nitrate, this creates a margin of safety when comparing the recharge concentrations with the WQO or AWQ. See text in Section 4.3.10 for additional explanation.

[2] ***Black text, Bold, Italics*** = Predicted value > AWQ based on 2018 estimate (WSC 2020); ***Red text, Bold, Italics*** = Predicted value > WQO

[3] Adapted from Table 6-3, GSSI (2020) and Table 2-2, GSSI (2021)

[4] Adapted from Table 6-5, GSSI (2020)

[5] Adapted from Table 6-7, GSSI (2020)

[6] Proposed WQO (see Table 3, Santa Ana Water Board 2020)

[7] Reported in Table 5 (Santa Ana Water Board 2020)

[8] Adapted from Table 6-9, GSSI (2020)

Bunker Hill-B GMZ underlying San Timoteo Creek Reach 1 and Santa Ana River Reach 5 (Figure 4-5)

The TDS WQO for the Bunker Hill-B GMZ is 330 mg/L and the current AWQ is 280 mg/L. There is 50 mg/L of assimilative capacity available. Table 4-3 shows that the volume-weighted 10-year average TDS concentration of the streambed recharge did not exceed the WQO for the Maximum Expected or Most Likely Discharge scenarios. For AWQ, the highest 10-year volume-weighted average value for the 10-year planning period was for the Maximum Expected Discharge, 2020 condition. The TDS concentration, 287 mg/L, is only slightly above the current AWQ and the WLAM results indicate there is only a 10% probability that this would occur. For the 2040 condition 100% of the volume-weighted 10-year rolling average TDS concentrations were less than the current ambient quality for both the Maximum Expected and Most Likely Discharge scenarios. Thus, discharges to this reach are not expected to result in significant lowering of water quality because per state policy any potential degradation is expected to be both minor and temporary (State Water Board 1990).

The Nitrate (as N) objective for the Bunker Hill-B GMZ is 7.3 mg/L and current AWQ is 5.8 mg/L. There is 1.5 mg/L of assimilative capacity available. The volume-weighted 10-year average TIN concentrations of the streambed recharge for the Maximum Expected and Most Likely Discharge scenarios were well below the WQO and AWQ. Based on the above finding, no environmental impacts to hydrology and water quality are expected in this portion of the project area as a result of adoption of the Proposed Action.

Riverside-A GMZ underlying Santa Ana River Reach 4 (Figure 4-6)

The TDS WQO for the Riverside-A GMZ is 560 mg/L. Current AWQ is 430 mg/L; 130 mg/L assimilative capacity available. Table 4-3 indicates that under the Maximum Expected Discharge and Most Likely Discharge scenarios the projected volume-weighted 10-year average TDS concentration in the streambed recharge was greater than the current AWQ (Maximum Expected Discharge: 2020 - 477 mg/L, 2040 - 457 mg/L; Most Likely Discharge: 2020 – 441 mg/L, 2040 – 434 mg/L). Over longer planning horizons (20-year and 67-year), predicted TDS concentration of streambed recharge is expected to decline such that the under the Most Likely Discharge scenarios for 2020 and 2040, TDS concentrations are expected to be less than the current AWQ.

Three POTWs discharge to Santa Ana River Reach 4. The City of Rialto discharges to a channel that is tributary to the river; the City of San Bernardino and City of Colton WWTPs discharge to the river through the RIX facility. The existing maximum permitted TDS concentration for these two POTWs is 490 mg/L and 550 mg/L, respectively. Both effluent limits are below the applicable TDS WQO. The proposed updated WLAs do not change these effluent limits (see Basin Plan Table 5-5 and Table 2-1 above). In addition, results from the 20-year water quality assessments updated every three years confirm that TDS concentrations in the Riverside-A GMZ have remained very steady with no discernable negative trend (see Table 3-2 above). For example, in 1997 the 20-year average TDS concentration for the period 1978-1997 was 440 mg/L; for the 20-year period from 1999 to 2018 the average concentration was 430 mg/L (WSC 2020).

View text description of map.

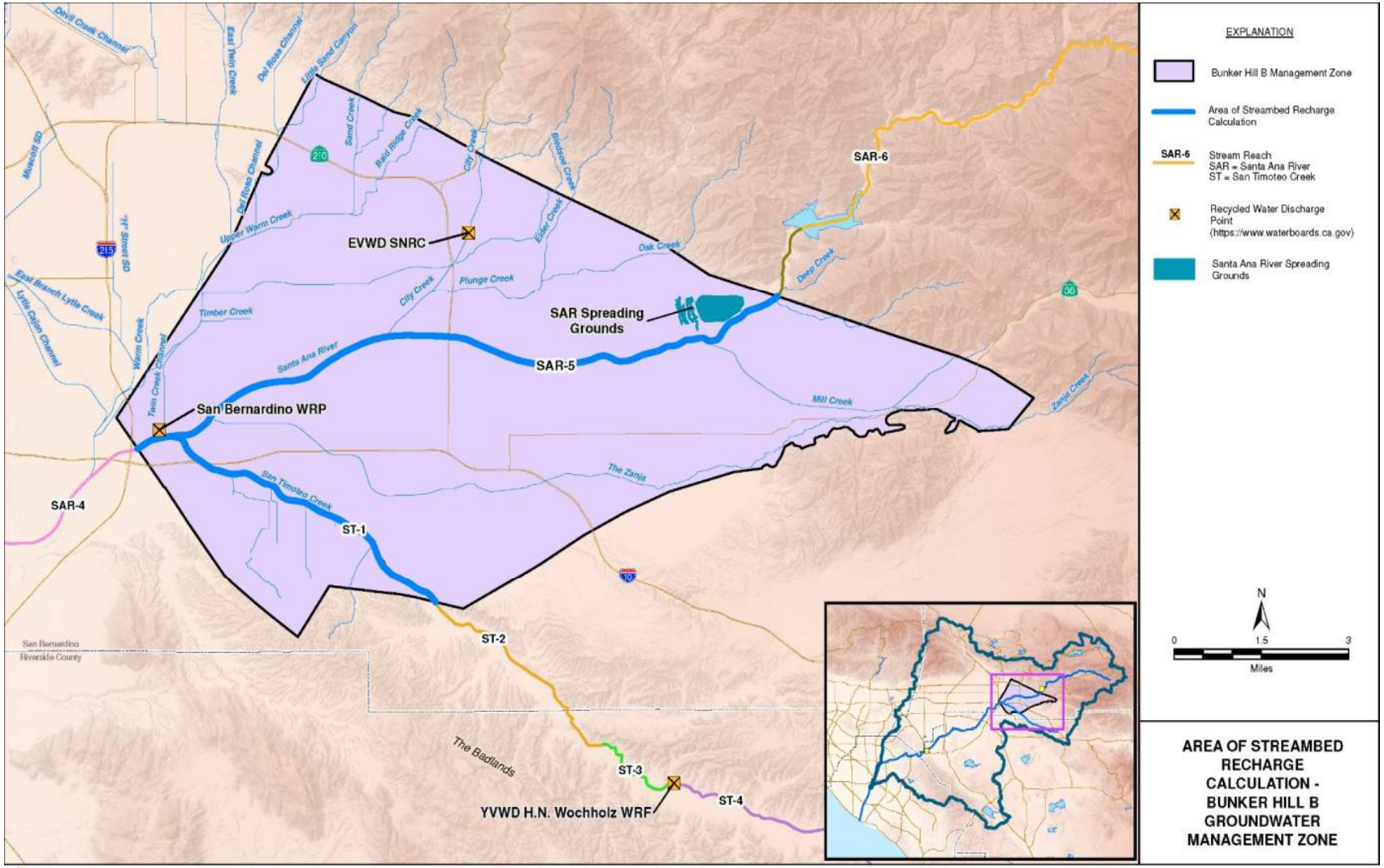

Figure 4-5. Bunker Hill-B Groundwater Management Zone (adapted from Figure I-1, GSSI [2020])

View text description of map.

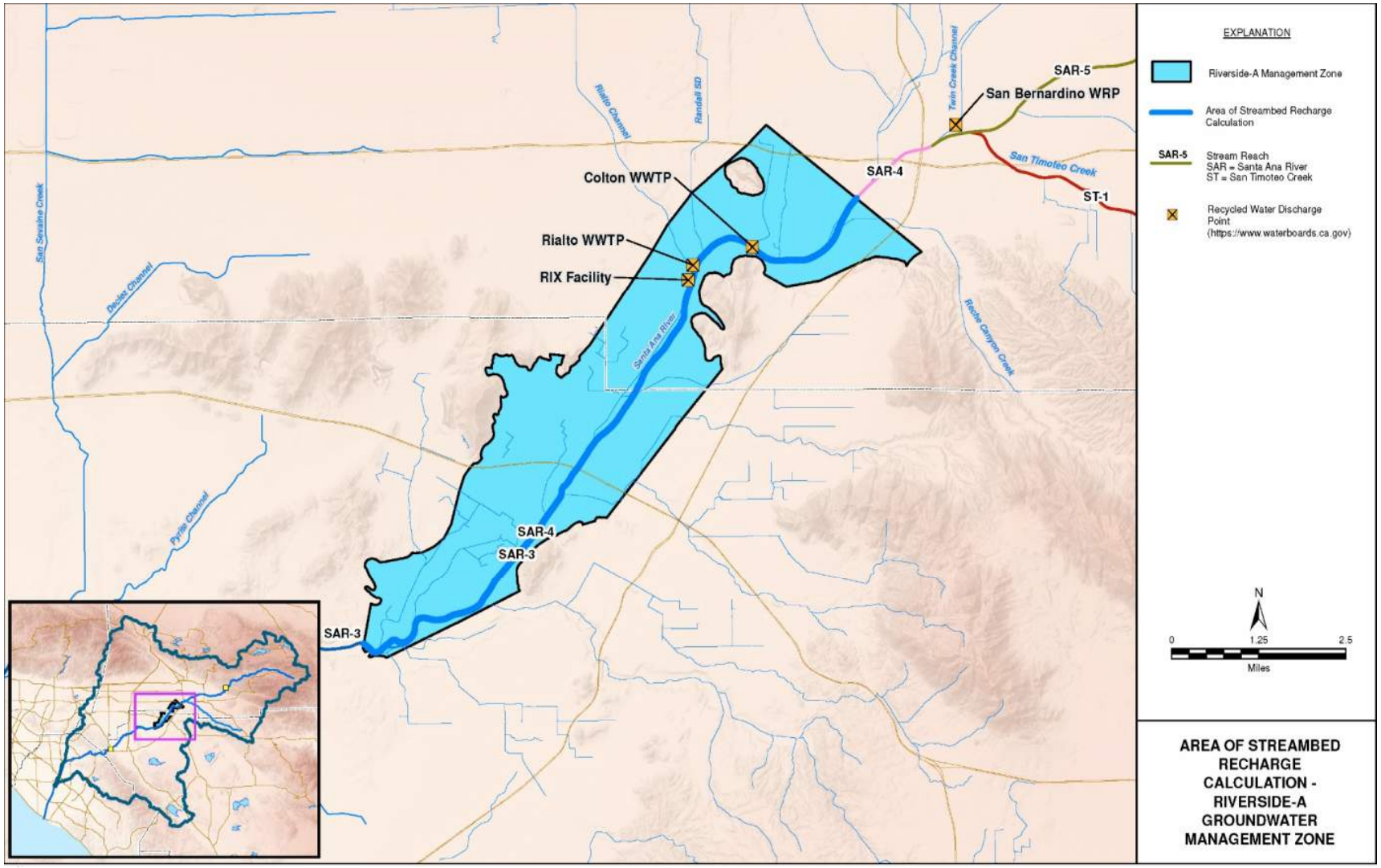

Figure 4-6. Riverside-A Groundwater Management Zone (adapted from Figure K-1, GSSI [2020])

The nitrate WQO for the Riverside-A GMZ is 6.2 mg/L; AWQ is 5.7 mg/L. 0.5 mg/L assimilative capacity is available. Table 4-3 indicates that under the Maximum Expected Discharge scenario the projected volume-weighted 10-year average TIN concentration in the streambed recharge is greater than the WQO under both 2020 and 2040 conditions (2020 – 6.45 mg/L, 2040 – 6.27 mg/L). Under the Most Likely Discharge scenarios the predicted TIN levels are below the WQO but above current AWQ (2020 – 5.97 mg/L, 2040 – 5.91 mg/L).

Analysis of long-term water quality monitoring data shows that TIN concentrations in the Riverside-A GMZ have been gradually rising since 1997 but that trend is slowing (**Figure 4-7**, see blue line). Detailed groundwater modeling developed as part of the Imported Water Recharge Cooperative Agreement (signed by the Santa Ana Water Board in January 2008) shows that the TIN concentration in this GMZ is leveling out and is not expected to exceed 5.9 mg/L at any time between 2020 and 2034 (GSSI 2015).

View text description of chart.

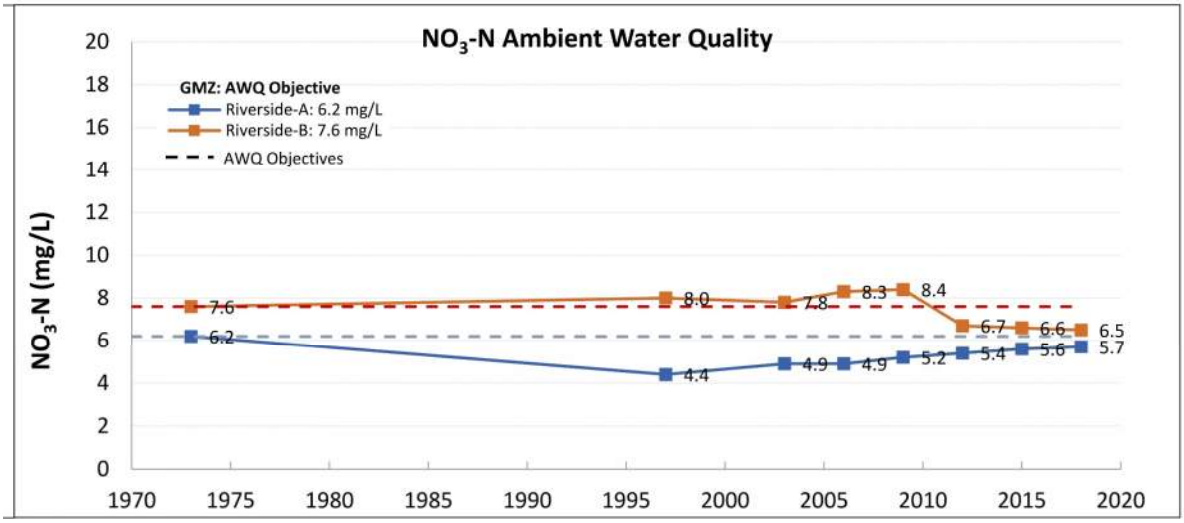

Figure 4-7. Ambient Water Quality Trend for Nitrate (as N) in Riverside-A and Riverside-B Groundwater Management Zones (adapted Attachment B13 in WSC 2020)

The existing maximum permitted TIN concentration for the two POTWs discharging to the Riverside-A GMZ is 10 mg/L (Table 5-5 in the current Basin Plan), consistent with BPTC for TIN for POTWs in the project area. The Proposed Action to adopt revised WLAs for these facilities does not change these effluent limits (see Table 2-1 above).The WLAs under the Proposed Action are the same as currently applied to the two POTWs that discharge to the Riverside-A GMZ under the existing Basin Plan. Continued discharge at the proposed WLAs (as effluent limits in waste discharge requirements) for each of these POTWs, may result in slightly lower TDS and nitrate (as N) AWQ in the Riverside-A GMZ; however, sufficient assimilative capacity exists to absorb these discharges with no risk of exceeding WQOs for TDS and nitrate (as N). The Proposed Action assumes that some assimilative capacity will need to be approved by the Santa Ana Water Board; however, the Proposed Action does not authorize use of this assimilative capacity. The decision to authorize the use

of assimilative capacity is a separate regulatory decision associated with the adoption of waste discharge requirements. If a permittee requests assimilative capacity, the necessary environmental analysis to support that request will be made at the time of the request.

While the continued discharge from the two POTWs may result in slightly lower TDS and nitrate (as N) AWQ in the Riverside-A GMZ in the near-term, these same discharges are providing the following downstream water quality benefits:

- The discharges are improving AWQ in the downstream Chino-South GMZ, which currently has AWQ that greatly exceeds the WQOs for TDS (WQO – 680 mg/L; AWQ – 920 mg/L) and nitrate (as N) (WQO – 5.0 mg/L; AWQ – 27.6 mg/L (WSC 2020). The 2017 WLAM results indicate that the predicted maximum average streambed recharge TDS and TIN concentrations in both the Riverside-A and Chino-South GMZs (Tables 4-3 and 4-8 below), respectively) are expected to be much lower than the current AWQ in the downstream Chino-South GMZ. Thus, continued discharge of treated effluent as proposed by the WLAs included in the Proposed Action will continue to improve water quality in the downstream Chino-South GMZ. The recently completed AWQ recomputation shows that AWQ has likely peaked and will continue to improve in the future (**Table 4-4**, WSC 2020).

Table 4-4. Average TDS and Nitrate (as N) Concentrations in Chino-South Groundwater Management Zone (from Tables 3-1 and 3-2 in WSC 2020)

Water Quality Assessment	Averaging Period	TDS Concentration (WQO - 680 mg/L)	Nitrate (as N) Concentration (WQO -5.0 mg/L)
1997	1978-1997	720	8.8
2003	1983-2003	790	15.3
2006	1987-2006	940	25.7
2009	1990-2009	980	26.8
2012	1993-2012	990	28.0
2015	1996-2015	940	27.8
2018	1999-2018	920	27,6

- The POTW discharges are providing a critical source of dilution needed to mitigate violations of the TDS WQO at Prado Dam caused by poor quality groundwater rising into the PBMZ (see discussion below). During dry weather conditions, the discharge of treated effluent from these POTWs is the only source of flow in Santa Ana River Reach 4 and a significant contributor to the flow in Santa Ana River Reach 3 (along with the discharge from the Riverside RWQCP). These flows are necessary to protect the WILD and RARE beneficial uses in the Santa Ana River. In addition, these flows sustain other important beneficial uses, such as Water Contract Recreation (REC1).

Based on the findings from the 2017 WLAM (GSSI 2020) there are potential impacts to water quality that may occur if the WLAs for the POTWs within this reach are adopted as

stated in the Proposed Action. However, these impacts are found to be less than significant for this portion of the project area for the following reasons:

- TDS and Nitrate (as N) AWQ trends show that over the long-term water quality is expected to continue to improve in the underlying Riverside-A GMZ (WSC 2020).
- The continued discharge of treated effluent by the City of Rialto and RIX facilities are providing downstream water quality benefits in the Chino-South GMZ and PBMZ.

In addition, the continued discharge of treated effluent in Santa Ana River Reach 4 provides the only baseflow in Santa Ana River Reach 4 and contributes to the baseflow in downstream Santa Ana River Reach 3. This flow therefore provides critical support to the protection of beneficial uses in Santa Ana Reach 4 and downstream reaches.

Upper Temescal Valley GMZ underlying Temescal Creek Reaches 2, 3, 4, 5 & 6 (Figure 4-8)

The Proposed Action includes WLAs for permitted discharges to Reaches 2 through 6 of Temescal Creek. This SED only addresses the proposed adoption of updated WLAs in Table 5-5 applicable to POTWs that discharge in these reaches of Temescal Creek. The Santa Ana Water Board adopted a Basin Plan amendment December 4, 2020 that combined three GMZs to create the Upper Temescal Valley GMZ (Santa Ana Water Board 2020) (R8-2020-0038). This amendment, which was approved by OAL on September 21, 2021, established WQOs for this GMZ and included its own environmental analysis.

