January 17, 2025

California Regional Water Quality Control Board
Santa Ana Region

ATTACHMENT A TO DRAFT TENTATIVE RESOLUTION R8-2025-0014

A Resolution Amending the Water Quality Control Plan for the Santa Ana River Basin to Revise the 2004 Nutrient Total Maximum Daily Loads (TMDLs) for Lake Elsinore and Canyon Lake, in the San Jacinto River Watershed, Riverside County California with the 2024 Nutrient TMDLs for Lake Elsinore and Canyon Lake, in the San Jacinto River Watershed, Riverside County, California

ATTACHMENT A TO RESOLUTION R8-2025-0014

Chapter–6- Total Maximum Daily Loads
(NOTE: The following language is proposed to be added into Chapter 6, Total Maximum Daily Loads (TMDLs) of the Water Quality Control Plan for the Santa Ana Region (Basin Plan). If the amendment is approved, corresponding changes will be made to the Table of Contents, the List of Tables, page numbers, table numbers, figure numbers, and page headers in Chapter 6 of the Basin Plan. For formatting purposes, the maps may be redrawn for inclusion in the Basin Plan, and the final layout may differ from that of the draft.)

Chapter 6. Total Maximum Daily Loads (TMDLs)
6.X Lake Elsinore/San Jacinto Watershed
6.1.XX: Lake Elsinore and Canyon Lake Nutrient Total Maximum Daily Loads

The Regional Water Quality Control Board, Santa Ana Region, (Santa Ana Water Board) adopted Resolution R8-2004-0037 on December 20, 2004. Resolution R8-2004-0037 amended the Water Quality Control Plan for the Santa Ana Region (Basin Plan) to include the Lake Elsinore and Canyon Lake Nutrient Total Maximum Daily Load (2004 Nutrient TMDLs),

The 2004 Nutrient TMDLs were approved by:

- The State Water Resources Control Board on May 19, 2005.
- The Office of Administrative Law on July 26, 2005.
- The U.S. Environmental Protection Agency on September 30, 2005.

The Santa Ana Water Board adopted Resolution **R8-2025-0014** on (**Insert Date**). Resolution **R8-2025-0014** amended the Basin Plan to revise the 2004 Nutrient TMDLs, including adding milestones and interim numeric targets, and revising final numeric targets, waste load and load allocations, final compliance dates and the implementation plan. These revisions are collectively referenced as the 2024 Lake Elsinore and Canyon Lake Nutrient TMDLs (2024 Nutrient TMDLs or TMDLs). The 2024 Nutrient TMDLs supersede the 2004 Nutrient TMDLs and implementation plan in their entirety.

The 2024 Nutrient TMDLs were approved by:

- The State Water Resources Control Board ("State Water Board") on **(Insert Date)**.
- The Office of Administrative Law on **(Insert Date).**
- The U.S. Environmental Protection Agency on **(Insert Date).**

Lake Elsinore and Canyon Lake Nutrient Total Maximum Daily Loads (The following was added under Resolution R8-2025-0014)

Phasing of the Nutrient TMDLs for Lake Elsinore and Canyon Lake

These 2024 Nutrient TMDLs are being established and implemented as phased TMDLs because of significant data uncertainty and because the Santa Ana Water Board anticipates that the numeric targets and allocations may be revised as additional information is collected.

- Phase I (2005-2020) – The previous 2004 Nutrient TMDLs are referred to as Phase I, which included numeric targets, wasteload allocations (WLAs) and load allocations (LAs). The 2004 Nutrient TMDLs required that the total TMDLs, WLAs and LAS be attained as soon as possible but no later than December 31, 2020, as a 10-year running average. The Phase I numeric targets were generally expressed as response targets for parameters in the lakes as daily or annual averages. The numeric targets were also to be attained by December 31, 2020. During Phase I, Santa Ana Water Board staff and watershed stakeholders determined that the 2004 Nutrient TMDLs needed to be revised based on data and information obtained during implementation of Phase I. The 2004 Nutrient TMDLs are being superseded and will no longer be applicable upon the effective date of these TMDLs

- Phase II (effective date of these TMDLs through 20 years from effective date) – Phase II includes milestones and interim numeric targets that are to be achieved as soon as possible but no later than 20 years from the effective date of these TMDLs. The Phase II milestones and interim numeric targets are necessary because the final numeric targets, total TMDLs, WLAs and LAs identified in Phase III are set at very conservative levels that may not reflect actual watershed conditions. Further, Phase II milestones and interim numeric targets are

necessary due to data uncertainty. During Phase II, studies and data collection will be performed to address data uncertainty and to review the appropriateness of the conservative final numeric targets, total TMDLs, WLAs and LAs. Further, because of the length of Phase II, the implementation plan for these TMDLs includes reconsideration of these TMDLs by the Santa Ana Water Board at least twice during the twenty-year period. Subject to resource constraints, the Santa Ana Water Board's first process for reconsideration will occur no later than 10 years from the effective date; and the second process for reconsideration will occur no later than 18 years from the effective date. In the interim, dischargers subject to these TMDLs will implement the Phase II Tasks and Schedule, as applicable.

- Phase III – (20 years from effective date through 30 years from effective date) Phase III includes final numeric targets, total TMDLs, WLAs and LAs that are to be achieved as soon as possible but no later than 30 years from the effective date of these TMDLs. If reconsideration of these TMDLs during Phase II does not revise or alter the TMDLs or is not yet completed, Phase III will commence 20 years from the effective date. Subject to resource constraints, Phase III includes TMDL reconsideration no later than 30 years from the effective date of these TMDLs and every ten (10) years thereafter.

LAKE ELSINORE AND CANYON LAKE NUTRIENT TMDLs

Problem Statement

The Lake Elsinore/San Jacinto River Watershed is located in Riverside County and includes the following major waterbodies: Lake Hemet, San Jacinto River, Mystic Lake, Salt Creek, Canyon Lake, and Lake Elsinore. The total drainage area of the San Jacinto River watershed is approximately 782 square miles, or approximately 450,000 acres. Over 90 percent of the watershed (735 square miles) drains into Canyon Lake, which is a man-made reservoir built in the late 1920's (originally referred to as Railroad Canyon Reservoir). Lake Elsinore essentially acts as the terminus of the San Jacinto River watershed. The local tributary area to Lake Elsinore, consisting of drainage from the Santa Ana Mountains and the City of Lake Elsinore, is 47 square miles.

Lake Elsinore and Canyon Lake are not attaining water quality standards due to excessive nutrients (total nitrogen and total phosphorus). In 1994, Lake Elsinore was placed on the 303(d) list of impaired waters (303(d) list) due to excessive levels of nutrients and organic enrichment/low dissolved oxygen. In 1998, Canyon Lake was added to the 303(d) list of impaired waters due to excessive levels of nutrients. Excess nutrients are known to impair warm aquatic life (WARM) and recreational (REC) beneficial uses for both lakes. These TMDLs are established to address the impaired water body listings for nutrients in both lakes. Potential future impaired water body

listings for harmful algal blooms (HABs) for one or both lakes will be addressed in future TMDLs specific to HABs.

Land use in the watershed includes open/forested lands, agricultural (including concentrated animal feeding operations such as dairies and chicken ranches, and irrigated cropland) uses, and urban uses, including residential, industrial, and commercial. Vacant/open space and agricultural land uses are continually being converted to urban uses as the population of the area expands. Responsible parties subject to these TMDLs are identified in Implementation Plan Table 6-xxxx.

Lake Elsinore

Lake Elsinore formed in a geologically active graben area of the Elsinore fault zone and has been in existence for thousands of years. Historically, due to the Mediterranean climate and watershed hydrology, Lake Elsinore experienced natural fluctuations in lake levels that ranged between periods of desiccation and flooding. These drought and flood cycles cause major variations in lake water quality. Fish kills and excessive algal blooms have been reported in Lake Elsinore since the late 1800's.

The Santa Ana Water Board's first Basin Plan, which was adopted in 1975, acknowledged that Lake Elsinore historically dried up completely due to high rates of evaporation (approximately 4 feet/year) and recurring droughts. As water in the Lake evaporates, residual salt concentrations slowly increase and, at times, exceed the salinity of ocean water. High salinity concentrations are toxic to most freshwater organisms. When Lake Elsinore experienced historical extended drought conditions and dried up, all beneficial uses in Lake Elsinore, including WARM and REC, ceased to exist.

To address water level and associated water quality concerns in Lake Elsinore, and to better maintain beneficial uses in Lake Elsinore, various efforts have been implemented over its history, which have modified Lake Elsinore's historical footprint. Between 1989 and 1995, implementation of the Lake Elsinore Management Project (LEMP) occurred, which included (1) construction of a levee that separated the main lake from the back basin, permanently reducing the lake size from approximately 6,000 acres to 3,000 acres, (2) realignment of the lake inlet channel to bring in natural runoff from the San Jacinto River watershed when Canyon Lake overflows; and (3) lowering of the outlet channel to increase outflow to downstream Temescal Creek when the lake level exceeds an elevation of 1,255 feet. As a result of LEMP, Lake Elsinore now has an approximate surface area of 3,000 acres, and an average depth of 27 feet.

However, while LEMP helped to stabilize water levels in Lake Elsinore, lake levels still vary substantially due to seasonal fluctuations. To help mitigate fluctuating lake levels, Elsinore Valley Municipal Water District (per an agreement with the City of Lake Elsinore) provides an average of 4,700 acre-feet of recycled water to the lake each year. The addition of supplemental recycled water, which started in 2007, is added to

the lake to maintain lake levels above an elevation of 1,240 feet above mean sea level. However, supplemental recycled water inputs are suspended if they will cause the lake to exceed an elevation of 1,247 feet mean sea level. Inputs of supplemental recycled water are resumed once lake levels recede to lower levels.

Lake Elsinore essentially acts as the terminus of the San Jacinto River watershed; the last overflow from the lake to Temescal creek occurred in 1993. The local tributary area to Lake Elsinore, consisting of drainage from the Santa Ana Mountains and the City of Lake Elsinore, is 47 square miles. Due to the construction of the Canyon Lake Dam, Lake Elsinore is only hydrologically connected to the upper San Jacinto River watershed when there are overflows from Canyon Lake.

The Basin Plan identifies the following beneficial uses for Lake Elsinore: REC1, REC2, WARM and WILD. Most relevant to the 2024 Nutrient TMDLs are the REC and WARM beneficial uses.

Canyon Lake

Canyon Lake was constructed in the late 1920s and was originally named Railroad Canyon Reservoir. The lake was formed by the construction of Railroad Canyon Dam in 1928 and it is located approximately 5 miles upstream of Lake Elsinore. Approximately 735 square miles of the 782 square mile San Jacinto River watershed drains into Canyon Lake. During some years, runoff from the watershed terminates at Canyon Lake without spilling over the dam and reaching Lake Elsinore. Thus, Canyon Lake directly impacts water levels in Lake Elsinore.

Canyon Lake is unusual in that it is relatively small (<450 acres) compared to the size of the watershed (>450,000 acres) which drains to the lake. This 1,000-to-1 size ratio, coupled with the highly variable natural precipitation in the areas, poses an extreme challenge to lake management. During wet years, the volume of runoff into the reservoir can exceed the total storage capacity of Canyon Lake by 500-600 percent. In such years, Canyon Lake overflows into Lake Elsinore.

For the purposes of these TMDLs, Canyon Lake is divided into two key areas: (1) Main Lake, which includes the deepest part of the lake upstream of the dam (over 50 feet near the Dam) and the North Sky Area portion of the lake above the causeway; and (2) the East Bay, which is the relatively shallow east arm of the lake upstream of the causeway located near where East Bay enters the Main Lake (East Bay is approximately eight feet deep at the upper end near the Salt Creek inflow).

The Basin Plan identifies the following beneficial uses for Canyon Lake: MUN, AGR, GWR, REC1, REC2, WARM and WILD. Most relevant to the 2024 Nutrient TMDLs are the REC and WARM beneficial uses.

Notably, Canyon Lake, a drinking water reservoir, does not frequently experience HABs or generally experience as severe eutrophication problems as Lake Elsinore. However, there have been periods of algal blooms and anecdotal reports of occasional fish kills. For example, in 2018, monitoring data showed that Canyon Lake had a lake-wide bloom of brown algae and blue green algae, that resulted in HABs. HABs can produce cyanotoxins that may pose a risk to public health. As noted previously, HABs will be addressed in future TMDLs as applicable to each lake.

Summary of Phase I 2004 Nutrient TMDLs

In 2004, Santa Ana Water Board staff prepared a TMDL technical report that describes the nutrient related problems in Canyon Lake and Lake Elsinore and discussed the technical basis for the 2004 TMDLs (Santa Ana Water Board 2004a). On December 20, 2004, the Santa Ana Water Board adopted the 2004 Nutrient TMDLs for Lake Elsinore and Canyon Lake (Santa Ana Water Board 2004b). The 2004 TMDLs included Numeric Targets, WLAs and LAs, and an Implementation Plan. The 2004 Nutrient TMDLs included a final attainment date of December 31, 2020, for meeting final total phosphorus (TP) and final total nitrogen (TN) TMDLs as 10-year running averages for each lake.

In 2005, the Lake Elsinore and San Jacinto Watersheds Authority (LESJWA) formed the Lake Elsinore and Canyon Lake TMDL Task Force (TMDL Task Force). The TMDL Task Force is composed of stakeholders that were subject to the 2004 TMDLs that agreed to coordinate and share the cost of TMDL implementation efforts. The TMDL Task Force includes nearly all dischargers identified in the 2004 TMDLs, including: Municipal Separate Storm Sewer System permittees, wastewater treatment plants, agricultural operators, concentrated animal feeding operations (e.g., dairies), and a number of other state, federal, and tribal agencies that own land or operate facilities that discharge nutrients into the San Jacinto Watershed.

Since its formation, the TMDL Task Force has developed and implemented a comprehensive water quality monitoring program, implemented the tasks in the 2004 Nutrient TMDLs, and commissioned numerous special studies to better understand impacts of nutrient loading under various conditions on the lakes. Additional studies have also been performed by others, including LESJWA and Santa Ana Water Board staff. Collectively, the monitoring data and studies further describe the impact that nutrients have on the REC and WARM beneficial uses of Lake Elsinore and Canyon Lake.

Among other implementation tasks, during Phase I, the Santa Ana Water Board authorized the use of in-lake projects to control internal nutrient sources in the lakes to offset watershed nutrient loading. Phase I projects included operation of the Lake Elsinore Aeration and Mixing System (LEAMS) to improve dissolved oxygen conditions; and, in Canyon Lake, alum additions have occurred twice per year since 2013 to sequester TP. The LEAMS projects are operated and maintained by the LEAMS

operators, which include Elsinore Valley Municipal Water District, the City of Lake Elsinore and Riverside County. Offset credits from the implementation of LEAMS are administered through the TMDL Task Force via a licensing agreement between LESJWA and the LEAMS operators. The Canyon Lake alum project is administered through the TMDL Task Force, which divides cost shares according to the proportional need to offset current external nutrient loads to Canyon Lake in excess of TMDL allocations.

During Phase I implementation, as new data and information was developed, much was learned with respect to the understanding of how nutrient loading affects the lakes under natural/undeveloped and current land use conditions. Newer scientific studies demonstrated that many of the modeling assumptions used to develop the 2004 Nutrient TMDLs were not accurate and that attainment of the 2004 WLAs and LAs would not result in attainment of the numeric targets.

Starting in mid-2015, the TMDL Task Force with Santa Ana Water Board support, accepted responsibility for developing the documentation needed to update and amend the 2004 TMDLs. In December 2018, a draft *TMDL Technical Report: Revision to the Lake Elsinore and Canyon Lake Nutrient TMDLs* (LESJWA 2018) was released for public comment and formal peer review. on several technical issues associated with the models and assumptions used within the models. Santa Ana Water Board staff worked with the TMDL Task Force to revise the 2018 draft TMDL Technical Report.

In mid-2024, the TMDL Task Force submitted a Revised Draft TMDL Technical Report to the Santa Ana Water Board staff, titled “Proposed Revisions to the Lake Elsinore and Canyon Lake Nutrient TMDLs: TMDL Technical Report”, (LESJWA 2024) (referred to hereafter as “2024 TMDL Technical Report”), which describes the past and current nutrient related problems in Canyon Lake and Lake Elsinore in greater detail and discusses the technical basis for updating and revising the 2004 Nutrient TMDLs. Specifically, the 2024 TMDL Technical Report finds that the 2024 Nutrient TMDLs are necessary because they better reflect lake dynamics. The 2024 Nutrient TMDLs were derived from over 20 years of scientific research that reflect knowledge gained on the following key issues: 1) better understanding of the San Jacinto River watershed, 2) highly managed nature of Lake Elsinore and Canyon Lake and influence of these management actions on expected water quality and biological conditions, 3) water quality conditions related to naturally occurring hydrologic cycles that include water quality and aquatic biological expectations, especially for Lake Elsinore, 4) dynamics of sediment and nutrient retention and their influence on conditions in each lake, and, 5) role that natural background levels of nutrients in the watershed have on water quality in Lake Elsinore and Canyon Lake.

The 2024 TMDL Technical Report establishes the bases for Phases II and III and describes the technical basis for the 2024 Nutrient TMDLs.

Numeric Targets

Numeric targets for Lake Elsinore and Canyon Lake are based on the WARM and REC beneficial uses and associated water quality objectives in the Basin Plan, watershed reference conditions, and the varying conditions of flooding and desiccation in Lake Elsinore. More specifically, these TMDLs set numeric targets based on modeled, expected lake water quality responses to inflows of nutrient concentrations that represent a reference watershed condition, as defined by the 2024 TMDL Technical Report. Generally, a reference watershed condition is intended to represent most conditions in the watershed prior to development. For these 2024 Nutrient TMDLs, the numeric targets are presented as cumulative distribution functions (CDFs), which are plots of statistical distributions for sets of data, to characterize spatial and temporal variability in water quality expected to occur in Lake Elsinore and Canyon Lake under a reference watershed condition. The CDFs are modeled results of indicators of beneficial use impairments, including chlorophyll-a, dissolved oxygen, and ammonia based on a reference watershed condition. This expression of the targets is based on the premise that returning loads from the watershed to levels that would have occurred during the reference watershed condition would result in the in-lake water quality parameters exhibiting the same spatial and temporal variability associated with the reference watershed condition. In other words, attainment of the numeric targets is achieved when CDFs developed from future, long-term monitoring results are similar to the reference watershed condition numeric target CDFs, based on the modeled condition. Ultimately, the primary objective for using a reference watershed condition approach for establishing numeric targets is for water quality conditions in each lake to be equal to or better than expected for a reference watershed condition.

To define the reference watershed condition through the use of models, data and assumptions related to hydrology, water quality and the physical structure of each lake were used as model inputs. The 2024 TMDL Technical Report (LESJWA 2024) describes in detail the data and assumptions used to represent a modeled reference watershed condition for the drainage areas to Canyon Lake and Lake Elsinore. The reference watershed condition used in the development of the numeric targets provides inputs and boundary conditions to develop a continuous simulation of lake water quality for each lake. However, the actual physical characteristics of Lake Elsinore and Canyon Lake would be different under pre-development conditions as compared to modern day conditions. For these TMDLs, certain modern day physical conditions were used in the development of the reference watershed condition since it is not feasible or practical to return the physical characteristics of the lakes back to pre-development conditions. Because models were used to develop the reference watershed condition, it is sometimes referred to as a “hypothetical” reference watershed condition.

As noted, lake water quality models were used to estimate the response within the lakes for a hypothetical reference watershed condition in the San Jacinto River watershed. The models were calibrated to existing water quality conditions, as described in the linkage analysis (LESJWA 2024). For Lake Elsinore, water quality modeling to support the development of numeric targets involved a very long simulation period from 1916-

2020. This captured the full range of dynamic water quality conditions that naturally occur in Lake Elsinore (see LESJWA 2024, Section 2). The general lake model (GLM) used for Lake Elsinore is an aquatic ecosystem and one dimensional (1-D) hydrodynamic model to facilitate boundary conditions and simulation of spatially varying mechanisms. For Lake Elsinore, a simple 1-D hydrodynamic model is appropriate because the lake's morphology is fairly uniform. For Canyon Lake, there is substantial variability in the lake basin morphology and water quality processes, which required the development of a three dimensional (3-D) hydrodynamic and water quality model, Aquatic Ecosystem Model 3D (AEM3D). These tools are described in Section 5 of the 2024 TMDL Technical Report (LESJWA 2024).

For Canyon Lake, model results are extracted for two primary parts of the lake: Main Lake and East Bay. Corresponding monitoring locations in the Main Lake and in East Bay were used to generate CDFs for chlorophyll-a in the top 1-m and depth integrated for dissolved oxygen. AEM3D output assesses all grid cells on a daily timestep to export the extent of the lake volume with greater than 5 mg/L of dissolved oxygen for Main Lake and East Bay.

The data used to establish the numeric targets for each constituent are the daily model output from AEM3D for Canyon Lake and GLM for Lake Elsinore. Model scenarios were run for two sets of corresponding watershed loads to each lake. The first set of watershed loads, which are expressed as milestones that are to be attained by the end of Phase II, are based on using the median concentrations of TP and TN in watershed runoff measured from data collected at the Cranston Guard Station to represent the reference watershed condition. The second set of watershed loads, which are expressed as allocations that are to be attained by the end of Phase III, are based on using the 25th percentile of TP and TN in watershed runoff measured from data collected at the Cranston Guard Station. The second set of watershed loads based on 25th percentile concentrations are used as the final TMDLs, WLAs and LAs in these TMDLs.

Because there are two sets of watershed loads being established in these TMDLs (i.e., milestones and final TMDLs), there are two corresponding sets of numeric targets: Phase II interim numeric targets, and Phase III final numeric targets.

These TMDLs establish attainment dates for the interim and final numeric targets as follows:

- For Phase II, these TMDLs establish interim numeric targets that are to be achieved as soon as possible, but no later than 20 years from the effective date of the TMDLs.

- For Phase III, these TMDLs establish final numeric targets that are to be achieved as soon as possible but no later than 30 years from the effective date of the TMDLs.

As noted previously, these TMDLs are phased TMDLs due to data uncertainty. In particular, there is data uncertainty associated with the data used from the Cranston Guard Station for setting the interim and final numeric targets. Due to this data uncertainty, the Phase II implementation plan requires completion of multiple studies. This includes a multi-year study for the collection of additional data from the San Jacinto River at Cranston Guard Station and other nearby reference watersheds. The results of this multi-year study, and other studies, will be used to re-evaluate the modeled reference watershed condition prior to the start of Phase III. Specifically, Phase II anticipates that the Santa Ana Water Board will reconsider the TMDLs twice during the Phase II twenty-year period. Reconsideration of the TMDLs will include re-evaluation of the modeled reference watershed condition and resulting interim and final numeric targets based on the data and information collected up to when the reconsideration occurs.

