
WATER SUPPLY ASSESSMENT

MOSS LANDING COMMUNITY PLAN UPDATE

FINAL

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Water Supply Assessment

Moss Landing Community Plan Update

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1 Introduction

This Water Supply Assessment (WSA) was prepared for the Moss Landing Community Plan update (Community Plan update) located in the vicinity of State Route 1 and Moss Landing Road in northwestern Monterey County. It was prepared in conjunction with an Environmental Impact Report (EIR) for the proposed project by EMC Planning Group, Inc., Monterey, California and the County of Monterey Housing and Community Development (HCD), Salinas, California. The primary purpose of this WSA is to determine if there is sufficient water supply to meet future water demands within the project area under normal and dry hydrologic conditions to build out of the Community Plan update, which is anticipated to occur by 2050.

1.1 Proposed Project

The proposed Project is the buildout of the Moss Landing Community Plan update. The Moss Landing Community Plan update (Project or MLCP) planning area encompasses about 1,708 acres and is located about 7 miles southwest of Watsonville and 2.5 miles northwest of Castroville (**Figure 1**). The Project is surrounded by beaches and Monterey Bay to the west, sloughs and farmland to the east, and farmland to the north and south. The Elkhorn Slough cuts through just north of the center of the Project area (**Figure 2**).

Land use has been relatively stable in recent years and currently consists of heavy industry, marine research, small-craft harbors, commercial areas, and small residential areas. **Table 1** presents current water use in the MLCP area. **Table 2** presents projected water use at buildout for the proposed MLCP and includes new commercial and industrial development and new dwelling units. **Figure 3** shows the locations of projected MLCP buildout areas. Land uses and specific developments may change during buildout of the MLCP; however, minor variations that don't affect the intensity of water use will not affect the general results of this WSA. At buildout, the area of commercial and industrial buildings will increase to about 1,752,760 square feet (sf) (**Table 2**). The Project includes one new residential dwelling, 49 second-story residential units, 55 units of employee housing, a 30-room fisherman's dormitory, and 110 hotel rooms (**Table 2**). At buildout, there would be an estimated 254 new residents and 1,952 new employees (EMC, draft Table 3-3, 12/10/24). The Pajaro Sunny Mesa Community Services District's Moss Landing Harbor Water System (PSMCSD-MLHWS) will provide water to the new development.

The following paragraphs summarize the development projects and plans based on preliminary information from EMC (EMC, 3/11/25) and subsequent information from and discussions with EMC Planning Group and the County HCD Department.

The community consists of seven main areas (from north to south): North Harbor, Elkhorn, Island, South Harbor, Dolan, Village Center, and Heights (a residential area). Pacific Gas & Electric (PG&E) facilities (electric substation and Elkhorn Battery energy storage project), Vistra Corp Moss Landing Power Plant (1,060-megawatt (MW) natural gas-fired, combined-cycle facility, and battery energy storage projects), and the Moss Landing Business Park, formerly known as the Kaiser Refractory are

primarily on the east side of State Route 1. Two large marine research facilities (California State University's Moss Landing Marine Laboratory (MLML) and Monterey Bay Aquarium Research Institute (MBARI)) are major employers in Moss Landing.

The Project area also includes beaches and dunes, wetlands, open water, and farmland.

The buildout of the MLCP has been broken down into six geographic areas in the planning area: Potrero, Village Center, North Harbor, Island, Dolan, and Miscellaneous. These are shown on **Figure 3** and detailed information on new development within each area is provided in **Table 2**. The MLCP Item Numbers in the left-hand side of **Table 2** are identified on **Figure 3** with the exceptions of NH-3, I-10, D-4, MISC-3 and MISC-4 which likely do not have a specific location and represent general development within each identified MLCP Item Number.

This WSA has been extended to 2050, to capture the projected buildout of the MLCP by 2050.

1.2 Background

The California Water Code section 10910 (also termed Senate Bill 610 or SB610) requires that a Water Supply Assessment be prepared for a project that is subject to the California Environmental Quality Act (CEQA) and subject to SB610 as defined in Water Code section 10912. The Moss Landing Community Plan update is subject to CEQA and SB610 because it includes an industrial park occupying more than 40 acres of land¹. It is also considered a project because it is a mixed-use project that would demand an amount of water equivalent to, or greater than, the amount of water required by residential development that would represent an increase of 10 percent or more in the number of the public water system's existing service connections².

Under SB610, documentation of water supply sources, quantification of water demands, evaluation of drought impacts, and provision of a comparison of water supply and demand are required to form the basis for an assessment of water supply sufficiency. This WSA follows the guidelines set out in the Guidebook for Implementation of Senate Bill 610 and Senate Bill 221 and subsequent clarification posted on the California Department of Water Resources website (CDWR, 2013).

A foundational document for preparation of a WSA is an Urban Water Management Plan (UWMP). However, PSMCSD has not prepared an UWMP because its current water use and current number of connections in the Moss Landing Harbor service area are both below that required for UWMP preparation (3,000 acre-feet per year or 3,000 or more connections).

1 CA Water Code § 10912 (2022): (a) (5) A proposed industrial, manufacturing, or processing plant, or industrial park planned to house more than 1,000 persons, occupying more than 40 acres of land, or having more than 650,000 square feet of floor area.

2 CA Water Code § 10912 (2022): (b) If a public water system has fewer than 5,000 service connections, then "project" means any proposed residential, business, commercial, hotel or motel, or industrial development that would account for an increase of 10 percent or more in the number of the public water system's existing service connections, or a mixed-use project that would demand an amount of water equivalent to, or greater than, the amount of water required by residential development that would represent an increase of 10 percent or more in the number of the public water system's existing service connections.

Monterey County was the lead agency for development of this WSA. PSMCSD provided input and consultation. This WSA is part of the MLCP EIR and County approval of the WSA is slated to occur at the same time as the EIR is certified.

1.3 Purpose

The purpose of this WSA is to document PSMCSD-MLHWS's existing and future water supplies for its service area and compare them to the area's future water demand including that of the proposed Project. This comparison, conducted for both normal and drought conditions in five-year increments over the next 20 years (to 2045), is the basis for an assessment of water supply sufficiency in accordance with the requirements of California Water Code section 10910 (Senate Bill 610). This WSA has been extended to 2050, to capture the projected buildout of the MLCP in 2050.

Section 2 of this WSA presents the Project's current and proposed water demands while Section 3 discusses PSMCSD-MLHWS's current and projected water demands in normal and drought years. Water supply information pertinent to the Project is provided in Section 4. Water supply and demand in normal and drought years are compared in Section 5. Section 6 discusses cumulative impacts and conclusions and recommendations are presented in Section 7. Section 8 contains references.

2 Project Water Demand

This section addresses water demands for the existing property and presents water demand estimates for the proposed MLCP at buildout.

2.1 Current Project Area Water Use

The proposed Project area is currently developed with industry, marine research, small-craft harbors, commercial areas, and small residential areas. The water supply for current and proposed uses is groundwater although seawater is also used in some industrial applications.

Current water use is summarized in **Table 1**. PSMCSD-MLHWS has a groundwater well (Well #3) and a backup well (Well #1) located on Avila Road, east of the Project area (**Figure 2**). It also has three storage tanks totaling approximately 177,000 gallons of storage (PSMCSD, December 19, 2024). These tanks are in the southwestern portion of the MLCP area (see Appendix A).

PSMCSD-MLHWS provides water to 59 single family residential units and 13 multifamily connections. It also provides water to 66 commercial and industrial connections and 7 public/institutional connections. In 2023 it pumped 89.31³ acre-feet (AF) of groundwater. PSMCSD-MLHWS also supplies water to 5 additional single-family units and 3 commercial connections outside of MLCP boundaries (PSMCSD, March 3, 2025).