The approved TDS WQO for the Upper Temescal Valley GMZ is 820 mg/L. Current AWQ is 750 mg/L (Santa Ana Water Board 2020) and there is 70 mg/L assimilative capacity available. Table 4-2 indicates that under the Maximum Expected Discharge and Most Likely Discharge scenarios the projected volume-weighted 10-year average TDS concentration of the streambed recharge did not exceed either of these values for any of the six simulation scenarios (Table 4-3). Nor did it exceed the current AWQ in the Minimum Expected Discharge scenarios for 2020 and 2040 land use conditions.

For the Most Likely and Maximum Expected Discharge scenarios, highest 10-year volume-weighted average TIN concentration of the streambed recharge was greater than the current AWQ under both 2020 and 2040 land use conditions. This indicates some potential exists for lower water quality to occur. The Santa Ana Water Board has evaluated this potential and determined that, in accordance with the requirements of the state's Antidegradation Policy (State Water Board 1968), it was appropriate to allocate some of the available assimilative capacity in the Temescal GMZ (Santa Ana Water Board 2020). Continued discharge of treated effluent to Temescal Creek is authorized provided that the related effluent limits are consistent with Basin Plan Table 5-5 WLAs and dischargers are in compliance with any Salt and Nitrate Management Plan approved by the Santa Ana Water Board (WEI 2017).

View text description of map.

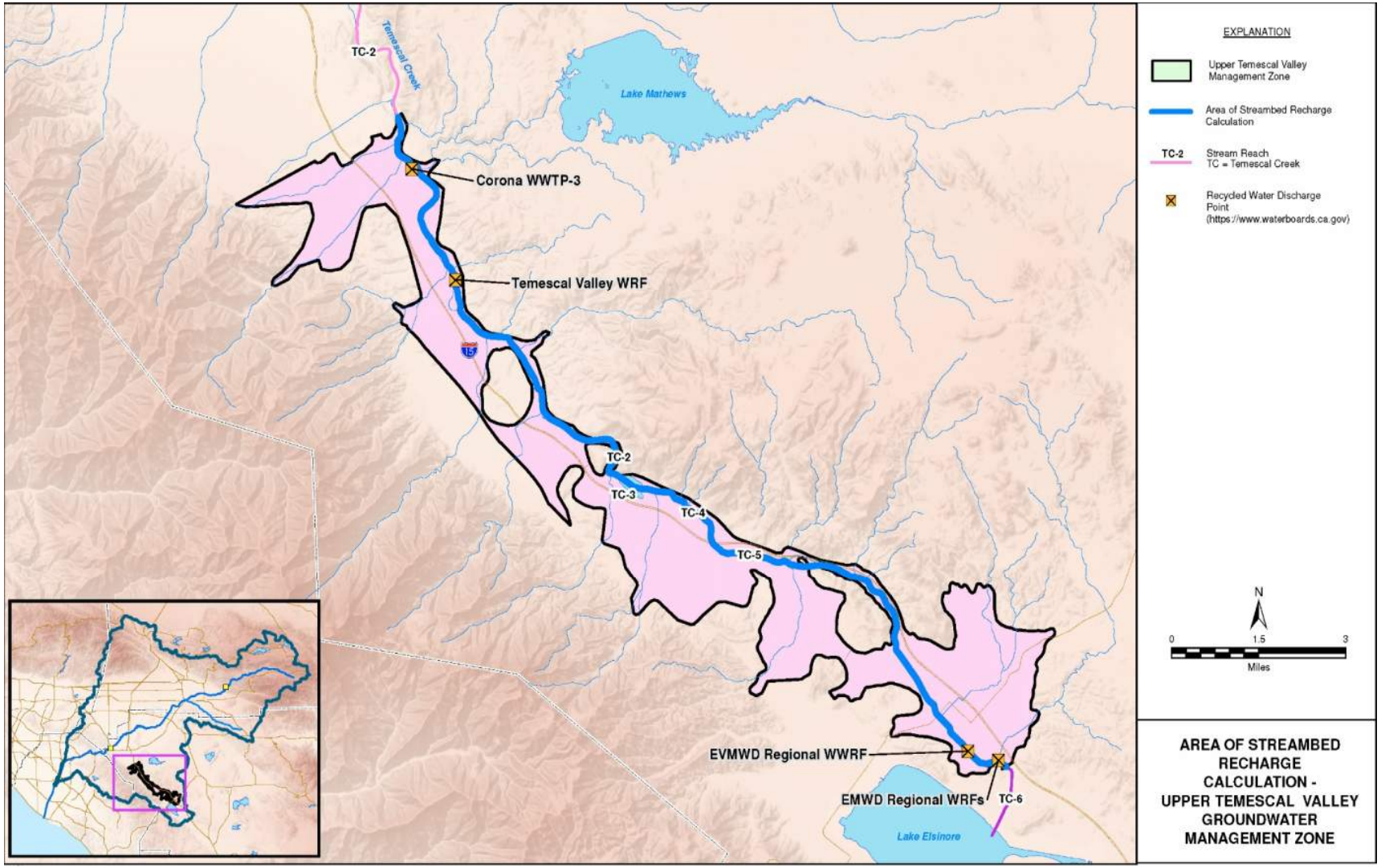

Figure 4-8. Proposed Upper Temescal Valley Groundwater Management Zone (adapted from Figure M-1, GSSI [2020])

Orange County GMZ underlying Santa Ana River Reach 2 (Figure 4-9)

The TDS WQO for the Orange County GMZ is 580 mg/L. Current AWQ is 600 mg/L; there is no available assimilative capacity. Table 4-2 shows the volume-weighted 10-year average TDS concentration of the streambed recharge did not exceed the WQO or AWQ values in the Maximum Expected Discharge Scenarios for 2020 and 2040. In contrast, Table 4-3 shows that the volume-weighted 10-year average TDS concentration of the streambed recharge exceeded the WQO in the Most Likely Discharge scenario for both the 2020 and 2040 land use conditions, (it also exceeded the WQO for the Minimum Expected Discharge scenarios in both 2020 and 2040, see GSSI 2020). However, the 5-year volume-weighted running average TDS concentration in Santa Ana River Reach 2 did not exceed the 650 mg/L WQO applicable to that waterbody.

Although TDS AWQ is above the WQO in Santa Ana River Reach 2, analysis of historical water quality data shows that discharges of treated effluent from the POTWs are not causing or contributing to these elevated concentrations (WEI 2015a). Instead, studies show that the source of elevated TDS is poor quality rising groundwater in Santa Ana River Reach 3 that flows downstream over Prado Dam into Santa Ana River Reach 2 which overlies the Orange County GMZ (WEI 2015b). Furthermore, data analyses show that the treated effluent from upstream POTWs is actually diluting the higher TDS concentrations in downstream waters.

The nitrate (as N) WQO for the Orange County GMZ is 3.4 mg/L and the current AWQ is 3.0 mg/L. There is 0.4 mg/L of assimilative capacity available. The 2017 WLAM estimates that the volume-weighted 10-year average TIN concentration will be greater than the current AWQ under the Maximum Expected Discharge scenarios for both 2020 and 2040 (2020 – 3.2 mg/L; 2040 - 3.13 mg/L) (Table 4-3). However, under the long-term 67-year planning horizon, the volume-weighted average was below existing AWQ: 2.88 mg/L and 2.85 mg/L for 2020 and 2040, respectively. Thus, while there may be short periods when nitrate (as N) concentrations may increase slightly in the Orange County GMZ, water quality is expected to improve and assimilative capacity is expected to increase over the long-term. This projection is supported by long-term water quality monitoring data which shows that nitrate (as N) concentrations in the Orange County GMZ are very stable with no discernable trend toward degradation (**Table 4-5**).

Table 4-5. Average Nitrate (as N) Concentrations in Orange County Groundwater Management Zone (from Table 3-2 in WSC 2020)

Water Quality Assessment	Averaging Period	Nitrate (as N) Concentration (mg/L)
1997	1978-1997	3.4
2003	1983-2003	3.1
2006	1987-2006	3.0
2009	1990-2009	3.0
2012	1993-2012	2.9
2015	1996-2015	3.0
2018	1999-2018	3.0

View text description of map.

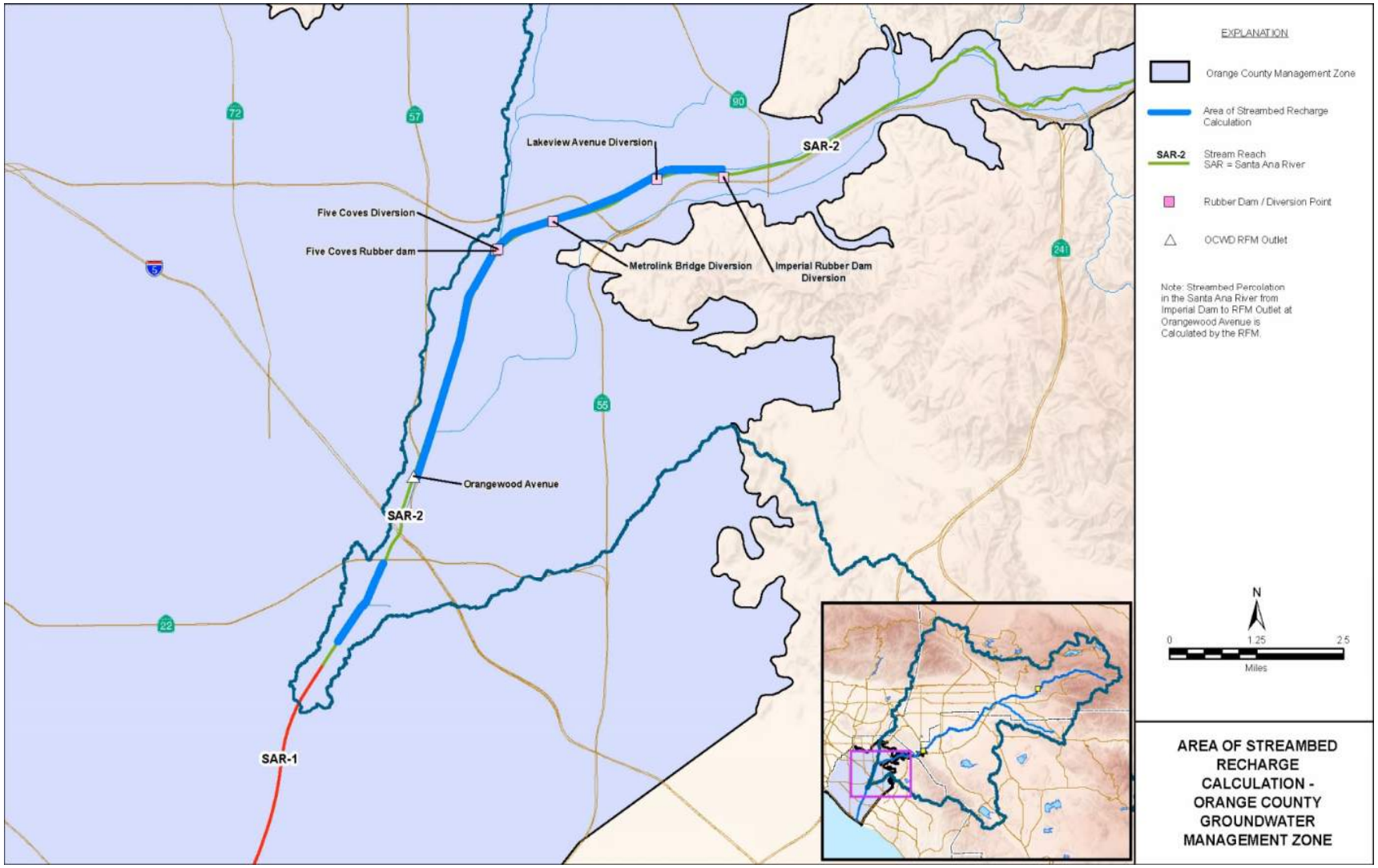

Figure 4-9. Orange County Groundwater Management Zone (adapted from Figure N-1, GSSI [2020])

Various reports prepared by two independent consulting firms specializing in the hydrogeology of the Santa Ana River watershed all confirm that higher POTW discharge volumes at the current effluent limits for TDS in the existing NPDES permits helps mitigate the adverse effects of poor water quality in the rising groundwater near Prado Dam (WEI 2015 a, b and GSSI 2020). The Proposed Action proposes to retain the same WLAs for these POTWs. The potential elevated TIN concentrations predicted for Santa Ana River Reach 2 are very small and infrequent with longer-term projections showing water quality improvement. In contrast, the continued discharge of treated effluent above Prado Dam is improving water quality by mitigating the impacts from elevated TDS concentrations in rising groundwater. Therefore, while there are water quality impacts from the adoption of the WLAs for this portion of the watershed under the Proposed Action, these impacts are less than significant. Moreover, water quality benefits will be accrued through the adopted WLAs for POTW discharges above Prado Dam.

Reach 3 of the Santa Ana River at Prado Dam (Prado Basin Management Zone) (Figure 4-10)

The surface water TDS WQO for Santa Ana River Reach 3 at Prado Dam is 700 mg/L during baseflow conditions, as defined by the Basin Plan. **Table 4-6** summarizes the maximum predicted TDS concentrations during baseflow conditions based on 2017 WLAM results. These concentrations did not exceed the WQO in the Maximum Expected Discharge scenarios for either 2020 or 2040. In contrast, the maximum predicted TDS concentration during baseflow conditions did exceed the 700 mg/L objective in the Most Likely and Minimum Discharge Scenarios for both 2020 and 2040 (ranging from 730 mg/L to 774 mg/L) with the highest values being projected for the Minimum Discharge Scenario. This is consistent with the Santa Ana Water Board's finding that POTW discharges are not causing or contributing to the exceedances but, rather, are helping to mitigate poorer water quality from other nonpoint sources (see additional discussion above for Orange County GMZ).

When there is no assimilative capacity available in a receiving water, the Santa Ana Water Board is obligated to issue waste discharge requirements with effluent limits no higher than the applicable WQO (State Water Board 1973, 1981). For all POTW dischargers above Prado Dam, the Santa Ana Water Board has addressed this requirement in each POTW's waste discharge requirements. That is, all of the POTWs with discharges affecting Reach 3 of the Santa Ana River reach have effluent limits at or below 700 mg/L (the applicable WQO). The Proposed Action establishes WLAs that are consistent with this requirement (see Table 2-1).

The surface water TN WQO for Reach 3 of the Santa Ana River at Prado Dam is 10 mg/L during baseflow conditions. Baseflow concentrations are evaluated using samples collected immediately below Prado Dam in August and September during dry weather conditions. In addition, compliance with the nitrate WQO is determined by measuring TN in filtered samples. None of the predicted values for TIN exceeded the WQO of 10 mg/L in any of the discharge scenarios under 2020 or 2040 conditions.

Table 4-6. Predicted Maximum Volume-Weighted Stream TDS and TIN Concentrations, Santa Ana River below Prado Dam – 2017 WLAM Results for the Maximum Expected, Most Likely and Minimum Discharge Scenarios Under 2020 and 2040 Land Use Conditions for Various Averaging Periods (GSSI 2020)

Waterbody	Constituent	WQO (mg/L)	Averaging Period	Maximum Value for the Volume-Weighted Stream Concentration[1]					
				2020 Conditions			2040 Conditions		
				Scenario A (mg/L)	Scenario B (mg/L)	Scenario C (mg/L)	Scenario D (mg/L)	Scenario E (mg/L)	Scenario F (mg/L)
Santa Ana River below Prado Dam (Surface Water)[2]	TDS	700	Baseflow average (Reach 3)[4]	621	***733***	***774***	618	**730**	**761**
		650[3]	5-year moving average of 1-year volume-weighted average (Reach 2)	525	485	445	521	464	416
	TN	10.0	Baseflow average (Reach 3)[4]	7.05	5.95	5.34	6.99	6.25	5.28
		n/a	5-year moving average of the 1-year volume-weighted average (Reach 2)	5.90	4.28	3.17	5.89	4.25	3.03

[1] ***Red text, Bold, Italics*** = Predicted value > WQO
[2] Adapted from Table 6-11, GSSI (2020)
[3] Based on a 5-year moving average
[4] Represents baseflow, non-stormwater conditions in August and September

View text description of map.

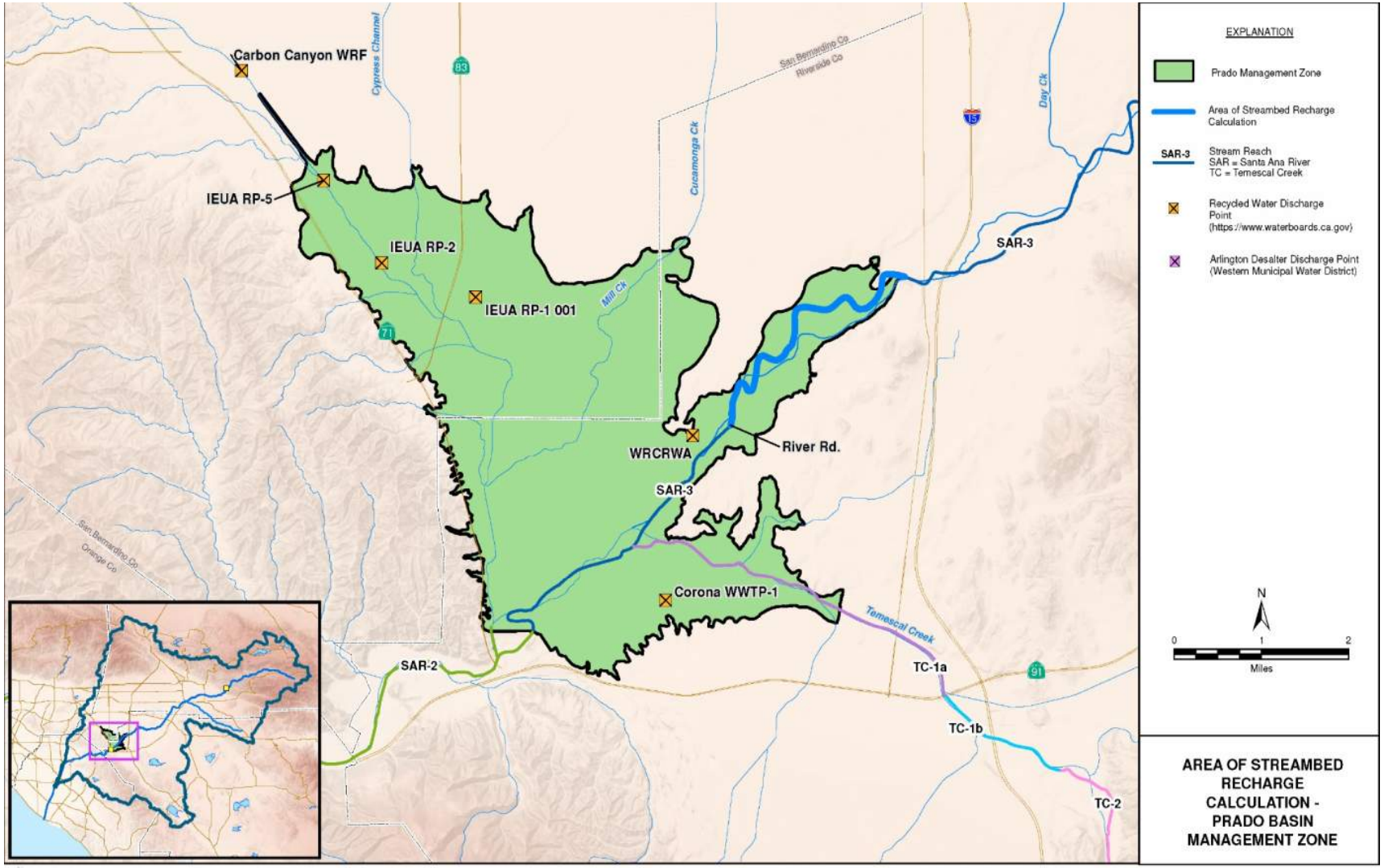

Figure 4-10. Prado Basin Management Zone (adapted from Figure O-1, GSSI [2020])

Based on the WLAM 2017 findings for this reach of the Santa Ana River, the Proposed Action will not violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality.