Figures 6-X-1 through 6-X-6, show the interim numeric targets and final numeric targets that are to be attained no later than the end of Phase II and Phase III, respectively. For both the interim numeric targets and final numeric targets, there are CDFs for chlorophyll-*a*, dissolved oxygen, and ammonia, which are the primary measures of determining how the lakes are responding to nutrient source reductions and/or in lake projects being implemented by the responsible entities, as applicable, to restore and protect the lakes REC and WARM beneficial uses. Because the interim and final numeric targets are a function of naturally occurring, variable water quality conditions, they are not represented by a single value. Instead, as explained earlier, they are represented by values along the curve of each CDF. The curve for each CDF is based on the distribution of reference watershed conditions.

To evaluate attainment of the interim and final numeric targets, the distribution of future monitoring results is compared to the curve for the relevant CDF. The frequency of a measured water quality parameter should not exceed the frequency of the relevant CDF as shown in Figures 6-X-1 through 6-X-6. In other words, after plotting the CDF of a data set for a parameter, the resulting curve must be above or to the left of the curve representing the CDF for chlorophyll-a and ammonia, and to the right for dissolved oxygen. Examples are shown in each Figure for how attainment of the interim and final numeric targets are determined based on the frequency distribution for the reference watershed condition. This method of demonstrating attainment for interim and final numeric targets requires that sufficient samples be collected along a range of watershed hydrologic conditions to form a curve or a curve segment. A single sample value is meaningless without evaluating its frequency relative to other values. As a result, monitoring for these parameters must occur over multiple years. In summary, if monitoring results are in the shaded blue area of the CDF figure, then attainment of the applicable interim or final numeric target is achieved. Conversely, if monitoring results are in the white (unshaded) area of the CDF figure, then attainment of the applicable interim or final numeric target is not achieved. Unlike the milestones and allocations, which are discussed in the TMDLs and Allocations section, attainment of interim and

final numeric targets are not based on 10-year running averages but the distribution of data collected over a minimum of a 10-year period. Further, attainment of numeric targets is one option for demonstrating compliance with these TMDLs once they are implemented by the Santa Ana Water Board through appropriate permitting or other regulatory measures.

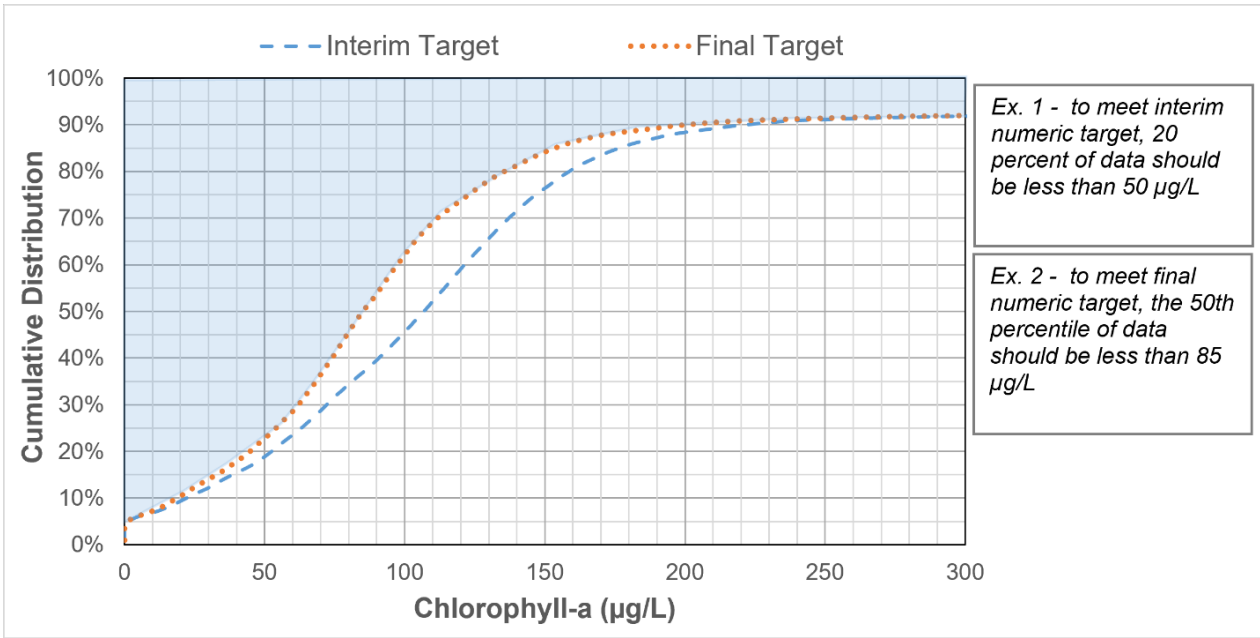

Figure 6-X-1. Numeric Target CDF for top 1-meter chlorophyll-a in Lake Elsinore

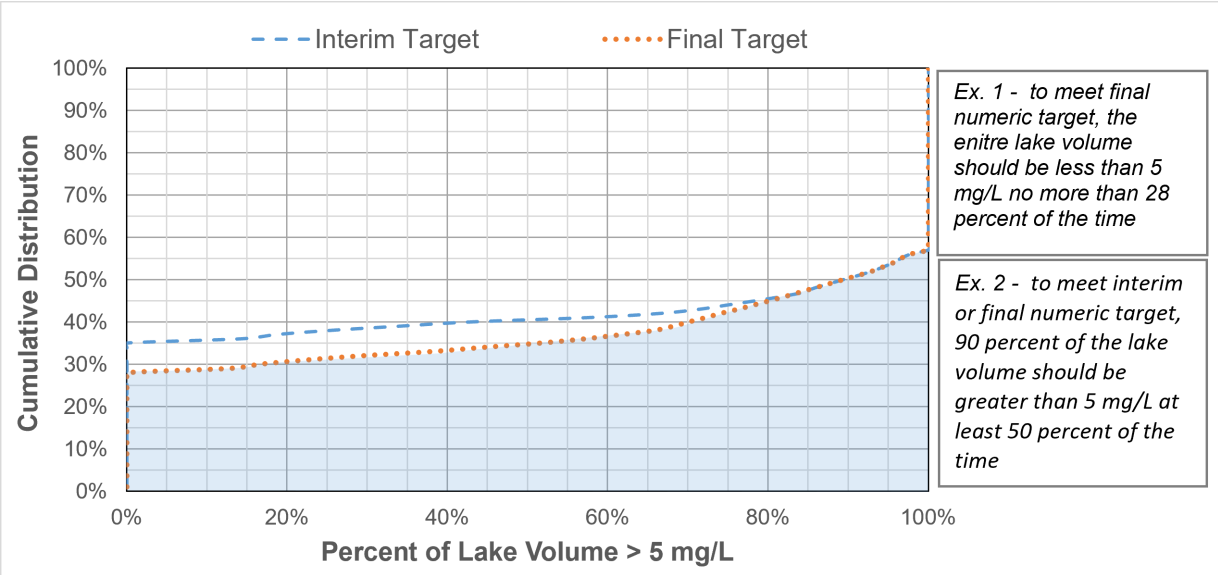

Figure 6-X-2. Numeric Target CDF for Fraction of the Lake Volume >5 mg/L Dissolved Oxygen in Lake Elsinore

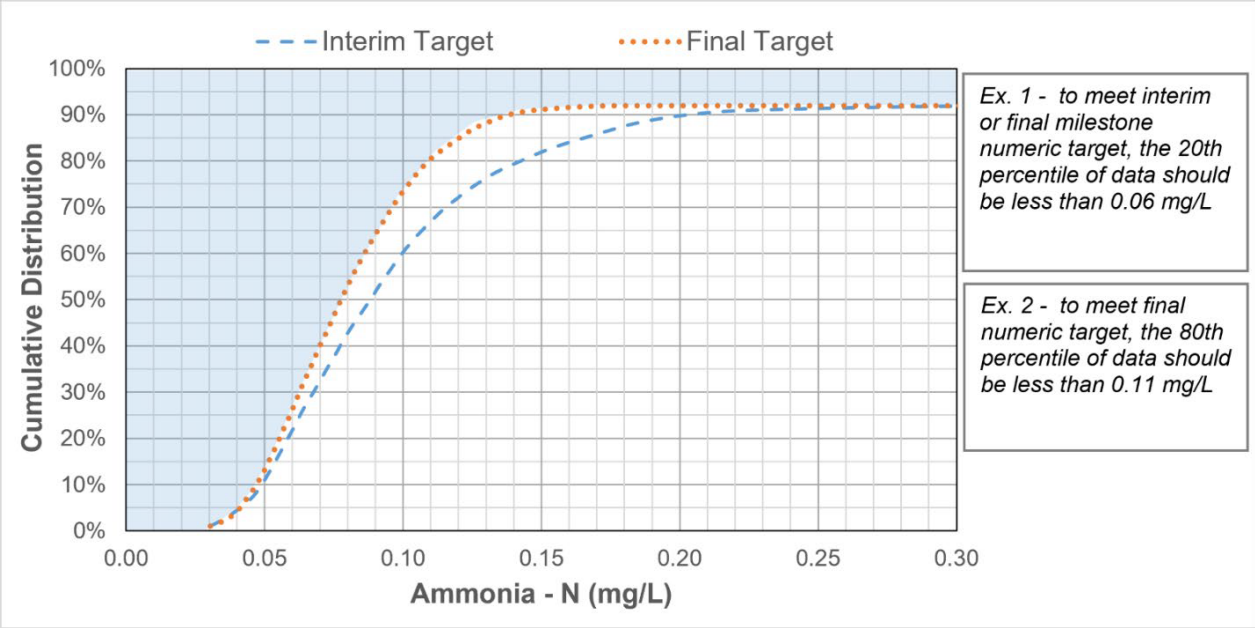

Figure 6-X-3. Numeric Target CDF for Depth Average Ammonia Concentrations in Lake Elsinore

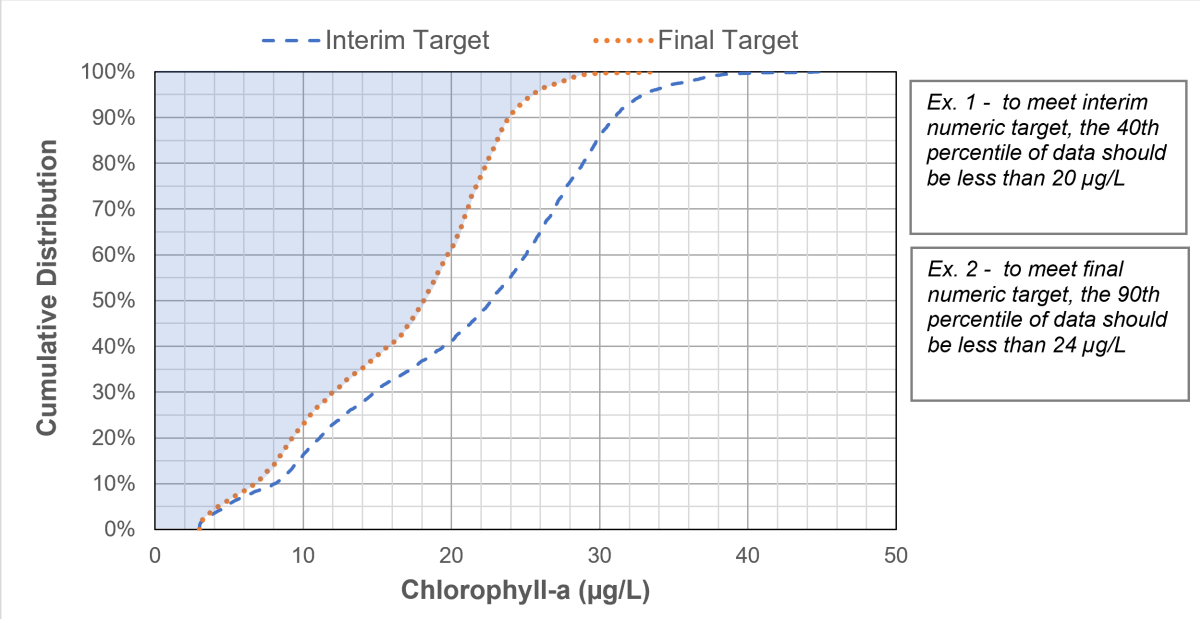

Figure 6-X-4. Numeric Target CDF for top 1-meter chlorophyll-a in Canyon Lake Main Lake

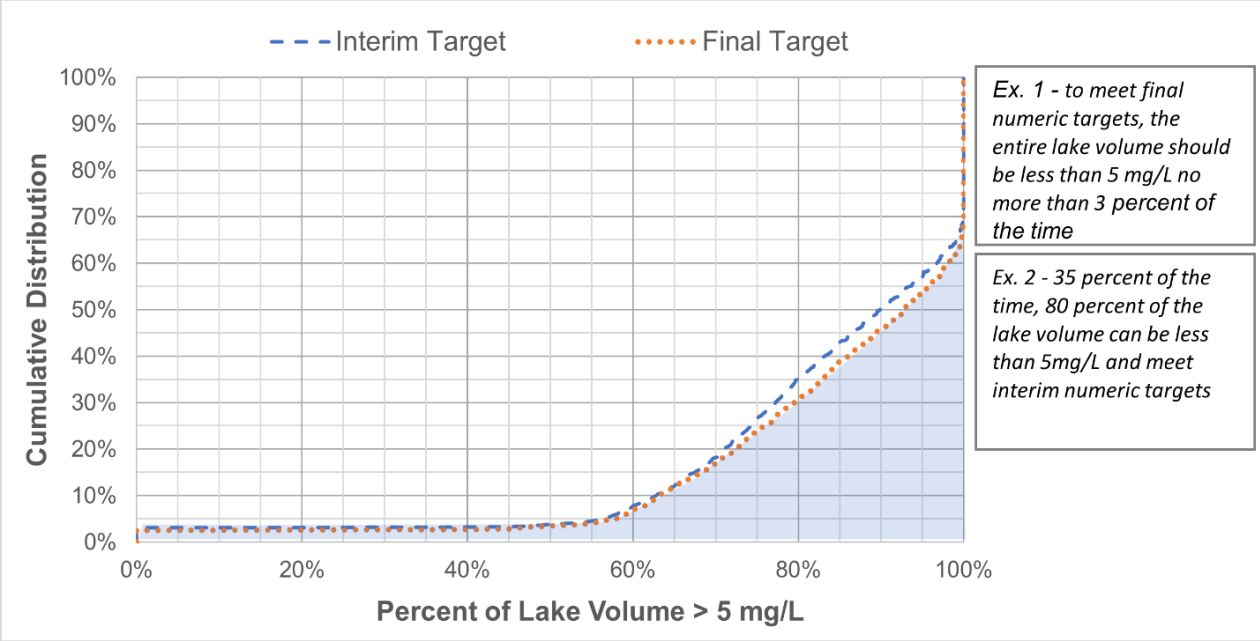

Figure 6-X-5. Numeric Target CDF for Fraction of the Lake Volume >5 mg/L Dissolved Oxygen in Canyon Lake Main Lake

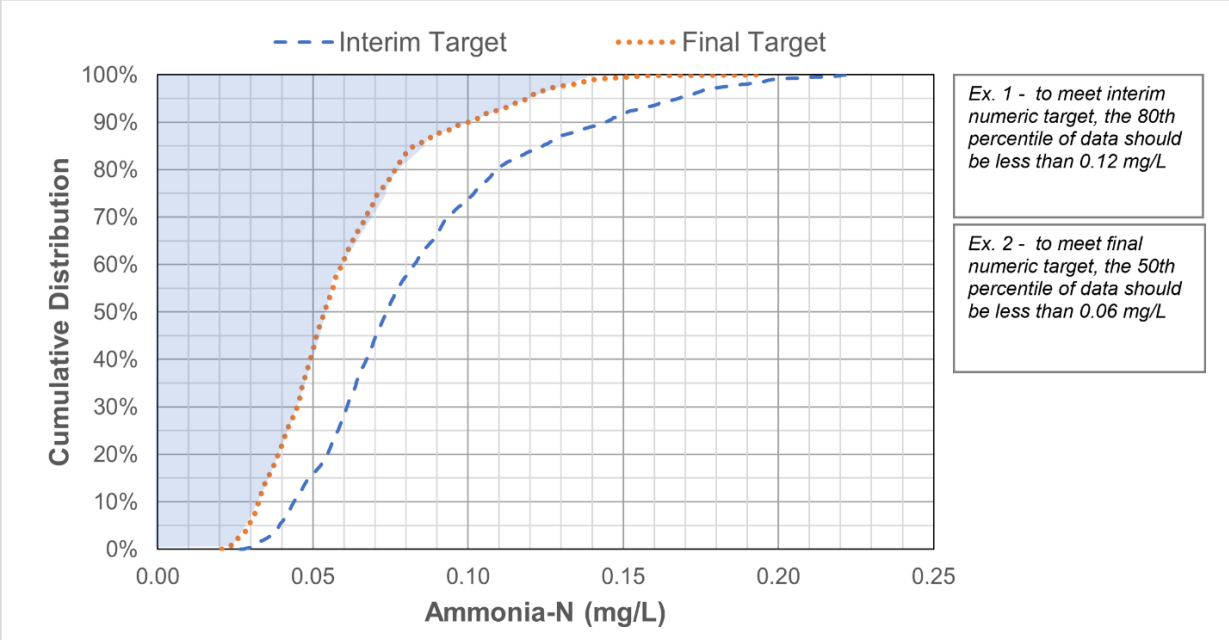

Figure 6-X-6. Numeric Target CDF for Depth Average Ammonia Concentrations in Canyon Lake Main Lake

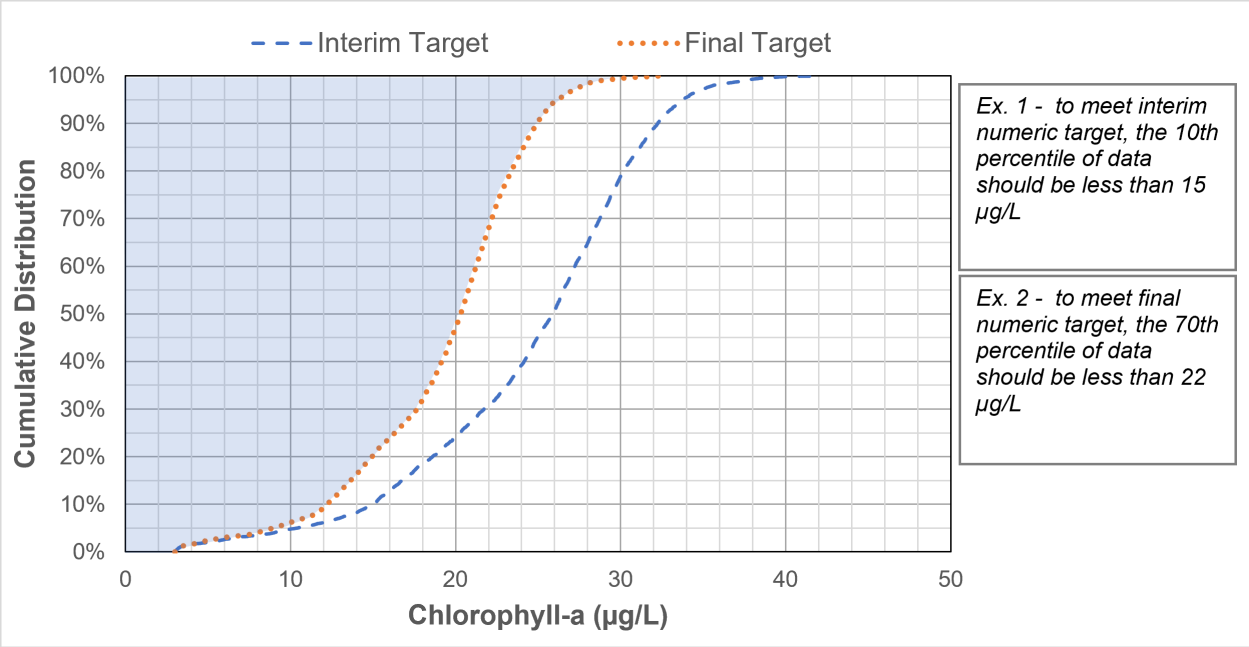

Figure 6-X-7. Numeric Target CDF for top 1-meter chlorophyll-a in Canyon Lake East Bay

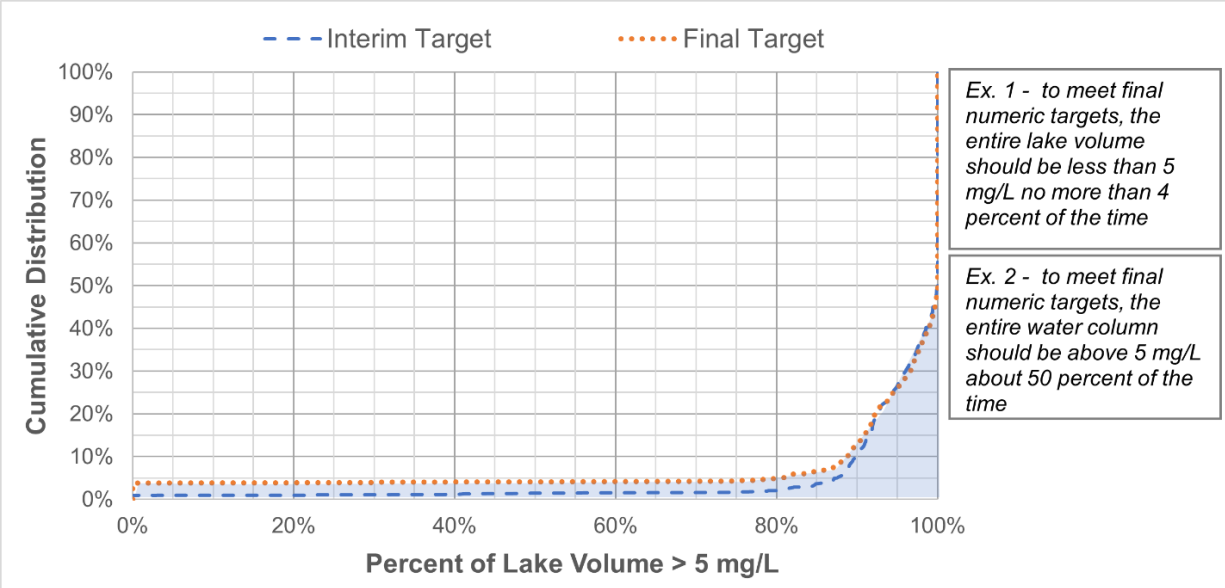

Figure 6-X-8. Numeric Target CDF for Fraction of the Lake Volume >5 mg/L Dissolved Oxygen in Canyon Lake East Bay

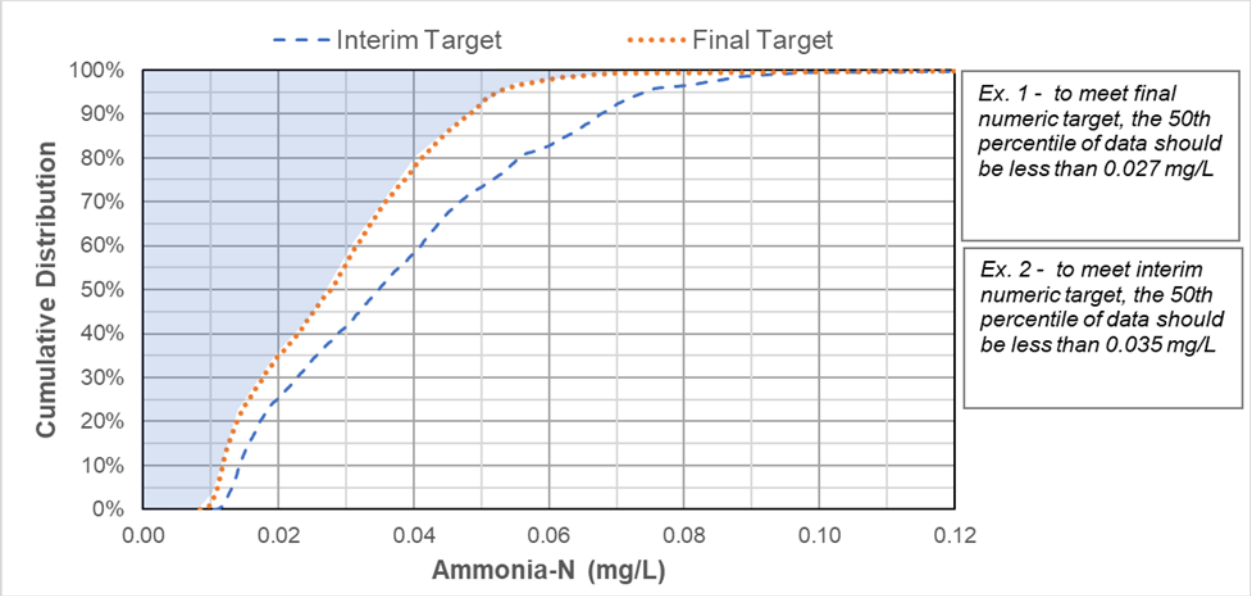

Figure 6-X-9. Numeric Target CDF for Depth Average Ammonia Concentrations in Canyon Lake East Bay

CDFs for Total Dissolved Solids (TDS) in Lake Elsinore

Although the Santa Ana Water Board is not adopting TMDLs for total dissolved solids (TDS) as part of these TMDLs, the Santa Ana Water Board has included CDFs for TDS in Lake Elsinore. The CDFs for TDS are being included to track potential impacts caused by the addition of supplemental recycled water on TDS levels in Lake Elsinore.