The Moss Landing Mutual Water Company (MLMWC) provides water to its three members Moss Landing Power Plant, PG&E, and a local dairy. It has two wells (Wells 8 and 9) southeast of the Moss Landing Power Plant (see MLMWC Well Site on **Figure 2**). In 2024, the MLMWC pumped 240 AF from its two wells. Between 2015 and 2024, an average of 189 AFY was pumped over the ten-year period with a maximum of 293 AF in 2023 and a minimum of 139 in 2019 (MCWRA, 2025).

The Moss Landing Business Park (MLBP) is provided water from PSMCSD-MLHWS (McWilliams, Koren, 2025). It has two wells to the east of the PSMCSD-MLHWS wells that were used in the past for irrigation but no longer supply water to the MLBP.

Current water use within the MLCP area is estimated to be 329 AFY (**Table 1**).

2.2 Proposed Project Water Demand

At buildout, the proposed Project will add approximately 1,752,760 square feet (sf) of commercial and industrial development, one new residential dwelling, 49 second-story residential units, 55 units of employee housing, a 30-room fisherman's dormitory, and 110 hotel rooms (**Table 2**).

Estimates of new building square footage and new residential units associated with buildout of the MLCP area were categorized according to six areas (Potrero, Village, North Harbor, Island, Dolan, and Miscellaneous) in **Table 2**. The MLCP Item Number on the left-hand side of **Table 2** corresponds

3 In this report, water demand values may be shown to the tenth or hundredth place. As a result, numbers may appear to be accurate to four or five digits, which is not the case. Estimated values (e.g., water demand) are probably accurate to one or two significant digits. In the text and tables, digits are retained to minimize rounding errors, preserve correct totals in tables, and to maintain as much accuracy as possible in subsequent computations.

to likely locations for development shown on **Figure 3**. Water use rates for each Item Number were estimated in the table in gallons per day per square foot (gpd/sf) for commercial and industrial development or in gpd per unit for residential development. Table footnotes provide details on sources for these water-use estimates.

Potential new development associated with the buildout of the MLCP by 2050 is estimated to need about 87.21 AFY (78.48 AFY plus 10 percent unaccounted-for losses for PSMCSD-provided water) (**Table 2**).

3 Pajaro Sunny Mesa Community Services District Demands

This section summarizes water demands for the PSMCSD Moss Landing Harbor Water System service area. PSMCSD-MLHWS service area is shown on **Figure 2** and includes most of the MLCP update area that requires potable water. MLCP update areas outside of the PSMCSD-MLHWS service area include the Power Plant, farmland to the north and east, and a State Wildlife area to the northeast. The PSMCSD-MLHWS service area boundaries extend to the south and east, beyond the Project area. These areas are mostly farmlands and include 3 commercial connections and 5 residential PSMCSD-MLHWS connections (PSMCSD, March 3, 2025).

The sections below describe the factors affecting total water demand, including climate, followed by documentation of water demands under normal climatic conditions and during droughts.

PSMCSD is the major supplier of potable water to Moss Landing. It has operated the Moss Landing Harbor Water System (System Number 2701515) since about 2005 when it assumed responsibility for five water systems owned and operated by the Alisal Water Company, including Moss Landing. The Moss Landing system has about 145 service connections. PSMCSD also serves multiple communities in northern Monterey County, including Pajaro and Sunny Mesa within Pajaro Valley Water Management Agency (PVWMA). Its service areas extend from the Pajaro River in the north to Prunedale in the south and from Moss Landing in the west to the Highway 101 corridor in the east. Currently, PSMCSD owns and operates nine systems. PSMCSD is a public agency with a total of about 1,565 service connections and currently provides potable water, fire flow, park, and streetlight services to thousands of residents in northern Monterey County. Most of these water systems are small, noncontiguous, and operate separately.

3.1 Climate

Climate has a significant influence on water demand on a seasonal and annual basis. This influence increases with the portion of water demand for outside uses, specifically landscape irrigation.

Table 3 summarizes representative climate data for the Moss Landing area, including average monthly and annual rainfall, temperature, and evapotranspiration (ET_o). The area has a Mediterranean climate, with moderate temperatures year-round, dry summers and wetter winters. Most of the rainfall occurs between November and April.

Climate change may affect future water supply availability for the Salinas Valley by changing local precipitation patterns and increasing water demands. PSMCSD has a backup well and storage to provide some flexibility and reliability in long term water supply planning.

3.2 Current PSMCSD Moss Landing Water Demand

Table 4 documents the water demand for PSMCSD-MLHWS service area by water use sectors for the calendar years 2018 through 2023. In 2023, a reported 81.55 AF was sold to 59 single family connections, 13 multifamily connections, 66 commercial or industrial connections and 7 public or institutional connections. Total water use and average water use rates per connection are shown in **Table 4**.

In 2023, about 89.31 AF were pumped from the PSMCSD-MLHWS well. The difference between the amount of water pumped and the amount of water sold is called unaccounted-for losses in **Table 4**. Unaccounted-for losses were about 8.7 percent in 2023 and averaged about 10 percent between 2018 and 2023. A small portion of water produced in any water system is unaccounted between metered water production and metered water usage. Unaccounted-for water typically includes unmetered use (for example, main flushing or firefighting), meter error, and leaks. Unaccounted urban water use in California generally ranges from 6 to 15 percent (California DWR, August 1994).

There are no sales to other agencies, saltwater barriers, groundwater recharge, or conjunctive use projects in the PSMCSD-MLHWS service area.

3.3 Drought PSMCSD and MLCP Water Demands

Figure 4 shows annual (calendar year) rainfall at the Salinas North rain gage for 1994 to 2023. There was a closer rain gage in Castroville⁴, but that gage was discontinued in 2019. Average rainfall at the Salinas North gage was 14.28 inches with a low of 4.68 inches in 2013 and a high of 27.33 inches in 1998. The figure also shows available (2008 to 2023) PSMCSD-MLHWS annual pumping data (red line in upper right). Comparison of the rainfall and pumping lines suggests that demand (pumping) generally increases during dry periods (2011-2013, 2020-2022) although there appears to be a recent lag in pumping. In addition, the high pumping recorded in 2022 may be an outlier because that year had near average rainfall and followed an average rainfall year; pumping in 2023 returned to 2018-2020 levels.

At this point in time, PSMCSD does not have a water shortage contingency plan but its website lists conservation measures identified in the May 24, 2022 State Water Resources Control Board (SWRCB) emergency water conservation regulations (PSMCSD, January 22, 2025). Conservation measures include water use restrictions, violation notices and fines. PSMCSD is also considering developing its own water shortage contingency plan to provide measures to reduce demands during emergencies and drought times (PSMCSD, September 11, 2019).

PSMCSD has an adopted Local Hazard Mitigation Plan (LHMP) (Rincon, 2022). The LHMP identifies hazards that could impact the Moss Landing Harbor Water System service area water infrastructure and supply. These include drought, seismic, landslide and sea level rise. The LHMP includes mitigation action goals and tables listing the suggested priority, timeline, cost estimates, benefit, and potential funding source for each mitigation action. PSMCSD has an emergency generator for the Moss Landing Harbor Water System.

Comparison of supply and demands in normal, dry and multiple dry years occurs in Section 5.

4 Rainfall at the Castroville gage (#19) is slightly more than at the Salinas North gage (#116). For example, 1994-2018 average annual rainfall at the Castroville gage was 14.74 inches and was 14.44 inches at the Salinas North gage.

4 Water Supply

At this time, PSMCSD-MLHWS has no plans to use recycled water or desalinated water. Seawater is used for non-potable purposes at the MLML, the Moss Landing Power Plant, and the MLBP. Seawater is mainly used for industrial and research purposes at these facilities and is regulated by various State and Federal agencies. Its use is not quantified in this WSA because it does not offset the use of potable water.