Reasonably Foreseeable Methods of Compliance: The adoption of the Proposed Action will not result in the need for new BPTCs or implementation of other compliance methods that would not otherwise already be required under the existing Basin Plan TDS/N Management Program.

Findings of Significance: No impacts were identified for the elements of the Proposed Action that clarified implementation of the Nitrogen/TDS Management through development of waste discharge requirements (see above).

No impacts were identified from the adoption of the Proposed Action with regards to updating the WLAM and WLAs. Specifically, no impacts were identified for the Proposed Action for the following waterbodies:

- Bunker Hill-B GMZ underlying San Timoteo Creek Reach 1 and Santa Ana River Reach 5;
- Upper Temescal GMZ underlying Temescal Creek Reaches 2, 3, 4, 5 & 6; and
- Santa Ana River Reach 3 (at below Prado Dam).

For the Santa Ana River Reach 3 at Prado Dam it is acknowledged that TDS concentrations predicted under some scenarios results in a maximum predicted concentration that exceeds the TDS WQO. However, studies have shown that TDS from upstream POTW discharges are not causing or contributing to WQO exceedances (WEI 2015a, b); moreover, all upstream POTW WLAs are set at concentrations lower than the WQO. Therefore, these authorized discharges are improving water quality in Santa Ana River Reach 3. Given the above findings, no foreseeable methods of compliance are anticipated and no mitigation measures are necessary.

Less than significant impacts were identified for the Proposed Action for the following two GMZs:

- *Riverside-A GMZ underlying Santa Ana River Reach 4* - As noted above per the 2017 WLAM findings, continued discharge at the proposed WLAs, which would be incorporated as effluent limits in the waste discharge requirements for the City of Rialto and RIX POTWs, may result in slightly lower TDS and nitrate (as N) AWQ in the Riverside-A GMZ. Unless these POTWs can demonstrate compliance through another means, e.g., nitrogen-loss study to develop site-specific nitrogen-loss coefficients, it may be necessary to allocate assimilative capacity to continue these discharges at the proposed WLAs and not risk an exceedance of the WQOs. While the Proposed Action itself does not directly authorize allocation of assimilative capacity for these facilities (i.e., this action occurs through the adoption of waste discharge requirements), the findings of this

environmental analysis as well as the adoption of the updated WLAs in Table 5-5 are based on the assumption that the use of assimilative capacity will be approved. Allocation of this assimilative would result in water quality impacts that are less than significant for the following reasons:

- The Santa Ana Water Board has previously determined that imposing more stringent effluent limits for the sole purpose of reducing TIN concentrations by very small amounts (< 0.3 mg/L in this case) would result in excessive treatment costs for these particular discharges that would provide negligible benefit to the public or the environment (Santa Ana Water Board 2017). This finding has been supported by the State Water Board (State Water Board 2018).
- The maximum volume-weighted 10-year average TIN concentration of the streambed recharge exceeded the WQO in the Maximum Expected Discharge scenarios for 2020 and 2040: 6.45 mg/L in 2020; and 6.27 mg/L in 2040 (however the TIN concentration did not exceed the WQO under the Most Likely Discharge scenario). The nitrate (as N) WQO is 6.2 mg/L, meaning that these predicted concentrations (which are the most conservative of all scenarios) are ~4% and 1.1%, respectively, above the WQO. To permit these discharges to occur at the proposed updated WLAs would therefore require only the use of a small amount of the available assimilative capacity in the underlying GMZ. The proposed updated WLAs in the Proposed Action is based on an assumption that this assimilative capacity will be authorized. Therefore, no foreseeable methods of compliance are anticipated and no mitigation measures are necessary.

- *Orange County GMZ underlying Santa Ana River Reach 2* – The potential impacts to water quality as a result of the Proposed Action are less than significant for the reasons stated above: (a) continued POTW discharge to upstream surface waters and recharge to their underlying GMZs is providing long-term water quality benefits in the watershed; and (b) while there may be short periods when TIN concentrations may be slightly higher in the Orange County GMZ, water quality is expected to improve and assimilative capacity is expected to increase over the long-term. WSC (2020) supports this finding by demonstrating that nitrate (as N) concentrations in the Orange County GMZ are very stable with no discernable trend toward degradation (see Table 3-2). Therefore, no foreseeable methods of compliance are anticipated and no mitigation measures are necessary.

(b) - *Would the project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin*

Proposed Basin Plan Amendment: Adoption of the Proposed Action would result in an updated WLAM and establishment of updated WLAs for treatment facilities in the watershed (see Table 2-1). The updated WLAs are based on the maximum predicted 10-year average

streambed recharge concentration using the maximum expected discharge for each facility (2020 or 2040) and taking into account long-term hydrologic cycles. In addition, the Proposed Action will provide direction to permit writers regarding (a) how to evaluate compliance with TDS and TIN effluent limitations; (b) address the applicability of mineral increments in the development of waste discharge requirements; and (c) requirements to prepare the antidegradation analysis to support the establishment of waste discharge requirements. The Proposed Action will allow POTWs in the watershed to continue to discharge highly treated effluent to surface waters with percolates to the underlying GMZs. Accordingly, the Proposed Action will not decrease groundwater supplies or interfere substantially with groundwater recharge (in fact the Proposed Action will encourage groundwater recharge in the watershed).

Reasonably Foreseeable Methods of Compliance: The adoption of the revised WLAs under the Proposed Action will not result in the need for new BPTCs or implementation of other compliance methods that would not otherwise already be required under the existing Basin Plan TDS/N Management Program.

Finding of Significance: No impacts associated with adoption of the Basin Plan amendment or foreseeable methods of compliance are anticipated and no mitigation measures are necessary.

(c) *Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:*

- *(i) Result in substantial erosion or siltation on- or off-site?*
- *(ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?*
- *(iii) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?*
- *(iv) Impede or redirect flood flows?*

Proposed Basin Plan Amendment: Adoption of the Proposed Action would result in an updated WLAM and establishment of updated WLAs for treatment facilities in the watershed (see Table 2-1). The updated WLAs are based on the maximum predicted 10-year average streambed recharge concentration using the maximum expected discharge for each facility (2020 or 2040) and taking into account long-term hydrologic cycles. In addition, the Proposed Action will provide direction to permit writers regarding (a) how to evaluate compliance with TDS and TIN effluent limitations; (b) address the applicability of mineral increments in the development of waste discharge requirements; and (c) requirements to prepare the antidegradation analysis to support the establishment of waste discharge requirements. Adoption of this amendment would not result in any construction or other

activities that could substantially alter the existing drainage pattern of the site or area in any of the ways described above in (i) through (iv).

Reasonably Foreseeable Methods of Compliance: The adoption of the revised WLAs under the Proposed Action will not result in the need for new BPTCs or implementation of other compliance methods that would not otherwise already be required under the existing Basin Plan TDS/N Management Program.

Finding of Significance: No impacts associated with adoption of the Basin Plan amendment or foreseeable methods of compliance are anticipated and no mitigation measures are necessary.

(d) *In flood hazard, tsunami, or seiche zones, would the project risk release of pollutants due to project inundation?*

Proposed Basin Plan Amendment: Adoption of the Proposed Action would result in an updated WLAM and establishment of updated WLAs for treatment facilities in the watershed (see Table 2-1). The updated WLAs are based on the maximum predicted 10-year average streambed recharge concentration using the maximum expected discharge for each facility (2020 or 2040) and taking into account long-term hydrologic cycles. In addition, the Proposed Action will provide direction to permit writers regarding (a) how to evaluate compliance with TDS and TIN effluent limitations; (b) address the applicability of mineral increments in the development of waste discharge requirements; and (c) requirements to prepare the antidegradation analysis to support the establishment of waste discharge requirements. Adoption of this amendment would not result in any activities that risk release of pollutants due to inundation of the project area.

Reasonably Foreseeable Methods of Compliance: The adoption of the revised WLAs under the Proposed Action will not result in the need for new BPTCs or implementation of other compliance methods that would not otherwise already be required under the existing Basin Plan TDS/N Management Program.

Finding of Significance: No impacts associated with adoption of the Basin Plan amendment or foreseeable methods of compliance are anticipated and no mitigation measures are necessary.

(e) *Would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?*

Proposed Basin Plan Amendment: Adoption of the Proposed Action would result in an updated WLAM and establishment of updated WLAs for treatment facilities in the watershed (see Table 2-1). The updated WLAs are based on the maximum predicted 10-year average streambed recharge concentration using the maximum expected discharge for each facility (2020 or 2040) and taking into account long-term hydrologic cycles. In addition, the

Proposed Action will provide direction to permit writers regarding (a) how to evaluate compliance with TDS and TIN effluent limitations; (b) address the applicability of mineral increments in the development of waste discharge requirements; and (c) requirements to prepare the antidegradation analysis to support the establishment of waste discharge requirements. The Proposed Action will not conflict with or obstruct implementation of a sustainable groundwater management plan. Adoption of the Proposed Action will facilitate implementation of the Santa Ana Region Basin Plan.

Reasonably Foreseeable Methods of Compliance: The adoption of the revised WLAs under the Proposed Action will not result in the need for new BPTCs or implementation of other compliance methods that would not otherwise already be required under the existing Basin Plan TDS/N Management Program.

Finding of Significance: No impacts associated with adoption of the Basin Plan amendment or foreseeable methods of compliance are anticipated and no mitigation measures are necessary.

4.3.10.2 Waterbodies Where No Impact Expected by Proposed Action

As noted above, the analysis of the Hydrology and Water Quality environmental factor consists of two parts. Section 4.3.10.1 above provides the analysis for waterbodies where the Proposed Action may have a potential impact. This section focuses on the remaining waterbodies affected by the Proposed Action:

- Beaumont GMZ underlying Noble Creek and San Timoteo Creek Reach 4
- Colton GMZ underlying Santa Ana River Reach 4
- San Timoteo GMZ underlying San Timoteo Creek Reaches 2, 3 & 4
- Chino-South GMZ underlying Santa Ana River Reach 3
- Temescal GMZ underlying Temescal Creek Reaches 1 & 2

Hydrology and Water Quality	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
X. HYDROLOGY AND WATER QUALITY - Would the project:				
a. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?				X
b. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin.				X

Hydrology and Water Quality	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:				X
i. result in substantial erosion or siltation on- or off-site;				X
ii. substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;				X
iii. create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or				X
iv. impede or redirect flood flows?				X
d. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?				X
e. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?				X

Discussion

(a) *Would the project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?*

Proposed Basin Plan Amendment: Adoption of the Proposed Action would result in an updated WLAM and establishment of updated WLAs for treatment facilities in the watershed (see Table 2-1). Updated WLAs are based on the maximum predicted 10-year average streambed recharge concentrations using the maximum expected discharge for each facility (2020 or 2040) and taking into account long-term hydrologic cycles. In addition, the Proposed Action provides direction to permit writers regarding: (a) how to evaluate compliance with TDS and TIN effluent limitations; (b) address applicability of mineral increments in the development of waste discharge requirements; and (c) requirements to prepare the antidegradation analysis to support the establishment of waste discharge requirements. The potential impact of each of these Proposed Actions to amend the Basin Plan for this environmental factor is discussed below.

***Proposed Action*: Establish Approach to Evaluate Compliance with TDS/TIN Effluent Limitations in Waste Discharge Requirements**

See Section 4.3.10.1, Part (a) above. Same findings apply to these waterbodies.

***Proposed Action*: Clarify that Focus of Antidegradation Review Should be on TDS Rather than Individual Salt Ions**

See Section 4.3.10.1, Part (a) above. Same findings apply to these waterbodies.

***Proposed Action*: Clarify Use of Basin Plan's Mineral Increments in Development of Waste Discharge Requirements**

See Section 4.3.10.1, Part (a) above. Same findings apply to these waterbodies.

***Proposed Action*: Adopt Updated WLAs Based on Updated WLAM Findings**

See Section 4.3.10.1 Part (a) above for description of the Proposed Action and how the findings from the 2017 WLAM were used to establish updated WLAs in Basin Plan Table 5-5. **Table 4-7** summarizes the overall 2017 WLAM findings regarding potential exceedances of TDS/Nitrate WQOs or impacts to AWQ for the 10-year averaging period for the following surface waters and associated underlying groundwaters in the watershed (if any):

- Beaumont GMZ underlying Noble Creek and San Timoteo Creek Reach 4
- Colton GMZ underlying Santa Ana River Reach 4
- San Timoteo GMZ underlying San Timoteo Creek Reaches 2, 3 & 4
- Chino-South GMZ underlying Santa Ana River Reach 3
- Temescal GMZ underlying Temescal Creek Reaches 1 & 2

The potential significance of the findings for the GMZs associated with each of the surface waters listed above is discussed below. To support this discussion, **Table 4-8** summarizes the 2017 WLAM and 2021 WLAM Supplemental Report predicted maximum average streambed recharge concentrations for the 10-year, 20-year and 67-year planning periods (additional 1-year and 5-year results are available in GSSI [2020]). Results are summarized for both the Maximum Expected and Most Likely Discharge scenarios (GSSI [2020] provides results for the Minimum Expected Discharge scenarios). Where a predicted concentration exceeds the estimated 2018 AWQ value concentration, the value is shown with black bold italics.

Beaumont GMZ underlying Noble Creek and San Timoteo Creek Reach 4 (Figure 4-11)

The TDS/nitrate (as N) WQOs for the Beaumont GMZ are 330 mg/L and 5.0 mg/L, respectively. TDS/nitrate (as N) AWQ is 280 mg/L and 2.7 mg/L, respectively; assimilative capacity is 50 mg/L and 2.3 mg/L, respectively (Table 4-8). There is 50 mg/L of assimilative capacity available. The maximum predicted volume-weighted 10-year average TDS/TIN concentrations of the streambed recharge did not exceed either the WQO or AWQ in any of modeling scenarios.

Table 4-7. TDS/Nitrate Findings from WLAM Simulation Scenarios for Water Quality Objectives (WQO), Ambient Water Quality (AWQ) and Assimilative Capacity (2020 to 20140) in Waterbodies Where No Impact from the Proposed Action Is Expected (GSSI 2020, 2021)

Surface Waterbody and Underlying GMZ	Total Dissolved Solids (TDS)				Nitrate (as N) (mg/L)				Potential to Exceed WQO or Degrade AWQ?
	WQO	AWQ	AC	Exceedance Potential (Volume-weighted 10-Yr Average)	WQO	AWQ	AC	Exceedance Potential (Volume-weighted 10-Yr Average)[1]	
Reach 4 of San Timoteo Creek (incl. Noble & Coopers Creeks) overlying Beaumont GMZ	330	280	50	Streambed recharge did not exceed either the WQO or AWQ in any simulation scenario	5	2.7	2.3	Streambed recharge did not exceed either the WQO or AWQ in any simulation scenario	No
Reach 4 of Santa Ana River overlying Colton GMZ	410	490	NA	Streambed recharge did not exceed either the WQO or AWQ in any simulation scenario.	2.7	3.3	NA	Streambed recharge did not exceed the WQO in the 10-year average for any of the discharge scenarios. Streambed recharge did not exceed current AWQ in any simulation scenario.	No
Reaches 2, 3 & 4 of San Timoteo Creek overlying the San Timoteo GMZ	400	420	NA	Streambed recharge did not exceed either the WQO or AWQ in any simulation scenario	5	1.5	3.5	• Streambed recharge did not exceed the WQO in any simulation scenario. • Streambed recharge exceeded the current AWQ in all simulation scenarios and is expected to result in lower water quality	Yes for nitrate AWQ, but lowering of water quality authorized through approved Maximum Benefit Demonstration
Reach 3 of the Santa Ana River overlying the Chino-South GMZ	680	920	NC	Streambed recharge did not exceed either the WQO or AWQ in any simulation scenario	5.0	27.6	NA	Streambed recharge did not exceed either the WQO or AWQ in any simulation scenario	No
Temescal Creek Reaches 1 & 2 overlying Temescal GMZ	770	810	NA	Not included in 2017 WLAM; currently under evaluation	10.0	10.2	NA	Not included in 2017 WLAM; currently under evaluation	TBD[2]

[1] Evaluation of exceedance potential based on WLAM outputs for TIN rather than nitrate (see text).
[2] The potential to exceed a WQO or degrade AWQ is currently under evaluation by GSSI (personal communication, Tim Moore, Risk Sciences, September 18, 2020)

Table 4-8. Waterbodies where No Impact to Water Quality Is Expected: Predicted Maximum TDS and TIN Concentrations for Volume-Weighted Recharge Based on 2017 WLAM Results for the Maximum Expected Discharge (Scenarios A and D) and Most Likely Discharge (Scenarios B and E) Under 2020 and 2040 Land Use Conditions (GSSI 2020, 2021) (AWQ based on 2018 estimate [WSC 2020])

Waterbody	Constituent[1]	WQO (mg/L)	AWQ (mg/L)	AC (mg/L)	Planning Period (Years)	Maximum Predicted Average Streambed Recharge Concentration[2]			
						2020 Conditions		2040 Conditions	
						Scenario A (mg/L)	Scenario B(mg/L)	Scenario D (mg/L)	Scenario E (mg/L)
Beaumont GMZ underlying Noble Creek and San Timoteo Creek Reach 4[3]	TDS	330[4]/ 230[5]	280	50[6]	10-Yr	218	220	204	204
					20-Yr	217	218	203	203
					67-Yr	208	209	200	200
	TIN	5.0[4]/ 1.5[5]	2.7	2.3[6]	10-Yr	1.77	1.79	1.54	1.54
					20-Yr	1.74	1.75	1.52	1.52
					67-Yr	1.60	1.61	1.46	1.46
Colton GMZ underlying Santa Ana River Reach 4[7]	TDS	410	490	None	10-Yr	317	246	290	233
					20-Yr	305	237	282	225
					67-Yr	279	211	264	199
	TIN	2.7	3.3	None	10-Yr	2.70	1.86	2.53	2.37
					20-Yr	2.63	1.76	2.50	2.36
					67-Yr	2.39	1.58	2.30	2.16
San Timoteo GMZ underlying San Timoteo Creek Reaches 2, 3 & 4[8]	TDS	400[4]/ 300[5]	420	None	10-Yr	338	335	281	266
					20-Yr	338	335	280	266
					67-Yr	290	286	237	223
	TIN	5.0[4]/ 2.7[5]	1.5	3.5[6]	10-Yr	***3.39***	***3.35***	***2.68***	***2.65***
					20-Yr	***3.38***	***3.33***	***2698***	***2.2.64***
					67-Yr	***2.85***	***2.79***	***2.22***	***2.18***

Table 4-8. Waterbodies where No Impact to Water Quality Is Expected: Predicted Maximum TDS and TIN Concentrations for Volume-Weighted Recharge Based on 2017 WLAM Results for the Maximum Expected Discharge (Scenarios A and D) and Most Likely Discharge (Scenarios B and E) Under 2020 and 2040 Land Use Conditions (GSSI 2020, 2021) (AWQ based on 2018 estimate [WSC 2020])

Waterbody	Constituent[1]	WQO (mg/L)	AWQ (mg/L)	AC (mg/L)	Planning Period (Years)	Maximum Predicted Average Streambed Recharge Concentration[2]			
						2020 Conditions		2040 Conditions	
						Scenario A (mg/L)	Scenario B(mg/L)	Scenario D (mg/L)	Scenario E (mg/L)
Chino-South GMZ underlying Santa Ana River Reach 3[9]	TDS	680	920	None	10-Yr	458	466	417	419
					20-Yr	457	465	415	418
					67-Yr	380	381	353	344
	TIN	5.0	27.6	None	10-Yr	3.20	3.18	2.96	2.84
					20-Yr	3.20	3.17	2.95	2.83
					67-Yr	2.64	2.58	2.49	2.32

[1] Nitrogen WQOs and AWQ values are for nitrate (as N); however, the maximum predicted average streambed recharge concentrations produced by the 2017 WLAM are reported as TIN. Because TIN includes nitrogen species other than nitrate, this creates a margin of safety when comparing the recharge concentrations with the WQO or AWQ. See text in Section 4.3.10 for additional explanation.