As noted previously, the City of Lake Elsinore and the Elsinore Valley Municipal Water District (EVMWD) have an agreement to work cooperatively and apply their best efforts toward a goal of maintaining the lake elevation above 1,240' mean sea level (msl) through the addition of supplemental recycled water from EVMWD. Per that agreement, and as permitted by the Santa Ana Water Board, EVMWD is authorized to discharge of up to 8 million gallons per Day (MGD) of highly treated recycled water to Lake Elsinore in order to offset natural evaporation. Currently, EVMWD discharges an average of 6 MGD to Lake Elsinore, with 0.5 MGD discharged to the Gunnerson Pond Wetland area adjacent to Temescal Creek. For the purposes of these TMDLs, a discharge of recycled water up to 7.5 MGD to Lake Elsinore was assumed since at least 0.5 MGD will continue to be discharged to the Gunnerson Pond Wetland area.

Since 2007, EVMWD has added approximately 24 billion gallons of recycled water to Lake Elsinore, which has helped to raise and maintain the lake's elevation by about 20

feet. Water balance models show that without the addition of recycled water between 2003 and 2020, Lake Elsinore would have been dry in 2016.

Recent experience has demonstrated the value of using supplemental recycled water to maintain the water elevation of Lake Elsinore, which helps in part to maintain its beneficial uses. Monitoring data indicates that water quality begins to rapidly deteriorate as the water elevation falls below 1,240' msl. When drought and evaporation cause the lake to be less than half full, it is difficult for the lake to meet the 2,000 mg/L TDS water quality objective for Lake Elsinore that is included in Chapter 4 of the Basin Plan. Modeling analysis, undertaken as part of developing these TMDLs, shows that approximately 7.5 MGD of supplemental water is needed to maintain the water elevation above 1,240' msl based on 100 years of climatic variability.

While critical to maintain lake levels, recycled water is an additional source of nutrients and TDS to Lake Elsinore. To offset additional nutrients, EVMWD along with the City of Lake Elsinore and County of Riverside, have operated LEAMS to reduce internal nutrient loads from lakebed sediments to offset loads from recycled water and watershed runoff. Operation of LEAMS has allowed permittees, including EVMWD, to meet the 10-year running average annual allocations in the 2004 Nutrient TMDLs by the December 31, 2020, attainment date. Phase II includes tasks for evaluating the existing LEAMS and implementing an alternative or alternatives, depending on the outcome of the evaluation.

However, operation of LEAMS does not address TDS in recycled water that is added to Lake Elsinore. Increased TDS from recycled water additions may impact food webs in the lake that support control of algae by predators. Consequently, increased TDS may impact the effectiveness of future nutrient controls to meet the numeric targets for chlorophyll-a and dissolved oxygen.

In recognition of the impact that supplemental recycled water may have on TDS levels within Lake Elsinore and the ability of the lake to meet interim and final numeric targets, the CDFs for TDS are being included in these TMDLs to provide additional information and support planning for future lake management actions. Figure XX includes two CDFs that depict results for TDS from two modeling scenarios in Lake Elsinore: 1) watershed inflows for the past 100 years with no recycled water (the reference watershed assumption involving periods of lakebed desiccation); and 2) watershed inflows supplemented by up to 7.5 MGD of recycled water as needed to maintain water levels above 1,240’ for the past 100 years. These CDFs are not numeric targets but reflect the change in lake TDS expected when using recycled water to maintain lake levels.

In summary, the addition of recycled water with an average TDS of 700 mg/L to Lake Elsinore that has an average of 2,000 mg/L of TDS provides for a short term dilution effect. However, the mass of salt from recycled water stays in the lake, causing long-term TDS concentrations to rise. Accordingly, the CDFs show fewer extreme highs in TDS concentration with the addition of recycled water (during periods of extended

drought), but there is a greater frequency of low TDS in the reference watershed scenario that does not include supplemental recycled water. For example, modeled TDS is estimated to be below 2,000 mg/L approximately 55 percent of the time under the reference watershed scenario versus 42 percent of the time under the scenario that includes supplemental recycled water. Importantly, while the CDFs provide useful information, they are based on model assumptions that may or may not occur over the life of these TMDLs. For example, the CDFs were created assuming that EVMWD would add supplemental recycled water to Lake Elsinore at a level of 7.5 MGD. As noted previously, the current average amount of recycled water going into Lake Elsinore is approximately 6 MGD. Further, it is difficult to predict the future hydrologic conditions in the watershed, which will dictate the need and amount of recycled water that may be necessary to maintain lake levels above 1,240 feet mean sea level. For example, the addition of supplemental recycled water to Lake Elsinore was suspended in February 2024 due to high lake levels nearing 1,247 feet mean sea level. Thus, during wetter periods, less or no recycled water may be added to Lake Elsinore if it could cause lake elevations to exceed 1,247 feet mean sea level.

The TDS CDFs are included for the exclusive purpose of providing additional information with respect to TDS levels with supplemental recycled water as compared to TDS levels without supplemental recycled water. The CDFs are not being included for use as current regulatory controls or for revising permit provisions for controlling TDS levels in Lake Elsinore. The Santa Ana Water Board, based on additional data and knowledge gained through the implementation of these TMDLs, may decide in the future that the numeric targets need to be adjusted to account for the use of supplemental recycled water for maintaining water elevations. Any such changes would be the subject of a future Basin Plan amendment.

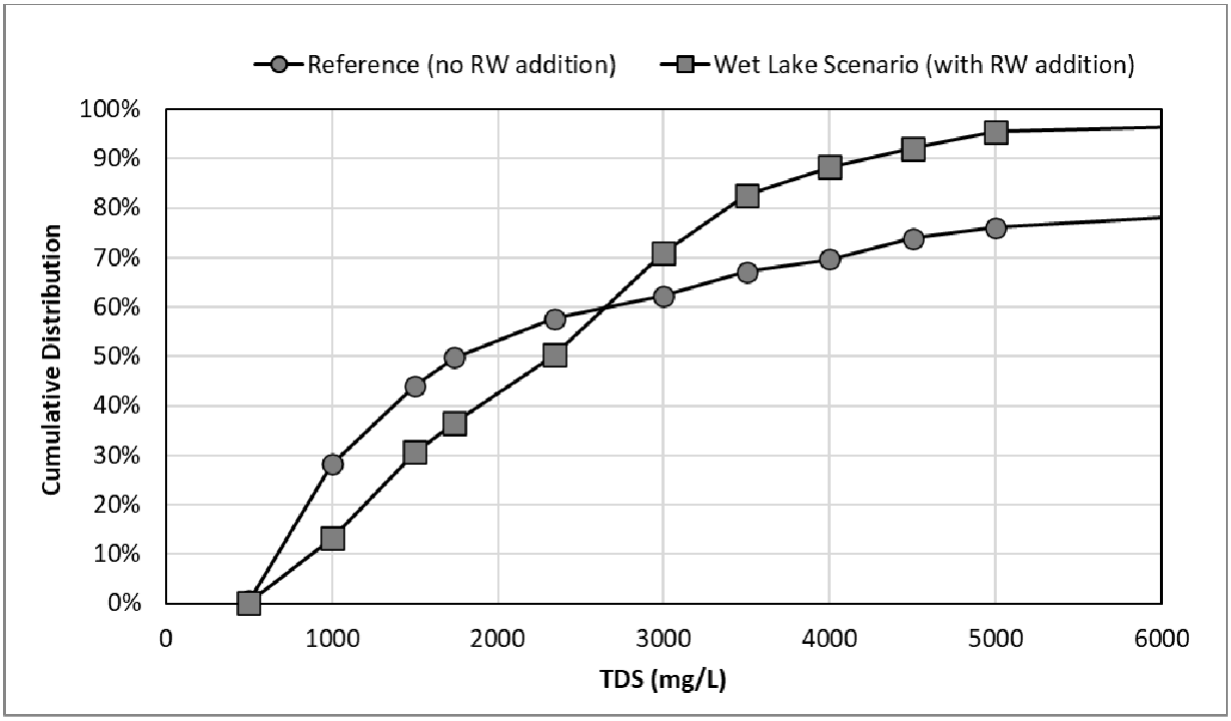

Figure 6-X-XX: CDFs for TDS in Lake Elsinore

Source Assessment

The 2024 TMDL Technical Report (LESJWA 2024) includes an analysis to estimate in-lake and watershed sources of nutrients that are causing impairments of beneficial uses in Lake Elsinore and Canyon Lake. Current (as described in the 2024 TMDL Technical Report and based on refined Southern California Association of Governments 2019 aerial mapping and 2022 mapping of agricultural lands by WRCAC) land use maps were used to model nutrient wash-off rates from the various land use types (i.e. Residential Sewered, Residential Un-sewered, Commercial, Irrigated Agriculture, etc.). Modeling was done for each acre of land use type within the San Jacinto Watershed to estimate the relative contribution of downstream load from different sub-watershed zones, jurisdictions (e.g., Cities and the County), and land uses.

The nutrient loading rates to the Lakes were developed by the authors of the 2024 TMDL Technical TMDL Report (LESJWA 2024) using USEPA's Pollutant Loading Estimator Tool for estimating pollutant loads. Hydrology and annual average nutrient loads were computed for unique combinations of jurisdiction, land use type, and sub-watersheds. Using this information, nine sub-watershed zones were developed to allow for watershed geography to be considered in modeling, which accounts for spatial variability in rainfall, downstream recharge, and retention in Mystic Lake and unlined channel segments of Salt Creek and the San Jacinto River. (Figure 6-X-XX). Zone 1 is local Lake Elsinore drainage; Zones 2 and 3 are drainage areas for local Canyon Lake

drainage, San Jacinto River and Salt Creek flow without channel bottom recharge; Zones 4, 5 and 6 are drainage areas for the San Jacinto River and Salt Creek flows with channel bottom recharge; Zones 7, 8 and 9 are drainage areas upstream of Mystic Lake. Lake water quality models used in the Linkage Analysis provided a daily simulation of internal loads based on current watershed land use to support the source analysis.

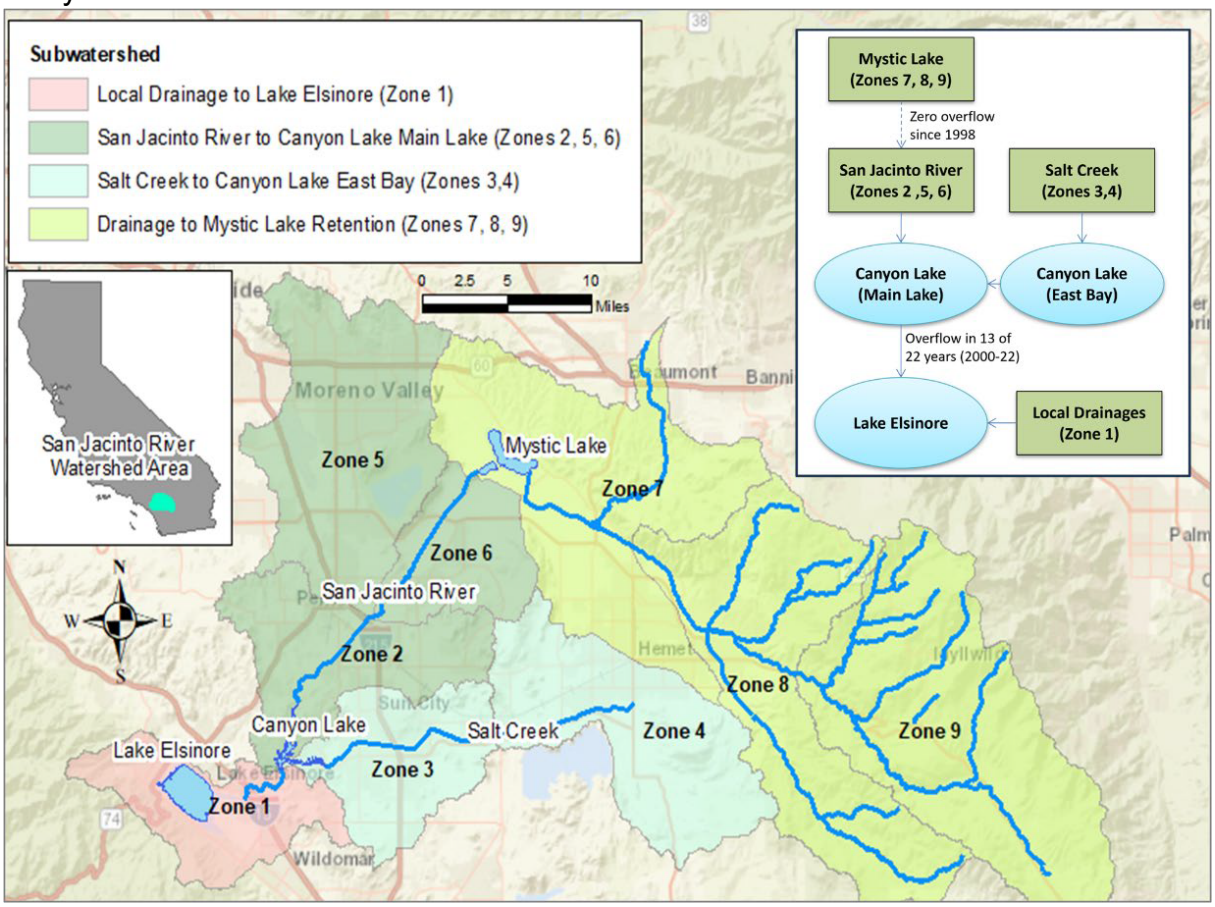

Figure 6-X-XX: Location of Nine Sub-watershed Zones used in the Source Analysis

As reflected in the sub-watershed zones, there are several impoundments in the San Jacinto River watershed upstream of Canyon Lake that retain most runoff from their respective drainage areas, most notably being Mystic Lake. Mystic Lake is a large depression area that captures runoff from the upper watershed, which accounts for 51 percent of the total San Jacinto River watershed (Sub-watershed Zones 7, 8, and 9, see Figure 6-XXX). Mystic Lake overflow to the San Jacinto River last occurred in 1997-1998 water years (Hamilton and Boldt 2015a,b). Long term hydrologic analysis estimates that Mystic Lake retains 96 percent of long-term average annual runoff from the upper watershed. For purposes of these TMDLs, it is assumed that future overflows

from Mystic Lake would deliver nutrient load to Lake Elsinore, with Canyon Lake as a flow through in such extreme wet weather conditions.

The San Jacinto River watershed is prone to episodes of extreme sediment and associated nutrient loading to the downstream lakes due to numerous factors, including highly erodible calcareous soils. The San Jacinto River at Cranston Guard Station, located in sub-watershed zone 8, serves as the monitoring location to provide nutrient wet weather monitoring data representative of background or reference watershed conditions. Data from the San Jacinto River at the Cranston Guard Station was selected because more than 97% of the watershed upstream of the Cranston Guard Station is undeveloped.

Figure 6-XXX illustrates long-term wet weather TP and TN monitoring results from this reference site.

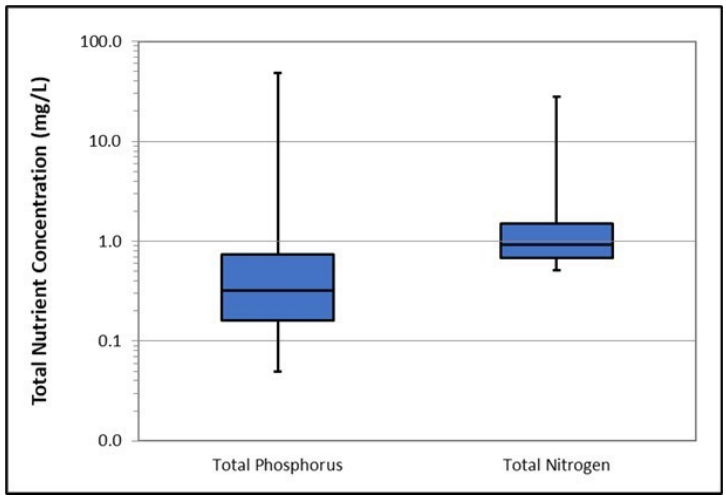

Figure 6-x. Box-Whisker Plots of Samples (n = 51) Collected from ten Wet Weather Events (n = 10) at the SJR at Cranston Guard Station (Reference Watershed Site)

Canyon Lake

Canyon Lake, also known as Railroad Canyon Reservoir, was constructed to store water from the San Jacinto River for agricultural irrigation in the area. The Railroad Canyon Reservoir Dam is located approximately five river miles upstream from Lake Elsinore. The surface area of Canyon Lake is approximately 500 acres, with an estimated current storage capacity of 8,760 acre-feet. For the purposes of these TMDLs, Canyon Lake is divided into two key areas: (1) Main Lake, which is the deepest part of the lake upstream of the dam (over 50 feet near the Dam) and the North Sky Area, which is the north portion of the lake above the causeway; and (2) the East Bay, the relatively shallow east arm of the lake upstream of the causeway located near where East Bay enters the Main Lake (East Bay is approximately eight feet deep at the upper end near the Salt Creek inflow). Canyon Lake receives inflows from two sources: San Jacinto River, which drains to the North Ski Area above the Main Lake; and Salt Creek, which drains to the East Bay.

Canyon Lake has a high watershed to lake surface area ratio of over 1,000:1, which means that annual external nutrient load will typically exceed internal load. The impact of external sediment load can be observed in measurements of lake bottom sediment depth, which show that accumulation rates in East Bay are 1.3 - 3.6 inches of sediment/year. This level of accumulation is 65 times greater than values from more typical lakes (Horne 2002). These unique conditions were considered when developing milestones, allocations and numeric targets for Canyon Lake in these TMDLs.

Lake Elsinore

In its natural state, Lake Elsinore is highly dynamic with extreme lake level fluctuation and a wide range of water quality conditions. A detailed historical account of over 200 years of lake levels in Lake Elsinore shows extreme fluctuations in such levels (**Figure 6-XXX**). In the modern era, a wet lake management strategy has been adopted, involving implementation of the LEMP project in the 1980s to reduce evaporative losses and addition of recycled water (beginning in 2007) by Elsinore Valley Municipal Water District to maintain water levels.

Recycled water has effectively prevented desiccation of the lakebed that would have naturally occurred as recently as 2016 during extreme drought conditions. However, supplementing lake water with recycled water brings additional nutrients that must be addressed through the TMDLs.

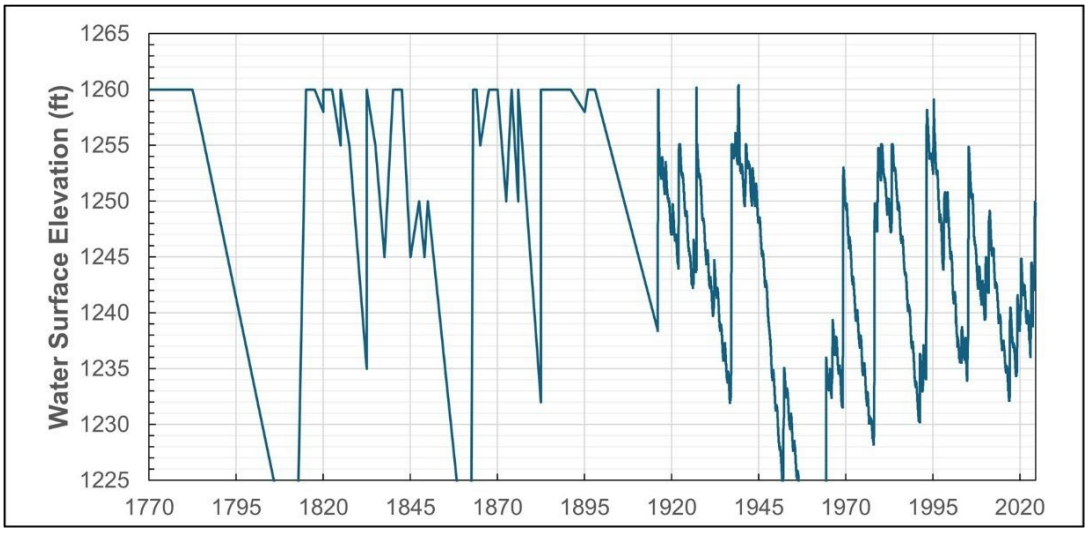

Figure 6-XXX. Water Level in Lake Elsinore over 250 Years

The 2024 TMDL Technical Report (LESWJA 2024) describes in detail the methodologies used to calculate estimates of nutrients from key sources to each lake and quantifies long-term average loading. Source analysis found the main sources of nutrients to Lake Elsinore to be from sediment nutrient flux from lake bottom sediment (i.e., internal load), watershed runoff, and supplemental recycled water. Small amounts of nutrients also come from atmospheric deposition The main sources of nutrients to Canyon Lake are watershed runoff and sediment nutrient flux from lake bottom sediment, with minor amounts from atmospheric deposition.