Groundwater from the underlying Salinas Valley Groundwater Basin is the sole source of water provided to the Moss Landing area by the PSMCSD and private wells. According to the Water Code, if groundwater is a source of water supply for a project, then the SB610 Water Supply Assessment must include specific groundwater information, summarized below:

- Description of the groundwater basin (e.g., basin boundaries, aquifers).
- Availability of an adopted groundwater management plan for the basin and discussion of how it affects the water supplier's use of the basin.
- Groundwater level trends and overdraft status.
- If overdrafted, management actions and projects to eliminate overdraft.
- Location and amount of groundwater extraction by the water supplier for the past five years, based on available data.
- Analysis of the location, amount, and sufficiency of groundwater that is projected to be pumped by the water supplier.

4.1 Salinas Valley Groundwater Basin

The Salinas Valley Groundwater Basin is the long, narrow, and deep alluvial basin formed by the Salinas River, which flows from its headwaters in San Luis Obispo County generally northward to discharge into Monterey Bay. The Salinas Valley Basin comprises nine subbasins, seven of which are in Monterey County, including the 180/400-Foot Aquifer Subbasin. The Subbasin has been designated by DWR as Groundwater Basin Number 3-004.01 (**Figure 1**).

The 180/400 Foot Aquifer Subbasin contains three water bearing units named for the average depth at which they occur: the 180-foot Aquifer, the 400-foot Aquifer, and the 900-foot and 1500-foot Aquifers (also called Deep Aquifers). These principal aquifers are separated and confined by fine-grained layers. The 180-foot Aquifer is overlain and confined by a blue clay layer (Salinas Valley Aquitard). The 180-foot Aquifer is a 50 to 150-foot thick complex zone of interconnected sands, gravels and clay lenses and is underlain by a 10 to 70-foot thick zone of discontinuous aquifers and aquitards (180/400-Foot Aquitard). Underneath this confining layer is the 400-foot Aquifer that consists of sands, gravels, and clay lenses and has an average thickness of 200 feet. Below the 400-Foot Aquifer, the 400-Foot/Deep Aquitard confines the Deep Aquifers, also referred to as the 900-Foot and 1500-Foot Aquifers.

Natural groundwater recharge to the Salinas Valley Basin occurs through infiltration of surface water from the Salinas River, deep percolation of excess applied irrigation water and infiltrating precipitation, mostly along the Salinas Valley, and subsurface inflow from adjacent subbasins. In 180/400 Foot Aquifer Subbasin, recharge to the principal aquifers is very limited because of the low permeability of the Salinas Valley Aquitard. It is likely that only limited surficial recharge in the

Subbasin reaches the productive 180-Foot Aquifer or the 400-Foot Aquifer. Subsurface recharge is primarily from inflow from adjacent Subbasins (CDWR, 2004).

Groundwater naturally discharges from the aquifer in locations where surface water and groundwater are interconnected. There are potential locations of interconnected surface water (ISW) mainly along the Salinas River where the Salinas Valley Aquitard does not exist. Under pre-pumping conditions, groundwater would have flowed toward the Pacific Ocean, discharging through submerged springs along the offshore Monterey Canyon. Under historical and current conditions of overdraft, this outward flow has reversed, and seawater has intruded onshore into the 180-Foot and 400-Foot Aquifers.

4.2 Groundwater Management Planning Status

The Sustainable Groundwater Management Act (SGMA), enacted by the California legislature as of January 1, 2015, provides a framework for sustainable management of groundwater resources by local agencies. SGMA lays out a required process, scope, and timeline and provides local agencies with broad groundwater management powers to achieve groundwater sustainability. Groundwater sustainability is defined in terms of six indicators for undesirable results including groundwater level declines, storage depletion, seawater intrusion, groundwater quality degradation, and impacts on connected surface water and subsidence. SGMA is directed at groundwater basins or subbasins that have been designated by the California Department of Water Resources (DWR) as medium- or high-priority, including critically overdrafted basins, such as the 180/400-Foot Aquifer Subbasin of the Salinas Valley Groundwater Basin (SVGB).

The Salinas Valley Basin Groundwater Sustainability Agency (SVBGSA) was organized in 2017 to provide sustainable management for the medium- or high-priority Salinas Valley subbasins in Monterey County, including the 180/400-Foot Aquifer Subbasin. The SVBGSA is a Joint Powers Authority with membership including the County of Monterey, Monterey County Water Resources Agency (MCWRA), City of Salinas, City of Soledad, City of Gonzales, City of King, Castroville Community Services District, and Monterey One Water.

Because the 180/400-Foot Aquifer Subbasin was designated by DWR as critically overdrafted, preparation of a Groundwater Sustainability Plan (GSP) for the Subbasin was required with submittal in January 2020. Accordingly, the SVBGSA submitted a GSP to DWR for the 180/400 Foot Aquifer Subbasin on January 23, 2020 (SVBGSA, 2020). This GSP was assessed by DWR and in June 2021 was found to satisfy the requirements of SGMA and to be in substantial compliance with GSP regulations (CDWR, 2021). While approving the GSP, DWR also identified five recommended corrective actions generally focusing on:

1. Providing additional information on the GSA's Engagement and Outreach Strategy, including engagement of irrigation, drinking water supply, and environmental beneficial users.
2. Investigating the hydraulic connectivity of the Salinas River, the non-principal shallow aquifer, and the principal aquifers, and identifying locations where the Salinas River gains or loses water to the groundwater system.
3. Clarifying its plan to conduct necessary field reconnaissance for identification of groundwater dependent ecosystems (GDEs).

4. Defining what constitutes “average hydrogeologic conditions” and how the “long-term average over all hydrogeologic conditions” will be calculated for the consideration of undesirable results for reduction of groundwater storage and depletions of interconnected surface water.
5. Coordinating with the appropriate groundwater users and water quality regulatory agencies and programs to understand and develop a process for determining if groundwater management and extraction is resulting in degraded water quality in the Subbasin.

The Subbasin shares boundaries with five adjacent subbasins. All five of the adjacent subbasins were designated by DWR as medium- or high-priority basins and required to sustainably manage groundwater under SGMA; consistent with SGMA, GSPs were submitted by SVBGSA for each in January 2022. Subsequently, the GSP for the 180/400-Foot Aquifer Subbasin was updated in September 2022 (GSP Update) such that all SVBGSA GSPs are aligned in approach and timing.

This 2022 GSP Update (SVBGSA, 2022) incorporates additional data about current conditions, adds clarifications identified during development of the 2022 Salinas Valley GSPs, addresses recommended actions from DWR’s review of the original GSP, and incorporates additional regulatory requirements. This 2022 Update, submitted to DWR as an amendment according to GSP Regulation § 355.10, replaces the original 2020 GSP. It is a key reference for this section, along with associated Annual Reports, the most recent for Water Year 2023 (SVBGSA, 2024). A 2025 Periodic Evaluation for the 180/400-Foot Aquifer Subbasin GSP (SVBGSA, 2025) has recently been made available. It provides an evaluation of the ongoing GSP implementation, including projects and management actions, and determines that the GSAs are on track to meet the GSP sustainability goal.

The 2025 Periodic Evaluation (SVBGSA, 2025) is under review. Thereafter, DWR staff will continue to monitor and evaluate changes in conditions in the Subbasin, including the Subbasin’s progress toward achieving the sustainability goal, through annual reporting and periodic GSP evaluations.

4.3 Projected PSMCSD Moss Landing Water Demand

Table 5 summarizes projected water demands for the PSMCSD-MLHWS service area to 2050 and includes PSMCSD-MLHWS service area growth in demand that is not Project-related, and anticipated to be minimal, as well as increased demands associated with the Project. Water demands in 2025 were assumed to be averages of 2021, 2022 and 2023 demands to consider possible low water use in 2023. PSMCSD-MLHWS is anticipating a new service connection, usually commercial, every other year (PSMCSD, January 27, 2025). This slow growth is projected to occur regardless of the approval status of the MLCP Project and is conservatively assumed to not be associated with the Project. It has been incorporated in the commercial sector in **Table 5**. By 2050, PSMCSD-MLHWS is anticipated to have 13 additional commercial connections and an increased water use of 13.87 AFY (13 x 0.96 AFY/connection plus 10% losses) associated with this growth.