[2] ***Black text, Bold, Italics*** = Predicted value > AWQ but below the WQO. AWQ based on WSC (2020)

[3] Adapted from Table 6-1, GSSI (2020)

[4] "Maximum benefit" WQO – applies unless it is determined that lowering of water quality is not of maximum benefit to the people of the state.

[5] "Antidegradation" WQO – applies when determination made that lowering water quality is not of maximum benefit to the people of the state.

[6] Assimilative capacity based on use of maximum benefit WQO

[7] Adapted from Table 2-3, GSSI (2021)

[7] Adapted from Table 2-1, GSSI (2021)

[8] Adapted from Table 6-6, GSSI (2020)

View text description of map.

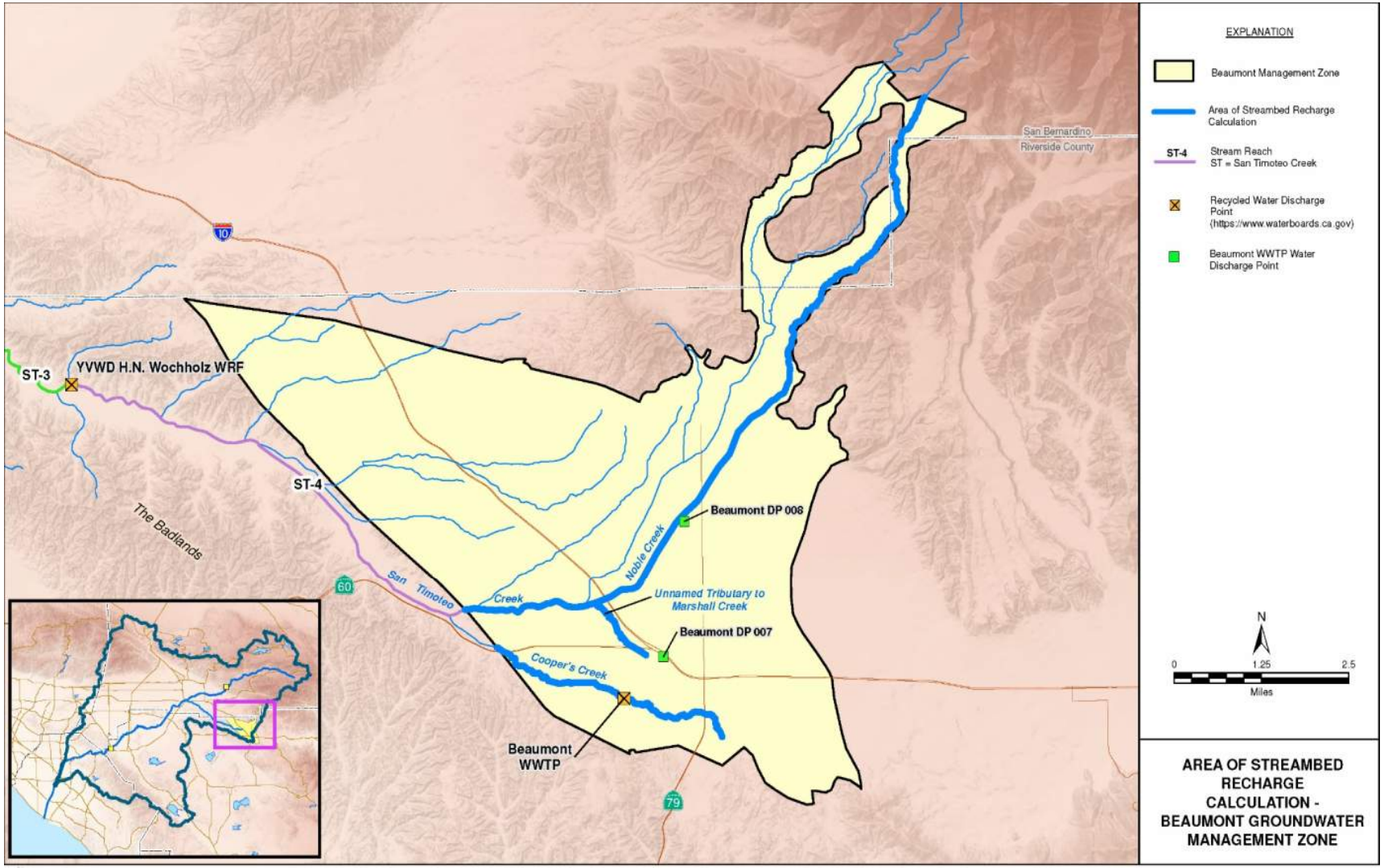

Figure 4-11. Beaumont Groundwater Management Zone (adapted from Figure G-1, GSSI [2020])

Colton GMZ underlying Santa Ana River Reach 4 (Figure 4-12)

The TDS objective for the Colton GMZ is 410 mg/L and the current ambient quality is 490 mg/L. There is no assimilative capacity available. The volume-weighted 10-year average TDS concentration of the streambed recharge did not exceed either of these values in any of the six simulation scenarios.

The nitrate (as N) objective for the Colton GMZ is 2.7 mg/L and the current ambient quality is 3.3 mg/L. There is no assimilative capacity available. In 2021, the WLAM was updated to reduce the TIN effluent limitation for YVWD from 6.7 mg/L (their existing maximum limit) to 5.5 mg/L and to remove previously anticipated discharges to City Creek from the anticipated Sterling Natural Resources Center (GSSI 2021). By reducing the YVWD's maximum limit to 5.5 mg/L, the volume-weighted 10-year average TIN concentration of the streambed recharge did not exceed either the WQO or the AWQ in any of the six simulation scenarios. Notably, YVWD's actual or most likely expected discharge is 3.8 mg/L of N, which is well below the proposed maximum limit of 5.5 mg/L.

San Timoteo GMZ underlying San Timoteo Creek Reaches 2, 3 & 4 (Figure 4-13)

The TDS WQO for the San Timoteo GMZ is 400 mg/L; AWQ is 420 mg/L (Table 4-8). There is no assimilative capacity available in this GMZ. The maximum predicted volume-weighted 10-year average TDS concentration of the streambed recharge did not exceed either of these values in any of the six simulation scenarios.

The nitrate (as N) WQO is 5 mg/L. The AWQ is 1.5 mg/L leaving 3.5 mg/L of assimilative capacity available (Table 4-8). The maximum predicted volume-weighted 10-year average TIN concentration of the streambed recharge did not exceed the WQO in any of the modeling scenarios. The maximum predicted volume-weighted 10-year average TIN concentration of the streambed recharge exceeds the AWQ in all scenarios and is expected to result in lower water quality. However, the lowering of water quality in this GMZ has been authorized by the Santa Ana Water Board provided that the permitted dischargers to this reach (primarily Yucaipa Valley Water District and the City of Beaumont) continue to comply with the conditions established by the Maximum Benefit Demonstration was approved (Santa Ana Water Board 2004; updated by Santa Ana Water Board 2014).

Chino-South GMZ underlying Santa Ana River Reach 3 (Figure 4-14)

The TDS/nitrate (as N) WQOs for the Chino-South GMZ are 680 mg/L and 5.0 mg/L, respectively. TDS/nitrate (as N) AWQ is 920 mg/L and 27.6 mg/L, respectively. No assimilative capacity is available. The maximum predicted volume-weighted 10-year average TDS/TIN concentrations of the streambed recharge did not exceed either the WQO or AWQ in any of modeling scenarios.

View text description of map.

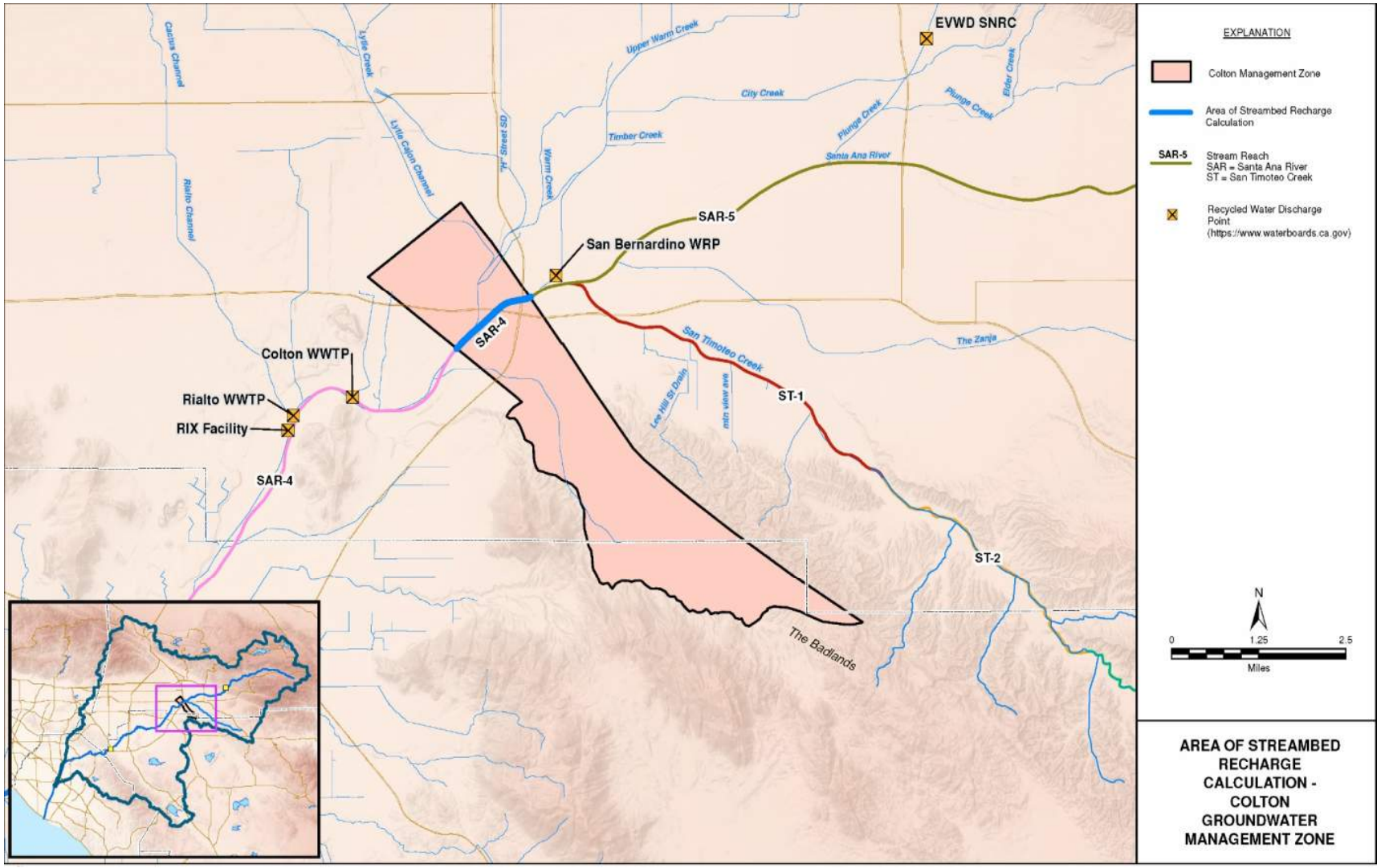

Figure 4-12. Colton Groundwater Management Zone (adapted from Figure J-1, GSSI [2020])

View text description of map.

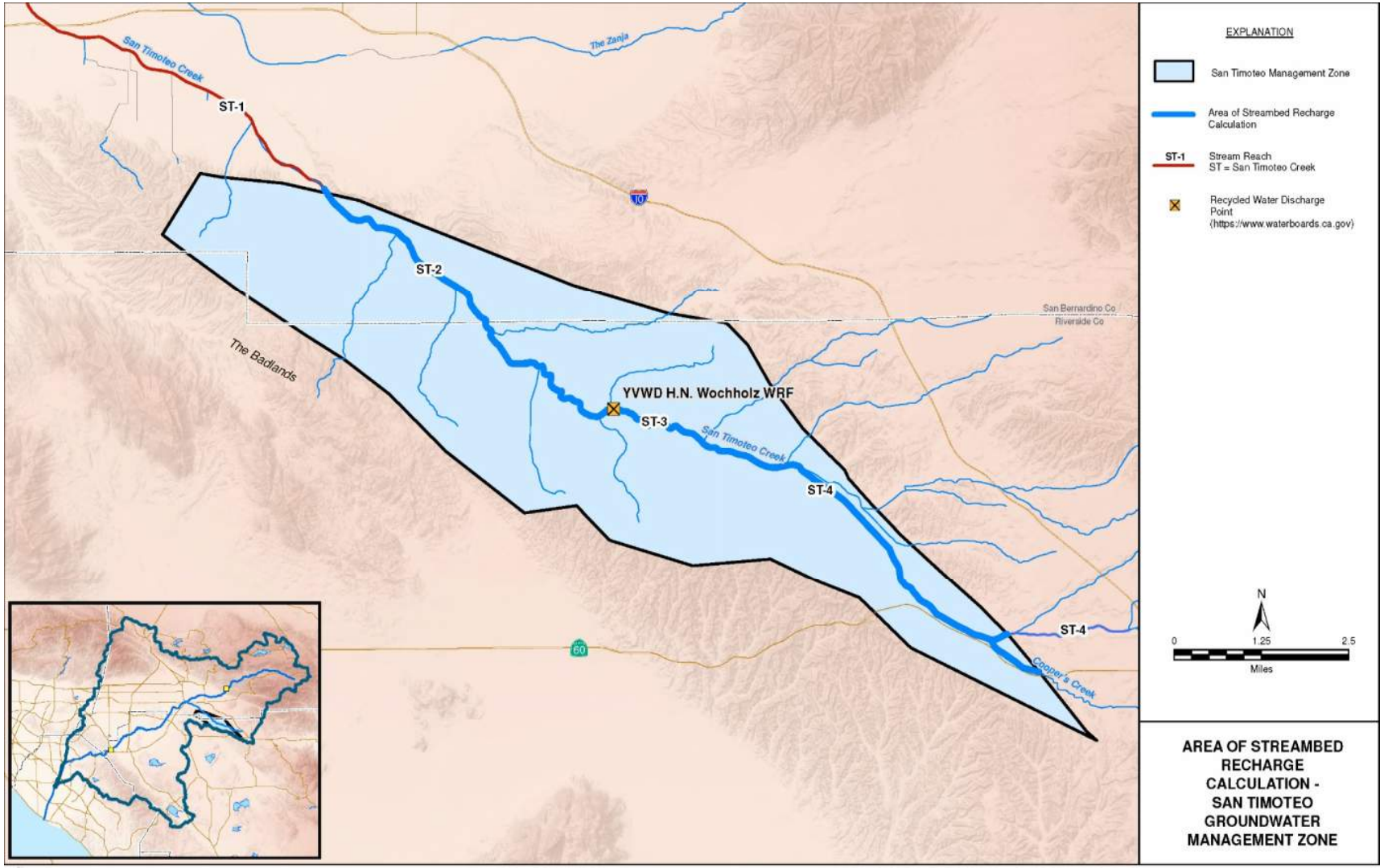

Figure 4-13. San Timoteo Groundwater Management Zone (adapted from Figure H-1, GSSI [2020])

View text description of map.

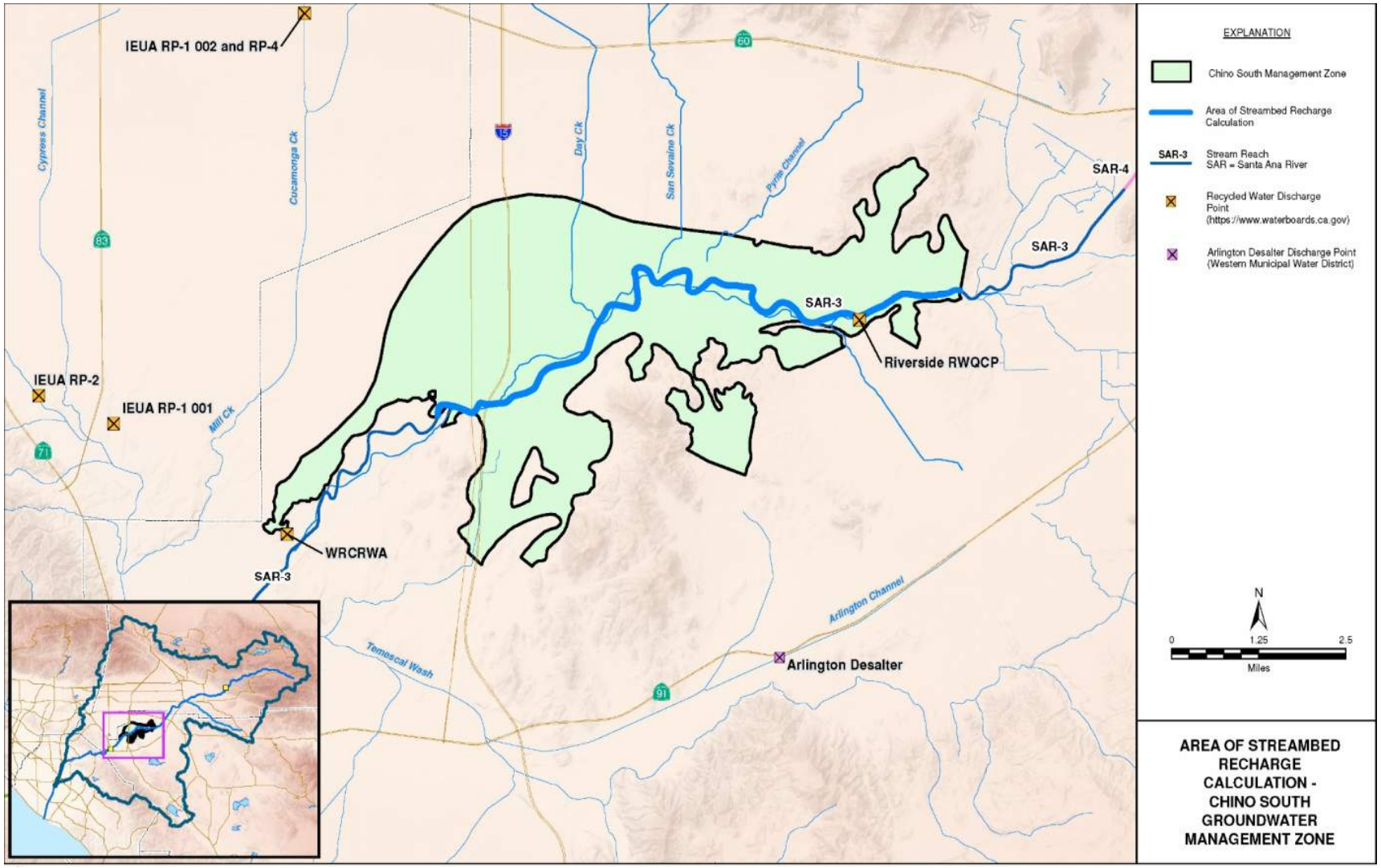

Figure 4-14. Chino South Groundwater Management Zone (adapted from Figure L-1, GSSI [2020])

Based on the review of the potential water quality impacts in each of the waterbodies evaluated in this section, the adoption of the updated WLAM and updated WLAs under the Proposed Action will have no impact, that is the Proposed Action will not cause a violation of a water quality standard or otherwise substantially degrade surface water or groundwater quality.