For Lake Elsinore, the sources of nutrient loads for TP and TN are as follows:

	TP	TN
Internal Loads	74%	77%

Supplemental Recycled Water	13%	13%
Watershed Runoff	11%	6%
Atmospheric Deposition	1%	4%

For Canyon Lake, the sources of nutrient loads for TP and TN are as follows:

	TP	TN
Watershed Runoff	71%	66%
Internal Loads	29%	30%
Atmospheric Deposition	<1%	4%

Linkage Analysis

The primary function of a TMDL linkage analysis is to establish a link between pollutant loading from multiple sources and water quality in receiving waters. The linkage analysis performed for these TMDLs is critical in developing the reference watershed approach that is used, which differs from the traditional stressor response TMDL approach used in the previous 2004 Nutrient TMDLs.

For these TMDLs, the linkage analysis uses dynamic lake water quality models to estimate water quality conditions for both lakes for the response variables (chlorophyll-*a*, dissolved oxygen, and ammonia-N) based on differing levels of external nutrient loading representing reference watershed conditions. To predict water quality under the reference scenarios, the models use historical hydrologic flow gauges to estimate lake inflows and the nutrient loads from the watershed. The nutrient loads are calculated using the median and 25th percentile concentrations for TP and TN measured in the San Jacinto River at the Cranston Guard Station. This location was used to represent reference watershed conditions for both Canyon Lake and Lake Elsinore.

Existing conditions approximate the current distribution of water quality in two lake segments for Canyon Lake (Main Lake and East Bay) and for Lake Elsinore. A subset of the period of simulation for existing conditions is used to calibrate water quality model parameters to achieve a reasonable goodness-of-fit with measured data collected by the in-lake monitoring program. In the case of Lake Elsinore, the LEMP project was implemented to improve water quality by reducing the surface area of the lake and recycled water has been added to maintain water levels. The smaller lake surface area for Lake Elsinore as compared to its original surface area is a baseline assumption in the creation of lake water quality models for the reference watershed condition.

Conversely, the addition of recycled water to Lake Elsinore is not assumed as an element of the linkage analysis for the reference watershed condition. The calibrated model developed for existing conditions was modified to evaluate water quality

responses for alternative scenarios of reduced external and internal nutrient loads. For setting interim and final numeric targets, external nutrient loads to the lake models are reduced to levels expected for a reference nutrient concentration. The lake models could also be used in future implementation planning to test the water quality benefits that may be achieved with existing and potential supplemental watershed best management practices (BMPs) and lake management scenarios. The only physical structures included in the modeled reference watershed condition linkage analyses are: (1) Railroad Canyon Dam, because Canyon Lake would not exist without its presence; and (2) the levee and lower outfall elevation in Lake Elsinore that came about as part of the LEMP project. Simulation results for chlorophyll-*a*, dissolved oxygen and ammonia-N, plotted to create CDFs, serve as interim and final numeric targets for these TMDLs. Further, the water quality models used to develop interim and final numeric targets for the lake segments can be used to support future implementation planning to test the potential benefits from existing and potential supplemental in-lake projects.

The watershed model for an undeveloped, natural land use condition as defined by the 2024 TMDL Technical Report was used to identify the 2024 TMDLs, WLA, and LAs needed to meet the reference nutrient CDFs in the Lakes.

TMDLs and Allocations

Nutrient loading to Canyon Lake and Lake Elsinore varies depending on the hydrologic conditions that occur in the San Jacinto watershed. The 2024 TMDL Technical Report (LESJWA 2024) provides a detailed collection of available watershed and lake monitoring data, descriptions of the hydrologic and hydrodynamic analyses and modeling, and numerous other factors that were used in the development of TMDLs, WLAs for point sources of nutrients, and LAs for non-points sources of nutrients.

In summary, the Phase III TMDLs are calculated as the average annual WLAs for point sources and LAs for non-point sources minus annual losses of watershed nutrient loads in upstream basins, e.g., Mystic Lake, or channel bottoms.

Calculation of these TMDLs is shown as follows:

TMDL= WLA + LA – Retention.

As discussed below, margins of safety are implicitly accounted for in the calculation of reference nutrient concentrations from the Cranston Guard Station dataset for the San Jacinto River.

For all external nutrient sources, WLAs and LAs are determined from nutrient concentrations in wet weather runoff from a reference watershed ($C_{reference}$). For Lake Elsinore, current volumes (V_{annual}) of runoff and supplemental recycled water additions are accounted for in the estimation of WLAs and LAs, as follows:

$$\textbf{WLA or LA} = V_{annual} * C_{reference}.$$

Allocations for external loads were developed based on assumptions of reference nutrient concentrations at the 25th percentile of wet weather samples in the Cranston Guard Station dataset (TP 0.16 mg/L and TN 0.68 mg/L), which is a conservative estimation of reference watershed conditions.

Because of data uncertainty associated with the conservative estimation of reference watershed conditions, these TMDLs include milestones for nutrient loads (aligned with Phase II of these TMDLs). These milestones are calculated in the same manner as the TMDLs, WLAs and LAs, except the milestones are based on the median of wet weather samples in the Cranston Guard Station dataset (TP 0.32 mg/L and TN 0.92 mg/L).

The milestones, TMDLs and allocations are presented in tables 6-XXX and 6-XXX for Canyon Lake and Lake Elsinore, respectively, for the following sources.

Canyon Lake:

- Watershed runoff from sources to the San Jacinto River downstream of Mystic Lake (sub-watershed zones 2 - 6), including (a) WLAs for urban runoff from urban MS4s, California Transportation Department (Caltrans), Confined Animal Facilities (CAFs), March Joint Powers Authority (JPA), and March Air Reserve Base (ARB); (b) LAs for irrigated and non-irrigated agriculture (>20 acre operators); and (c) state and federal lands.
- Losses from channel bottom recharge in Salt Creek, San Jacinto River, and Perris Valley Channel.
- Internal nutrient load from lake bottom sediment releases estimated (with AEM3D) to occur when external loads are reduced to reference watershed condition.
- Atmospheric deposition at existing estimated loading.

Lake Elsinore:

- Watershed runoff from the local Lake Elsinore watershed downstream of Canyon Lake (sub-watershed zone 1) including WLAs for MS4 and Caltrans, and LAs for federal lands.
- Addition of supplemental recycled water from Elsinore Valley Municipal Water District to maintain lake levels.
- Overflows from Canyon Lake to Lake Elsinore.
- Watershed runoff from the Mystic Lake watershed (sub-watershed zones 7 - 9) including WLAs for MS4, Caltrans, and CAFs, and LAs irrigated and non-irrigated agriculture (>20 acre operators) and state and federal lands.
- Losses from retention in Mystic Lake.
- Internal nutrient load from lake bottom sediment releases estimated (with GLM) to occur when external loads are reduced to reference watershed condition.
- Atmospheric deposition at existing estimated loading.

The Phase II milestones and Phase III total TMDLs, WLAs and LAs are expressed as 10–year running averages. Attainment of the milestones are intended to result in lake water quality achieving the Phase II interim numeric targets, which are based on the median of data results of TP and TN from the San Jacinto River at Cranston Guard Station. Attainment of the TMDLs, WLAs and LAs are intended to achieve the Phase III final numeric targets, which are based on the 25th percentile of data results from Cranston Guard Station. At this time, until additional studies are completed during Phase II of these TMDLs, there is uncertainty with respect to knowing if the median, the 25th percentile, or some other representation of data from Cranston Guard Station or other location better represents the reference watershed condition. Thus, during the implementation of Phase II of the Implementation Plan, reference condition monitoring will occur at various locations to determine which scenario will return nutrient loads to the reference watershed condition and attain water quality standards. Further, the Implementation Plan anticipates that the Santa Ana Water Board will review milestones, TMDLs, WLAs and LAs no later than at years 10 and 18, based on new data and information, to determine if they are an appropriate representation of the reference watershed condition or if further adjustments are necessary. The Santa Ana Water Board will also periodically review the TMDLs during the implementation of Phase III.

Table 6-XXX. Summary of Milestones, WLAs and LAs for Major Categories of Nutrient Sources to Canyon Lake from Sub-watersheds below Mystic Lake

Source	Phase II Milestones (kg/yr as 10-yr running average)		Phase III Allocations (kg/yr as 10-yr running average)	
	TP	TN	TP	TN
MS4 Jurisdiction Runoff (WLA)	3,939	11,326	1,970	8,371
Caltrans Jurisdiction Runoff (WLA)	52	151	26	111
March JPA Jurisdiction Runoff (WLA)	53	153	27	113
March ARB Jurisdiction Runoff (WLA)	55	158	28	117
Dairies (WLA)[l]	1	2	0.4	2
Irrigated Agriculture (LA)	105	302	53	223
Non-Irrigated Agriculture (LA)	41	119	21	88
Other State/Federal/Tribal Jurisdictions (LA)	147	421	73	311
Minus Reference Watershed Retention	-590	-1695	-295	-1253
Subtotal Watershed Allocation (below Mystic Lake)	3,804	10,937	1,902	8,084
Atmospheric Deposition (LA)	23	1406	23	1,406
Sediment Nutrient Flux (LA)	1,190	3,955	683	2,741

Table 6-XXX. Summary of Milestones, WLAs and LAs for Major Categories of Nutrient Sources to Canyon Lake from Sub-watersheds below Mystic Lake

Source	Phase II Milestones (kg/yr as 10-yr running average)		Phase III Allocations (kg/yr as 10-yr running average)	
	TP	TN	TP	TN
Canyon Lake TMDL	5,017	16,298	2,608	12,230

[1]If the Santa Ana Water Board determines at any time during Phase II or Phase III that any facilities regulated in Order R8-2018-0001 as CAFOs (as defined in 40 CFR 122.23(b)(2)) should instead be regulated as nonpoint sources, the wasteload allocation for such facilities shall be deemed a load allocation and shall continue to apply. Milestones will remain as shown in the table.

Table 6-XXX. Summary of Milestones, WLAs and LAs for Major Categories of Nutrient Sources to Lake Elsinore

Source	Phase II Milestones (kg/yr as 10-yr running average)		Phase III Allocations (kg/yr as 10-yr running average)	
	TP	TN	TP	TN
Local Lake Elsinore Watershed				
MS4 Jurisdiction Runoff (WLA)	548	1,575	274	1,164
Caltrans Jurisdiction Runoff (WLA)	11	33	6	24
Other State/Federal/Tribal Jurisdictions (LA)	64	183	32	135
Subtotal Watershed Allocation (local watershed)	623	1,791	311	1,324
Watershed Above Mystic Lake				
MS4 Jurisdiction Runoff (WLA)	1,876	5,395	938	3,987
Caltrans Jurisdiction Runoff (WLA)	42	120	21	89
Dairies (WLA)[1]	3	8	1	6
Irrigated Agriculture (LA)	119	342	59	253
Non-Irrigated Agriculture (LA)	26	75	13	55
Other State/Federal/Tribal Jurisdictions (LA)	3,050	8,769	1,525	6,481
Minus Reference Watershed Retention	-4,915	-14,131	-2,458	-10,444
Subtotal Watershed Allocation (above Mystic Lake)	201	579	101	428
Canyon Lake to Lake Elsinore (LA)	2,471	7,104	1,235	5,251
Supplemental Water (see table 6-xxx below)	3,317	9,535	1,658	7,048
Atmospheric Deposition	156	9,682	156	9,682
Sediment Nutrient Flux	15,227	104,559	10,221	91,232
Lake Elsinore TMDL	21,994	133,248	13,683	114,963

[1] If the Santa Ana Water Board determines at any time during Phase II or Phase III that any facilities regulated in Order R8-2018-0001 as CAFOs (as defined in 40 CFR 122.23(b)(2)) should instead be regulated as nonpoint sources, the wasteload allocation for such facilities shall be deemed a load allocation and shall continue to apply. Milestones will remain as shown in the table.

The schedule for attaining the Phase II milestones is 20 years from the effective date of these TMDLs. The schedule for attaining the Phase III TMDLs, WLAs, and LAs is 30 years from the effective date of these TMDLs. The extended schedule for the two Phases is necessary to implement the tasks as identified in the Implementation Plan, and to re-evaluate the reference watershed condition after completing multiple tasks that are to be performed during Phase II of the TMDLs. Due to the length of these schedules, the Santa Ana Water Board will review the TMDLs and their implementation no later than at years 10, 18, 30 and every 10 years thereafter. The Santa Ana Water Board maintains the discretion to review and amend the Basin Plan whenever the Board determines it is appropriate or based on new information.

Elsinore Valley Municipal Water District (EVMWD) adds supplemental recycled water directly to Lake Elsinore. Although permitted to discharge up to 8 MGD of recycled water to Lake Elsinore, 0.5 MGD is discharged to the Gunnerson Pond Wetland area adjacent to Temescal Creek. Further, as of the effective date of these TMDLs, EVMWD discharges between 5 to 6 MGD to Lake Elsinore. The discharge volume of 7.5 MGD was used for analysis and modeling for these TMDLs and is the flow used for calculating milestones and WLAs that apply to EVMWD. This accounts for the authorized volume of recycled water that may be discharged to Lake Elsinore, minus the amount discharged to the Gunnerson Pond Wetland area.

Table 6-XXX includes the Phase II milestones and Phase III for WLAs that apply to EVMWD for the addition of supplemental recycled water to Lake Elsinore. However, consistent with EVMWD's current NPDES permit for discharges to Lake Elsinore and unlike the other sources of nutrients to Lake Elsinore, these TMDLs include concentration-based milestones and WLAs as well as mass-based WLAs that are applicable to EVMWD. Further, the concentration-based milestones and WLAs for supplemental recycled water are 12 month running averages and the mass-based milestones and WLAs are 5 year running averages. Similar to the Phase II milestones and WLAs and LAs for other sources, the EVMWD milestones and WLAs are to be attained as soon as possible but no later than 20 years from the effective date of these TMDLs for Phase II milestones, and no later than 30 years from the effective of these TMDLs for Phase III WLAs.

Table 6-9q2. Milestones and WLAs for EVMWD Recycled Water Additions to Lake Elsinore

EVMWD Recycled Water Additions	Flow		Concentration (12-month running average)		Mass (5-year running average)	
	MGD	AFY	TP (mg/L)	TN (mg/L)	TP (kg/yr)	TN (kg/yr)
Milestones	7.5	8,402	0.32	0.92	3,317	9,535
WLAs	7.5	8,402	0.16	0.68	1,658	7,048

Attainment of Phase II Milestones

In general, the milestones in these TMDLs are numeric values designed to ensure that dischargers make progress in reducing watershed runoff loads. The milestones are set at levels that are intended to result in the lakes meeting the interim numeric targets, which are designed to protect and maintain beneficial uses in the lakes as associated with a reference watershed condition based on a median of existing data. The milestones are not WLAs and therefore Title 40, section 122.44 of the CFR does not require them to be implemented as final water quality-based effluent limitations (WQBELs). However, pursuant to Title 40, sections 122.44 and 122.47 of the CFR, permit requirements must be consistent with the assumptions and requirements of the TMDLs, including the Phase II milestones. Therefore, the Phase II milestones and interim numeric targets will be implemented as milestones or interim WQBELs in compliance schedules, as applicable. Further, although the milestones are not LAs as applied to non-point sources of nutrients to the lakes, non-point source waste discharge requirements must be consistent with schedules in the Basin Plan.

Due to the length of the implementation schedule for these TMDLs, milestones are necessary to ensure that progress is made towards meeting or improving water quality conditions in the lakes to meet reference watershed conditions. Because of the need to include milestones to measure progress, the Implementation Plan section of these TMDLs includes optional methods for measuring attainment of the milestones.

Compliance with Phase III WLAs and LAs

These compliance options are part of the assumptions and requirements of the Phase III WLAs and LAs and should be incorporated into future permitting actions to the extent permitted by law. The Santa Ana Water Board may exclude or modify any of these options in permitting actions as necessary to ensure compliance with applicable law, including State Water Board precedential orders, or to the extent the Santa Ana Water Board finds an option would be infeasible or ineffective or as necessary to account for unanticipated watershed conditions.

<u>WLAs for MS4 Permittees</u>

The WLAs will be incorporated into applicable NPDES permits for MS4 permittees subject to these TMDLs as effluent limits in a manner that is consistent with title 40, sections 122.44 and 122.47 of the Code of Federal Regulations. The time to comply with the WLAs shall be included in applicable NPDES permits for MS4 permittees subject to these TMDLs. Compliance with the WLAs as incorporated into NPDES permits must occur as soon as possible but no later than 30 years from the effective date of these TMDLs. The WLAs for MS4s in Tables 6-XXX and 6-XXX combine watershed runoff loads for MS4 permittees subject to specific WLAs (i.e., MS4 permittees that discharge runoff in the applicable sub-watersheds). Section 7 of the 2024 TMDL Technical Report (LESJWA 2024) further separates out these MS4 watershed runoff loads by MS4 jurisdiction, which may be used by individual MS4 permittee jurisdictions to demonstrate individual compliance for loads to each lake, as applicable. Compliance with the Phase III WLAs as incorporated into MS4 NPDES permits may be demonstrated through any one of the following means:

Option 1: Implement a program of pollution controls and best management practices according to an approved Comprehensive Nutrient Reduction Plan (or an equivalent Watershed Management Plan) that meets the requirements set forth in Phase II, Task 3 and Phase III, Task 2, as applicable, of the Implementation Plan. This includes participating in pollution offset strategies and reducing external nutrient loads as set forth in the approved Comprehensive Nutrient Reduction Plan (or equivalent Watershed Management Plan) OR

Option 2: Demonstrate attainment of the Final Numeric Targets using in-lake water quality data collected over a minimum of a 10-year period OR

Option 3: Demonstrate attainment of the Phase IIII watershed runoff WLAs in Tables 6-XXX and 6-XXX through the use of monitoring data that shows nutrients in watershed loads from MS4s (individually or collectively) are at or below the applicable WLAs for TP and TN OR

Option 4: Demonstrate attainment of the Phase III watershed runoff WLAs assigned to MS4 permittees, individually or collectively, in Tables 6-XXX and 6-XXX by offsetting nutrient watershed runoff loads in excess of the WLAs using in lake nutrient controls. Excess watershed runoff loads arriving at the lakes may be offset through participation in regional in-lake projects, as applicable, that meet the requirements of the Implementation Plan and reduce internal nutrient load. Use of offsets under Option 4 is not mutually exclusive from the other options and may be combined with the options as determined appropriate OR

Option 5: Demonstrate attainment of the Phase III total allocations for TP and TN loads for the lakes through collective watershed compliance by offsetting watershed loads in excess of allocations using controls on nutrient loads in the lakes. Excess watershed runoff loads arriving at the lakes may be offset through participation in

regional in-lake projects, as applicable, that meet the requirements of the Implementation Plan and reduces internal nutrient load OR

Option 6: Demonstrate attainment of the Phase III watershed runoff WLAs assigned to MS4 permittees in Tables 6-XXX and 6-XXX through implementation of volume retention pollution controls or BMPs that retain sufficient runoff volume such that the downstream load from a given drainage area is equal to or less than would occur in the reference watershed condition.

WLAs for Other NPDES Permittees (except EVMWD)

The WLAs will be incorporated into applicable NPDES permits for permittees subject to these TMDLs as effluent limits in a manner that is consistent with title 40, sections 122.44 and 122.47 of the Code of Federal Regulations. The time to comply with the WLAs shall be included in applicable NPDES permits for permittees subject to these TMDLs. Compliance with the WLAs as incorporated into NPDES permits must occur as soon as possible but no later than 30 years from the effective date of these TMDLs. Compliance with the Phase III WLAs as incorporated into NPDES permits may be demonstrated through any one of the following means:

Option 1: Implement an approved Comprehensive Nutrient Reduction Plan (or an equivalent watershed management plan) that meets the requirements set forth in Phase II, Task 3, and Phase III, Task 2, as applicable, of the Implementation Plan. This includes participating in pollution offset strategies and reducing external nutrient loads from the watershed as set forth in the approved Comprehensive Nutrient Reduction Plan OR

Option 2: Demonstrate attainment of the Final Numeric Targets using in-lake water quality data collected over a minimum of a 10-year period OR

Option 3: Demonstrate attainment of the Phase III watershed runoff WLAs in Tables 6-XXX and 6-XXX through the use of monitoring data that shows nutrients in watershed loads are at or below the applicable WLAs for TP and TN OR

Option 4: Demonstrate attainment of the Phase III watershed runoff WLAs in Tables 6-XXX and 6-XXX by offsetting nutrient watershed runoff loads in excess of the Phase III WLAs using in lake nutrient controls. Excess watershed runoff loads arriving at the lakes may be offset through participation in a regional in-lake projects that meet the requirements of the Implementation Plan and reduce internal nutrient load, as applicable to each lake OR

Option 5: Demonstrate attainment of the Phase III total allocations for TP and TN for the lakes through collective watershed compliance by offsetting watershed loads in excess of allocations using controls on nutrient loads in the lakes. Excess watershed runoff loads arriving at the lakes may be offset through participation in regional in-lake

projects, as applicable, that meet the requirements of the Implementation Plan and reduce internal nutrient load OR

Option 6: Demonstrate attainment of the Phase III watershed runoff WLAs in Tables 6-XXX and 6-XXX through implementation of volume retention pollution controls or BMPs that retain sufficient runoff volume such that the downstream load from a given drainage area is equal to or less than would occur in the reference watershed condition.

WLAs for EVMWD

WLAs will be incorporated into EVMWD's NPDES permit as effluent limits in a manner that is consistent with title 40, sections 122.44 and 122.47 of the Code of Federal Regulations. The time to comply with them shall be included in EVMWD's NPDES permit for discharges to Lake Elsinore. Compliance with the Phase III WLAs as incorporated into EVMWD's NPDES permit must occur as soon as possible but no later than 30 years from the effective date of the Lake Elsinore TMDLs. Compliance with the Phase III WLAs as incorporated into EVMWD's NPDES permits may be demonstrated through any one of the following means:

Option 1: Demonstrate attainment of the Numeric Targets for Lake Elsinore using in-lake water quality data collected over a minimum of a 10-year period OR

Option 2: Demonstrate attainment of the concentration-based and mass-based WLAs in Table 6-XXX as incorporated into EVMWD's NPDES permit as 12-month and 60-month running averages, respectively, unless EVMWD implements a plan, with the approval of the Santa Ana Water Board or its Executive Officer, to offset TP and TN discharges to Lake Elsinore in excess of the TP and TN WLAs.