MLCP buildout is projected to occur around 2050. The demands in the 2050 column are the 2025 demands plus the anticipated increase in PSMCSD-MLHWS service area demands (13.87 AFY) and increase in demands associated with the Project by 2050 (buildout) (87.21 AFY). **Table 2** provides details on the new Project demands which include water demands associated with 1 new single-family home and 134 residential units (49 second story, 55 employee housing, 30-room dorm) in

the multifamily water sector row. The new commercial and industrial development and the new hotels are in the commercial/industrial water section row in **Table 5**.

Table 5 assumes a linear increase in Project demands between 2025 and 2050. For the 2025-2050 time period, an unaccounted-for loss estimate of ten percent was assumed which is the average of the 2018-2023 unaccounted-for water percentage (**Table 4**).

By 2050, the PSMCSD-MLHWS service area is projected to have a demand of 197.22 AFY (**Table 5**). This is an increase of about 101 AFY (**Table 5**, PSMCSD-MLHWS Total 2025 to 2050).

Average water use rates per connection in **Table 5** (right hand column) are similar to those calculated in **Table 4** (right hand column, average of 2021-2023) with the exception of multifamily. In **Table 4**, the number of multifamily connections is not the same as the number of multifamily units; in many cases, one connection supplies water to multiple units. The proposed new multifamily connections represent individual units thus reducing the water demand per connection.

The second row from the bottom of **Table 5** includes an estimated demand of 300 AFY not supplied by PSMCSD but by private wells (MLMWC) (**Table 5**, see footnote 6). By 2050 (buildout) the total water use in the MLCP area is estimated to be 497 AFY. This is an increase of about 163 AFY between current water use (329 AFY, **Table 1**) and proposed water use (497 AFY, **Table 5**) within the MLCP area.

Table 6 shows past, current and projected pumping for the PSMCSD-MLHWS service area as well as additional private well pumping (MLMWC) in the MLCP area. Because groundwater supplies all the water to the MLCP area, **Table 6** (groundwater pumping) and **Table 5** (total demands) are similar. PSMCSD-MLHWS past production (2008-2023) has ranged from 80 AFY (2016) to 109 AFY (2008). PSMCSD-MLHWS pumping will increase from about 89 AFY (2023) to 197 AFY (2050) by MLCP buildout. Most of the additional water demands are attributed to future commercial and industrial development. With the additional pumping of 300 AFY from private wells (MLMWC), a total average annual water supply of about 497 AFY will be needed by 2050.

4.4 Groundwater Levels, Storage, and Overdraft Condition

The GSP Update describes groundwater conditions using 2020 as the representative current year. Groundwater conditions are summarized in terms of the indicators for sustainability (groundwater level declines and storage depletion, seawater intrusion, impacts on connected surface water, groundwater quality degradation, and subsidence).

As described in the GSP Update, groundwater level hydrographs generally show a decline in groundwater elevations throughout most of the Subbasin and in all principal aquifers. Groundwater levels have been lowered by pumping, with a historical loss of groundwater storage between 1995 and 2019 amounting to 13,400 AFY, mostly due to seawater intrusion. The 180/400-Foot Aquifer Subbasin has been subject to seawater intrusion for more than 70 years. Maps for the 180-foot Aquifer and 400-foot Aquifer, respectively, indicate that the areal extent of seawater intrusion in 180-foot Aquifer has been relatively stable since 2009 but has increased in the 400-foot Aquifer. The GSP Update also reports (based on provisional groundwater flow modeling) that the Subbasin experiences depletion of interconnected surface water (ISW) due to groundwater pumping.

The Deep Aquifers Study (Montgomery & Associates, 2024) established that pumping increases in the Deep Aquifers have caused groundwater elevations to fall putting the Deep Aquifers at risk of seawater intrusion from above through poorly constructed wells or leakage through the 400-foot Aquitard and through seawater intruding laterally from the ocean. The northern boundary of the Deep Aquifers is south of the Elkhorn Slough and the MLCP area is in an area of uncertainty in the Deep Aquifers Study.

Potential groundwater quality degradation is tracked using data from SWRCB's GAMA groundwater information system. The constituents of concern (COCs) for public water system supply wells and domestic wells have a Maximum Contaminant Level (MCL) or Secondary Maximum Contaminant Level (SMCL) established by the State's Title 22 Regulations. The COCs for irrigation wells include those that may lead to reduced crop production and are outlined in the Central Coast Regional Water Quality Control Board (CCRWQCB)'s Basin Plan (2019). Sustainability is evaluated in terms of the number of wells that have concentrations above the regulatory standard for the COCs in the Subbasin. The COCs detected in wells at concentrations above their regulatory limit include 1,2,3-trichloropropane, arsenic, chloride, gross alpha radioactivity, manganese, methyltert-butyl ether, nitrate, specific conductance, and total dissolved solids.

The GSP Update presents a map showing the average annual InSAR subsidence data in the 180/400-Foot Aquifer Subbasin between June 2015 and June 2020. The map shows that no measurable subsidence has been recorded anywhere in the Subbasin.

4.5 Groundwater Management Actions and Projects

The 180-400 foot Aquifer Subbasin is critically overdrafted, meaning that continuation of present water management practices would probably result in significant adverse overdraft-related environmental, social, or economic impacts. However, the goal of the GSP Update is to ensure long-term viable water supplies while maintaining the unique cultural, community, and business aspects of the Subbasin. Sustainability criteria particularly relevant to the Moss Landing Community Plan update include management of groundwater levels to be above 2015 groundwater elevations, management for seawater intrusion to be within the 2017 extent of the 500 mg/L chloride isocontour, and groundwater supply sources to have zero additional exceedances of regulatory water quality standards. As required by SGMA, sustainability is to be achieved by 2040 and the GSP Update presents multiple Projects and Management Actions (MAs); six MAs and eight projects provide direct benefits to the 180-400 foot Aquifer Subbasin. These generally involve the following:

- Demand planning
- In-lieu recharge through direct delivery of water to replace groundwater pumping
- Direct recharge through recharge basins or injection/dry wells
- Indirect recharge through decreased ET
- Seawater intrusion pumping barrier.

A Management Action that could directly affect Moss Landing Community water supply sources is demand planning, which could be applied to Moss Landing groundwater sources and involve pumping allocations, pumping controls (including pumping fees), and pumping reductions. While the projects and management actions in the GSP Update are indicated to be sufficient to mitigate existing overdraft, demand planning could be used if other projects and management actions do

not reach sustainability goals and mitigate overdraft. The GSP Update describes the Demand Planning (MA 1) in detail, including the outreach to Subbasin stakeholders to develop that MA. An associated Implementation Action is Well Registration, whereby all groundwater production wells, including wells used by *de minimis* pumpers, will be required to be registered with the SVBGSA. Well metering also could be required.

Recent communication with the SVBGSA has indicated that the Demand Planning management action would apply to Moss Landing and that they are currently developing strategies and activities to improve water use efficiency within the northern residential and rural residential areas of the 180/400 Subbasin (SVBGSA, March 14, 2025).

The SVBGSA is also evaluating the feasibility of a brackish desalination project for a seawater intrusion barrier and brackish water treatment and delivery⁵. Although this potential project would occur south of Moss Landing and is not anticipated to serve water to the MLCP, it could, if it moves forward, provide benefit to the 180/400-Foot Subbasin (SVBGSA, March 14, 2025).