Reasonably Foreseeable Methods of Compliance: The adoption of the revised WLAs under the Proposed Action will not result in the need for new BPTCs or implementation of other compliance methods that would not otherwise already be required under the existing Basin Plan TDS/N Management Program.

Temescal GMZ underlying Temescal Creek Reaches 1 & 2

The Temescal GMZ is downgradient of the recently established Upper Temescal Valley GMZ (see Figure 3-5 and discussion in Section 4.3.10.2). This GMZ underlies Temescal Creek Reaches 1a and 1b and the lower portion of Temescal Creek Reach 2. The TDS WQO for the Temescal GMZ is 770 mg/L and current AWQ is 810 mg/L. No assimilative capacity available. The nitrate (as N) WQO is 10.0 mg/L. Current AWQ is 10.2 mg/L and no assimilative capacity is available. No POTWs discharge to this portion of Temescal Creek.

Three POTWs discharge to the reaches of Temescal Creek upstream of Temescal GMZ. However, consistent with the requirements of prior precedential orders issued by the State Water Board (State Water Board 1973, 1981), the proposed updated WLAs for POTWs discharging into the upgradient Upper Temescal Valley GMZ must have effluent limits for discharges to Temescal Creek that are no greater than the applicable WQOs for TDS and nitrate (as N) in the Temescal GMZ. The Proposed Action is consistent with this requirement (See propose WLAs for Temescal Valley Water District, Elsinore Valley Municipal Water District and Eastern Municipal Water District in Table 2-1).

Finding of Significance: No impacts associated with adoption of the Basin Plan amendment or foreseeable methods of compliance are anticipated and no mitigation measures are necessary.

(b) *Would the project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin*

See Section 4.3.10.1, Part (b) above. Same findings apply to these waterbodies.

(c) *Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:*

(i) Result in substantial erosion or siltation on- or off-site?

(ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?

(iii) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?

(iv) Impede or redirect flood flows?

See Section 4.3.10.1, Part (c) above. Same findings apply to these waterbodies.

(d) *In flood hazard, tsunami, or seiche zones, would the project risk release of pollutants due to project inundation?*

See Section 4.3.10.1, Part (d) above. Same findings apply to these waterbodies.

(e) *Would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?*

See Section 4.3.10.1, Part (e) above. Same findings apply to these waterbodies.

4.3.11 Land Use and Planning

Land Use Planning	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
XI. LAND USE PLANNING - Would the project:				
a. Physically divide an established community?				X
b. Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?				X

Discussion

(a) *Would the action physically divide an established community?*

Proposed Basin Plan Amendment: Adoption of the Proposed Action would result in an updated WLAM and establishment of updated WLAs for treatment facilities in the watershed (see Table 2-1). The updated WLAs are based on the maximum predicted 10-year average streambed recharge concentration using the maximum expected discharge for each facility (2020 or 2040) and taking into account long-term hydrologic cycles. In addition, the Proposed Action will provide direction to permit writers regarding (a) how to evaluate compliance with TDS and TIN effluent limitations; (b) address the applicability of mineral

increments in the development of waste discharge requirements; and (c) requirements to prepare the antidegradation analysis to support the establishment of waste discharge requirements. Adoption of this amendment would not result in any new construction or other changes that could divide an established community.

Reasonably Foreseeable Methods of Compliance: The Proposed Action would not result in the need for new BPTCs or implementation of other compliance methods that would not otherwise already be required under the existing Basin Plan TDS/N Management Program.

Finding of Significance: No impacts associated with adoption of the Basin Plan amendment or foreseeable methods of compliance are anticipated and no mitigation measures are necessary.

(b) *Would the action conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the action (including, but not limited to, the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?*

Proposed Basin Plan Amendment: Adoption of the Proposed Action would result in an updated WLAM and establishment of updated WLAs for treatment facilities in the watershed (see Table 2-1). The updated WLAs are based on the maximum predicted 10-year average streambed recharge concentration using the maximum expected discharge for each facility (2020 or 2040) and taking into account long-term hydrologic cycles. In addition, the Proposed Action will provide direction to permit writers regarding (a) how to evaluate compliance with TDS and TIN effluent limitations; (b) address the applicability of mineral increments in the development of waste discharge requirements; and (c) requirements to prepare the antidegradation analysis to support the establishment of waste discharge requirements. The amendment would not establish any new land uses nor will adoption of the amendment conflict with any land use plan, policy, regulation or any other applicable actions, e.g., established habitat conservation or natural community conservation plans.

Reasonably Foreseeable Methods of Compliance: The Proposed Action would not result in the need for new BPTCs or implementation of other compliance methods that would not otherwise already be required under the existing Basin Plan TDS/N Management Program.

Finding of Significance: No impacts associated with adoption of the Basin Plan amendment or foreseeable methods of compliance are anticipated and no mitigation measures are necessary.

4.3.12 Mineral Resources

Mineral Resources	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
XII. MINERAL RESOURCES - Would the action:				
a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?				X
b. Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?				X

Discussion

(a) *Would the action result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?*

Proposed Basin Plan Amendment: Adoption of the Proposed Action would result in an updated WLAM and establishment of updated WLAs for treatment facilities in the watershed (see Table 2-1). The updated WLAs are based on the maximum predicted 10-year average streambed recharge concentration using the maximum expected discharge for each facility (2020 or 2040) and taking into account long-term hydrologic cycles. In addition, the Proposed Action will provide direction to permit writers regarding (a) how to evaluate compliance with TDS and TIN effluent limitations; (b) address the applicability of mineral increments in the development of waste discharge requirements; and (c) requirements to prepare the antidegradation analysis to support the establishment of waste discharge requirements. Adoption of this amendment would not involve ground disturbance or other activities that could result in the loss of availability of a known mineral resource.

Reasonably Foreseeable Methods of Compliance: The Proposed Action would not result in the need for new BPTCs or implementation of other compliance methods that would not otherwise already be required under the existing Basin Plan TDS/N Management Program.

Finding of Significance: No impacts associated with adoption of the Basin Plan amendment or foreseeable methods of compliance are anticipated and no mitigation measures are necessary.

(b) *Would the action result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?*

See Mineral Resources Discussion, Part (a) above.

4.3.13 Noise

Noise	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
XIII. NOISE - Would the project result in:				
a. Generation of substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?				X
b. Generation of excessive ground-borne vibration or ground-borne noise levels?				X
c. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?				X

Discussion

(a) *Would the action result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance or applicable standards of other agencies?*

Proposed Basin Plan Amendment: Adoption of the Proposed Action would result in an updated WLAM and establishment of updated WLAs for treatment facilities in the watershed (see Table 2-1). The updated WLAs are based on the maximum predicted 10-year average streambed recharge concentration using the maximum expected discharge for each facility (2020 or 2040) and taking into account long-term hydrologic cycles. In addition, the Proposed Action will provide direction to permit writers regarding (a) how to evaluate compliance with TDS and TIN effluent limitations; (b) address the applicability of mineral increments in the development of waste discharge requirements; and (c) requirements to prepare the antidegradation analysis to support the establishment of waste discharge requirements. Adoption of this amendment would not involve construction, a change in land use or traffic generation, or other noise generating activities that would result in temporary or permanent increase in noise levels.

Reasonably Foreseeable Methods of Compliance: The Proposed Action would not result in the need for new BPTCs or implementation of other compliance methods that would not otherwise already be required under the existing Basin Plan TDS/N Management Program.

Finding of Significance: No impacts associated with adoption of the Basin Plan amendment or foreseeable methods of compliance are anticipated and no mitigation measures are necessary.

(b) *Would the action expose persons to or generate excessive ground-borne vibration or ground-borne noise?*

Proposed Basin Plan Amendment: Adoption of the Proposed Action would result in an updated WLAM and establishment of updated WLAs for treatment facilities in the watershed (see Table 2-1). The updated WLAs are based on the maximum predicted 10-year average streambed recharge concentration using the maximum expected discharge for each facility (2020 or 2040) and taking into account long-term hydrologic cycles. In addition, the Proposed Action will provide direction to permit writers regarding (a) how to evaluate compliance with TDS and TIN effluent limitations; (b) address the applicability of mineral increments in the development of waste discharge requirements; and (c) requirements to prepare the antidegradation analysis to support the establishment of waste discharge requirements. Adoption of this amendment would not involve construction or ground-borne vibration or ground-borne noise generating activities that would result in temporary or permanent increase in noise levels.

Reasonably Foreseeable Methods of Compliance: The Proposed Action would not result in the need for new BPTCs or implementation of other compliance methods that would not otherwise already be required under the existing Basin Plan TDS/N Management Program.

Finding of Significance: No impacts associated with adoption of the Basin Plan amendment or foreseeable methods of compliance are anticipated and no mitigation measures are necessary.

(c) *For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels??*

See Noise Discussion, Part (a) above.

4.3.14 Population and Housing

Population and Housing	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
XIV. POPULATION AND HOUSING - Would the project:				
a. Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses)				X

Population and Housing	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
or indirectly (for example, through extension of roads or other infrastructure)?				
b. Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?				X
c. Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?				X

Discussion

(a) *Would the action induce substantial population growth in an area, either directly (e.g., by proposing new homes and business) or indirectly (e.g., through extension of roads or other infrastructure)?*

Proposed Basin Plan Amendment: Adoption of the Proposed Action would result in an updated WLAM and establishment of updated WLAs for treatment facilities in the watershed (see Table 2-1). The updated WLAs are based on the maximum predicted 10-year average streambed recharge concentration using the maximum expected discharge for each facility (2020 or 2040) and taking into account long-term hydrologic cycles. In addition, the Proposed Action will provide direction to permit writers regarding (a) how to evaluate compliance with TDS and TIN effluent limitations; (b) address the applicability of mineral increments in the development of waste discharge requirements; and (c) requirements to prepare the antidegradation analysis to support the establishment of waste discharge requirements. Adoption of this amendment would not involve new construction or other activities that could induce population growth to the region, either directly or indirectly; nor would they involve displacing housing or people.

Reasonably Foreseeable Methods of Compliance: The Proposed Action would not result in the need for new BPTCs or implementation of other compliance methods that would not otherwise already be required under the existing Basin Plan TDS/N Management Program.

Finding of Significance: No impacts associated with adoption of the Basin Plan amendment or foreseeable methods of compliance are anticipated and no mitigation measures are necessary.

(b) *Would the action displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?*

See Population and Housing Discussion, Part (a) above.

(c) *Would the action displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?*

See Population and Housing Discussion, Part (a) above.

4.3.15 Public Services

Public Services	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
XV. PUBLIC SERVICES				
a. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
Fire Protection				X
Police Protection				X
Schools				X
Parks?*				X
Other Public Facilities?*				X
*See Section 4.3.16 Recreation and Parks below for additional evaluation of these facilities				

Discussion

(a) *Would the action result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities or a need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the following public services: Fire or police protection, schools, parks or other public facilities*

Proposed Basin Plan Amendment: Adoption of the Proposed Action would result in an updated WLAM and establishment of updated WLAs for treatment facilities in the watershed (see Table 2-1). The updated WLAs are based on the maximum predicted 10-year average streambed recharge concentration using the maximum expected discharge for each facility (2020 or 2040) and taking into account long-term hydrologic cycles. In addition, the Proposed Action will provide direction to permit writers regarding (a) how to evaluate compliance with TDS and TIN effluent limitations; (b) address the applicability of mineral increments in the development of waste discharge requirements; and (c) requirements to prepare the antidegradation analysis to support the establishment of waste discharge requirements. Adoption of this amendment does not involve construction or other activities

that could affect service ratios, response times, or other performance objectives for any public services, including fire protection, police protection, schools, or parks, nor would it induce new population growth to the region, either directly or indirectly.

Reasonably Foreseeable Methods of Compliance: The Proposed Action would not result in the need for new BPTCs or implementation of other compliance methods that would not otherwise already be required under the existing Basin Plan TDS/N Management Program.

Finding of Significance: No impacts associated with adoption of the Basin Plan amendment or foreseeable methods of compliance are anticipated and no mitigation measures are necessary.

4.3.16 Recreation and Parks

Recreation and Parks	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
XVI. RECREATION AND PARKS - Would the project result in:				
a. Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?				X
b. Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?				X

Discussion

(a) *Would the action increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?*

Proposed Basin Plan Amendment: Adoption of the Proposed Action would result in an updated WLAM and establishment of updated WLAs for treatment facilities in the watershed (see Table 2-1). The updated WLAs are based on the maximum predicted 10-year average streambed recharge concentration using the maximum expected discharge for each facility (2020 or 2040) and taking into account long-term hydrologic cycles. In addition, the Proposed Action will provide direction to permit writers regarding (a) how to evaluate compliance with TDS and TIN effluent limitations; (b) address the applicability of mineral increments in the development of waste discharge requirements; and (c) requirements to prepare the antidegradation analysis to support the establishment of waste discharge

requirements. Adoption of this amendment would not induce new growth to the region that could result in an increase in the use of existing neighborhood and regional parks or other recreational facilities.

Reasonably Foreseeable Methods of Compliance: The Proposed Action would not result in the need for new BPTCs or implementation of other compliance methods that would not otherwise already be required under the existing Basin Plan TDS/N Management Program.

Finding of Significance: No impacts associated with adoption of the Basin Plan amendment or foreseeable methods of compliance are anticipated and no mitigation measures are necessary.

(b) *Does the action include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?*

See Recreation and Parks Discussion, Part (a) above.

4.3.17 Transportation and Traffic

Transportation and Traffic	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
XVII. TRANSPORTATION AND TRAFFIC - Would the action:				
a. Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?				X
b. Would the project conflict or be inconsistent with CEQA Guidelines §15064.3, subdivision (b)?				X
c. Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?				X
d. Result in inadequate emergency access?				X

Discussion

(a) *Would the action conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?*

Proposed Basin Plan Amendment: Adoption of the Proposed Action would result in an updated WLAM and establishment of updated WLAs for treatment facilities in the watershed

(see Table 2-1). The updated WLAs are based on the maximum predicted 10-year average streambed recharge concentration using the maximum expected discharge for each facility (2020 or 2040) and taking into account long-term hydrologic cycles. In addition, the Proposed Action will provide direction to permit writers regarding (a) how to evaluate compliance with TDS and TIN effluent limitations; (b) address the applicability of mineral increments in the development of waste discharge requirements; and (c) requirements to prepare the antidegradation analysis to support the establishment of waste discharge requirements. Adoption of this amendment would not involve new construction or activities that could generate new traffic that could conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system.

Reasonably Foreseeable Methods of Compliance: The Proposed Action would not result in the need for new BPTCs or implementation of other compliance methods that would not otherwise already be required under the existing Basin Plan TDS/N Management Program.

Finding of Significance: No impacts associated with adoption of the Basin Plan amendment or foreseeable methods of compliance are anticipated and no mitigation measures are necessary.

(b) *Would the action conflict or be inconsistent with CEQA Guidelines §15064.3, subdivision (b)?*

The project will be consistent with *CEQA Guidelines §15064.3, subdivision (b).* See also Transportation and Traffic Discussion, Part (a) above.

(c) *Would the action substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?*

Proposed Basin Plan Amendment: Adoption of the Proposed Action would result in an updated WLAM and establishment of updated WLAs for treatment facilities in the watershed (see Table 2-1). The updated WLAs are based on the maximum predicted 10-year average streambed recharge concentration using the maximum expected discharge for each facility (2020 or 2040) and taking into account long-term hydrologic cycles. In addition, the Proposed Action will provide direction to permit writers regarding (a) how to evaluate compliance with TDS and TIN effluent limitations; (b) address the applicability of mineral increments in the development of waste discharge requirements; and (c) requirements to prepare the antidegradation analysis to support the establishment of waste discharge requirements. Adoption of this amendment would not involve the construction of new facilities including those with geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

Reasonably Foreseeable Methods of Compliance: The Proposed Action would not result in the need for new BPTCs or implementation of other compliance methods that would not otherwise already be required under the existing Basin Plan TDS/N Management Program.

Finding of Significance: No impacts associated with adoption of the Basin Plan amendment or foreseeable methods of compliance are anticipated and no mitigation measures are necessary.

(d) *Would the action result in inadequate emergency access?*

Proposed Basin Plan Amendment: Adoption of the Proposed Action would result in an updated WLAM and establishment of updated WLAs for treatment facilities in the watershed (see Table 2-1). The updated WLAs are based on the maximum predicted 10-year average streambed recharge concentration using the maximum expected discharge for each facility (2020 or 2040) and taking into account long-term hydrologic cycles. In addition, the Proposed Action will provide direction to permit writers regarding (a) how to evaluate compliance with TDS and TIN effluent limitations; (b) address the applicability of mineral increments in the development of waste discharge requirements; and (c) requirements to prepare the antidegradation analysis to support the establishment of waste discharge requirements. Adoption of this amendment would not involve the construction of new facilities or site visits at the project site. This project will not result in inadequate emergency access

Reasonably Foreseeable Methods of Compliance: The Proposed Action would not result in the need for new BPTCs or implementation of other compliance methods that would not otherwise already be required under the existing Basin Plan TDS/N Management Program.

Finding of Significance: No impacts associated with adoption of the Basin Plan amendment or foreseeable methods of compliance are anticipated and no mitigation measures are necessary.

4.3.18 Tribal Cultural Resources

Tribal Cultural Resources	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
XVIII. TRRIBAL CULTURAL RESOURCES - Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code §21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
a. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code §5020.1(k), or				X
b. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources				X

Tribal Cultural Resources	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
Code §5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code §5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe?				

Discussion

Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code §21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

(a) *Is the project site listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code §5020.1(k), or*

(b) *A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code §5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code §5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe?*

Proposed Basin Plan Amendment: Adoption of the Proposed Action would result in an updated WLAM and establishment of updated WLAs for treatment facilities in the watershed (see Table 2-1). The updated WLAs are based on the maximum predicted 10-year average streambed recharge concentration using the maximum expected discharge for each facility (2020 or 2040) and taking into account long-term hydrologic cycles. In addition, the Proposed Action will provide direction to permit writers regarding (a) how to evaluate compliance with TDS and TIN effluent limitations; (b) address the applicability of mineral increments in the development of waste discharge requirements; and (c) requirements to prepare the antidegradation analysis to support the establishment of waste discharge requirements. Adoption of this amendment would not involve construction, earth movement, or other disturbance which could impact any a site, feature, place, cultural landscape, sacred place, or object with cultural value to a California Native American Tribe.

Reasonably Foreseeable Methods of Compliance: The Proposed Action would not result in the need for new BPTCs or implementation of other compliance methods that would not otherwise already be required under the existing Basin Plan TDS/N Management Program.

Finding of Significance: No impacts associated with adoption of the Basin Plan amendment or foreseeable methods of compliance are anticipated and no mitigation measures are necessary.

4.3.19 Utilities and Service Systems

Utilities and Service Systems	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
XIX. UTILITIES AND SERVICE SYSTEMS - Would the project:				
a. Require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?				X
b. Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?				X
c. Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?				X
d. Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?				X
e. Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?				X

Discussion:

(a) *Would the project require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?*

Proposed Basin Plan Amendment: Adoption of the Proposed Action would result in an updated WLAM and establishment of updated WLAs for treatment facilities in the watershed (see Table 2-1). The updated WLAs are based on the maximum predicted 10-year average streambed recharge concentration using the maximum expected discharge for each facility (2020 or 2040) and taking into account long-term hydrologic cycles. In addition, the

Proposed Action will provide direction to permit writers regarding (a) how to evaluate compliance with TDS and TIN effluent limitations; (b) address the applicability of mineral increments in the development of waste discharge requirements; and (c) requirements to prepare the antidegradation analysis to support the establishment of waste discharge requirements. Adoption of this amendment would not involve new construction or other activities that could increase water demand. The updated WLAs are based on existing facilities at their maximum design discharge, thus no new or expanded wastewater treatment facilities will be required (see related discussion regarding updated WLAs in Section 4.3.10).