LAs for Non-NPDES Permittees

LAs and the time to comply with them shall be included in applicable waste discharge requirements, conditional waivers from waste discharge requirements, or other orders as the Santa Ana Water Board determines appropriate for nonpoint source dischargers subject to these TMDLs. Compliance with the LAs as incorporated into waste discharge requirements, conditional waivers from waste discharge requirements or other orders must occur as soon as possible but no later than 30 years from the effective date of these TMDLs. Compliance with the Phase III LAs as incorporated into waste discharge requirements, conditional waivers of waste discharges or other orders may be demonstrated through any one of the following means:

Option 1: Implement individual or general waste discharge requirements order that explicitly states or serves as a watershed management plan such as the General Waste Discharge Requirements for Discharges of Waste from Irrigated Lands in the San Jacinto River Watershed, Riverside County (Irrigated Ag General Order) that has been

revised by the Santa Ana Water Board per Phase III, Task 2 of the Implementation Plan OR

Option 2: Demonstrate attainment of the Numeric Targets using in-lake water quality data collected over a minimum of a 10-year period OR

Option 3: Demonstrate attainment of the Phase III watershed runoff LAs in Tables 6-XXX and 6-XXX through the use of monitoring data that shows nutrients in watershed loads from the applicable category of dischargers are at or below the applicable LAs for TP and TN OR

Option 4: Demonstrate attainment of the Phase III watershed runoff LAs in Tables 6-XXX and 6-XXX by offsetting nutrient watershed runoff loads in excess of the LAs using in lake nutrient controls. Excess watershed runoff loads arriving at the lakes may be offset through participation in a regional in-lake projects that meet the requirements of the Implementation Plan and reduces internal nutrient load. Use of offsets under Option 4 is not mutually exclusive from the other options and may be combined with the options as determined appropriate OR

Option 5: Demonstrate attainment of the Phase III total allocations for TP and TN loads for the lakes through collective watershed compliance by offsetting watershed loads in excess of Phase III allocations using controls on nutrient loads in the lakes. Excess watershed runoff loads arriving at the lakes may be offset through participation in a regional in-lake projects, as applicable, that meet the requirements of the Implementation Plan and reduce internal nutrient load OR

Option 6:___Demonstrate attainment of the Phase III watershed runoff LAs in Tables 6-XXX and 6-XXX through implementation of volume retention pollution controls or BMPs that retain sufficient runoff volume such that it may be demonstrated that the downstream load from a given drainage area is equal to or less than would occur in the reference watershed condition.

Margin of Safety

When establishing TMDLs, federal regulations require states to include a margin of safety that considers the lack of knowledge concerning the relationship between allocations and the quality of the receiving water. For these TMDLs, the margin of safety is an implicit margin of safety incorporated into the TMDLs through conservative data analysis in establishing the reference watershed condition. Notably, this implicit margin of safety does not recognize or account for additional implicit margins of safety that have also occurred in the development of these TMDLs. As explained above, numeric targets and allocations are being established for a reference watershed condition based on data collected from the San Jacinto River at the Cranston Guard Station. The data set includes wet weather monitoring results for 10 storm events between 2003 and

2010. The number of grab samples collected during each monitoring event varied from one to nine. The total data set includes 51 data points each for TP and TN.

In evaluating the data to establish an appropriate reference watershed condition, multiple statistical analyses were performed. To weigh each event equally, average nutrient concentrations were computed from multiple grab samples taken during each event – creating one TP and TN value per sampling event. Then, the median and 25th percentiles were computed from the average of the 10 event nutrient concentrations. The results from this computation method are reported in Table 6-XXX below. These values are appropriate for calculating milestones and allocations. However, to account for the lack of knowledge between the numeric targets and allocations and water quality for the reference watershed condition, a margin of safety is being included by computing the median and 25th percentile from the 51 data points in a more conservative manner. Specifically, the milestones and allocations are being established by using the resulting TP and TN concentrations from all 51 grab samples rather than averaging results for each of the 10 sampling events to then compute a median and 25th percentile. Using 51 grab samples, the results are reported in Table 6-XXX below.

For these TMDLs, the lower of the two median values for the reference watershed condition are being used to set milestones and the lower of the 25th percentile values for the reference watershed condition are being used to set the allocations. By using these lower values based on computations from all 51 data points, the resulting margins of safety for the reference watershed conditions range between 16-31% as follows:

- Total Phosphorus, reference watershed condition based on median:

$$\left(\frac{0.41 - 0.32}{0.41}\right) \times 100 = 22\%$$

- Total Nitrogen, reference watershed condition based on median:

$$\left(\frac{1.09 - 0.92}{1.09}\right) \times 100 = 16\%$$

- Total Phosphorus, reference watershed condition based on 25th percentile:

$$\left(\frac{0.19 - 0.16}{0.19}\right) \times 100 = 16\%$$

- Total Nitrogen, reference watershed condition based on 25th percentile:

$$\left(\frac{0.99 - 0.68}{0.99}\right) \times 100 = 31\%$$

Table 3-2. Summary Statistics from Reference Watershed Site, San Jacinto River at Cranston Guard Station

Metric	Total Phosphorus (mg/L)	Total Nitrogen (mg/L)
Range of Samples	0.05 – 48.00	0.51 – 27.78
Range of Event Means[1]	0.11 – 10.13	0.58 – 7.09
25th Percentile of Samples	0.16	0.68
25th Percentile of Event Means[1]	0.19	0.99
Median of Samples	0.32	0.92
Median of Event Means[1]	0.41	1.09
75th Percentile of Samples	0.73	1.50
75th Percentile of Event Means[1]	1.14	3.20

[1] Number of grab samples per event varies. Grab samples not collected in manner to compute a flow-weighted composite for event mean

Both milestones and allocations in these TMDLs include a margin of safety. Notably, the milestones themselves do not require inclusion of a margin of safety; however, one is included by using the lower, computed concentrations of TP and TN from all 51 data points from the San Jacinto River watershed at the Cranston Guard Station in the event that the milestones, based on studies conducted during Phase II, are found to be representative of the reference watershed condition for computing numeric targets and allocations.

Seasonal Variations/Critical Conditions

These TMDLs account for seasonal and annual variations in external and internal nutrient loading and associated impacts on beneficial uses by using a 10-year running average for total loads, milestones and allocations. This 10-year running average approach addresses variation in long-term climatic and hydrologic conditions that can dramatically affect both nutrient loading and lake response.

Moreover, attainment of the milestones and allocations will lead to the lakes meeting interim and final numeric targets, which will reflect water quality improvements that are expected to prevent excessive algae blooms and fish kills, particularly during the critical summer period when these problems are most likely to occur.

IMPLEMENTATION PLAN FOR LAKE ELSINORE AND CANYON LAKE NUTRIENT TMDLS

TMDL implementation will be carried out by the following dischargers that have been identified by the Santa Ana Water Board as responsible parties for these TMDLs and as

specifically identified for each task, and by the Santa Ana Water Board. The level of responsibility for TMDL implementation varies based on the levels of estimated loads from the identified responsible parties, their sub-watershed location, applicability of the TMDLs for each lake, as identified for each task and other factors as determined appropriate. Further, the responsible parties may change as new and additional data and information becomes available that may either identify new, additional categories of responsible dischargers or finds that certain identified dischargers should no longer be considered responsible. Land use in this watershed continues to change rapidly as open space and agricultural land uses transition to urban land uses, which may necessitate the need for the Santa Ana Water Board to re-evaluate the TMDL responsible parties on a periodic basis. The Santa Ana Water Board will periodically update the Basin Plan to make these changes. It is anticipated that periodic updates to the Basin Plan related to identification of responsible parties for these TMDLs would be limited in nature, and that such limited updates may occur more frequently than the scheduled TMDL reconsiderations at years 10, 18, 30 and every 10 years thereafter.

The responsible parties are identified in Table 6-XXX. In parentheses are their associated watershed(s) for applicability of the allocations identified in Tables 6-XXX and 6-XXX.

Table 6-XXX. Responsible Parties and Applicable Watershed Allocations

RESPONSIBLE PARTIES[1]	
MS4s	
City of Beaumont (watershed above Mystic Lake)	City of Canyon Lake (watershed above Mystic Lake, Canyon Lake and local Lake Elsinore)
City of Hemet (watershed above Mystic Lake and Canyon Lake)	City of Moreno Valley (Canyon Lake)
City of Menifee (Canyon Lake and local Lake Elsinore)	City of Murrieta (Canyon Lake)
City of Perris (Canyon Lake)	City of Riverside (watershed above Mystic Lake)
City of San Jacinto (watershed above Mystic Lake and Canyon Lake)	City of Wildomar (local Lake Elsinore)
County of Riverside (watershed above Mystic Lake, Canyon Lake and local Lake Elsinore)	
OTHER NPDES PERMITTEES	
Elsinore Valley Municipal Water District (Lake Elsinore)	San Jacinto Dairies (CAFs/CAFOs) (watershed above Mystic Lake, Canyon Lake and local Lake Elsinore)
California Department of Transportation (watershed above Mystic Lake, Canyon Lake and local Lake Elsinore)	Eastern Municipal Water District

[1] The City of Banning discharges nutrients to the watershed but does not have a wasteload allocation, pending results from Task 9 to define and identify minor source contributors. The absence of assigned milestones or a wasteload allocation to the City is not considered a WLA of zero. The TMDL assumes that the current loading from this area will continue with insignificant to no net increase.

March Joint Powers Authority[2] (Canyon Lake)	
NON-NPDES PERMITTEES	
San Jacinto Agricultural Operators of Irrigated Lands (watershed above Mystic Lake and Canyon Lake)	California Department of Fish and Wildlife (watershed above Mystic Lake and Canyon Lake)
San Jacinto Agricultural Operators of Non-Irrigated Lands (watershed above Mystic Lake and Canyon Lake)	Other Federal, State and Tribal Lands (varies)
United States Forest Service (watershed above Mystic Lake, Canyon Lake and local Lake Elsinore)	

Incorporation of TMDLs into Orders of the Santa Ana Water Board

The Santa Ana Water Board and the State Water Board must update NPDES permits, waste discharge requirements, conditional waivers of waste discharge requirements and other orders, as appropriate, to implement these TMDLs and their implementing provisions. Such updates are necessary because TMDLs are not self-implementing and must be incorporated into the appropriate regulatory mechanisms to be enforceable. For the 2024 Nutrient TMDLs, there are existing and potentially new orders that will need to incorporate these TMDLs and applicable provisions of the Implementation Plan.

The purpose of this section is to provide transparency regarding how the Santa Ana Water Board expects to incorporate these 2024 Nutrient TMDLs into relevant permits.

For those subject to NPDES permits, section 303(d) of the Clean Water Act (CWA) requires WLAs to be implemented through the NPDES permit program. The State Water Board and regional water boards implement the NPDES permit program by issuing waste discharge requirements. After a TMDL has been developed, NPDES permits are updated to include water quality-based effluent limitations and other permit provisions that must be consistent with the assumptions and requirements of the TMDLs, including applicable WLAs, and include applicable provisions of the Implementation Plan.

For non-NPDES permittees, the Santa Ana Water Board may implement these TMDLs through waste discharge requirements, conditional waivers from waste discharge requirements, or other orders that the Santa Ana Water Board determines appropriate. When adopting waste discharge requirements or conditional waivers from waste

[2]As of June 2025, the March Joint Powers Authority (March JPA) will no longer exist and federal properties under the March JPA will be transferred to Riverside County. Once the transfer has been completed, the milestones and WLAs associated with the March JPA shall be transferred to Riverside County.

discharge requirements, state law requires the Santa Ana Water Board to incorporate requirements into orders that are consistent with and comply with the Basin Plan. Accordingly, these TMDLs, associated LAs, and applicable provisions of the Implementation Plan must be implemented through waste discharge requirements, conditional waivers, or other orders of the Santa Ana Water Board in a manner that is consistent with the Basin Plan

Incorporation of Phase II Milestones into Orders of the Santa Ana Water Board

As explained previously, these are phased TMDLs due to data uncertainty and because the Santa Ana Water Board anticipates that Phase III final numeric targets, total TMDLs, WLAs and LAs may be revised as additional information becomes available. Phase II begins on the effective date of these TMDLs and extends for 20 years from the effective date. During Phase II, studies and data collection will be performed to review the appropriateness of the final numeric targets, total TMDLs, WLAs and LAs, which are based on a conservative reference watershed condition that uses the 25th percentile of existing data. The milestones in these TMDLs, which are also conservative, are based on a reference watershed condition that uses the median of existing data. The milestones are expressed as numeric values that are intended to result in the lakes meeting the interim numeric targets, which are designed to protect and maintain beneficial uses in the lakes as associated with the reference watershed condition based on the median of existing data. Upon completion of applicable Phase II studies and data collection, the reference watershed conditions used for these TMDLs, including the milestones, will be re-evaluated to determine what estimates the most appropriate reference watershed condition. The re-evaluation may result in the need to revise the Phase III final numeric targets, total TMDLs, WLAs and LAs. Notably, it is possible that the milestones could become final numeric targets, total TMDLs, WLAs and LAs, if completion of studies and data collection in Phase II support the median of data being used to define the reference watershed condition.

In the interim, the milestones will be used to ensure that dischargers make progress in reducing watershed runoff loads of nutrients to help the lakes meet reference water conditions, which are reflected in the interim numeric targets. The milestones, however, are not WLAs and therefore Title 40, section 122.44 of the CFR does not require them to be implemented as final water quality-based effluent limitations (WQBELs). However, pursuant to Title 40, sections 122.44 and 122.47 of the CFR, permit requirements must be consistent with the assumptions and requirements of the TMDLs, including the Phase II milestones. Therefore, the Phase II milestones and interim numeric targets will be implemented as milestones or interim WQBELs in compliance schedules, as applicable. Further, the milestones are not LAs as applied to nonpoint sources of nutrients to the lakes. Rather, the milestones are interim metrics that will be used to measure progress towards improving water quality conditions in the lakes and develop schedules in waste discharge requirements pursuant to Water Code section 13263, subdivision (c).

Attainment of the milestones must occur as soon as possible but no later than 20 years from the effective date of these TMDLs. Per task 14 of the Phase II Tasks and

Schedule, evaluations of attainment to meeting the milestones must occur every third year from the effective date of these TMDLs. With respect to evaluating attainment of the milestones, attainment may be evaluated and demonstrated through any one of the following means, as applicable. The Santa Ana Water Board may exclude or modify any of these options in permitting actions as necessary to ensure compliance with applicable law, including State Water Board precedential orders, or to the extent the Santa Ana Water Board finds an option would be infeasible or ineffective or as necessary to account for unanticipated watershed conditions.

Milestones for MS4 Permittees

The milestones for MS4s in Tables 6-XXX and 6-XXX combine watershed runoff loads for MS4 permittees subject to specific milestones (i.e., MS4 permittees that discharge runoff in the applicable sub-watersheds). Section 7 of the 2024 TMDL Technical Report (LESJWA 2024) further separates out these MS4 watershed runoff loads by MS4 jurisdiction, which may be used by individual MS4 permittee jurisdictions to demonstrate individual attainment for loads to each lake, as applicable. For MS4 permittees, attainment of the Phase II milestones may be demonstrated through any one of the following means:

Option 1: Implement a program of pollution controls and best management practices according to an approved Comprehensive Nutrient Reduction Plan (or an equivalent Watershed Management Plan) that meets the requirements set forth in Phase II, Task 3 and Phase III, Task 2, as applicable, of the Implementation Plan. This includes participating in pollution offset strategies and reducing external nutrient loads as set forth in the approved Comprehensive Nutrient Reduction Plan (or equivalent Watershed Management Plan) OR

Option 2: Demonstrate attainment of the interim numeric targets using in-lake water quality data collected over a minimum of a 10-year period OR

Option 3: Demonstrate attainment of the Phase II watershed runoff milestones in Tables 6-XXX and 6-XXX through the use of monitoring data that shows nutrients in watershed loads from MS4s (individually or collectively) are at or below the applicable milestones for TP and TN OR

Option 4: Demonstrate attainment of the Phase II watershed runoff milestones assigned to MS4 permittees, individually or collectively, in Tables 6-XXX and 6-XXX by offsetting nutrient watershed runoff loads in excess of the milestones using in lake nutrient controls. Excess watershed runoff loads arriving at the lakes may be offset through participation in regional in-lake projects, as applicable, that meet the requirements of the Implementation Plan and reduce internal nutrient load. Use of offsets under Option 4 is not mutually exclusive from the other options and may be combined with the options as determined appropriate OR

Option 5: Demonstrate attainment of the Phase II total milestones for TP and TN loads for the lakes through collective watershed compliance by offsetting watershed loads in excess of allocations using controls on nutrient loads in the lakes. Excess watershed runoff loads arriving at the lakes may be offset through participation in regional in-lake projects, as applicable, that meet the requirements of the

Implementation Plan and reduces internal nutrient load OR

Option 6: Demonstrate attainment of the Phase II watershed runoff milestones assigned to MS4 permittees in Tables 6-XXX and 6-XXX through implementation of volume retention pollution controls or BMPs that retain sufficient runoff volume such that the downstream load from a given drainage area is equal to or less than would occur in the reference watershed condition.

WLAs for Other NPDES Permittees (except EVMWD)

For Other NPDES permittees, attainment of the Phase II milestones may be demonstrated through any one of the following means:

Option 1: Implement an approved Comprehensive Nutrient Reduction Plan (or equivalent watershed management plan) that meets the requirements set forth in Phase II, Task 3, and Phase III, Task 2, as applicable, of the Implementation Plan. This includes participating in pollution offset strategies and reducing external nutrient loads from the watershed as set forth in the approved Comprehensive Nutrient Reduction Plan OR

Option 2: Demonstrate attainment of the interim numeric targets using in-lake water quality data collected over a minimum of a 10-year period OR

Option 3: Demonstrate attainment of the Phase II watershed runoff milestones in Tables 6-XXX and 6-XXX through the use of monitoring data that shows nutrients in watershed loads are at or below the applicable milestones for TP and TN OR

Option 4: Demonstrate attainment of the Phase II watershed runoff milestones in Tables 6-XXX and 6-XXX as an individual source by offsetting nutrient watershed runoff loads in excess of the Phase II milestones using in lake nutrient controls . Excess watershed runoff loads arriving at the lakes may be offset through participation in a regional in-lake projects that meet the requirements of the Implementation Plan and reduce internal nutrient load, as applicable to each lake OR

Option 5: Demonstrate attainment of the Phase II total milestones for TP and TN for the lakes through collective watershed compliance by offsetting watershed loads in excess of allocations using controls on nutrient loads in the lakes. Excess watershed runoff loads arriving at the lakes may be offset through participation in regional in-lake projects, as applicable, that meet the requirements of the Implementation Plan and reduce internal nutrient load OR

Option 6: Demonstrate attainment of the Phase II watershed runoff milestones in Tables 6-XXX and 6-XXX through implementation of volume retention pollution controls or BMPs that retain sufficient runoff volume such that the downstream load from a given drainage area is equal to or less than would occur in the reference watershed condition.

Milestones for EVMWD

Attainment of Phase II milestones for EVMWD may be demonstrated through any one of the following means:

Option 1: Demonstrate attainment of the interim numeric targets for Lake Elsinore using in-lake water quality data collected over a minimum of a 10-year period OR

Option 2: Demonstrate attainment of the concentration-based and mass-based milestones in Table 6-XXX as incorporated into EVMWD's NPDES permit as 12-month and 60-month running averages, respectively, unless EVMWD implements a plan, with the approval of the Santa Ana Water Board or its Executive Officer, to offset TP and TN discharges to Lake Elsinore in excess of the TP and TN milestones.

Milestones for Non-NPDES Permittees

Attainment of the Phase II milestones for non-NPDES permittees may be demonstrated through any one of the following means:

Option 1: Implement individual or general waste discharge requirements order that explicitly states or serves as a watershed management plan such as the General Waste Discharge Requirements for Discharges of Waste from Irrigated Lands in the San Jacinto River Watershed, Riverside County (Irrigated Ag General Order) that has been revised by the Santa Ana Water Board per Phase II, Task 2 of the Implementation Plan OR

Option 2: Demonstrate attainment of the interim numeric targets using in-lake water quality data collected over a minimum of a 10-year period OR

Option 3: Demonstrate attainment of the Phase II watershed runoff milestones in Tables 6-XXX and 6-XXX through the use of monitoring data that shows nutrients in watershed loads from the applicable category of dischargers are at or below the applicable milestones for TP and TN OR

Option 4: Demonstrate attainment of the Phase II watershed runoff milestones in Tables 6-XXX and 6-XXX by offsetting nutrient watershed runoff loads in excess of the milestones using in lake nutrient controls. Excess watershed runoff loads arriving at the lakes may be offset through participation in regional in-lake projects that meet the requirements of the Implementation Plan and reduces internal nutrient load. Use of offsets under Option 4 is not mutually exclusive from the other options and may be combined with the options as determined appropriate OR

Option 5: Demonstrate attainment of the Phase II total milestones for TP and TN loads for the lakes through collective watershed compliance by offsetting watershed

loads in excess of Phase II milestones using controls on nutrient loads in the lakes. Excess watershed runoff loads arriving at the lakes may be offset through participation in regional in-lake projects, as applicable, that meet the requirements of the Implementation Plan and reduce internal nutrient load OR

Option 6: Demonstrate attainment of the Phase II watershed runoff milestones in Tables 6-XXX and 6-XXX through implementation of volume retention pollution controls or BMPs that retain sufficient runoff volume such that it may be demonstrated that the downstream load from a given drainage area is equal to or less than would occur in the reference watershed condition.

Implementation Through Approved Coalition or Group

The responsible parties subject to these TMDLs, and as such TMDL provisions are incorporated into orders of the Santa Ana Water Board or State Water Board, may comply with milestones, WLAs, LAs, and the Implementation Plan either individually, or as part of a Santa Ana Water Board approved coalition or group. Where responsible parties are part of a Water Board approved coalition or group to meet all or part of the TMDL requirements, documentation demonstrating participation in the group shall be provided to the Santa Ana Water Board upon request. The Santa Ana Water Board encourages the approved coalition or group to consider sub-watershed location and estimated loads of nutrients when determining cost share allocations for implementation of the tasks in this Implementation Plan. Since 2005, the TMDL Task Force has operated as an approved stakeholder group that works collectively to implement certain tasks of the Nutrient TMDLs for Lake Elsinore and Canyon Lake.

Nutrient Offset Programs

These TMDLs establish milestones, WLAs and LAs for various sources of nutrients with the goal of returning the lakes to their reference watershed condition. The Santa Ana Water Board maintains the discretion to allow the use of pollution offsets among the different sources. Generally, pollution offsets can take place between point/point, point/nonpoint, and nonpoint/nonpoint pollutant sources. For these TMDLs, in-lake nutrient controls may be a cost-effective way to achieve in-lake water quality benefits and maintain beneficial uses. To encourage the implementation of in-lake nutrient controls (i.e., in-lake projects), the Santa Ana Water Board authorizes the use of nutrient offset programs through the reduction of in-lake sediment nutrient loads. Nutrient offset programs may be used to show attainment with these TMDLs, including milestones, WLAs and LAs, and may be used to demonstrate compliance with such provisions as incorporated into orders of the Santa Ana Water Board or State Water Board. Authorization for use of nutrient offset programs occurs after receiving approval from the Santa Ana Water Board, or the Santa Ana Water Board’s Executive Officer as delegated by the Board.