The Greater Monterey County Region IRWMP concluded that Salinas Valley Groundwater Basin overdraft will be reduced in the future but will continue to be a problem and seawater intrusion is expected to worsen, particularly with increasing impacts of climate change (GMC RWMG, 2018). The Greater Monterey County Regional Water Management Group (RWMG) has coordinated its water management planning activities to address or incorporate local SGMA resource planning efforts. To achieve hydrologic balance in the SVGB, a mix of management strategies is being promoted by the IRWMP (GMC RWMG, 2018). Identified objectives to improve water supply include:

- Increase groundwater recharge and protect groundwater recharge areas.
- Optimize the use of groundwater storage with infrastructure enhancements and improved operational techniques.
- Increase and optimize water storage and conveyance capacity through construction, repair, replacement, and augmentation of infrastructure.
- Diversify water supply sources, including but not limited to the use of recycled water.
- Maximize water conservation programs.
- Capture and manage stormwater runoff.
- Optimize conjunctive use where appropriate.
- Support research and monitoring to better understand identified water supply needs.
- Support the creation of water supply certainties for local production of agricultural products.
- Promote public education about water supply issues and needs.
- Promote planning efforts to provide emergency drinking water to communities in the region in the event of a disaster.

Projects are periodically identified for potential funding through the IRWMP planning process. Solicitations occur every two to three years to add new projects with the most recent round

5 Feasibility Study Draft Summary Report Brackish Groundwater Restoration Project <https://svbgsa.org/brackish-groundwater-restoration-project/>

occurring in 2022. The IRWMP website (<https://www.greatermontereyirwmp.org/projects/>) has a current project list. Projects address water resources needs in the region and can include water supply, water quality, stormwater management, flood management, and environmental resources. Over time, the projects developed and funded through the IRWM planning process are intended to reverse basin overdraft and halt seawater intrusion.

4.6 Local Groundwater Use

Groundwater is the only source of potable water supply for the project area and is produced from the 180/400 Foot Aquifer Subbasin of the Salinas Valley Groundwater Basin (SVGB) (**Figure 1**). The PSMCSD-MLHWS service area (**Figure 2**) currently has one primary and one backup well with capacities of 450 and 500 gpm, respectively and are screened in the 400-foot aquifer. The wells are about 100 feet apart and the primary well is 660 feet deep. The original well (Well #1) became the backup well when the new well (Well #3) came online in 2013. PSMCSD previously had an agreement with the Moss Landing Business Park (MLBP) for use of its Well #2 as a backup well. That agreement has expired (PSMCSD, December 19, 2024).

The Moss Landing Mutual Water Company (MLMWC) provides water to its three members Moss Landing Power Plant, PG&E, and a local dairy and has two wells and a sodium hypochlorite treatment system south of the Moss Landing Power Plant (MLMWC Well Site on **Figure 2**). It's two wells (Wells #8 and #9) have a combined capacity of 1,040 gpm (MLMWC, 2020 CCR). Well depths are at 855 feet and 1,070 feet but the pumping depths are 280 feet and 320 feet, respectively (MLMWC, 2020 CCR). In 2024, the MLMWC pumped 240 AF from its two wells. Between 2015 and 2024, an average of 189 AFY was pumped over the ten-year period with a maximum of 293 AF in 2023 and a minimum of 139 in 2019 (MCWRA, 2025). As per PSMCSD, these wells have not interfered with the operation of the PSMCSD-MLHWS wells (PSMCSD, December 19, 2024).

The Moss Landing Business Park (MLBP) has two wells to the east of PSMCSD-MLHWS wells that were reportedly only used for irrigation in the past but PSMCSD-MLHWS currently supplies all the water, including irrigation water, to the MLBP (McWilliams, Koren, 2025).

Two smaller water systems are just east of the PSMCSD-MLHWS and south of Dolan Road. The Dolan Road Mutual Water Company well is about 2,500 feet east-southeast of the Moss Landing system well site and serves about 40 residential connections, and the Green Acres Water Association well is about 4,000 feet east-southeast and serves about 20 residential connections. In 2022, the Dolan Road MWC pumped 5.5 AF and the Green Acres WA pumped 2.3 AF (California SWRCB, 2025). These systems are not interconnected and there are no plans to connect them in the future or for any additional development in these areas (PSMCSD, September 11, 2019).

SGMA representative well and GSP groundwater well locations are shown on **Figure 2**. These locations are from GIS layers obtained from the SGMA portal. Well density figures presented in the Salinas Valley Groundwater Basin 180/400-Foot Aquifer Subbasin Groundwater Sustainability Plan indicate that there are about zero to five agricultural wells per square mile in the vicinity of **Figure 2** (SVBGSA, 2020; Figure 3-8).

A portion of the Moss Landing Community Plan update area extends north of Elkhorn Slough into the PVWMA (**Figure 2**). According to the LAFCO *Municipal Services Review* (2006), PVWMA

ordinances prohibit export of water outside of PVWMA boundaries. PSMCSD-MLHWS does not use water from PVWMA in the Moss Landing service area.

The areas north and south of the project area are predominantly farmland. To the east is a dairy farm and small developed areas. Private wells supply water to these rural residences and agriculture.

4.7 Other Water Sources

Seawater Use

Moss Landing Marine Lab (MLML) has a seawater pumping station that delivers 450 gpm of seawater to MLML and the nearby Monterey Bay Aquarium Research Institute (MBARI) (MLML, 2025). The Power Plant has seawater intakes on the east shore of the North Harbor that supply seawater for cooling (CEC, 2000).

Desalinated Water

There have been many desalination studies and proposals over the last few decades. California American Water (CalAm) is moving forward with its Monterey Peninsula Water Supply Project (MPWSP). The project will include desalination, and aquifer storage and recovery. The desalination plant will be able to treat 5,376 AFY. The plant and intake slant wells will be north of Marina. The MPWSP received California Coastal Commission approval in November of 2022 and CalAm is working to satisfy the conditions of permit approval. CalAm anticipates that construction will start in late 2025 and the plant will be operating by the end of 2027 (MPWSP, 2024 and Lober, 2023).

The DeepWater Desal project at Moss Landing is not moving forward, as the primary scope of the project has changed from desalination to land-based aquaculture. The People's Moss Landing Desalination Project at the MLBP also appears to not be moving forward (Lober, 2023). There is a pre-application (PLN210255) for a desalination project on the MLBP which would intake approximately 1,000,000 gallons per year. The pre-application has been extended to secure technical reports for the project (Monterey County HCD, February 14, 2025).

Recycled Water

The Salinas Valley Reclamation Plant (SVRP) provides recycled water to coastal farmland in the Castroville area through the Castroville Seawater Intrusion Project (CSIP). Between 2017 and 2020 an average of 11,225 AFY of recycled water was provided for irrigation (SVBGSA, 2022). **Figure 5** shows the existing CSIP Distribution System area. The existing CSIP Service Area extends into the MLCP area.

Agriculture uses accounts for more than 90 percent of the groundwater pumping from the 180/400-Foot Aquifer Subbasin and reducing that amount is an important component of preventing further groundwater level declines and seawater intrusion. In Water Year 2022 (October 1, 2021 to September 30, 2022), the 180/400-Foot Aquifer Subbasin provided 129,800 AF of groundwater for agricultural, urban and rural uses (SVBGSA, 2024). Most of this groundwater was used for agriculture (118,600 AF) with the remaining used for urban (11,000 AF) and rural domestic (200 AF) uses. An additional 11,100 AF of recycled water and 300 AF of surface water was used by agriculture in WY 2022 (SVBGSA, 2024).

Projects to increase availability of recycled water include the SVBSGA Project 2, Optimization of the CSIP System. This project includes infrastructure and program implementation improvements. It is underway and is anticipated to provide an additional benefit of up to 5,000 AFY of recycled and Salinas River water for irrigation in lieu of groundwater extraction. In 2024, remote monitoring units were installed, the scheduling system was in beta testing and the hydraulic model was under development (SVBGSA, 2025). In 2025, the master plan will be developed with design and scheduling system improvements. The master plan is anticipated to be implemented in 2026 (SVBGSA, 2025).