Reasonably Foreseeable Methods of Compliance: The Proposed Action would not result in the need for new BPTCs or implementation of other compliance methods that would not otherwise already be required under the existing Basin Plan TDS/N Management Program.

Finding of Significance: No impacts associated with adoption of the Basin Plan amendment or foreseeable methods of compliance are anticipated and no mitigation measures are necessary.

(b) *Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?*

Proposed Basin Plan Amendment: Adoption of the Proposed Action would result in an updated WLAM and establishment of updated WLAs for treatment facilities in the watershed (see Table 2-1). The updated WLAs are based on the maximum predicted 10-year average streambed recharge concentration using the maximum expected discharge for each facility (2020 or 2040) and taking into account long-term hydrologic cycles. In addition, the Proposed Action will provide direction to permit writers regarding (a) how to evaluate compliance with TDS and TIN effluent limitations; (b) address the applicability of mineral increments in the development of waste discharge requirements; and (c) requirements to prepare the antidegradation analysis to support the establishment of waste discharge requirements. The Proposed Action does not involve activities that would affect water supply in the project area.

Reasonably Foreseeable Methods of Compliance: The Proposed Action would not result in the need for new BPTCs or implementation of other compliance methods that would not otherwise already be required under the existing Basin Plan TDS and Nitrogen Management Program.

Finding of Significance: No impacts associated with adoption of the Basin Plan amendment or foreseeable methods of compliance are anticipated and no mitigation measures are necessary.

(c) *Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments??*

See Utilities and Service Systems Discussion, Part (a) above.

(d) *Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?*

Proposed Basin Plan Amendment: Adoption of the Proposed Action would result in an updated WLAM and establishment of updated WLAs for treatment facilities in the watershed (see Table 2-1). The updated WLAs are based on the maximum predicted 10-year average streambed recharge concentration using the maximum expected discharge for each facility (2020 or 2040) and taking into account long-term hydrologic cycles. In addition, the Proposed Action will provide direction to permit writers regarding (a) how to evaluate compliance with TDS and TIN effluent limitations; (b) address the applicability of mineral increments in the development of waste discharge requirements; and (c) requirements to prepare the antidegradation analysis to support the establishment of waste discharge requirements. The Proposed Action does not involve activities that would result in generation of solid waste and therefore has no impact on local infrastructure or attainment of solid waste reduction goals for the project area.

Reasonably Foreseeable Methods of Compliance: The Proposed Action would not result in the need for new BPTCs or implementation of other compliance methods that would not otherwise already be required under the existing Basin Plan TDS/N Management Program.

Finding of Significance: No impacts associated with adoption of the Basin Plan amendment or foreseeable methods of compliance are anticipated and no mitigation measures are necessary.

(e) *Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?*

See Utilities and Service Systems Discussion, Part (a) above.

4.3.20 Wildfire

Wildfire	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
XX. WILDFIRE - If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:				
a. Substantially impair an adopted emergency response plan or emergency evacuation plan?				X
b. Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?				X

Wildfire	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
c. Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?				X
d. Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?				X

Discussion

(a) *If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project substantially impair an adopted emergency response plan or emergency evacuation plan?*

Proposed Basin Plan Amendment: Adoption of the Proposed Action would result in an updated WLAM and establishment of updated WLAs for treatment facilities in the watershed (see Table 2-1). The updated WLAs are based on the maximum predicted 10-year average streambed recharge concentration using the maximum expected discharge for each facility (2020 or 2040) and taking into account long-term hydrologic cycles. In addition, the Proposed Action will provide direction to permit writers regarding (a) how to evaluate compliance with TDS and TIN effluent limitations; (b) address the applicability of mineral increments in the development of waste discharge requirements; and (c) requirements to prepare the antidegradation analysis to support the establishment of waste discharge requirements. In so far as a physical project is not proposed to be built, and that there are no planned site or construction activities, the project will not impair any adopted wildfire emergency response/emergency evacuation plans, create any risks of pollutant exposure due to wildfire, require any infrastructure to mitigate wildfire risk, or expose the public to any risks that may result wildfire activity.

Reasonably Foreseeable Methods of Compliance: The Proposed Action would not result in the need for new BPTCs or implementation of other compliance methods that would not otherwise already be required under the existing Basin Plan TDS/N Management Program.

Finding of Significance: No impacts associated with adoption of the Basin Plan amendment or foreseeable methods of compliance are anticipated and no mitigation measures are necessary.

(b) *Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?*

See Wildfire Discussion, Part (a) above.

(c) *Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?*

See Wildfire Discussion, Part (a) above.

(d) *Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?*

See Wildfire Discussion, Part (a) above.

4.3.21 Mandatory Findings of Significance

Mandatory Findings of Significance	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
XXI. MANDATORY FINDINGS OF SIGNIFICANCE - Would the project:				
a. Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?				X
b. Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?				X
c. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?				X

Discussion

(a) *Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?*

Proposed Basin Plan Amendment: Adoption of the Proposed Action would result in an updated WLAM and establishment of updated WLAs for treatment facilities in the watershed (see Table 2-1). The updated WLAs are based on the maximum predicted 10-year average streambed recharge concentration using the maximum expected discharge for each facility (2020 or 2040) and taking into account long-term hydrologic cycles. In addition, the Proposed Action will provide direction to permit writers regarding (a) how to evaluate compliance with TDS and TIN effluent limitations; (b) address the applicability of mineral increments in the development of waste discharge requirements; and (c) requirements to prepare the antidegradation analysis to support the establishment of waste discharge requirements.

Given that the Proposed Action requires no construction, the project will not eliminate important examples of the major periods of California or prehistory. In addition, the Proposed Action does not have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal. In fact, as was discussed in Section 4.3.10.1, the Proposed Action will support the continued discharge of highly treated effluent to Santa Ana River Reaches 4 and 3 (underlying Riverside-A and Chino-South GMZs, respectively) which ensures continued baseflow in the Santa Ana River above Prado Dam. This baseflow provides significant benefits to biological resources in the watershed and support of a number of downstream beneficial uses in Santa Ana River Reaches 3 and 4, including WARM, WILD, RARE and REC1. Thus the Proposed Action provides important benefits to the overall environment. Not only does the discharge of highly treated effluent support sensitive species and their habitat, including riparian wetlands, it will not interfere with the movement of any species or impact wildlife corridors, impede the use of wildlife nursery sites, or conflict with any local policies or ordinances protecting biological resources or implementation of adopted habitat conservation plans.

Reasonably Foreseeable Methods of Compliance: The Proposed Action would not result in the need for new BPTCs or implementation of other compliance methods that would not otherwise already be required under the existing Basin Plan TDS/N Management Program.

Finding of Significance: No impacts associated with adoption of the Basin Plan amendment or foreseeable methods of compliance are anticipated and no mitigation measures are necessary.

(b) *Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?*

Proposed Basin Plan Amendment: Adoption of the Proposed Action would result in an updated WLAM and establishment of updated WLAs for treatment facilities in the watershed (see Table 2-1). The updated WLAs are based on the maximum predicted 10-year average streambed recharge concentration using the maximum expected discharge for each facility (2020 or 2040) and taking into account long-term hydrologic cycles. In addition, the Proposed Action will provide direction to permit writers regarding (a) how to evaluate compliance with TDS and TIN effluent limitations; (b) address the applicability of mineral increments in the development of waste discharge requirements; and (c) requirements to prepare the antidegradation analysis to support the establishment of waste discharge requirements. The findings from the environmental analysis show the Proposed Action would not result in any significant impacts on the various analyzed environmental factors; accordingly, the Proposed Action does not have impacts that are individually limited or cumulatively considerable.

Reasonably Foreseeable Methods of Compliance: The Proposed Action would not result in the need for new BPTCs or implementation of other compliance methods that would not otherwise already be required under the existing Basin Plan TDS/N Management Program.

Finding of Significance: No impacts associated with adoption of the Basin Plan amendment or foreseeable methods of compliance are anticipated and no mitigation measures are necessary.

(c) *Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?*

Proposed Basin Plan Amendment: Adoption of the Proposed Action would result in an updated WLAM and establishment of updated WLAs for treatment facilities in the watershed (see Table 2-1). The updated WLAs are based on the maximum predicted 10-year average streambed recharge concentration using the maximum expected discharge for each facility (2020 or 2040) and taking into account long-term hydrologic cycles. In addition, the Proposed Action will provide direction to permit writers regarding (a) how to evaluate compliance with TDS and TIN effluent limitations; (b) address the applicability of mineral increments in the development of waste discharge requirements; and (c) requirements to prepare the antidegradation analysis to support the establishment of waste discharge requirements. The adoption of the proposed Amendment would not have significant adverse

effects on the environment, and thus, would not cause substantial adverse effects on human beings, either directly or indirectly.

Reasonably Foreseeable Methods of Compliance: The Proposed Action would not result in the need for new BPTCs or implementation of other compliance methods that would not otherwise already be required under the existing Basin Plan TDS/N Management Program.

Finding of Significance: No impacts associated with adoption of the Basin Plan amendment or foreseeable methods of compliance are anticipated and no mitigation measures are necessary.

5.0 Alternatives

Pursuant to the State Water Board's regulations for implementing CEQA (California Code of Regulations Title 23, sec. 3777[a]), this environmental review must include an analysis of reasonable alternatives to the Proposed Action. The intent of this analysis is to consider whether there are reasonable alternatives that would fulfill the underlying purpose of the Proposed Action, i.e., amending the Basin Plan Chapter 5 to update the Santa Ana Region's TDS/N Management Program that would minimize or eliminate any identified potential adverse environmental effects of the Proposed Action.

The Santa Ana Water Board is required to adopt WLAs that assure compliance with the applicable WQOs in the Santa Ana River watershed. The Environmental Analysis (Section 4) identified no potential adverse environmental impacts associated with the Proposed Action that includes adoption of updated WLAs for the watershed. Implementation of the updated WLAs as effluent limits in waste discharge requirements will ensure compliance with Basin Plan requirements. Thus, no alternative means of compliance needed to be identified. Because no potential environmental impacts, which could be reduced by an alternative to the Proposed Action, or alternative means of compliance with the Proposed Action have been identified, the only alternative addressed herein is the No Project Alternative.

Under the No Project Alternative, the Santa Ana Water Board would continue to implement the TDS/N Management Program as currently authorized in Chapter 5 of the Basin Plan. Under this alternative, the baseline environmental conditions described in Section 3 would still apply. The No Project Alternative would continue the following:

- Use of the 2004 WLAM as the basis for the establishment of TDS/TIN WLAs in the watershed.
- Reliance on the existing Basin Plan Table 5-5 WLAs to establish effluent limitations for POTWs in the watershed.
- Ambiguity in the appropriate use of mineral increments and applicability of non-TDS salt-related objectives when establishing waste discharge requirements.

While the TDS/N Management Program can continue to be implemented under the existing Basin Plan requirements, acceptance of the No Project Alternative will not result in the best outcome for the management of TDS and TIN in the watershed for the following reasons:

- The 2017 WLAM was expanded to (a) include GMZs located downstream of Prado Dam; (b) take into account a much longer precipitation record, which not only provided a stronger hydrologic foundation, but also included the most recent significant long-term drought event (1999-2016); (c) incorporate the most recent land use data; and (d) bring the existing conditions in the project area up to date, especially with regards to existing, planned and decommissioned POTWs in the Santa Ana River watershed. Therefore, the

2017 WLAM provides a superior basis for establishing scientifically sound WLAs in the watershed. In addition, development of the 2017 WLAM changed the underlying model from proprietary to open source. This change is consistent with efforts to ensure transparency in the tools being used to manage TDS/N in the watershed.

- Existing Basin Plan Table 5-5 (WLAs) does not accurately reflect existing or planned POTWs in the watershed. In addition, the existing WLAs for TIN at three existing facilities are higher than BPTC (i.e., 13 mg/L vs. 10 mg/L) for management of nitrogen in treated wastewater effluent. Under the No Project Alternative, the existing WLAs in Basin Plan Table 5-5 will continue to be used.
- The existing Basin Plan implementation language does not provide direction to permit writers regarding how to assess compliance with the TDS WLAs. As noted above (e.g., Sections 2.3.3 and 4.3.10.1), the Proposed Action proposes that the Basin Plan include language that the default approach for evaluating compliance with a TDS WLA is a 60-month averaging period (updated monthly). Use of a 60-month averaging period takes into account known variability in salinity that occurs in the region due to natural long-term hydrological variability which can affect the blend of imported water vs. groundwater sources of water that become a POTW's influent. Moreover, the increased emphasis on water conservation in the region is also a known factor influencing the salinity of a POTW's influent. The impact of this longer-term variability can be addressed through application of a longer averaging period when determining compliance with the WLA. Implementation of this approach reduces the potential for a POTW to have to implement costly treatment upgrades to remove salt. Under the No Project Alternative, the Basin Plan will continue to be silent with regard to how to evaluate compliance with a TDS effluent limit, potentially resulting inconsistencies in how the TDS/N Management Program is implemented.
- Under the No Project Alternative, the TDS/N Management Program will continue to have ambiguous language with regards to the use of the mineral increments and application of the antidegradation policy when developing effluent limits for POTWs. Ideally, the Basin Plan should be as clear and transparent as possible regarding implementation of WLAs in waste discharge requirements.

The No Project Alternative results in no modification to the Basin Plan TDS/N Management Program. No environmental impacts are anticipated under this alternative as it merely perpetuates the status quo with regards to the management and permitting of these constituents in the watershed. However, as noted above, implementation of the Proposed Action provides the opportunity to update the TDS/N Management Program so that it incorporates changes that have occurred in the region since 2004 and creates more certainty with regards to the development of waste discharge requirements. Because the Proposed Action will not result in any potential adverse environmental impacts and actually will result in improvements to water quality over the long-term in key GMZs, amending the Basin Plan to update the TDS/N Management Program is the preferred alternative.

6.0 References

California Department of Conservation. 1997. Land Evaluation and Site Assessment Model: Instruction Manual. Office of Land Conservation. Sacramento, CA.

California Department of Water Resources (CA DWR). 1982. *Mineral Increases from Municipal Use of Water in the Santa Ana River Basin*. Memorandum Report. June 1982.

Geoscience Support Services, Inc. (GSSI). 2015. *Development of a TDS and Nitrate Lumped-Parameter Model for the Riverside and Arlington Groundwater Basins*. August 11, 2015

GSSI. 2020. *Santa Ana River Waste Load Allocation Model Update: Summary Report.* Prepared for Santa Ana Watershed Project Authority, Basin Monitoring Program Task Force. June 19, 2020.

GSSI. 2021. *Santa Ana River Waste Load Allocation Model Update: Supplemental Report*. Prepared for Santa Ana Watershed Project Authority, Basin Monitoring Program Task Force. September 20, 2021.

Risk Sciences. 2002. *Offsets for MMPs [Mandatory Minimum Penalties] Related to Individual Ions in NPDES Permits*. Memorandum from Risk Sciences to Gary Stewart, Santa Ana Water Board. Presented to Nitrogen/TDS Task Force. April 29, 2002.

Santa Ana Regional Water Quality Control Board (Santa Ana Water Board). 2004. *Resolution Amending the Water Quality Control Plan for the Santa Ana River Basin to Incorporate an Updated Total Dissolved Solids (TDS) and Nitrogen Management Plan for the Santa Ana Region Including Revised Groundwater Subbasin Boundaries, Revised TDS and Nitrate-Nitrogen Quality Objectives for Groundwater, Revised TDS and Nitrogen Wasteload Allocations, and Revised Reach Designations, TDS and Nitrogen Objectives and Beneficial Uses for Specific Surface Waters.* Resolution R8-2004-0001. January 22, 2004.

Santa Ana Water Board. 2010. *Declaration of Conformance with the State Recycled Water Policy*. Resolution No. R8-2010-0012. March 18, 2010.

Santa Ana Water Board. 2012. *Resolution Amending the Water Quality Control Plan for the Santa Ana River Basin to Incorporate Updates Related to the Salt Management Plan.* Resolution R8-2012-0002. February 10, 2012.

Santa Ana Water Board. 2014. *Resolution Amending the Water Quality Control Plan for the Santa Ana River Basin to Incorporate Updates Related to the Salt Management Plan for the Santa Ana Region.* Resolution R8-2014-0005. April 25, 2014.

Santa Ana Water Board. 2015. *Waste Discharge Requirements and Master Reclamation Permit for the Yucaipa Valley Water District Henry N. Wochholz Regional Water Recycling Facility, San Bernardino County*. Resolution No. R8-2015-0027 (NPDES No. CA0115619). October 30, 2015.

Santa Ana Water Board. 2017. *Resolution Amending the Water Quality Control Plan for the Santa Ana River Basin to Revise the Water Quality Objective for Nitrate-as-Nitrogen in the Chino-South Groundwater Management Zone.* Resolution No. R8-2017-0036. August 4, 2017.

Santa Ana Water Board. 2019. *Water Quality Control Plan for the Santa Ana River Basin*. Santa Ana Water Board. June 2019.

Santa Ana Water Board. 2020. *Draft Resolution Amending the Water Quality Control Plan for the Santa Ana River Basin to Establish Upper Temescal Valley Groundwater Management Zone (GMZ) and Associated TDS and Nitrate Water Quality Objectives, and to specify implementation tasks in the Salt and Nutrient Management Plan for the GMZ.* Resolution No. R8-2020-0038.

Santa Ana Watershed Project Authority (SAWPA). 2001. *Minutes of the Nitrogen/TDS Task Force Meeting*, July 31, 2001.

SAWPA. 2002a. *Minutes of the Nitrogen/TDS Task Force Meeting*. May 29, 2002.

SAWPA. 2002b. *Minutes of the Nitrogen/TDS Task Force Meeting*. July 16, 2002.

SAWPA. 2020. *2019 Annual Report of Santa Ana River Water Quality: Final Report*. July 2020.

Southern California Association of Governments (SCAG). 2015a. *2012 Land Use Data*. Revised 2015.

SCAG. 2015b. *2040 General Plan Data*. Revised 2015.

Southern California Salinity Coalition. 2018. *Study to Evaluate Long-Term Trends and Variations in the Average Total Dissolved Solids Concentration in Wastewater and Recycled Water.* Prepared by Daniel B. Stephens Inc. on behalf of the Southern California Salinity Coalition. March 30, 2018.

State Water Resources Control Board (State Water Board). 1968. *Statement of Policy with Respect To Maintaining High Quality Waters in California.* Resolution 68-16. October 24, 1968.

State Water Board. 1973. *In the Matter of the Petition of Orange County Water District for Review of Order No. 72-16 of the California Regional Water Quality Control Board - Santa*

Ana Region Prescribing Waste Discharge Requirements for Rancho Caballero Mobile Home Park. State Water Board Water Quality Order No. 73-4. February 1, 1973.

State Water Board. 1981. *In the Matter of the Petition of the City of Lompoc for Review of Order No. 80-03 (NPDES Permit No. CA 0048127), California Regional Water Quality Control Board - Central Coast Region.* State Water Board Water Quality Order No. 81-5. March 19, 1981.

State Water Board. 1990. *Antidegradation Policy Implementation for NPDES Permitting*. Administrative Procedures Update 90-004.

State Water Board. 2018. *Water Quality Control Policy for Recycled Water*. Resolution No. 2018-0004. December 11, 2018.

Water Systems Consulting, Inc. (WSC). 2020. *Recomputation of Ambient Water Quality in the Santa Ana River Watershed: For the Period 1999 to 2018.* Prepared for Santa Ana Watershed Project Authority, Basin Monitoring Program Task Force. July 8, 2020.