The Implementation Plan for these TMDLs authorizes the use of offsets between internal nutrient loads in the lakes for external nutrient loads through implementation of in-lake projects because it helps to improve water quality in the lakes to meet in-lake numeric targets and protect beneficial uses. The Implementation Plan recognizes and maintains existing offset programs for a short period of time but requires that such programs be reviewed and renewed, or revised. The existing offset programs, and any new or revised offset programs, are subject to Santa Ana Water Board or Santa Ana Water Board Executive Officer review and approval.

Moreover, if a TMDL responsible entity relies on nutrient offset credits for demonstrating attainment with the Phase II milestones or demonstrating compliance with the Phase III allocations (i.e., TMDLs, WLAs and LAs), as incorporated into relevant orders, documentation showing purchase of nutrient offset credits from an approved offset program shall be reported to the Santa Ana Water Board annually. Documentation of participation in an approved offset program may be provided by individual entities subject to the TMDLs or through submission of joint documents prepared by approved groups, such as LESJWA on behalf of the TMDL Task Force. Although not required by these TMDLs, the Santa Ana Water Board encourages all TMDL stakeholders to work together as part of the TMDL Task Force to implement these TMDLs, and offset programs, in the most cost-effective manner.

TMDL Reconsideration

As part of the Implementation Plan, the Santa Ana Water Board will periodically review and reconsider these TMDLs. As described previously, these TMDLs consist of two consecutive phases: Phase II applies to years 1 through 20 after the effective date of these TMDLs. Phase III applies to years 21 through 30 after the effective date of these TMDLs. Phase I was the original 2004 TMDL, which was replaced in its entirety by these TMDLs.

Phasing these TMDLs is necessary because additional data and information will be obtained during Phase II that is necessary to evaluate and determine if the final numeric targets, TMDLs, WLAs and LAs that must be attained by the end of Phase III reflect the appropriate estimation of the reference watershed condition or if they should be modified to reflect a more appropriate estimate of the reference watershed condition.

As part of the Phase II Implementation Plan, the Santa Ana Water Board, in cooperation with the TMDL Stakeholders, expects to reconsider these TMDLs no later than 10 years from the effective date of these TMDLs, and no later than 18 years from the effective date of these TMDLs. TMDL reconsideration is necessary because of the length of Phases II and III, the complexity of these TMDLs, evolving science related to nutrients and the significant studies that are to be implemented over the term of these TMDLs. For Phase III, TMDL reconsideration will occur no later than 30 years after the effective date of these TMDLs, and every 10 years thereafter.

During TMDL reconsideration, the Santa Ana Water Board will consider the following: 1) progress towards attainment of interim numeric targets and milestones; 2) effectiveness of in-lake projects and their ability to provide for offsets; 3) results of studies implemented and completed to date; and 3) appropriateness of the final numeric targets, TMDLs, WLAs and LAs based on the 25th percentile of data from Cranston Guard Station from the San Jacinto River as compared to other estimations of the reference watershed condition. The Santa Ana Water Board will also consider if other provisions of these TMDLs and Implementation Plan should be amended based on new information available that was not available at the time of adoption of these TMDLs.

The TMDL Reconsideration process in this Implementation Plan sets a minimum for Santa Ana Water Board reconsideration. Nothing in these provisions is intended to restrict Santa Ana Water Board discretion to update or revise these TMDLs, the Implementation Plan, or any portion thereof, as the Board determines appropriate throughout the two phases of these TMDLs.

Surveillance and Monitoring Program

On March 3, 2006, the Santa Ana Water Board adopted Resolution No. R8-2006-003, "Approving the Lake Elsinore and San Jacinto Watersheds Authority Monitoring Program Proposal Submitted Pursuant to the Lake Elsinore and Canyon Lake Nutrient Total Maximum Daily Loads Specified in the Water Quality Control Plan for the Santa Ana River Basin". This 2006 Monitoring Program for the TMDLs has been implemented since approval in 2006, by LESJWA and the TMDL Task Force, except for minor approved revisions over the years and during the period from June 2012 through April 2015 when the Santa Ana Water Board allowed the re-allocation of the in-lake monitoring program costs towards nutrient reduction projects in the Lakes and Watershed. In 2016, the Santa Ana Water Board approved further updates with the approval of the Lake Elsinore and Canyon Lake Nutrient TMDLs Comprehensive Monitoring Work Plan (Haley & Aldrich, 2016), which provides monitoring for evaluating attainment of the 2004 TMDLs. The 2016 Comprehensive Monitoring Work Plan shall continue to be implemented until replaced by an approved TMDL Surveillance and Monitoring Plan for these TMDLs. Per task 18, the entities responsible for implementation of these TMDLs are required to submit an updated monitoring program work plan within one year after the effective date for these TMDLs.

Table 6-XXX, below, outlines elements that need to be considered for inclusion in the TMDL Surveillance and Monitoring Program, in addition to watershed aerial land use surveys for comparing and documenting rapidly changing land use patterns, and a monitoring program for HABs and cyanotoxins in both lakes. More detailed descriptions of monitoring plan details are included in the 2024 Final TMDL Technical Report in Section 8 (LESJWA 2024).

Table 6-xxx. Summary of Elements for Inclusion in Revised TMDL Monitoring Program

Waterbody	Elements Recommended for Inclusion in Revised TMDL Monitoring Program
San Jacinto River Watershed	• Re-inclusion of the Cranston Guard Station • Add two new monitoring stations below reference sub-watersheds • Reduce the storm mobilization criteria for the October 1 to December 31 period from a 1.0-inch to a 0.5-inch storm event forecast within 24-hours. The January 1 through April 30 mobilization criteria remains the same.
Lake Elsinore	• Discontinue the afternoon water column profile at each existing monitoring station. Analysis of water column profiles will continue to be performed once in mid to late morning during each monitoring event. • Utilize the two EVMWD multi-depth in-lake water quality sondes in combination with fixed depth DO sondes mounted just under the surface at both EVMWD sondes. These data will supplement the single point-in-time water column profiles recorded during each field monitoring event. • Incorporate Sentinel-2 satellite imagery (10-m resolution) for chlorophyll-a and turbidity measurements during months in which it is available (September through May), and LandSat 8 satellite imagery (30-m resolution) during all other months (June through August).
Canyon Lake	• Discontinue the afternoon water column profile at each existing monitoring station. Analysis of water column profiles will continue to be performed once in mid to late morning during each monitoring event. • Utilize a combination of fixed depth in-lake DO and temperature sondes to supplement single point-in-time water column profiles recorded during each field monitoring event. • Add Station CL09 to sites being monitored for full analyte list during each event. • Add total and dissolved aluminum to the analyte list for all sites to assess any influences from alum treatments in Canyon Lake. • Incorporate Sentinel-2 satellite imagery (10-m resolution) for chlorophyll-a and turbidity measurements during months in which it is available (September through May), and LandSat 8 satellite

Waterbody	Elements Recommended for Inclusion in Revised TMDL Monitoring Program
	imagery (30-m resolution) during all other months (June through August)

Tasks and Schedule for Phase II (Years 1-20)

Implementation of tasks in accordance with the schedule specified in Table 6-XXX is expected to achieve attainment of the milestones and interim numeric targets by the end of Phase II. Further, completion of certain tasks in Table 6-XXX for Phase II are expected to provide necessary data and information to evaluate the efficacy of the final numeric targets, TMDLs, WLAs and LAs, and to allow sufficient time to revise them before starting implementation of Phase III. Each of the tasks and the time for completing the tasks for Phase II are described below.

Table 6-XX1. Phase II (Years 1-20) Tasks and Schedule

Task	Description	Schedule	Responsible Entity(ies)
1. Stakeholder Coordination	Maintain TMDL Task Force collaboration at a frequency determined appropriate by the TMDL Task Force	Ongoing throughout Phase II	TMDL Task Force Members
2. Revise Permits and Other Regulatory Actions	Update permits, adopt new permits and take other actions for TMDL implementation	In a timely manner, and as needed, at the discretion of the regulatory agency.	Santa Ana Water Board or State Water Board

Table 6-XX1. Phase II (Years 1-20) Tasks and Schedule

Task	Description	Schedule	Responsible Entity(ies)
3. Revise Existing Watershed Implementation Plan(s)	Revise existing CNRP (or prepare equivalent watershed management plan)	Submit revised CNRP (or equivalent watershed management plan) to the Regional Board within one (1) year of TMDLs being incorporated into MS4 permit. Continue to implement existing CNRP, as applicable, until revised CNRP (or equivalent watershed management plan) is approved by the Santa Ana Water Board or the Executive Officer to the Santa Ana Water Board.	MS4 Permittees
4. Review and re-authorize existing In-lake Project(s) for Canyon Lake, and/or approve new In-Lake Project(s)	Evaluate effectiveness of the Canyon Lake Alum Project and potential feasibility of implementation of other in-lake projects	Continue existing Canyon Lake Alum Project during implementation of Task 4. Within one (1) year of TMDLs effective date, submit a report to the Santa Ana Water Board's Executive Officer that evaluates the effectiveness, and offsets provided by the existing alum project, and the feasibility of other in-lake projects to manage nutrients. Report shall include recommendations to revise the existing alum offset program, if determined necessary. Upon receipt of Report, the Santa Ana Water Board's	Entities responsible for implementation of Canyon Lake TMDLs

Table 6-XX1. Phase II (Years 1-20) Tasks and Schedule

Task	Description	Schedule	Responsible Entity(ies)
		Executive Officer will review to determine if the existing alum program should be re-authorized, and will evaluate any proposed new in-lake projects for authorization. If in-lake projects other than alum are recommended for implementation, include a Work Plan with a schedule for implementation in the report. Implement the Work Plan schedule, as approved by the Executive Officer.	
5. Evaluate In-Lake Project Options to Improve Water Quality in Lake Elsinore	Identify and evaluate feasible water quality control options that may be implemented to improve and maintain water quality in Lake Elsinore; identify preferred option or set of options	Within one (1) year from the effective date of these TMDLs, submit a report to the Santa Ana Water Board's Executive Officer that assesses in-lake project options for Lake Elsinore, identifies a preferred option or set of options and potential funding sources that may be available to support implementation.	Lake Elsinore Aeration & Mixing System (LEAMS) Operators
6. Implementation of Preferred Project Option or Options for Lake Elsinore	Prepare schedule to implement findings from Task 5 based on available funding and schedule	Within 18 months from the effective date of these TMDLs, submit an implementation schedule for proposed project(s) to the Santa Ana Water Board's Executive Officer. Implement the schedule as approved by the Santa Ana Water Board's Executive Officer. The implementation schedule should include a	LEAMS Operators

Table 6-XX1. Phase II (Years 1-20) Tasks and Schedule

Task	Description	Schedule	Responsible Entity(ies)
		task to develop a proposed Offset Program that is associated with implementation of the preferred option, or options, once they are operational.	
7. Revise Lake Elsinore Water Quality Criteria Based on In-Lake Treatment Controls, if necessary	Develop Work Plan to revise water quality criteria applicable to Lake Elsinore	Five (5) years after new or enhanced in-lake controls are fully operational, as a result of work completed in Task 6, if deemed necessary, submit a Work Plan with implementation schedule to the Santa Ana Water Board's Executive Officer for review and approval. Implement the Work Plan, as approved.	Entities responsible for implementation of Lake Elsinore TMDLs
8. Study to Evaluate Cyanobacteria in Lake Elsinore	Evaluate HAB conditions in Lake Elsinore and options to manage cyanobacteria and toxicity	Within five (5) years from the effective date of these TMDLs, submit a report to the Santa Ana Water Board that provides the findings from this Study. Depending on the results of this Study, it may be appropriate to conduct a follow up study after completion of task 6 to further evaluate HAB conditions in Lake Elsinore after implementation of a preferred in-lake project(s) for Lake Elsinore. The need for a follow up study should be evaluated with each triennial review report under task 14, starting with the first	Entities responsible for implementation of Lake Elsinore TMDLs

Table 6-XX1. Phase II (Years 1-20) Tasks and Schedule

Task	Description	Schedule	Responsible Entity(ies)
		triennial review report after completion of task 6.	
9. Study to Define and Identify Minor Sources and Identify Responsibility Levels for TMDL Implementation for Such Sources	Evaluate contributions of TP and TN from minor sources and determine if there is a level of discharge that should be defined as minor; identify appropriate level of TMDL implementation for minor sources	Within three (3) years from effective date of these TMDLs, submit a report to the Santa Ana Water Board that provides findings from this Study, and recommendations to the Regional Board to revise the TMDLs as determined appropriate and necessary based on the results of the study.	Entities responsible for implementation of Canyon Lake and Lake Elsinore TMDLs
10. Study of Performance of Watershed Controls	Evaluate performance of updated watershed controls included in the revised and approved CNRP (or equivalent watershed management plan) and Agricultural General Order	Within five (5) years from the effective date of the 2024 TMDLs, submit a Work Plan for conducting the Study to the Santa Ana Water Board's Executive Officer for review and approval. Complete the Study per the schedule in the approved Work Plan.	MS4 Permittees & Agricultural Operators
11. Study for Evaluating Reference Watershed Conditions	Conduct Study to validate basis for estimation of an appropriate reference watershed conditions	Within five (5) years from the effective date of the revised TMDLs, submit a Work Plan for conducting the Study to the Santa Ana Water Board's Executive Officer for review and approval.	Entities responsible for implementation of Lake Elsinore and Canyon Lake TMDLs

Table 6-XX1. Phase II (Years 1-20) Tasks and Schedule

Task	Description	Schedule	Responsible Entity(ies)
		Complete the Study per the schedule in the approved Work Plan.	
12. Study of Lake-bottom Sediment Sampling and Core Flux Experiments	Evaluate status of nutrient enrichment in lake sediments	Round 1: Within five (5) years after the effective date of these TMDLs, submit a Sediment Study Report to the Santa Ana Water Board that provides study results and updated estimates of internal nutrient loads. Round 2: Within 15 years after the effective date of the these TMDLs, submit a Sediment Study Report to the Santa Ana Water Board's Executive Officer that provides study results and updated estimates of internal nutrient loads.	Entities responsible for implementation of Lake Elsinore and Canyon Lake TMDLs, as applicable
13. Fishery Management	Evaluate status of Common Carp population in Lake Elsinore fishery	By August 15 of every 10th year from the effective date of these TMDLs, conduct a study of the fishery in Lake Elsinore to evaluate the Common Carp population to determine need for additional carp management activities to support attainment of the TMDLs.	Entities responsible for implementation of Lake Elsinore TMDLs

Table 6-XX1. Phase II (Years 1-20) Tasks and Schedule

Task	Description	Schedule	Responsible Entity(ies)
14. Evaluate Status of Attainment with Interim Numeric Targets and Milestones	Evaluate status of TMDL attainment	By August 15 of every 3rd year from the effective date of these TMDLs, submit a report on the status of attainment of the Phase II interim numeric targets and milestones	Entities responsible for implementation of Lake Elsinore and Canyon Lake TMDLs
15. Re-evaluate Final Numeric Targets, WLAs and LAs	Re-evaluate final numeric targets, WLAs, LA, and approaches to demonstrate TMDL attainment	No later than 16 years from the effective date of these TMDLs, submit a report to the Santa Ana Water Board that re-evaluates (a) final numeric targets,WLAs and LAs; and (b) Phase II TMDL attainment demonstration approaches. Report shall include recommendations for revising Phase III, including Phase III Final Numeric Targets, WLAs, LAs, and implementation provisions	Entities responsible for implementation of Lake Elsinore and Canyon Lake TMDLs
16. Identify Possible Revisions to the TMDLs	As appropriate, prepare necessary documentation to support revisions to the TMDLs	At least three (3) years before the end of Phase II (or no later than 17 years after the effective date of these TMDLs), submit to the Santa Ana Water Board the necessary documentation to support a revision to the Lake Elsinore and/or Canyon Lake TMDLs.	Entities responsible for implementation of Lake Elsinore and Canyon Lake TMDLs
17. Review and Reconsider Lake Elsinore/Canyon Lake Nutrient TMDLs	Santa Ana Water Board will review and reconsider the provisions of these TMDLs, as they determine appropriate and necessary	(1) No later than 10 years from the effective date, and (2) no later than at least two years before the end of Phase II (i.e., no later than 18 years after the effective date of the revised TMDLs),	Santa Ana Water Board

Table 6-XX1. Phase II (Years 1-20) Tasks and Schedule

Task	Description	Schedule	Responsible Entity(ies)
		the Santa Ana Water Board will review and reconsider the TMDLs in their entirety, including the responsible entities identified in the TMDLs, milestones, interim numeric targets, Final Targets, WLAs and LAs, taking into consideration the data and information collected during Phase II. As part of TMDL review and reconsideration, the Santa Ana Water Board will update the TMDLs, including Final Targets, WLAs and LAs and the Phase III Implementation Plan, as determined appropriate.	
18. Surveillance & Monitoring Program (SMP)	Update existing SMP for these TMDLs	Starting with the effective date of these TMDLs, continue to implement the existing LECL monitoring program until an updated SMP has been approved. Within one (1) year of the effective date of these TMDLs, submit an updated monitoring program for Santa Ana Water Board Executive Officer approval.	Entities responsible implementation of with Lake Elsinore and Canyon Lake TMDLs
19. Annual Water Quality Reports	Prepare annual water quality reports	By August 15 each year, after the effective date of these TMDLs, submit an Annual Water Quality Report to the Santa Ana Water Board based on the	Entities responsible for implementation of Lake Elsinore and Canyon Lake TMDLs

Table 6-XX1. Phase II (Years 1-20) Tasks and Schedule

Task	Description	Schedule	Responsible Entity(ies)
		currently approved monitoring program	

[1] Tasks involving multiple responsible entities may be implemented collectively through the TMDL Task Force

Task 1. Stakeholder Coordination

In 2005, soon after approval of the 2004 TMDLs, the TMDL Task Force was formed to implement certain monitoring and watershed-based management tasks identified in Phase I of the TMDL and to collectively work towards meeting numeric targets, WLAs and LAs. LESJWA serves as the administrator for the TMDL Task Force. Santa Ana Water Board staff attend and participate in Task Force meetings.

Since its inception, the TMDL Task Force and its members have made progress in improving water quality in both Lake Elsinore and Canyon Lake and furthering our scientific understanding of the San Jacinto River watershed and the lakes. Recognizing the success of the TMDL Task Force and its efforts to date, the Santa Ana Water Board supports continuation of the Task Force and its collaborative efforts for implementation of Phase II of the TMDLs. Accordingly, the Santa Ana Water Board encourages continued stakeholder coordination through the TMDL Task Force and recommends that the Task Force routinely meet throughout Phase II of TMDL implementation. The frequency of such TMDL Task Force meetings may be adjusted by the participating stakeholders as determined appropriate. Further, where identified, certain Phase II TMDL tasks may be implemented by the TMDL Task Force on behalf of its members. However, ultimate responsibility for various tasks falls on the individual agencies and/or entities identified and as tasks are incorporated into permits or other orders.

Task 2. Revise Permits and Other Regulatory Actions

TMDL provisions, as adopted into the Basin Plan, are not self-executing and must be directly incorporated into various discharge permits and authorizations to be directly applicable to the named responsible entities. Accordingly, the Santa Ana Water Board and State Water Board, as applicable, will need to (a) update existing permits to incorporate Phase II provisions for these TMDLs; and (b) incorporate Phase II provisions, as needed, into new permits adopted within the Lake Elsinore and Canyon Lake watershed. Key permits, existing orders and other regulatory actions that may require updates include:

- Santa Ana Water Board Order R8-2010-0033, NPDES and WDRs for Riverside County Flood Control & Water Conservation District, County of Riverside and Incorporated Cities of Riverside County within the Santa Ana Region, Riverside County;

- Santa Ana Water Board Order R8-2010-0005, NPDES and Waste Discharge Requirements for United States Air Force, March Air Reserve Base, Storm Water Runoff.
- Santa Ana Water Board Order R8-2023-0006, General Waste Discharge Requirements for Discharges of Waste from Irrigated Lands in the San Jacinto River Watershed, Riverside County;
- Santa Ana Water Board Order R8-2013-0017 as amended, Waste Discharge and Water Reclamation Requirements for Elsinore Valley Municipal Water District, Regional Water Reclamation Facility, Riverside County;
- Santa Ana Water Board Order R8-2018-0001, NPDES and General Waste Discharge Requirements for Concentrated Animal Feeding Operations (Dairies and Related Facilities) within the Santa Ana Region;
- State Water Board Order 2022-0033-DWQ, Statewide Stormwater Permit and Time Schedule Order for the California Department of Transportation (Caltrans);
- State Water Board Order 2013-0001-DWQ as amended, NPDES General Permit for Waste Discharge Requirements for Storm Water Dischargers from Small MS4s; and
- United States Forest Service Nutrient Management Plans; and
- Santa Ana Water Board Water Code 13267 Orders for non-irrigated agricultural operations that are 20 acres or more.

Permit revisions, orders or other regulatory actions require sufficient time to develop, provide opportunity to receive public comment, and hold an adoption hearing, if applicable. Given the revisions that are potentially necessary to incorporate TMDL provisions into permits, orders or other regulatory action and due to limited staff resources, it is expected that the Santa Ana Water Board or State Water Board efforts required to revise or adopt new permits or take other regulatory actions under Task 2 may take time and effort over several years.

Task 3. Revise Existing Watershed Implementation Plan(s)

Watershed implementation plans, developed in Phase I to reduce nutrient loads to Lake Elsinore and Canyon Lake, included the 2013 CNRP for Riverside County MS4 permittees and 2013 Agricultural Nutrient Management Plan (AgNMP) for agricultural operators. These plans included a combination of watershed controls (non-structural and structural) and participation in downstream in-lake projects. Implementation of these plans, and other efforts, resulted in the TMDL Task Force being able to demonstrate compliance with the 2004 TMDLs based on measured mass emissions (accounting for watershed nutrient reductions) and internal load reductions realized by operation of in-lake projects; alum addition in Canyon Lake and LEAMS operation in Lake Elsinore (LESJWA 2021).

These TMDLs change the allocations and numeric targets that were the basis of the 2013 CNRP and AgNMP. They include new milestones and interim numeric targets that apply to Phase II. Updates to existing watershed programs are a key step to ensure that projects are designed and implemented to achieve the milestones and interim numeric targets.