The expansion of the CSIP is another project that will increase recycled water availability (SVBSGA Project 4). It will expand the service area of CSIP to provide a combination of recycled water, Salinas River water, and, when needed, groundwater in lieu of groundwater extraction. Up to 7,000 AFY of recycled and river water will be provided for irrigation in lieu of groundwater extraction over a multi-subbasin area of 3,500 acres (SVBGSA, 2025). **Figure 5** shows the existing and potential expansion areas of the CSIP Distribution System.

5 Comparison of Supply and Demand

The top of **Table 7** presents the supply needed to meet demands under normal climatic conditions and in single-year and multiple-year droughts. At this point in time, PSMCSD does not have a water shortage contingency plan, and it was conservatively assumed that demands would not be reduced during drought times in response to water conservation measures. Drought conditions can result in increases in demand, mainly for outside irrigation, but landscaping and associated irrigation is minimal in the Project area. For the purposes of this report, it was estimated that demands would increase by five percent in response to a single-year drought and by ten percent for a multiple year drought.

Table 7 assumes that groundwater pumping (supply needed) will increase to meet increased demands during droughts. Under normal climatic conditions, PSMCSD-MLHWS pumping will increase from about 98 AFY to 197 AFY at Project buildout. The supply needed for the PSMCSD-MLHWS and MLCP areas will increase from about 338 AFY to 497 AFY at buildout. At buildout, PSMCSD-MLHWS will need about 207 AFY in a single dry year and 217 AFY during a multiple dry year period. This is more than double its current pumping.

Table 7 does *not* address the continued overdraft of the SVGB. Additional groundwater can be pumped from storage to supply this Project but it would exacerbate the basin's overdraft and seawater intrusion. The ongoing projects and management actions in the GSP Update (2022) were indicated to be sufficient to mitigate existing overdraft (see Section 4.4) but demand planning (see Section 4.5) could be used if other projects and management actions do not reach sustainability goals and mitigate overdraft.

PSMCSD indicates that their wells and treatment system are adequate to meet the proposed build out demand (PSMCSD, January 27 and March 3, 2025). The distribution system is also adequate except for replacement of the Moss Landing Heights two-inch mainline with six-inch mainline (PSMCSD, March 3, 2025). The mainline that needs replacement is shown in Appendix A and is an existing deficiency (PSMCSD, April 30, 2025). PSMCSD has also indicated that additional storage capacity of 650,000 gallons will be needed (PSMCSD, March 3, 2025). This is an ongoing need which will be exacerbated because of buildout. PSMCSD-MLHWS currently does not have plans to secure this additional storage capacity (PSMCSD, April 30, 2025).

PSMCSD-MLHWS currently has an active well (Well #3) and a backup well (Well #1) and three storage tanks totaling approximately 177,000 gallons of storage (PSMCSD, December 19, 2024). The Moss Landing water system also has an emergency generator (Rincon, 2022). PSMCSD's website lists conservation measures identified in the May 24, 2022 State Water Resources Control Board (SWRCB) emergency water conservation regulations (PSMCSD, January 22, 2025). Conservation measures include water use restrictions, violation notices and fines. PSMCSD will also consider developing a water shortage contingency plan to provide measures to reduce demands during emergencies and drought times (PSMCSD, September 11, 2019). Water use restrictions could reasonably reduce demands by 10 to 20 percent during drought periods.

6 Cumulative Impacts

Additional development is projected to occur in the vicinity of the Project. Some of these projects are not within the control of the County of Monterey.

Potential projects associated with an increase in water use include new development associated with the Moss Landing Marine Laboratories (MLML). MLML administers the upper graduate study program in marine science for California State Universities and is under state jurisdiction. The California Coastal Commission handles coastal development permits for state agencies; consequently Monterey County does not have coastal development permit authority over development of MLML facilities. Proposed development associated with additional MLML water use include a new 36,000-square foot facility for a warehouse, offices, retail shops, and off-loading facilities. There are also plans for a 2,600-square foot facility for an office and warehouse plus a 7,400-square foot research facility for research and aquaculture. Additionally, the Sandholdt Center/Academic Village project will contain about 30,000-square feet of new building(s) for residential units, office space, and a conference facility (EMC, 1/8/25). Approximately 6.5 AFY will be needed for this additional development⁶.

There are also an additional 252 housing units planned in North County as per the North County Land Use Plan (Monterey County, August 2024).

These and potentially other additional water demands are not included in this WSA because they are not part of the Project but they could have an impact on the continued overdraft of the SVGB. As mentioned in Section 5, additional groundwater can be pumped from storage to supply additional demands but it would exacerbate the basin's overdraft and seawater intrusion. Ongoing projects and management actions in the GSP Update (2022) were indicated to be sufficient to mitigate existing overdraft (see Section 4.4) but demand planning such as pumping allocations, pumping controls and fees, and pumping reductions could be used if other projects and management actions do not reach sustainability goals and mitigate overdraft (see Section 4.5).

Future water supply projects will help alleviate overdraft but the specific plans, permits, costs, financing, timing, and effectiveness of projects to correct the overdraft situation and halt seawater intrusion in the SVGB are not known at this time. An increase of pumping in the Moss Landing area can be expected to result in local groundwater storage declines and an increased potential for local seawater intrusion.

⁶ Based on a rate of 0.08 gpd/sf for commercial, 18 gpd/student, and 0.045 gpd/sf for industrial ($30,000 \times 0.08 + 60 \times 18 + 46,000 \times 0.045 = 5,550$ gpd or 6.22 AFY, rounded up to 6.5 AFY).

7 Conclusions and Recommendations

PSMCSD will need an additional 650,000 gallons of storage and will need to replace the Moss Landing Heights two-inch mainline with six-inch mainline to supply buildout of the MLCP.

Absent new supplies of water from desalination or other emerging technologies, the water demands of buildout of the MLCP, and other existing and future water uses in the area would be supplied in part by pumping groundwater from available groundwater storage. As demonstrated by continuing seawater intrusion, the SVBG remains in overdraft. However, there are existing and proposed projects and management actions associated with ongoing GSP and IRWMP efforts that are designed to be sufficient to mitigate existing overdraft. Groundwater conditions and the effectiveness of these projects and management actions are reported in GSP annual reports and in five-year GSP evaluations. A 2025 Periodic Evaluation for the 180/400-Foot Aquifer Subbasin GSP (SVBGSA, 2025) determined that the GSAs are on track to meet the GSP sustainability goal. DWR staff will continue to monitor and evaluate changes in conditions in the Subbasin, including the Subbasin's progress toward achieving the sustainability goal, through annual reporting and periodic GSP evaluations.

The increased water use associated with the MLCP at buildout (87.21 AFY, **Table 2**) is a small percentage (0.067 percent) of current groundwater use (129,800 AF, see Section 4.7) in the 180/400 Foot Aquifer Subbasin and within the margin of error of groundwater production measurements. Within the MLCP area, it represents an increase of groundwater use of about 26.48 percent (87.21/329.3).

This increase in water use can be at least partially offset by the various factors listed below.