Wildermuth Environmental Inc. (WEI). 2015a. *Investigation and Characterization of the Cause(s) of Recent Exceedances of the TDS Concentration Objective for Reach 3 of the Santa Ana River.* February 11, 2015.

WEI. 2015b. *Volume-Weighted TDS Concentration of POTW Discharges above Prado Dam during August-September*. June 15, 2015.

WEI. 2017. *Salt and Nutrient Management Plan for the Upper Temescal Valley*. Prepared for Elsinore Valley Municipal Water District and Eastern Municipal Water District. September 2017.

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Attachment A – California Native American Tribal Consultation Letters

- Gabrieleño Band of Mission Indians - Kizh Nation
- Gabrieleño/Tongva San Gabriel Band of Mission Indians
- San Manuel Band of Mission Indians
- Torres-Martinez Desert Cahuilla Indians

Santa Ana Regional Water Quality Control Board

September 25, 2020

Honorable Andrew Salas, Chairperson
Gabrieleño Band of Mission Indians- Kizh Nation
P.O. Box 393
Covina, CA 91723

admin@gabrielenoindians.org

Re: Tribal Cultural Resources under the California Environmental Quality Act, AB52 (Gatto, 2014). Formal notification of the decision to amend the Water Quality Control Plan for the Santa Ana River Basin to update the Waste Load Allocations for the Wastewater Treatment Plants in Chapter 5 of the Basin Plan, and notification of consultation opportunity, pursuant to Public Resource Code Section 21080.3.1

Dear Honorable Chairperson Salas:

The Regional Water Quality Control Board, Santa Ana Region (Santa Ana Water Board) has undertaken the task to update the Total Dissolved Solids (TDS) and Nitrogen Waste Load Allocations for the Wastewater Treatment Plants, as a proposed amendment of the Water Quality Control Plan for the Santa Ana River Basin (Basin Plan). Pursuant to Public Resources Code section 21080.3.1, subdivision (d), a description of the proposed project, a map showing the project location, and the name of our project point of contact are included below.

Project Location
The project location is the Santa Ana River Watershed (see attached map).

Description of the Proposed Project
The proposed project is for the Santa Ana Regional Water Board to update the TDS and nitrogen Waste Load Allocation for wastewater treatment plants as an amendment to the Basin Plan.

Project Scope
The proposed Basin Plan Amendment adoption of an updated Waste Load Allocation Model , updated Waste Load Allocations for permitted dischargers in the Santa Ana River watershed and, to be clear regarding the Board's intentions regarding how to implement the program in waste discharger requirements, and to provide direction to permit writers.

Santa Ana Water Board Point of Contact
Pursuant to Public Resource Code Section 21080.3.1 (b), you have 30 days from receipt of this letter to request consultation, in writing, with the Santa Ana Regional Water Quality Control Board, to the following address:

Attention: Cindy Li
Cindy.li@waterboards.ca.gov
Regional Water Quality Control Board, Santa Ana Region
3737 Main Street, Suite #500
Riverside, CA 92501

If you have any questions regarding this letter, please contact Cindy Li at (951) 782-4906 or by email at Cindy.Li@waterboards.ca.gov.

Very Respectfully,

Hope A. Smythe
Executive Officer
Santa Ana Regional Water Quality Control Board

Attachment: Project Location Map

View text description of map.

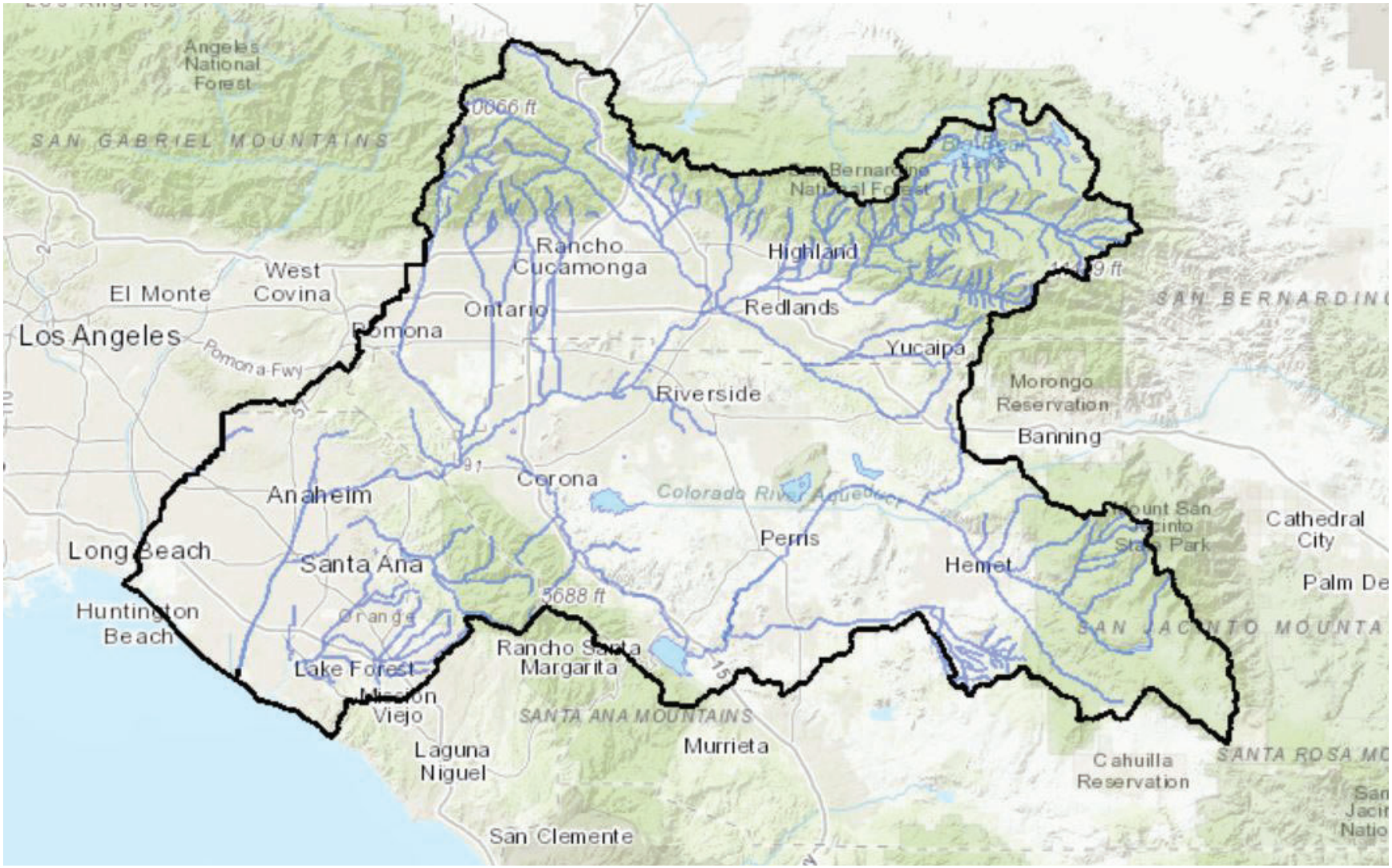

Figure 3-1. Santa Ana River Watershed (adapted from SAWPA, https://www.sawpa.net/gisviewer/basemaps.htm#)

Santa Ana Regional Water Quality Control Board

September 25, 2020

Honorable Anthony Morales, Chairperson
Gabrieleño/Tongva San Gabriel Band of Mission Indians
P.O. Box 693
San Gabriel, CA 91778

GTTribalcouncil@aol.com

Re: Tribal Cultural Resources under the California Environmental Quality Act, AB52 (Gatto, 2014). Formal notification of the decision to amend the Water Quality Control Plan for the Santa Ana River Basin to update the Waste Load Allocations for the Wastewater Treatment Plants in Chapter 5 of the Basin Plan, and notification of consultation opportunity, pursuant to Public Resource Code Section 21080.3.1

Dear Honorable Chairperson Morales:

The Regional Water Quality Control Board, Santa Ana Region (Santa Ana Water Board) has undertaken the task to update the Total Dissolved Solids (TDS) and Nitrogen Waste Load Allocations for the Wastewater Treatment Plants, as a proposed amendment of the Water Quality Control Plan for the Santa Ana River Basin (Basin Plan). Pursuant to Public Resources Code section 21080.3.1, subdivision (d), a description of the proposed project, a map showing the project location, and the name of our project point of contact are included below.

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Attention: Cindy Li
Cindy.li@waterboards.ca.gov
Regional Water Quality Control Board, Santa Ana Region
3737 Main Street, Suite #500
Riverside, CA 92501

If you have any questions regarding this letter, please contact Cindy Li at (951) 782-4906 or by email at Cindy.Li@waterboards.ca.gov.

Very Respectfully,

Hope A. Smythe
Executive Officer
Santa Ana Regional Water Quality Control Board

Attachment: Project Location Map

View text description of map.

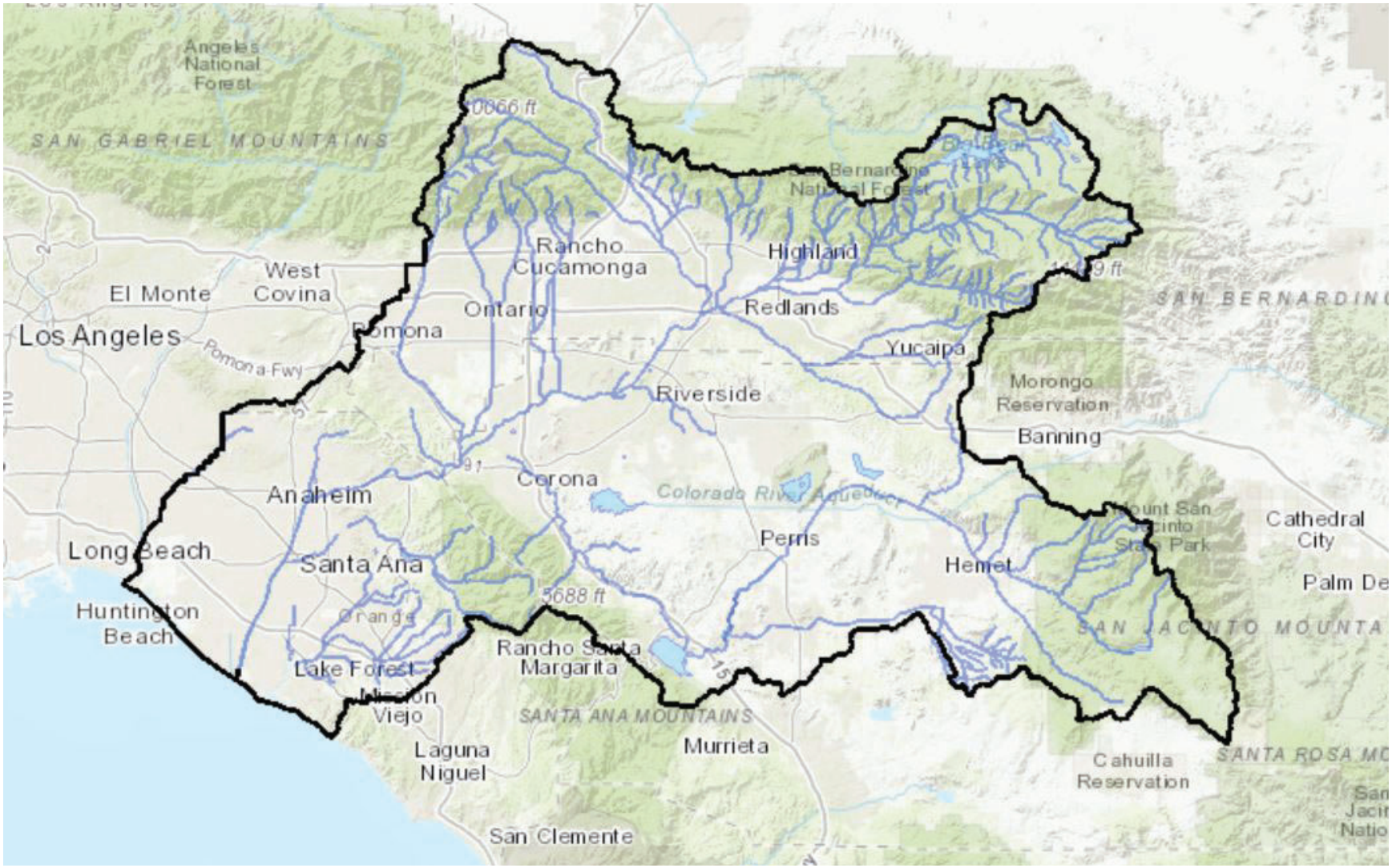

Figure 3-1. Santa Ana River Watershed (adapted from SAWPA, https://www.sawpa.net/gisviewer/basemaps.htm#)

CALIFORNIA Water Boards

GAVIN NEWSOM, GOVERNOR
JARED BLUMENFELD, SECRETARY FOR ENVIRONMENTAL PROTECTION

Santa Ana Regional Water Quality Control Board

September 25, 2020

CERTIFIED MAIL

Lynn Valbuena
San Manuel Band of Mission Indians
26569 Community Center Drive
Highland, CA 92346

Re: Tribal Cultural Resources under the California Environmental Quality Act, AB52 (Gatto, 2014). Formal notification of the decision to amend the Water Quality Control Plan for the Santa Ana River Basin to update the Waste Load Allocations for the Wastewater Treatment Plants in Chapter 5 of the Basin Plan, and notification of consultation opportunity, pursuant to Public Resource Code Section 21080.3.1

Dear Honorable Valbuena:

The Regional Water Quality Control Board, Santa Ana Region (Santa Ana Water Board) has undertaken the task to update the Total Dissolved Solids (TDS) and Nitrogen Waste Load Allocations for the Wastewater Treatment Plants, as a proposed amendment of the Water Quality Control Plan for the Santa Ana River Basin (Basin Plan). Pursuant to Public Resources Code section 21080.3.1, subdivision (d), a description of the proposed project, a map showing the project location, and the name of our project point of contact are included below.

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Attention: Cindy Li
Cindy.li@waterboards.ca.gov
Regional Water Quality Control Board, Santa Ana Region
3737 Main Street, Suite #500
Riverside, CA 92501

If you have any questions regarding this letter, please contact Cindy Li at (951) 782-4906 or by email at Cindy.Li@waterboards.ca.gov.

Very Respectfully,

Jayne Joy
Digitally signed by Jayne Joy
Date: 2020.09.25 14:00:37 -07'00'
Water Boards

Hope A. Smythe
Executive Officer
Santa Ana Regional Water Quality Control Board

Attachment: Project Location Map

View text description of map.

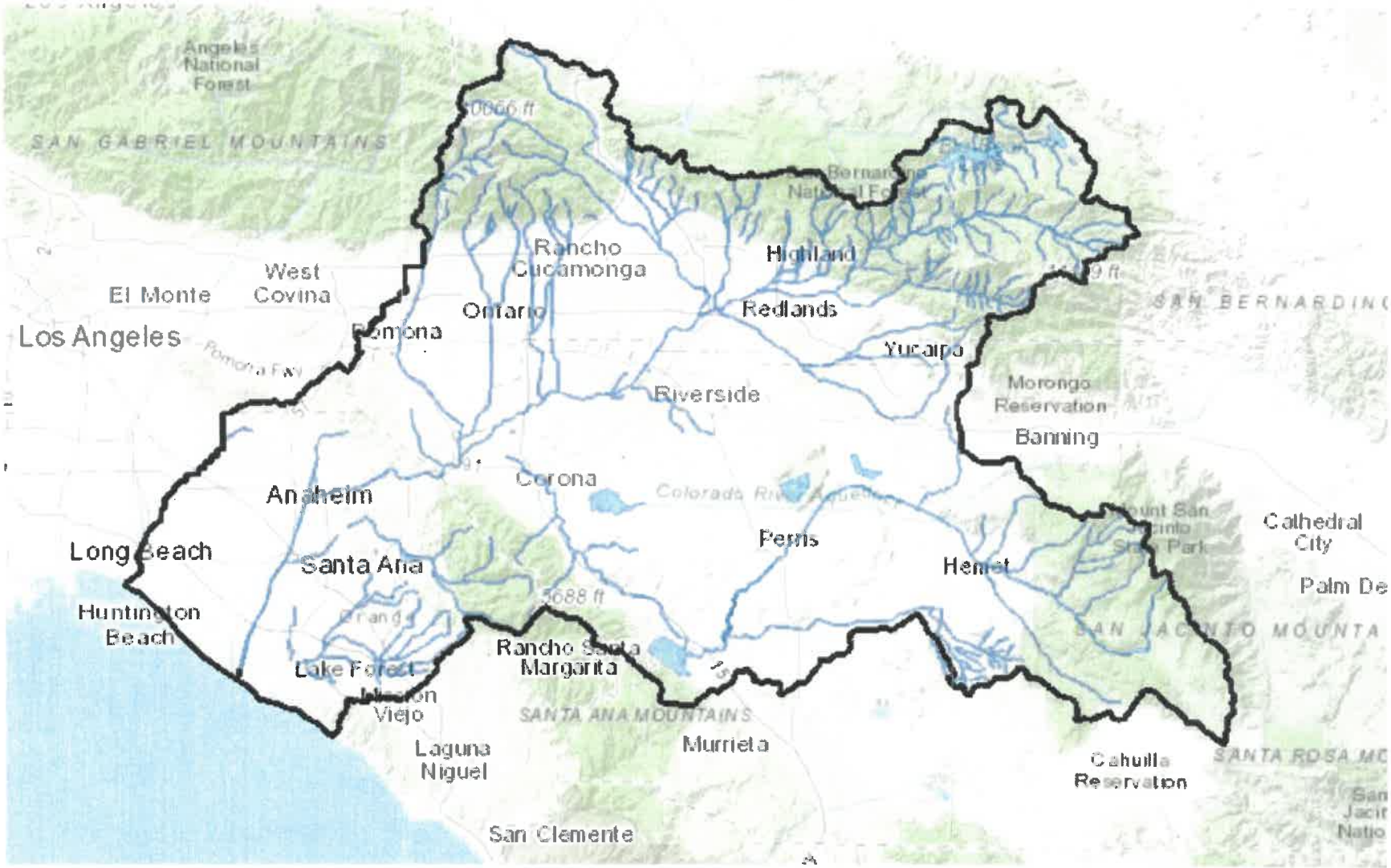

Figure 3-1. Santa Ana River Watershed (adapted from SAWPA, https://www.sawpa.net/gisviewer/basemaps.htm#)

Santa Ana Regional Water Quality Control Board

September 25, 2020

Torres-Martinez Desert Cahuilla Indians
Thomas Tortez, Chairperson
P.O. Box 1160
Thermal, CA 92274

thomas.tortez@torresmartinez-nsn.gov

Re: Tribal Cultural Resources under the California Environmental Quality Act, AB52 (Gatto, 2014). Formal notification of the decision to amend the Water Quality Control Plan for the Santa Ana River Basin to update the Waste Load Allocations for the Wastewater Treatment Plants in Chapter 5 of the Basin Plan, and notification of consultation opportunity, pursuant to Public Resource Code Section 21080.3.1

Dear Honorable Chairperson Tortez:

The Regional Water Quality Control Board, Santa Ana Region (Santa Ana Water Board) has undertaken the task to update the Total Dissolved Solids (TDS) and Nitrogen Waste Load Allocations for the Wastewater Treatment Plants, as a proposed amendment of the Water Quality Control Plan for the Santa Ana River Basin (Basin Plan). Pursuant to Public Resources Code section 21080.3.1, subdivision (d), a description of the proposed project, a map showing the project location, and the name of our project point of contact are included below.

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The project location is the Santa Ana River Watershed (see attached map).

Description of the Proposed Project
The proposed project is for the Santa Ana Regional Water Board to update the TDS and nitrogen Waste Load Allocation for wastewater treatment plants as an amendment to the Basin Plan.