The following should be considered with regards to updating the existing MS4 watershed program, which is expressed in the Comprehensive Nutrient Reduction Plan (or equivalent Watershed Management Plan), and must be considered before the CNRP or equivalent plan is used to determine compliance with TMDL-based interim WQBELs or permit requirements:

- Reasonable assurance analysis that demonstrates implementation of planned projects, including participation in proposed offset projects by appropriately identified responsible parties, will collectively result in the lakes meeting the new interim numeric targets, or alternatively demonstrate that the identified MS4 responsible parties individually or collectively meet milestones, accounting for offset credits.
- For the CNRP (or an equivalent watershed management plan), the update should include quantification of the extent to which Low Impact Development and structural treatment BMPs have been implemented with urban development and the change to watershed nutrient loads. In general, retention-based BMPs are typically known for being effective at removing nutrients. However, such BMPs may also remove or divert runoff that would otherwise enter the lakes and be a critical resource in maintaining water elevations in the downstream lakes. The CNRP update should evaluate the advantages and disadvantages of implementing pollutant load reduction BMPs that retain runoff in the watershed versus potential impacts on lake water quality. The updated CNRP should also evaluate BMPs that treat and release runoff as an alternative to retention-based BMPs.

Per this task, Riverside County MS4 permittees will need to submit a revised CNRP (or equivalent Watershed Management Plan) to the Santa Ana Water Board within one (1) year of the effective date of these TMDLs being incorporated into the MS4 permit that applies to the Riverside County permittees. Once the revised CNRP (or equivalent Watershed Management Plan) is approved by the Santa Ana Water Board or the Santa Ana Water Board's Executive Officer, it must be implemented according to the approved schedule in the CNRP. Implementation of the existing CNRP, approved in 2013, would continue, as applicable, until the revised CNRP is approved by the Santa Ana Water Board or the Santa Ana Water Board's Executive Officer.

With respect to irrigated agricultural subject to Order R8-2023-0006, the order states, "[t]his Order serves as WDRs for all enrollees and constitutes their approved AgNMP under the Nutrient TMDLs, as this Order addresses and implements all the required elements listed above." Order R8-2023-0006 constitutes an approved AgNMP because

it includes multiple provisions that require dischargers subject to the order to implement appropriate management practices for the control of nutrients. Specifically, compliance with the agricultural load allocations assigned in the 2004 TMDLs may be achieved by demonstrating that the TP and TN loads from Irrigated Lands discharges meet the allocations specified for “Agriculture” in the Basin Plan, using representative surface water monitoring data and Santa Ana Water Board-approved modeling procedures. Alternatively, compliance may be achieved by demonstrating that the total combined waste load allocations and load allocations (i.e., collective watershed compliance) meet the total allocations as specified in the Basin Plan. Where TP and TN loads exceed the TMDL load allocations specified for agriculture or the total combined waste load allocations and load allocations for the TMDLs, Dischargers may offset excess loading through an offset program approved by the Santa Ana Water Board’s Executive Officer.

The efficacy of Order R8-2023-0006 as the AgNMP is being measured through representative surface water quality monitoring. In Order R8-2023-0006, the Santa Ana Water Board finds that the Water Quality Index Agricultural Tool (WQIag Tool) developed by the Western Riverside County Agricultural Coalition meets this surface water monitoring requirement for certain dischargers subject to Order R8-2023-0006. The WQIag Tool allows dischargers to input nutrient management practice information into a workbook that is part of their operating system data entry process to receive a water quality protection score. If the discharger’s score meets a compliance threshold score, as approved by Santa Ana Water Board staff, then the discharger will be considered to be attaining milestones through implementation of an approved AgNMP. In other words, meeting or exceeding the compliance threshold score reflects implementation of effective management practices for the control of nutrients.

For agricultural operators that are not eligible to use the WQIag Tool, compliance with the TMDL provisions in Order R8-2023-0006 must be fulfilled through individual monitoring and reporting.

With respect to these TMDLs, Order R8-2023-0006 will need to be updated since it constitutes the AgNMP associated with the 2004 TMDLs. As an updated AgNMP, dischargers enrolled under Order R8-2023-0006 (as updated) will meet the requirements of this task. Further, it is anticipated that future updates to Order R8-2023-0006 may incorporate use of the WQIag Tool for demonstrating attainment of the milestones for those that are considered eligible.

Task 4. Review and Re-Authorize Existing In-Lake Projects for Canyon Lake and/or Approve New In-Lake Project(s)

For Canyon Lake, implementation measures taken to comply with the 2004 TMDLs include watershed BMP deployments by MS4s and agricultural operators and the regional, multi-partner, alum addition program (Alum Project). The Alum Project, which

began in September 2013, typically involves two applications of low dose alum (10-30 mg/L dry alum) each year across the lake surface to remove bioavailable phosphorus from the water column and sequester it at the surface of the sediment at key times of the year (prior to historical algae blooms at turnover in October/ November and following influx of watershed loads during the wet season in March/April). The application of alum to Canyon Lake helps to offsets watershed-based loads of total phosphorus that reach Canyon Lake.

Continued implementation of the Canyon Lake Alum Project existing at the time of TMDL adoption is currently planned under Phase II until such time that it can be reviewed and reauthorized by the Santa Ana Water Board's Executive Officer. As such, within one (1) year of the effective date of these TMDLs, entities responsible for the Canyon Lake Alum Project must submit a Canyon Lake Water Quality Control Report that evaluates the effectiveness of the existing alum program. As part of the effectiveness evaluation, the Report must evaluate the use of alum as an offset for total phosphorus and revisit the existing crediting basis. In addition, the Report will evaluate the potential feasibility of implementing alternative water quality controls to manage nutrients in Canyon Lake – either to supplement the Alum Project, or as a new project(s) to replace the Alum Project. If alternative controls are recommended for implementation, the Water Quality Control Report will include a proposed Work Plan with schedule for implementation of the alternative controls. The continuation of the existing Alum Project, or any proposed changes to the existing program, including the offset credit basis or implementation of a new water quality control project(s), is subject to review and approval by the Santa Ana Water Board's Executive Officer.

Task 5. Evaluate In-Lake Project Options to Improve Water Quality in Lake Elsinore.

Water quality in Lake Elsinore involves a wide range of conditions from mesotrophic to hypereutrophic that are naturally occurring and not necessarily related to contributions from waste discharges or controllable water quality factors. Waste discharges can exacerbate these naturally occurring conditions. Further, although naturally occurring, hypereutrophic conditions may cause HABs that may pose a health risk to recreational users and their pets, as well as fish and wildlife.

For Lake Elsinore, the designated beneficial uses include: REC1, REC2, WARM, and WILD. Two applicable water quality objectives for maintaining the designated beneficial uses in the Basin Plan include (1) algae and (2) DO. The algae water quality objective is a narrative statement that states as follows: "*Waste discharges shall not contribute to excessive algal growth in inland surface receiving waters*." For DO, the water quality objective relevant portion states: "*The dissolved oxygen content of surface waters shall not be depressed below 5 mg/L for waters designated* ***WARM****, …, as a result of controllable water quality factors.*" Chapter 4 defines "controllable water quality factors."

These two water quality objectives, combined with the knowledge that Lake Elsinore is impaired for excessive nutrients, suggests that water quality objectives for nutrients are met as long as waste discharges are not contributing to excessive algal growth and that controllable water quality factors are addressed through treatment or known management methods. In other words, excessive algal growth and DO levels depressed from uncontrollable water quality factors may still occur in Lake Elsinore and not cause an exceedance of the existing water quality objectives. Ultimately, the goal of the TMDL is for the lakes to meet water quality objectives, which are designed to protect and maintain beneficial uses.

To help Lake Elsinore meet applicable water quality objectives (i.e., address excessive algal growth from waste discharges and controllable water quality factors), Task 5 will evaluate multiple supplemental in-lake project options to identify what option (or options) may provide the highest level of improved water quality that is both technically and economically feasible. This may include assessing the condition of the existing LEAMS facility and evaluating other potential in-lake treatment options. The assessment of in-lake project options should consider and evaluate the cost of implementing, operating and maintaining the control option as compared to the anticipated environmental benefits, including water quality improvements. A key outcome of the assessment will be to quantify the spatial and temporal extent for the best water quality that Lake Elsinore could achieve with implementation of feasible in-lake treatment options. The effectiveness, scalability, cost, and long-term operation and maintenance (O&M) requirements of controls may be considerations in selecting the preferred option or options for implementation. At a minimum, controls used to demonstrate compliance with TMDL-based requirements in waste discharge requirements or other regulatory mechanisms must ensure that water quality will meet applicable water quality objectives and sustain beneficial uses.

No later than one (1) year from the effective date of these TMDLs, the entities responsible for assessing in-lake project options for Lake Elsinore must submit a report that documents their assessment of options and identifies a preferred option or set of options. As part of the report, the entities should identify potential funding that may be available to assist with the implementation of the preferred option or set of options. Assessments conducted and reports submitted prior to the due date for this Report may satisfy this task as long as it meets the descriptions herein.

Task 6. Implementation of Preferred Option or Options for Improving and Maintaining Water Quality in Lake Elsinore

Based on the findings of Task 5, the responsible agencies will seek to implement the preferred option (or options) based on available funding. Within 18 months from the effective date of the revised TMDLs, an implementation schedule for proposed project(s) will be submitted to the Santa Ana Water Board's Executive Officer. Further, the project implementation schedule should include a proposed Offset Program that

would support ongoing operation and maintenance of the preferred option or options and allow other parties to purchase offsets from the project operators.

Task 7. Revise Lake Elsinore Water Quality Criteria Based on In-Lake Treatment Controls, if necessary

Attainment of these TMDLs means that external nutrient loads, considering offsets, will be at levels associated with the reference watershed condition. Under these conditions, algal growth and low DO levels may still occur in Lake Elsinore. At that time, it may be necessary to develop site specific water quality criteria that better reflect what is reasonably achievable for maintaining the lake's beneficial uses. Alternative water quality criteria may be developed that would consider the unique characteristics of Lake Elsinore and what is reasonably attainable. If deemed necessary, within five (5) years after new or enhanced in-lake projects are fully operational as a result of work completed in Task 6, a Work Plan to revise water quality criteria in Lake Elsinore may be prepared and submitted to the Santa Ana Water Board's Executive Officer for review and approval. If submitted, the Work Plan must include a proposed schedule for implementation. Task 7 is an optional task that may be implemented at the discretion of the entities responsible for achieving the TMDLs for Lake Elsinore.

Task 8. Study to Evaluate Cyanobacteria in Lake Elsinore

Recreational use in Lake Elsinore has been negatively impacted by persistent and toxic HABs. Swimming advisories and beach closures have frequently occurred in recent years. In 2021-2022, Santa Ana Water Board staff collected data at two sites on Lake Elsinore during more than 30 events to assess cyanotoxin conditions in Lake Elsinore.

Within five (5) years from the effective date of these TMDLs, a Study will be implemented to evaluate these data, other available HAB-related data from Lake Elsinore, and water quality data obtained since the implementation of new in lake projects pursuant to task 6, if available. As part of the study, available data will be reviewed to evaluate the types and associated toxicity of cyanobacteria that may occur in Lake Elsinore. The evaluation should employ approaches provided in the State Water Board's Framework and Strategy for Freshwater Harmful Algal Bloom Monitoring. The findings from this data evaluation will be submitted as a report to the Santa Ana Water Board.

Depending on the results of this Study and the time for completion of a new in-lake project for Lake Elsinore, it may be appropriate to conduct a follow up study after completion of task 6 to further evaluate HAB conditions in Lake Elsinore. The need for a follow up study should be evaluated with each triennial review report under task 14, starting with the first triennial review report after completion of task 6.

Task 9. Study to Define and Identify Minor Sources and Identify Responsibility Levels for TMDL Implementation for Such Sources

Some sources of nutrients in the San Jacinto River watershed are minor and likely have minimal impact on water quality in the downstream lakes. Under Task 9, contributions of Total Phosphorus and Total Nitrogen from potential minor sources in the watershed will be evaluated to determine if there is a level of discharge or minimum threshold that should be defined as being a minor source. Factors to be considered in defining what constitutes a minor source should include, but not be limited to, the following: subwatershed location, potential for future expansions or restrictions in loads from source (i.e., reasonably foreseeable changes in acreage from one source to another), and determination of minor source for each lake individually. For sources determined to meet the definition of minor source, this study will identify potential obligations or requirements for these sources under the TMDLs. Within three (3) years from effective date of the revised TMDLs, a report shall be submitted to the Santa Ana Water Board that provides the findings from this Study, including recommendations for revisions to the TMDLs as determined appropriate and necessary based on the results of the study.

Task 10. Study of Performance of Watershed Controls

Pollution controls and BMPs have been deployed throughout the San Jacinto River watershed for urban and agricultural lands. Pollution controls and BMPs have been implemented to meet MS4 permit requirements such as Water Quality Management Plans for new and re-development, public education and outreach, and good housekeeping activities such as street sweeping and catch basin cleaning. Nutrient load reductions achieved by these controls within MS4 drainage areas should be evaluated as part of updates to the CNRP (or equivalent watershed management plan) under Task 2. This may require additional mass emission monitoring at MS4 locations in the watershed upstream from the inflows to Canyon Lake.

For agricultural lands, nutrient load reductions from different management practices such as conservation tillage, winter cover crop use, timing of fertilizer application, and irrigation practices should be considered by the Santa Ana Water Board when it updates orders applicable to agricultural operators.

This Study is intended to evaluate performance of the updated watershed controls to validate key assumptions employed in the updates of the CNRP and Order R8-2023-0006. The Study may include collection of data from constructed projects within the watershed or involve updating scientific assumptions based on newer information from other publicly available sources.

Within five (5) years from the effective date of Phase II, the responsible entities (or the TMDL Task Force on behalf of the responsible entities) must submit a Work Plan for conducting the Study to evaluate performance of watershed controls being implemented by permittees. The Work Plan needs to include a schedule for implementation and must be submitted to the Santa Ana Water Board's Executive Officer for review and approval. Once the Work Plan and schedule are approved by the Santa Ana Water Board's

Executive Officer, the Study needs to be completed according to the approved schedule.

Upon completion of the Study, and after the Study's findings have been conveyed to the Santa Ana Water Board, such findings should be used during the next triennial review as required under Task 14 to evaluate attainment of these TMDLs and considered recommendations to revise these TMDLs.

Task 11. Study for Evaluating Reference Watershed Conditions

The milestones, interim numeric targets, WLAs and LAs are based on an estimated reference watershed condition and external load allocations (milestones, WLAs and LAs) are intended to be equivalent to the nutrient runoff associated with an undeveloped condition in the watershed. Data for estimating the reference watershed condition comes from the San Jacinto River at Cranston Guard Station. This location has been used as a reference site because the upstream watershed land use is comprised of 97 percent open space / forest. Laboratory analyses for nutrients were conducted on 51 samples collected from this location over the course of 10 wet weather events from 2003-2010. A complete characterization of this dataset for TP and TN is provided in the 2024 TMDL Technical Report (LESJWA 2024).

The Phase III numeric targets, WLAs and LAs are more conservative than the interim numeric targets and milestones because of questions related to the degree that the Cranston Guard Station data are representative of the reference watershed condition and the appropriate percentile to use for estimating the condition. Prior to the start of Phase III, additional evaluation is necessary to support the use of the San Jacinto River at Cranston Guard Station as being representative of the reference watershed condition, or to determine if a different location is more representative. Further, this evaluation is necessary to determine what percentage or statistical calculation of data should be used to estimate the reference watershed condition.

Accordingly, a Study must be conducted to collect additional samples from this station and other undeveloped canyons in the San Jacinto River watershed to assess (a) the validity of the basis for Phase II milestones and interim numeric targets as being representative of the reference watershed condition, (b) if the Phase II milestones and interim numeric targets should be the final numeric targets, WLAs and LAs, or (c) if some other estimation of the reference watershed condition from the newly collected data should be used for calculation of numeric targets, WLAs and LAs. The results of this study will help to determine whether further revisions of these TMDLs are needed to better represent the reference watershed condition. The Study design will generate a dataset that is at least as robust as the historical sampling in the San Jacinto River at Cranston Guard Station (i.e., n = 51 samples).

Within five (5) years from the effective date of Phase II, the responsible entities (or the Task Force on behalf of the responsible entities) must submit a Work Plan for conducting the Study to study/evaluate nutrient loads from proposed reference watershed sites. The Work Plan needs to include a schedule for implementation and

must be submitted to the Santa Ana Water Board's Executive Officer for review and approval. Once the Work Plan and schedule are approved by the Santa Ana Water Board's Executive Officer, the Study needs to be completed according to the approved schedule.

Task 12. Study of Lake-bottom Sediment Sampling and Core Flux Experiments

During the implementation of Phase II, two studies will be implemented to assess changes to nutrient enrichment in sediments following implementation of TMDL-related implementation projects. For this study, a minimum of two rounds of collection and analysis of lake bottom sediment cores will be collected from historically sampled locations in both Canyon Lake and Lake Elsinore. These two rounds of sample collection will be implemented within 5 years and 15 years after the effective date of these TMDLs. A Sediment Study Report with sample results and updated estimates of internal nutrient loads will be submitted to the Santa Ana Water Board's Executive Officer within six months after collection of the final sample collected during each round of sample collection.

Task 13. Fishery Management

By August 15 of every tenth year from the effective date of these TMDLs, the Lake Elsinore responsible entities need to conduct a study of the fishery in Lake Elsinore to evaluate the Common Carp population to determine the need for additional carp management activities. Carp are benthivores that disturb lake bottom sediments while foraging, which causes physical resuspension of nutrients from the lake bottom. A fish survey was completed in 2019 and found low carp populations; thus, no removal action was recommended. In addition to carp population management, periodic fishery studies will help to evaluate the success of ongoing fish stocking activities, assess the potential to modify the species stocked and evaluate populations of other species. Any such surveys should rely on the use of consistent sampling and data analysis methods which will allow for more accurate comparisons of the characteristics of the fish community between years. A Fisheries Management Study Report with sample results and description of the existing fish community diversity and health as compared to the previous fishery study will be submitted to the Santa Ana Water Board's Executive Officer for review within six months of the completion of the sampling and data analysis.

Task 14. Evaluate Status of Attainment with Interim Numeric Targets and Milestones

By August 15 of every third year from the effective date of these TMDLs, responsible entities must submit a report on status of TMDL attainment (i.e., progress towards achieving milestones and interim numeric targets). Evaluations of attainment may be made in a manner consistent with the options for demonstrating attainment of the milestones. The TMDL Technical Report (LESJWA 2024) provides further guidance on how monitoring data or lake model outputs for all key parameters (watershed total

phosphorus and total nitrogen mass emissions, lake chlorophyll-*a*, DO, and ammonia concentrations) may be used to assess attainment status.

As part of the triennial review report, the entities responsible for implementing these TMDLs may evaluate data and information collected from Studies completed during the preceding time-period and recommend to the Santa Ana Water Board if these TMDLs should be reopened and be revised at that point in time.

Task 15. Re-evaluate Final Numeric Targets, WLAs and LAs

Findings from Tasks 7 through 13 are expected to provide the additional information needed to support a decision-making process regarding the appropriateness of the final numeric targets, WLAs and LAs. The additional information may also be helpful in evaluating the appropriateness of the Phase III implementation tasks.

Based on the results of the studies and information gathered from implementation of the Phase II tasks, the final numeric targets, WLAs and LAs will be reevaluated. In addition, the options for demonstrating compliance for WLAs and LAs as they are incorporated into permits and other regulatory actions that are part of the allocations should also be reevaluated to determine if they should continue to be used during Phase III or if they should be revised. The results of these evaluations must be submitted to the Santa Ana Water Board no later than 16 years from the effective date of Phase II so that the Santa Ana Water Board can timely implement the second reopener identified in Task 17.

Task 16. Identify Possible Revisions to the TMDLs

Based on the outcome of Task 15, revision to these TMDLs may be warranted (e.g., to adjust assumptions regarding reference watershed conditions or update models used to develop the TMDLs). Under this task, necessary documentation will be prepared to support the Basin Plan amendment as needed to revise these TMDLs. Accordingly, at least three years before the end of Phase II (or no later than 17 years after the effective date of these TMDLs), the required documentation to support revision to the Lake Elsinore and/or Canyon Lake Nutrient TMDLs will be submitted to the Santa Ana Water Board.

Task 17. Review and Reconsider Lake Elsinore/Canyon Lake Nutrient TMDLs

Because of the complexity of these TMDLs and length of time required for each implementation Phase, the Santa Ana Water Board will reconsider these TMDLs twice during Phase II. Reconsideration will occur (1) no later than 10 years after the effective date of these TMDLs, and (2) no earlier than one year after acceptance of the evaluations and documentation under Tasks 15 and 16, and no later than 18 years after the effective date of these TMDLs. The second reconsideration is set at year 18 due to the process and time associated with potentially amending these TMDLs and relevant provisions in the Basin Plan in consideration of 18 years of data and information collected over Phase II. The scope of TMDL Reconsideration is discussed above.

Task 18. Surveillance & Monitoring Program (SMP)

Review the existing TMDL Surveillance and Monitoring Program (SMP) and Quality Assurance Project Plan (QAPP), and update such programs as determined necessary to provide data needed to support assessment of progress towards attaining interim numeric targets and milestones. The updated SMP should include a program to conduct watershed aerial surveys of land use every five years. This information will be used to support: (a) refinement of participation levels for regional project implementation at equitable levels relative to the distribution of land use; and (b) if needed, development of recommendations to the Santa Ana Water Board to revise these TMDLs, if significant changes have occurred in land use in the watershed. The updated SMP should consider including HAB and cyanotoxin monitoring for both lakes that can be used as a baseline for other studies. Until an updated SMP is approved by the Santa Ana Water Board's Executive Officer, the monitoring program existing when these TMDLs become effective will continue to be implemented.

Task 19. Annual Water Quality Reports

Annual water quality monitoring reports will continue to be developed that summarize conditions in accordance with the approved SMP. When necessary, proposed changes to the SMP will be included in a recommendations section of the Annual Water Quality Report to better address the needs of the TMDL Task Force or to align with studies described above. Prior to implementing any substantial changes, the proposed change(s) must be submitted to Santa Ana Water Board's Executive Officer in writing at least 45 days in advance; the Santa Ana Water Board's Executive Officer shall have 45 days to convey its agreement or disagreement with the proposed change, which must be made in writing. A substantial change is defined to include any decrease in monitoring frequency or locations, any substantial change in monitoring station locations, or any other departure from the approved SMP that could be considered significant. If the Santa Ana Water Board staff fails to convey in writing its agreement or disagreement with the proposed change(s) within the 45-day period, then the proposed change(s) in the monitoring program may be implemented, unless the Executive Officer has requested additional time for their review in writing prior to the end of the 45 days.

In addition, findings from compliance evaluations and special studies could result in future modifications to watershed implementation plans or identification of the need for supplemental projects to provide additional water quality improvements. **Table 6-XX** provides some examples of the types of projects that could be considered as supplemental projects in the future based on findings from Phase 2 tasks.