1. **Increased Use of Recycled Water for Irrigation in the Local Area.** Two recycled water projects (Optimization of the CSIP System and Expansion of the CSIP System) are being developed as discussed in Section 4.7. These projects will provide additional recycled water for irrigation to offset groundwater use. The existing CSIP Service Area extends into the MLCP area and there is a proposed expansion of the distribution line and service area to an area just east of the MLCP and just west of the PSMCSD-MLHWS well site (**Figure 5**).
2. **County Policies to Conserve Water Supplies.** The Moss Landing Community Plan update (Monterey County HCD, December 6, 2024) has policies to “conserve and enhance the water supplies and adequately plan for the development and protection of these resources and their related resources for future generations”. These can minimize groundwater resources impacts and include the following:
 - The County of Monterey shall not approve discretionary development permits that exceed the water purveyor’s ability to provide potable water.
 - The County of Monterey shall encourage strategies, including but not limited to seawater desalination, increased use of recycled water, and conservation measures, to address historic groundwater overdraft and seawater intrusion, preserve river and stream habitats, and produce additional supplies of potable water.
 - The County of Monterey shall encourage existing and new development to supplement its supply of water with on-site facilities, including but not limited to the installation of small-scale seawater desalination facilities for coastal-dependent/coastal-related uses, recycled stormwater and greywater, rainwater collections systems (for landscaping) or

other water sources, as made feasible by emerging technologies. Any proposed desalination facility shall be designed to use the best available site, system and technological design, and feasible mitigation measures, to minimize or avoid intake and mortality of all forms of marine life and obtain all other applicable agency permits and/or approvals.

- Historic consumptive groundwater use that has been perfected by prior appropriation and/or pursuant to prior court adjudicated rights may be transferred (pursuant to state law and upon agreement of all parties) by the holder of those appropriative rights from one property to another within the boundaries of the Moss Landing Community Plan area.
- 3. **Additional Conservation.** The MLCP should require comprehensive water conservation measures such as xeriscape landscaping and rainfall collection, and use of recycled water and greywater for irrigation where practical. Maximum feasible interior water conservation measures should also be considered for all new development.
- 4. **Reduction of MLCP Development and Associated Water Use.** A large portion of the proposed MLCP water use is associated with industrial uses in the MLBP (D-1, **Table 2**). Approximately 1.67 million sf of new industrial uses are proposed that would use 41.64 AFY of groundwater (37.48 AF + 10 % losses). This square footage could be reduced until a future date when effectiveness of the GSP projects and management actions can be measured in this area. For comparison, current water use on the MLBP is on the order of 29 AFY (average 2022 to 2024, from monthly usage data provided by Monterey County HCD, February 24, 2025).
- 5. **Pumping Fees and Metering.** Some demand planning measures (see Section 4.5) such as metering and pumping fees could be initiated. This could result in a better understanding of groundwater use in the area and assist with replacing irrigation with recycled water where applicable.

Items #1 and # 5 above (increased use of recycled water, pumping fees and metering) would likely be under the regulatory authority of the Salinas Valley Basin Groundwater Sustainability Agency. The remaining items (those that relate to water conservation and development phasing) would be under the County's jurisdiction.

As of 2025, the groundwater supply for this Project includes some uncertainty as to the timing of sustainability and how it is achieved but sustainability of the 180/400-Foot Aquifer Subbasin is mandated by SGMA and a strategic mix of GSP projects and management actions is being implemented actively to achieve sustainability within the required SGMA timeline. The increase in groundwater production (87.21 AFY) is a small fraction of groundwater production in the Subbasin and likely within the margin of error of groundwater production measurements. This additional water use can be offset, in part, by some of the factors listed above (such as #1 through #3) and by ongoing GSP efforts.

While the basin remains in overdraft, PSMCSD has sufficient well capacity and treatment infrastructure for the buildout of the MLCP. However, additional storage and improvement of the Moss Landing Heights mainline will be needed.

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- Project Description (3/11/25)
- Tables 3-2 and 3-3 (12/9/24 and 12/10/24, respectively)
- Figure 3-15 (provided to Todd Groundwater 1/22/25)
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Tables

Table 1
Current Water Use in MLCP Area

	Water Demand AFY
PSMCSD¹ (see Table 4)	89.3
Moss Landing Mutual Water Company²	240.0
Total	329.3

1. PSMCSD 2023 groundwater production (see Table 4). Note that there are approximately 3 commercial and 5 residential units that PSMCSD provides water to that are outside MLCP boundaries (PSMCSD, March 3, 2025). Water use for these units has not been subtracted from this table for simplicity and conservative purposes.

2. The Moss Landing Mutual Water Company (MLMWC) provides water to its three members: Moss Landing Power Plant, PG&E, and a local dairy. It has two wells south of the Moss Landing Power Plant and in 2024, it delivered approximately 240 AF of water to its members (MCWRA, 2025).