Project Scope
The proposed Basin Plan Amendment adoption of an updated Waste Load Allocation Model , updated Waste Load Allocations for permitted dischargers in the Santa Ana River watershed and, to be clear regarding the Board's intentions regarding how to implement the program in waste discharger requirements, and to provide direction to permit writers.

Santa Ana Water Board Point of Contact
Pursuant to Public Resource Code Section 21080.3.1 (b), you have 30 days from receipt of this letter to request consultation, in writing, with the Santa Ana Regional Water Quality Control Board, to the following address:

Attention: Cindy Li
Cindy.li@waterboards.ca.gov
Regional Water Quality Control Board, Santa Ana Region
3737 Main Street, Suite #500
Riverside, CA 92501

If you have any questions regarding this letter, please contact Cindy Li at (951) 782-4906 or by email at Cindy.Li@waterboards.ca.gov.

Very Respectfully,

Hope A. Smythe
Executive Officer
Santa Ana Regional Water Quality Control Board

Attachment: Project Location Map

CC: Roland Ferrer- Planning Director (rferrer@tmdci-nsn.gov)

View text description of map.

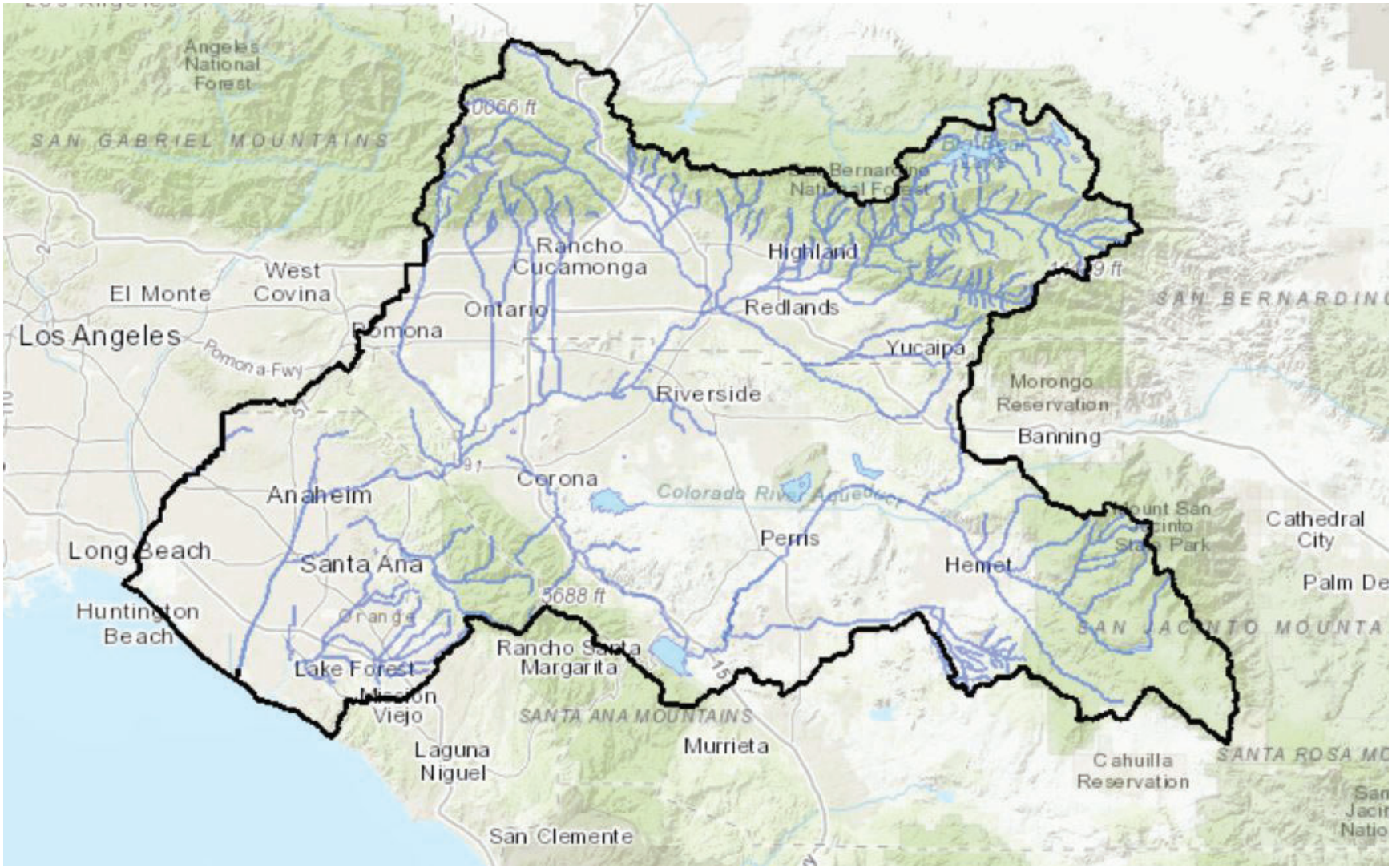

Figure 3-1. Santa Ana River Watershed (adapted from SAWPA, https://www.sawpa.net/gisviewer/basemaps.htm#)

Attachment B - California Native American Tribal Consultation Responses

- San Manuel Band of Mission Indians

From:	Li, Cindy@Waterboards
To:	Meyerhoff, Richard
Cc:	Norton, Mark; tmoore@risk-sciences.com; Tess Dunham (tdunham@kscsacramento.com)
Subject:	[EXT] Fw: Amend the WQCP For the Santa Ana River Basin to Update the Waste Load Allocations for the Wastewater Treatment Plants in Ch. 5 of the Basin Plan
Date:	Monday, November 2, 2020 9:57:34 AM
Attachments:	imagedae269.PNG SKM_C550i20100215411.pdf

This is the only response we have received from the Tribal consultation.

From: Jessica Mauck <JMauck@sanmanuel-nsn.gov>
Sent: Friday, October 30, 2020 9:24 PM
To: Li, Cindy@Waterboards <Cindy.Li@waterboards.ca.gov>
Subject: Amend the WQCP For the Santa Ana River Basin to Update the Waste Load Allocations for the Wastewater Treatment Plants in Ch. 5 of the Basin Plan

EXTERNAL:

Hi Cindy,

Thank you for contacting the San Manuel Band of Mission Indians (SMBMI) regarding the above-referenced project, the documentation for which was received by the CRM Department on 2 October 2020. While the proposed project area partially exists within Serrano ancestral territory and, therefore, is of interest to the Tribe, SMBMI does not have any concerns with the proposed project, as planned, at this time, and does not elect to consult on this project with your agency.

Best,
Jessica Mauck

Jessica Mauck
DIRECTOR OF CULTURAL RESOURCES MANAGEMENT
O: (909) 864-8933 x3249
M: (909) 725-9054
26569 Community Center Dr Highland California 92346
SAN MANUEL
BAND OF MISSION INDIANS

From: 2ndfloorC300@sanmanuel-nsn.gov <2ndfloorC300@sanmanuel-nsn.gov>
Sent: Friday, October 2, 2020 3:42 PM
To: Jessica Mauck <JMauck@sanmanuel-nsn.gov>

Subject: Message from KM_C550i

Map and Chart Descriptions

20

Figure 2-1. A chart showing the cumulative departure from Mean Annual Precipitation in the project area. Annual Precipitation in inches from 0 to 80 is on the y-axis. Water Year from 1884 to 2016 is on the x-axis. The chart includes the Annual Precipitation for each year, a straight line representing the Mean Annual Precipitation at 15.7 inches, and a line graph representing the Cumulative Departure from Mean Annual Precipitation. The Cumulative Departure from Mean Annual Precipitation line declines from 1999 to 2016,

25

Figure 3-1. A map illustrating the Santa Ana River watershed located in southern California, south and east of the City of Los Angeles. Approximately 2,800 square miles and includes portions of San Bernardino, Riverside, Los Angeles, and Orange Counties. The Santa Ana River is the main surface water draining the watershed—it flows approximately 100 miles from its headwaters near Big Bear Lake to where it drains to the Pacific Ocean in Huntington Beach. Key subwatersheds include the upper and lower Santa Ana River watersheds, the San Jacinto River watershed, and several other smaller drainage areas. The highest elevations of the watershed occur in the San Bernardino, San Gabriel, and San Jacinto Mountains on the north and east sides. In the central part of the watershed, the Santa Ana Mountains and the Chino Hills form a topographic high before the River flows onto the Coastal Plain and into the Pacific Ocean.

26

Figure 3-2. A map illustrating the portion of the Santa Ana River watershed in the development of the WLAM. The map shows the dam locations of the Seven Oaks Dam and Prado Dam, the 2008 WLAM Boundary, and the 2017 WLAM HSPF Boundary which includes additional reaches of the Santa Ana River in Orange County.

30

Figure 3-3. A map illustrating the 2012 land use data used to calibrate the WLAM for the model's calibration period (Water Years 2007 through 2016) in the project area. The map shows the 2017 WLAM HSPF Boundary, Dam Locations in the WLAM, as well as different land use types including Agriculture, Commercial/Industrial/Public Facilities, Open Space, Residential – High Density, Residential -Medium Density, Residential - Low Density, and Water. The map illustrates that there is more Open Space towards the southeast ends of the 2017 WLAM HSPF Boundary.

31

Figure 3-4. A map illustrating the General Plan land use data used to evaluate water quality under two land use conditions: 2020 and 2040. The map shows the 2017 WLAM HSPF Boundary, Dam Locations in the WLAM, as well as different land use types including Agriculture, Commercial/Industrial, Open Space,

Residential – High Density, Residential -Medium Density, Residential - Low Density, and Water. The map illustrates a decrease in Opens Space towards the southeast ends of the 2017 WLAM HSPF Boundary.

32

Figure 3-5. A map illustrating the current GMZ boundaries and existing WQOs for TDS and nitrate for each GMZ. The map includes the RWQCB Boundary, Recharge Basins, Rivers and Streams, and Wastewater Treatment Plant Discharge Locations.

33

Figure 3-6. A map that illustrates the locations of the major surface water and groundwater water resource features in the watershed, including the key reaches of the Santa Ana River and its major tributaries, the associated GMZs underlying each major surface water and the location of permitted dischargers of treated effluent (Recycled Water Discharge points, OCWD State Water Project Turnout Points, San Bernardino Geothermal Plant Discharge Points, and Arlington Desalter Discharge Points). The map includes Stream Reach (Santa Ana River, San Timoteo, and Temescal Creek), Management Zones, Dam Locations, and the 2017 WLAM HSPF Boundary.

36

Figure 3-7. A map illustrating the Surface Water Quality Monitoring Locations in the Santa Ana River Watershed. The Legend includes OCWD Sites, USGS Sites, Santa Ana River Reach 2, 3, 4, and 5, TMDL Rivers including Chino Creek Reach 1A, Chino Creek Rach 1B, Chino Creek Reach 2, Cucamonga Creek Reach 2, Mill Creek, Temescal Creek Reach 1A, Temescal Creek Reach 1B, and Temescal Creek Reach 2.

37

Figure 3-8. A chart showing the long-term trend in total dissolved solids water quality conditions at Santa Ana River Below Prado Dam. TDS in milligrams per liter from 0 to 800 is on the left y-axis, Discharge shown in acre-feet per year from 0 to 700,000 is on the right y-axis, the date from December 1999 to December 2019 is on the x-axis. The chart includes Santa Ana River Discharge for each year in December, a line showing the TDS – Flow-weighted 60 month moving average, A line showing the TDS – Mean of 5 annual Flow-weighted averages, and a straight line showing the Reach 2 TDS Basin Plan Objective. The chart demonstrates an increase in average TDS concentrations.

38

Figure 3-9. A chart showing the long-term trend in total nitrogen water quality conditions at the Santa Ana River Below Prado Dam. TN in milligrams per liter from 0 to 14 is on the left y-axis, Discharge shown in acre-feet per year from 0 to 700,000 is on the right y-axis, the date from December 1999 to December 2019 is on the x-axis. The chart includes Santa Ana River Discharge for each year in December, A line showing the Baseflow TN 5 year moving average, and a straight line showing the Reach 3 TN Basin Plan Objective at 10 milligrams per liter. The Baseflow TN 5 year moving average shows a slow decline over time.

39

Figure 3-10. A chart showing the long-term trend in total dissolved solids water quality conditions at Santa Ana River at MWD Crossing. TDS in milligrams per liter from 0 to 800 is on the left y-axis,

Discharge shown in acre-feet per year from 0 to 350,000 is on the right y-axis, the date from December 1999 to December 2019 is on the x-axis. The chart includes MWD Xing Discharge for each year in December, a line showing the Baseflow TDS 5 year moving average, and a straight line showing the Reach 3 TDS Basin Plan Objective at 700 milligrams per liter.

40

Figure 3-11. A chart showing the Long-term Trend in Total Nitrogen Water Quality Conditions at Santa Ana River at MWD Crossing. TN in milligrams per liter from 0 to 12 is on the left y-axis, Discharge shown in acre-feet per year from 0 to 350,000 is on the right y-axis, the date from December 1999 to December 2019 is on the x-axis. The chart includes MWD Xing Discharge for each year in December, A line showing the Baseflow TN 5 year moving average, and a straight line showing the Reach 3 TN Basin Plan Objective at 10 milligrams per liter.

70

Figure 4-1. A chart showing the Correlation Between TDS and Sodium Concentrations in the Santa Ana River Watershed. Sodium in milligrams per liter from 0 to 1000 is shown on the y-axis and total dissolved solids in milligrams per liter from 0 to 2500 is shown on the x-axis. The chart includes points for Historical Ambient: 1954-1973, Current Ambient 1978-1997, Linear Historical Ambient: 1954-1973, and Linear Current Ambient: 1978-1997.

71

Figure 4-2. A chart showing the Correlation Between TDS and Chloride Concentrations in the Santa Ana River Watershed. Chloride in milligrams per liter from 0 to 600 is shown on the y-axis and total dissolved solids in milligrams per liter from 0 to 2500 is shown on the x-axis. The chart includes points for Historical Ambient: 1954-1973, Current Ambient 1978-1997, Linear Historical Ambient: 1954-1973, and Linear Current Ambient: 1978-1997.

72

Figure 4-3. A chart showing the Correlation Between TDS and Sulfate Concentrations in the Santa Ana River Watershed. Sulfate in milligrams per liter from 0 to 1200 is shown on the y-axis and total dissolved solids in milligrams per liter from 0 to 2500 is shown on the x-axis. The chart includes points for Historical Ambient: 1954-1973, Current Ambient 1978-1997, Linear Historical Ambient: 1954-1973, and Linear Current Ambient: 1978-1997.

73

Figure 4-4. A chart showing the Correlation Between TDS and Total Hardness Concentrations in the Santa Ana River Watershed. Total Hardness in milligrams per liter from 0 to 2000 is shown on the y-axis and total dissolved solids in milligrams per liter from 0 to 2500 is shown on the x-axis. The chart includes points for Historical Ambient: 1954-1973, Current Ambient 1978-1997, Linear Historical Ambient: 1954-1973, and Linear Current Ambient: 1978-1997.

85

Figure 4-5. A map showing the Bunker Hill-B Groundwater Management Zone. The map includes the area of streambed recharge calculation, Stream Reach (SAR-5 and ST-1 inside of the GMZ, SAR-4, ST-2,

ST-3, and ST-4 outside of the GMZ, SAR meaning Santa Ana River, ST meaning San Timoteo Creek), Recycled Water Discharge points at San Bernardino WRP in the western part of the GMZ and EVWD SNRC in the northern part of the GMZ, and Santa Ana River Spreading Grounds in the eastern part of the GMZ.

86

Figure 4-6. A map showing the Riverside-A Groundwater Management Zone. The map includes the area of streambed recharge calculation, Stream Reach (SAR-5 and ST-1 north of the GMZ, and SAR-4 and SAR-3 inside the GMZ, SAR meaning Santa Ana River, ST meaning San Timoteo Creek), Recycled Water Discharge points at Sant Bernardino WRP north of the GMZ, and Colton WWTP, Rialto WWTP and RIX Facility in the northern part of the GMZ).

87

Figure 4-7. A graph showing the Ambient Water Quality Trend for Nitrate in Riverside-A and Riverside-B Groundwater Management Zones. NO_3-N in milligrams per liter from 0 to 20 is on the y-axis, years from 1970 to 2020 is on the x-axis. The graph includes a line showing the Ambient Water Quality Objective for Riverside-A at 6.2 mg/L, a line showing the Ambient Water Quality Objective for Riverside-B at 7.6 mg/L, a line graph showing the Nitrate trend for Riverside-A, and a line graph showing the Nitrate trend for Riverside-B. The graph demonstrates that the TIN concentrations in the Riverside-A GMZ have been gradually rising since 1997 but that trend is slowing.

90

Figure 4-8. A map showing the proposed Upper Temescal Valley Groundwater Management Zone. The map includes the area of Streambed Recharge Calculation, Stream Reach (TC-2 through TC-6, TC meaning Temescal Creek), and Recycled Water Discharge Points at Corona WWTP-3, Temescal Valley WRF, EVMWD Regional WWRF, and EMWD Regional WRFs.

92

Figure 4-9. A map showing the Orange County Groundwater Management Zone. The map includes the area of Streambed Recharge Calculation, Stream Reach (SAR-2 and SAR-1, SAR meaning Santa Ana River), Rubber Dam/Diversion Points at Imperial Rubber Dam Diversion, Lakeview Avenue Diversion, Metrolink Bridge Diversion, Five Coves Diversion and Five Coves Rubber Dam, and OCWD RFM Outlet at Orangewood Avenue.

95

Figure 4-10. A map showing the Prado Basin Management Zone. The map includes the area of Streambed Recharge Calculation, Stream Reach (SAR-3 North of and inside the GMZ, SAR-2 South of the GMZ, and TC-1a, TC-1b and TC-2 southeast of the GMZ, SAR meaning Santa Ana River, TC meaning Temescal Creek), Recycled Water Discharge Points at Carbon Canyon WRF, IEUA RP-5, IEUA RP-2, IEUA RP-1 001, WRCRWA, and Corona WWTP-1.

106

Figure 4-11. A map showing the Beaumont Groundwater Management Zone. The map includes the area of Streambed Recharge Calculation, Stream Reach (ST-4 West of the GMZ, ST meaning San Timoteo

Creek), Recycled Water Discharge Points at Beaumont WWTP, and Beaumont WWTP Water Discharge Points at Beaumont DP008 and Beaumont DP 007.

108

Figure 4-12. A map showing the Colton Groundwater Management Zone. The map includes the area of Streambed Recharge Calculation, Stream Reach (SAR-5 and ST-1 North of the GMZ, and SAR-4 inside and outside the GMZ, SAR meaning Santa Ana River and ST meaning San Timoteo Creek), and Recycled Water Discharge Points outside of the GMZ borders at EVWD SNRC, San Bernardino WRP, Colton WWTP, Rialto WWTP, and RIX Facility.

109

Figure 4-13. A map showing the San Timoteo Groundwater Management Zone. The map includes the area of Streambed Recharge Calculation, Stream Reach (ST-2, ST-3, and ST-4 inside the GMZ, ST meaning San Timoteo Creek), and Recycled Water Discharge Points at YVWD H.N. Wochholz WRF.

110

Figure 4-14. A map showing the Chino South Groundwater Management Zone. The map includes the area of Streambed Recharge Calculation, Stream Reach (SAR-3 inside and outside the GMZ border, SAR meaning Santa Ana River), Recycled Water Discharge Points at Riverside RWQCP inside the GMZ, IEUA RP-1 002 and RP-4 north of the GMZ, and IEUA RP-2, IEUA RP-1 001 and WRCRWA west of the GMZ, and the Arlington Desalter Discharge Point south of the GMZ.