Table 6-XX. Potential Supplemental Projects that May Be Considered during the Phase II Implementation Plan (greater the number of "$" in the Cost column, the more costly)

Project	Action	Source	Waterbody	Cost	Description	Water Quality Benefits	Potential Constraints & Limitations
Mystic Lake Drawdown or other Source of Low TDS Water for Dilution	Hydrologic flushing	Internal	Lake Elsinore, Canyon Lake (Main/ East Bay)	$$$	Mystic Lake is a sump that captures all runoff from the upper San Jacinto River watershed via a breach in the levee on the north side of the river near Bridge Street. Most runoff that does reach Mystic Lake is retained and subsequently lost via evaporation. The most recent overflow to Canyon Lake occurred in 1998. Few data exist on the flow that reaches Mystic Lake, but the watershed model estimates ~3000 AFY, with many	• Flushing of nutrients and phytoplankton out of Canyon Lake • Increasing water levels and dilution of TDS in Lake Elsinore	• Intermittent source of water, further reductions of inflows could occur with increased upstream capture. • Impacts to waterfowl and other wildlife in Mystic Lake. • Subsidence in the lake could impact facilities, e.g., pumping facilities) over time. • Mystic Lake is a water of the state listed in the Basin Plan. Pumping of water to the San Jacinto

					years having zero volume inflow and many years with over 10,000 AFY. While intermittent, this water may have a significant value for EVMWD water supply (at Canyon Lake) and for water quality in both lakes (providing both flushing and dilution). A potential project would involve pumping and conveying the stored runoff out of Mystic Lake (bottom elevation 1,408 ft) to the overflow channel leading to the lower San Jacinto River (invert elevation 1,423 ft).		River would impact the beneficial uses within Mystic Lake (intermittent uses: MUN, REC1, REC2, WARM; existing or potential beneficial use: BIOL, WILD, RARE

Alum Addition to Wet Weather Inflows	Phosphorus removal	Internal	Lake Elsinore, Canyon Lake (Main/East Bay)	$	An alternative delivery method for alum additions could involve a small chemical feed storage and delivery system at the two inflows to Canyon Lake. This would treat bioavailable phosphorus immediately as it arrives in the lake and provide a better flocculation with lower pH of wet weather runoff.	Reduction of TP in water column	• Requires on-site chemical storage of low pH material. • Outdoor chemical feed system may be susceptible to damage by high flows, wind or vandalism.
Oxygenation	DO control, phosphorus & nitrogen reduction	Internal	Canyon Lake (Main)	$$	Oxygenation involves the direct addition of oxygen to the lake bottom waters in Canyon Lake Main Lake during periods of thermal stratification. The oxygen would reduce anoxic conditions in the lake bottom and	Reduction of TP and TN in water column	• Low DO in hypolimnion of Canyon Lake occurs in reference condition. • Requires large scale on-site oxygen storage.

					thereby limit the internal loading of nutrient to the water column.		
Dredging	Phosphorus & nitrogen reduction	Internal	Canyon Lake (East Bay)	$$$$	Dredging involves the physical removal of lake bottom sediments. This is a very effective way to reduce the pool of mobile nutrients within the lake bottom.	Reduction of TP and TN in water column	• Dredging is very costly. • Disposal of sediment may require hauling offsite. • Environmental permitting
Enhanced Fishery Management	Algae control	Internal	Lake Elsinore	$$	Carp removal program already active (though currently suspended). LESJWA (2005a) noted that with carp managed, additional fishery management activities could be implemented that would improve water quality and health of the biological community, e.g.,	Improved aquatic community to enhance zooplankton that graze on algae	• Carp control is fundamental to the successful implementation of these fishery management activities. • Other potential limiting factors for zooplankton such as salinity may require controls.

					zooplankton enhancement; aquatic and emergent vegetation restoration; fish habitat improvement; and fish community structure improvement.		
Vegetation Management	Algae control	Internal	Lake Elsinore, Canyon Lake (Main/East Bay)	$$	Establishment of submerged aquatic vegetation that will take up nutrients and release oxygen to the water column. Macrophytes can compete for limited nutrients and light with algae thereby providing another control on algae growth.	Reduction of TP and TN in water column, control of algae growth	• Macrophytes may not get established. • Water level fluctuations can kill vegetation by either desiccation or drowning.
Artificial Recirculation in Canyon Lake	Phosphorus & nitrogen reduction	Internal	Canyon Lake (Main/East Bay)	$$$$	Recirculate oxygen depleted, nutrient rich water from the hypolimnion in the Main Lake through East Bay and back	Net reduction of internal nutrient load and net increase in DO. Algae blooms would be expected to be shortened in duration within East	Net reduction in nutrients is expected, but there may be periods when high concentrations of

					to the Main Lake. Transfer of water from the hypolimnion in Main Lake to East Bay is expected to cause a rise in DO at the sediment interface; a reduction of internal loads of TP and TN may also be realized. For East Bay, water delivered from the Main Lake would be reaerated through the process of discharge and flushing through the shallow East Bay. This activity would facilitate flushing of nutrients out of East Bay to reduce the duration of algal blooms. Over time, reduced cycling of nutrients within East Bay	Bay and conditions with DO > 5 mg/L would extend deeper in the water column in the Main Lake.	bioavailable nutrients in the Main Lake hypolimnion could cause an increase in nutrient concentrations within East Bay.

					would limit sediment nutrient flux; and, thereby, the concentration of bioavailable nutrients flushed to Main Lake.		
Ultrasonic Algae Control	Algae control	Internal	Canyon Lake (East Bay, North Ski Area)	$	Devices can be deployed that will kill algae within a 50-ft radius by sonication.	Control of algae growth	• Sonication is effective over a small area only (e.g., coves in East Bay or the North Ski Area); would require too many devices to impact larger zones. • Impact to other aquatic species could become an important consideration.
Algaecide	Algae control	Internal	Canyon Lake (Main/East Bay)	$	Algaecides may be effective in controlling algae blooms as they begin to occur.	Control of algae growth	• Repeated use of some algaecides can cause elevated levels of toxins in the lake bottom. • Nutrients are not addressed

							and therefore new algae blooms may arise shortly after an algaecide treatment.
Physical Harvesting	Algae control	Internal	Lake Elsinore, Canyon Lake (Main/East Bay)	$$	Skimmers and other tools can be used to physically remove algae from the surface of the lake.	Control of algae growth	• Labor intensive • Management of algal slurry • Disposal of biosolids locally
Watershed BMPs in Urban Drainage Areas	Phosphorus & nitrogen reduction	External	Lake Elsinore, Canyon Lake (Main/East Bay)	$$$	Stormwater BMPs are required to be implemented with new and redevelopment projects that capture and infiltrate or treat runoff and associated nutrients prior to reaching the lakes. Additionally, stormwater BMPs can be retrofitted into existing development areas.	Reduction of TP and TN in water column and in settled sediment	• Load reductions are limited to runoff from small-moderate sized storms only. • Extensive upstream runoff retention would reduce flows to Lake Elsinore.

Funding for selected projects may be available through the following potential sources:

- Private financing by individual and/or group sources;
- Bonded indebtedness or loans from governmental institutions;
- Federal grants or low-interest loan programs, such as the USDA Natural Resources Conservation Service's Environmental Quality Incentive Program (EQIP) (e.g., in 2023 the EQIP program incentive payment for a basic cover crop for organic and non-organic crops was $61.23/acre in California);
- Single-purpose appropriations from federal or State legislative bodies; and
- Grant and loan programs administered by the State Water Board and California DWR. Grants and loan programs may be directed to agricultural specific projects or in-lake projects. Such grants or loans would help to decrease costs for implementation of the Phase II and Phase III Implementation Plans for the TMDLs. These programs currently include:
  - Clean Water Act funds (State Water Board);
  - Agricultural Water Quality Grant Program (State Water Board);
  - Clean Water State Revolving Fund (State Water Board); and
  - Integrated Regional Water Management grants (State Water Board, CDWR).

Tasks and Schedule for Phase III (Years 21-30)

Phase III will start beginning in year 21 and continue through year 30. Implementation of Phase III tasks, as specified in Table 6-XXX is expected to return the lakes to a reference condition based on the 25th percentile by the end of Phase III. Each of the tasks and the time for completing the tasks for Phase III are described below.

Table 6-XXX. Phase III (Years 21-30) Tasks and Schedule

Task	Description	Schedule	Responsible Entity
1. Stakeholder Coordination	TMDL Task Force collaboration at a frequency as determined by the stakeholders	Ongoing throughout Phase III	Task Force Members
2. Revise Existing Watershed Implementation Plans	Review existing CNRP (or equivalent watershed management plan) Revise existing Irrigated Lands General Order	CNRP: Within one (1) year past the end of Phase II, review the existing CNRP (or equivalent watershed management plan) and submit revisions to the Santa Ana Water Board, if revisions are necessary; continue implementation of the existing	MS4 Permittees; Agricultural Operators; (Others, as needed); Santa Ana Water Board

Table 6-XXX. Phase III (Years 21-30) Tasks and Schedule

Task	Description	Schedule	Responsible Entity
	Revise other existing Watershed Implementation Plans, as needed	CNRP or watershed management plan until revised CNRP or watershed management plan is approved by the Santa Ana Water Board. Within two (2) years past the end of Phase II, revise any General Orders or other Watershed Implementation Plans where needed to support implementation of the TMDLs.	
3. Evaluation of In Lake Project(s) for Canyon Lake	Evaluation and implementation of existing in-lake projects	Continue to implement existing Canyon Lake in-lake projects Within two (2) years after the end of Phase II, submit an evaluation of the effectiveness of the existing/ongoing in-lake project(s) for Canyon Lake and any approved offsets that may be associated with the in-lake project(s) to the Santa Ana Water Board's Executive Officer for review. Upon review of the evaluation, the Santa Ana Water Board's Executive Officer may reauthorize the project(s) and any associated offsets, or deny reauthorization. If the Santa Ana Water Board's Executive Officer reauthorizes the Project and	Entities responsible for implementation of Canyon Lake TMDLs

Table 6-XXX. Phase III (Years 21-30) Tasks and Schedule

Task	Description	Schedule	Responsible Entity
		the Project continues, then within five (5) years from the Executive Officer's determination, and once every five (5) years thereafter, an evaluation of the effectiveness of the Project and use of any offsets associated must be submitted to the Santa Ana Water Board's Executive Officer for review and consideration of continuation of reauthorization. Any significant changes to the offset program must be requested in advance of implementation of the change and such change must be approved by the Santa Ana Water Board's Executive Officer prior to implementation.	
4. Implement New or Revised In-Lake Projects for Lake Elsinore	Implement new or revised in-lake projects for Lake Elsinore as determined appropriate	Continue to operate new/refined in-lake projects in Lake Elsinore that were implemented in Phase II Within two (2) years after the end of Phase II, submit an evaluation of any approved offsets associated with the implementation of in-lake projects for Lake Elsinore to the Santa Ana Water Board's Executive Officer for review. Upon review of the evaluation, the Santa Ana Water Board's Executive Officer may reauthorize the project(s) and any associated	Entities responsible for implementation of Lake Elsinore TMDLs

Table 6-XXX. Phase III (Years 21-30) Tasks and Schedule

Task	Description	Schedule	Responsible Entity
		offsets, or deny reauthorization.	
5. Fishery Management	Evaluate status of fishery populations in Lake Elsinore using consistent sampling and data analysis methods used in previous studies	Within five (5) years after the end of Phase II (but no later than 10 years from year that the last fishery survey was conducted during Phase II), and every 10th year thereafter, submit a report that includes the results of a Study conducted to evaluate the status of fishery populations in Lake Elsinore and compare to previous studies. Submit the report to the Santa Ana Water Board's Executive Officer for review.	Entities responsible for implementation with Lake Elsinore TMDLs
6. Evaluate Status of TMDL Attainment of Numeric Targets, WLAs and LAs	Evaluate status of attainment with the final numeric targets and allocations	Starting two (2) years after the end of Phase II, and every 3rd year thereafter, submit a report that evaluates progress towards meeting the final numeric targets, WLAs and LAs in these TMDLs.	Entities responsible for implementation of the Lake Elsinore and Canyon Lake TMDLs
7. Implementation Gap Analysis	Based on results of Task 6, determine the load reductions remaining to be achieved to meet the WLAs, LAs and numeric targets	Within three (3) years after the end of Phase II, submit a report to the Santa Ana Water Board's Executive Officer that provides an evaluation of the implementation gaps, i.e., that determines the load reductions that must still be achieved to meet WLAs, LAs, and/or targets and allocations in the TMDLs.	Entities responsible for implementation of Lake Elsinore and Canyon Lake TMDLs
8. Study for Lake-bottom Sediment Sampling and Core Flux Experiments	Based on the results of sediment sampling in Phase II, task 12, at least one round of collection and analysis of lake	Round 1: No later than five (5) years after the end of Phase II, submit a Sediment Study Report to the Santa Ana Water Board that	Entities responsible for implementation of Lake Elsinore and Canyon

Table 6-XXX. Phase III (Years 21-30) Tasks and Schedule

Task	Description	Schedule	Responsible Entity
	bottom sediment cores needs to occur during Phase III. If there is significant variability, it may be necessary to conduct additional rounds periodically during the life of Phase III. Sediment will be collected from historically sampled locations in both Canyon Lake and Lake Elsinore to assess changes to nutrient enrichment after implementation of watershed implementation plans and other TMDL-related projects in the watershed.	provides study results and updated estimates of internal nutrient loads. Subsequent studies: Depending on the results of previous sediment sampling studies, the studies should be repeated periodically during the Phase III if there are significant variations in the results. Submit study results and any recommendations for future sampling to the Santa Ana Water Board's Executive Officer for review and approval.	Lake TMDLs, as applicable
9. Evaluate in-lake project options for Canyon Lake to Maintain Intended Aquatic Life, Recreational and Municipal Uses, if necessary	Evaluation of reasonably feasible lake management activities in Canyon Lake that may be implemented to improve and maintain water quality for intended uses, including reduction of HABs in frequently used swimming beaches and impacts to water supply.	Within three (3) years after the end of Phase II, submit a proposed Work Plan for an evaluation of Canyon Lake's ability to maintain intended beneficial uses for approval by the Santa Ana Water Board's Executive Officer. Complete the tasks in the Work Plan according to the schedule as approved by the Santa Ana Water Board's Executive Officer	Entities responsible for implementation of Canyon Lake TMDLs

Table 6-XXX. Phase III (Years 21-30) Tasks and Schedule

Task	Description	Schedule	Responsible Entity
10. Evaluate Supplemental in-lake project options for Lake Elsinore to Maintain Intended Aquatic Life and Recreational Uses, if necessary	Evaluate supplemental and reasonably feasible water quality control options for Lake Elsinore to maintain intended aquatic life and recreational uses, including reduction of HABs in frequently used swimming beaches.	Within four (4) years past the interim compliance milestone, submit a proposed Work Plan for an evaluation of Lake Elsinore's ability to maintain intended beneficial uses for approval by the Santa Ana Water Board's Executive Officer. Complete the tasks in the Work Plan according to the schedule as approved by the Santa Ana Water Board's Executive Officer.	LEAMS Operators
11. Surveillance & Monitoring Program	Update TMDL SMP (and QAPP) as needed; updates should include a program to conduct watershed aerial surveys of land use every 5 years, and HAB and cyanotoxin monitoring for both lakes.	Continue to implement the existing SMP as approved under Phase II, unless or until an updated SMP is approved by the Santa Ana Water Board's Executive Officer.	Entities responsible for implementation of Lake Elsinore and Canyon Lake TMDLs
12. Annual Water Quality Reports	Prepare annual water quality reports	By August 15 each year, submit an Annual Water Quality Report that reports the results of SMP implementation to the Santa Ana Water Board; reports must identify any changes or proposed changes to the SMP. Prior to implementing any significant changes to the approved SMP, the proposed change must be submitted to Santa Ana Water Board's Executive Officer in writing at	Entities responsible for implementation with Lake Elsinore and Canyon Lake TMDLs

Table 6-XXX. Phase III (Years 21-30) Tasks and Schedule

Task	Description	Schedule	Responsible Entity
		least 45 days in advance; Santa Ana Water Board's Executive Officer shall have 45 days to convey its agreement or disagreement with the proposed change; if Santa Ana Water Board's Executive Officer fails to convey in writing its agreement or disagreement with the proposed change within the 45 day period, then the change in the SMP may be implemented unless the Executive Officer requests an extension of the deadline prior to the end of the 45 days. A substantial change is defined to include any decrease in monitoring frequency or locations, any substantial change in monitoring station locations, or any other departure from the approved SMP that could be considered significant.	
13. Adaptive Management	Throughout the implementation of Phase III, taking into consideration results of studies conducted during Phases II and III, adaptive management needs to be employed to coordinate project refinements or enhancements with	Ongoing activity.	Entities responsible for implementation with Lake Elsinore and Canyon Lake TMDLs

Table 6-XXX. Phase III (Years 21-30) Tasks and Schedule

Task	Description	Schedule	Responsible Entity
	operators and other stakeholders.		
14. Review and Reconsider Lake Elsinore/Canyon Lake Nutrient TMDL	Santa Ana Water Board will review and reconsider the provisions of these TMDLs, as they determine appropriate and necessary	(1) No later than 10 years after the end of Phase III, and every 10 years thereafter, the Santa Ana Water Board will review and reconsider the TMDLs in their entirety, including the responsible entities identified in the TMDLs, numeric targets, WLAs and LAs, taking into consideration the data and information collected during Phase II and the previous Phase III 10 years as applicable. As part of TMDL review and reconsideration, the Santa Ana Water Board will update the TMDLs, including Final Targets, WLAs, LAs, and the Phase III Implementation Plan, as determined appropriate.	Santa Ana Water Board

Definitions and Terminology Specific to the Lake Elsinore and Canyon Lake Nutrient TMDLs

CUMULATIVE DISTRIBUTION FUNCTIONS: Plots of statistical distributions for sets of data to characterize spatial and temporal variability in water quality.

FINAL NUMERIC TARGETS: Modeled, expected in-lake water quality responses to inflows of nutrient concentrations that represent a reference watershed condition based on the 25th percentile of San Jacinto River data at the Cranston Guard Station.

IN-LAKE PROJECTS: Management actions or projects implemented in Lake Elsinore and/or Canyon Lake that are designed to improve water quality conditions in the lake as it relates to nutrients. Examples of in-lake projects include fisheries management actions, applications of alum or other products designed to sequester phosphorus in the sediment, ozone injection, aeration technology, etc. The implementation, operation and maintenance of in-lake projects may be the basis for offset credits, as approved by the Santa Ana Water Board or the Santa Ana Water Board's Executive Officer.

INTERIM NUMERIC TARGETS: Modeled, expected in-lake water quality responses to inflows of nutrient concentrations that represent a reference watershed condition based on the median of San Jacinto River data at the Cranston Guard Station.

LAKE ELSINORE AERATION AND MIXING SYSTEM (LEAMS): Phase I in-lake projects designed to improve dissolved oxygen conditions in Lake Elsinore.

LAKE ELSINORE MANAGEMENT PROJECT (LEMP): Project implemented between 1989 and 1995 that resulted in permanently modified Lake Elsinore's physical characteristics. The project included (1) construction of a levee that reduced the size of the lake to approximately 3,000 acres, (2) realignment of the lake inlet channel to bring in natural runoff from the San Jacinto River watershed when Canyon Lake overflows, and (3) lowering of the outlet channel to increase outflow to downstream Temescal Creek when the lake level exceeds an elevation of 1,255 feet mean sea level.

LOAD ALLOCATIONS: Numeric values assigned to watershed loads for nonpoint sources of nutrients to the lakes that are designed to meet in-lake final numeric targets for a reference watershed condition based on the 25th percentile of San Jacinto River data at Cranston Guard Station.

MILESTONES: Numeric values assigned to watershed loads by source and for the watershed as a whole that are designed to meet in-lake interim numeric targets for a reference watershed condition based on the median of San Jacinto River data at Cranston Guard Station.

WASTELOAD ALLOCATIONS (WLAS): Numeric values assigned to watershed loads for point source dischargers that are designed to meet in-lake final numeric targets for a reference watershed condition based on the median of San Jacinto River data at the Cranston Guard Station.

WET LAKE MANAGEMENT STRATEGY: Management of Lake Elsinore to maintain lake elevations at 1,247 feet mean sea level, including through the addition of recycled water to Lake Elsinore.

REFERENCES

Haley & Aldrich. 2016. *Lake Elsinore & Canyon Lake Nutrient Total Maximum Daily Loads (TMDLs) Comprehensive Monitoring Work Plan*. Prepared for LESJWA. July 27, 2016. https://sawpa.gov/wp-content/uploads/2012/05/2016_2017_LECL-Ph2-MonitoringPln_FINAL-w-cvr-7-18-161.pdf. Last accessed August 21, 2024.

Hamilton, M. and P. Boldt. 2015a. *Mystic Lake Impacts on TMDL Stakeholders. Presentation on behalf of WRCAC to LECL Task Force*. August 11, 2015. https://sawpa.gov/wp-content/uploads/2012/05/2015-8-11-Presentations-3.pdf. Last accessed August 21, 2024.

Hamilton, M. and P. Boldt. 2015b. *Mystic Lake and the Lake Elsinore/Canyon Lake Nutrient TMDL*. Pages 10-14 in: The Agrarian, The Agrarian, Newsletter of the Western Riverside County Agriculture Coalition. May 2015.

Horne, A.J. 2002. *Restoration of Canyon Lake and Benefits to Lake Elsinore Downstream*. Report to SAWPA. January 23, 2002.

Lake Elsinore & San Jacinto Watersheds Authority. 2018. *TMDL Technical Report: Revision to the Lake Elsinore and Canyon Lake Nutrient TMDLs.* Prepared by CDM Smith, GEI Consultants, Risk Sciences, University of California Riverside, Wood Environment and Infrastructure, and CB Resource Management and Engineering. December 1, 2018.

Lake Elsinore & San Jacinto Watersheds Authority. 2021. *Lake Elsinore and Canyon Lake Nutrient TMDL 2020 Final Compliance Assessment Report*. Prepared by CDM Smith, GEI Consultants, Kahn Soares & Conway LLP, and Wood Environment and Infrastructure Solutions, Inc. April 2021.

Lake Elsinore & San Jacinto Watersheds Authority. 2024. *Revised TMDL Technical Report: Revision to the Lake Elsinore and Canyon Lake Nutrient TMDLs.* Prepared by GEI Consultants. August 20, 2024.

Santa Ana Regional Water Quality Control Board. 2004a. *Lake Elsinore and Canyon Lake Nutrient Total Maximum Daily Loads Technical Report.* Original report dated March 26, 2004; revised May 21, 2004.

Santa Ana Regional Water Quality Control Board. 2004b. *Resolution Amending the Water Quality Control Plan for the Sana Ana River Basin to Incorporate Nutrient Total Maximum Daily Loads (TMDLs) for Lake Elsinore and Canyon Lake, Resolution R8-2004-0037*. December 20, 2004.