Table 2
MLCP Additional Water Demand Projections at Buildout

MLCP Item No.	Proposed Land Use Designation	Commercial and Industrial			Residential			New Water Demand (gpd)	New Water Demand (AFY)	Notes
		Additional Commercial or Industrial Development (sf)	Water Use Rate ¹ (gpd/sf, seat, or room)	New Commercial or Industrial Water Demand (gpd)	New Dwelling or Employee Housing Units	Water Use Rate ² (gpd/unit)	New Residential Water Demand (gpd)			
Potrero Area										
P-1	Residential - Medium Density	0	NA	0.00	1	180	180.00	180.00	0.20	Existing undeveloped residential parcel
P-2	Outdoor Recreation(Special Treatment Area)	0	NA	0.00	0	NA	0.00	-	0.00	Water use from 2 permanent bathroom structures and 1 employee is included in MISC-1 below. Assume no irrigation of recreational area.
	Subtotal	0	-	0.00	1	-	180.00	180.00	0.20	
Village Center Area ²										
VC-1	Light Commercial ³	5,910	0.08	472.80	6	160	960.00	1,432.80	1.60	1st story commercial; 2nd story residential
VC-2	Light Commercial ³	5,990	0.08	479.20	6	160	960.00	1,439.20	1.61	1st story commercial; 2nd story residential
VC-3	Light Commercial ³	15,010	0.08	1,200.80	15	160	2,400.00	3,600.80	4.03	1st story commercial; 2nd story residential
VC-4	Light Commercial ³ , Wetlands and Coastal Strand	22,980	0.08	1,838.40	22	160	3,520.00	5,358.40	6.00	1st story commercial; 2nd story residential
VC-5	Light Commercial, Wetlands and Coastal Strand	1,500	0.08	120.00	0	NA	0.00	120.00	0.13	Rehabilitation of existing vacant commercial building. Assume 1,500 sf of additional water use.
	Subtotal	51,390	-	4,111.20	49	-	7,840.00	11,951.20	13.39	
North Harbor Area										
NH-1	Recreation and Visitor Serving	30 room hotel	84/room	2,520.00	15 employee housing units	160	2,400.00	4,920.00	5.51	30 unit hotel and 15 units of employee housing. Assume no irrigation of 2 acres of low-intensity outdoor recreational use
NH-2	Recreation and Visitor Serving, Harbor Facilities	30 room hotel	84/room	2,520.00	15 employee housing units	160	2,400.00	4,920.00	5.51	30 unit hotel and 15 units of associated employee housing to replace former pottery store
NH-3	Recreation and Visitor Serving, Harbor Facilities, Scenic and Natural Resource Recreation	0	NA	0.00	0	NA	0.00	0.00	0.00	Water use from 2 permanent bathroom structures is included in M-1 below. Assume no irrigation of recreational area.
	Subtotal	60 hotel rms	-	5,040.00	30	-	4,800.00	9,840.00	11.02	
Island										
I-1	Waterfront Marine, Harbor Facilities	0	NA	0.00	0	NA	0.00	0.00	0.00	Gregg's Drilling: revetment, riprap repair, wharf extension, boat slip, and floating dock.
I-2	Waterfront Marine	0	NA	0.00	0	NA	0.00	0.00	0.00	Gregg's Drilling: Renovation of existing boat ramp
I-3	Waterfront Marine	0	NA	0.00	30 rooms	57/room	1,710.00	1,710.00	1.92	30-room fisherman's dormitory
I-4	Waterfront Marine	5,560	30/seat	3,000.00	0	NA	0.00	3,000.00	3.36	2nd story conversion of office space to café (assume 100-seat café)
I-5	Waterfront Marine, Scenic and Natural Resource Recreation	4,140	0.045	186.30	0	NA	0.00	186.30	0.21	Light industrial use. Site severely constrained by dune habitat.
I-6	Waterfront Marine	10,940	0.045	492.30	0	NA	0.00	492.30	0.55	Light industrial use. Currently a parking lot.
I-7	Waterfront Marine, Harbor Facilities	100	0	0.00	0	NA	0.00	0.00	0.00	MBARI: Approximately 100 square foot mooring dolphin (Building "F"). Assume negligible water use.
I-8	Waterfront Marine, Harbor Facilities	7,500	0	0.00	0	NA	0.00	0.00	0.00	MBARI: Approximately 7,500 sf dock house (Building "K"). Assume negligible water use.
I-9	Waterfront Marine, Scenic and Natural Resource Recreation	0	10 gpd/employee	10.00	0	NA	0.00	10.00	0.01	Construction of a pier for public access, commercial fishing, and other maritime activities. Assume one new employee and negligible additional water use.
I-10	Waterfront Marine	30 visitor units	84/room	2,520.00	15 employee housing units	160	2,400.00	4,920.00	5.51	30 visitor serving units and 15 employee housing units
	Subtotal	28,240 sf + 30 hotel rms	-	6,208.60	45	-	4,110.00	10,318.60	11.56	
Dolan Area										
D-1	Coastal Heavy Industry, Wetlands and Coastal Strand	1,673,130	0.02	33,462.60	0	NA	0.00	33,462.60	37.48	MLBP: Industrial uses
D-2	Coastal Heavy Industry, Wetlands and Coastal Strand	0	10 gpd/employee	60.00	0	NA	0.00	60.00	0.07	Moss Landing Powerplant: battery energy storage. Assume 6 new employees.
D-3	Coastal Heavy Industry, Wetlands and Coastal Strand	0	10 gpd/employee	60.00	0	NA	0.00	60.00	0.07	PG&E Substation battery energy storage expansion. Assume 6 new employees.
D-4	Coastal Heavy Industry	0	NA	0	0	NA	0.00	0.00	0.00	Desalination plant somewhere in the Coastal Heavy Industry designation. The plant size is unknown and freshwater use associated with this potential plant is not included in this WSA. Reverse osmosis desalination uses an estimated 0.008 cubic meters of freshwater to produce 1 cubic meter of freshwater.
	Subtotal	1,673,130	-	33,582.60	0	-	0.00	33,582.60	37.62	
Miscellaneous										
MISC-1	Outdoor Recreation	(See Notes Column and Footnote 1)	See Footnote 1	914.40	0	NA	0.00	914.40	1.02	Community Park with at least 4 restrooms. Assume no irrigation of recreational area. MISC-1 also includes water use for 4 additional restrooms from P-2 & NH-3. See Footnote 1.
MISC-2	Recreation and Visitor Serving	20 visitor units	84/room	1,680.00	10 employee housing units	160	1,600.00	3,280.00	3.67	20 additional visitor serving units and 10 additional employee housing units
MISC-3	Roadway improvements from Highway 1 through the Village Center and south to Pier Court. New storm drains will be installed along a 3,680-foot length of Moss Landing Road with concrete curb, gutter and sidewalk on both sides of the road, where sidewalks do not currently exist.									
	Subtotal	20 hotel rms	-	2,594.40	10	-	1,600.00	4,194.40	4.70	
TOTAL:		1,752,760 sf + 110 visitor rooms	-	51,536.80	135	-	18,530.00	70,066.80	78.48	
Additional Demand (AFY)				57.73			20.76		78.48	
Additional Supply Needed Assuming 10% Unaccounted-for Losses (AFY)									87.21	

Additional commercial and industrial development, new hotel and dorm rooms, and residential housing units from Community Plan Update Buildout Estimates (EMC, draft Tables 3-2 and 3-3, 12/9/24 and 12/10/24).
Hotel occupancy water use in commercial columns and employee and dorm water use in residential columns.

1. Commercial and Industrial water use rates sources:

- For VC-1 through VC-5: light commercial in Village Center (0.08 gpd/sf, increased slightly from low water use retail) derived from MPWMD (2019).
- NH-1, NH-2, I-10, and M-2: hotel/motel (84 gpd/room, with large bathtub) from MPWMD (2019).
- I-4: restaurant (30 gpd/seat, derived from fast food and full service water use rates) based on MPWMD (2019).
- I-5, I-6, and D-1: Industrial (0.045 gpd/sf) is based on MBARI water usage rate from Harris (2008).
- D-1: Heavy Industrial (0.02 gpd/sf) is estimated MLBP usage (mainly inside) from PSMCSD records.
- D-2 and D-3: Additional water use associated with new employees (10 gpd/employee) based on Todd (2021).
- MISC-1 (also includes P-2 and NH-3): 8 flush toilets (51.8 gpd x 8) from MPWMD (2019) + 500 gpd for minimal irrigation, drinking fountain, and hose use.
- Water use by additional employees is assumed to be included in the water use rates unless specifically identified.

2. Single family residential water use is average 2021-2023 PSMCSD water use per connection (180 gpd (0.20 AFY)/connection). Multifamily unit use estimated at 160 gpd/unit. Note that PSMCSD multifamily use per connection reported in Table 4 may include more than one unit. Fisherman's dormitory water use estimated to be the same as a basic hotel room water use (0.57 gpd/room) from MPWMD (2019).

3. Items VC-1, VC-2, VC-3 and VC-4 have multifamily residential on second floor. The commercial areas listed here do not include the second story residential area. Second story residential water use is in residential columns.

Table 3
Climate Data

	Average Rainfall (inches)	Average ETo (inches)	Average Temperature (°F)
January	2.66	1.56	43.21
February	2.48	1.93	43.76
March	2.23	3.11	44.78
April	1.22	4.09	45.91
May	0.44	4.50	47.67
June	0.23	4.92	48.95
July	0.09	4.44	49.63
August	0.07	4.21	50.66
September	0.10	3.56	51.09
October	0.64	2.87	49.05
November	1.31	1.84	45.56
December	2.82	1.47	42.52
Average Calendar Year Total	14.28	38.50	-
Monthly Average	1.19	3.21	46.90

Data from CIMIS Monterey Bay - Salinas North #116: 1993-2023 (CIMIS, 2024).
Rainfall and average temperature were calculated from monthly values. ETo monthly
averages are directly from CIMIS website.
<https://cimis.water.ca.gov/WSNReportCriteria.aspx>
ETo=Evapotranspiration

Table 4
Past and Current PSMCSD Moss Landing Water Demand

Water Use Sector	Past and Current (AFY)						2023 Connections	Water Demand/ Connection ³ (AFY)
	2018	2019	2020	2021	2022	2023		
Single Family	12.14	11.90	12.77	12.15	12.02	10.90	59	0.20
Multi-family	7.39	10.18	8.45	8.52	8.76	7.64	13	0.64
Commercial/Industrial	58.07	56.77	57.25	61.68	67.04	61.88	66	0.96
Public/Institutional	3.94	2.84	2.86	3.79	3.99	1.13	7	0.42
Water Sold	81.54	81.69	81.33	86.14	91.81	81.55	145	-
Unaccounted for Losses ¹	9.1%	8.4%	9.7%	12.1%	12.1%	8.7%	-	-
Total (Pumped)	89.68	89.22	90.11	97.97	104.49	89.31	-	-
Additional MLCP Water Use Not Supplied by PSMCSD ²						240.00		
Total Water Use in PSMCSD and MLCP						329.31		

Production, deliveries and number of connections from PSMCSD email (5/8/24)

1. Unaccounted-for losses is the difference between the amount of water pumped and the amount of water delivered to customers.

2. MLMWC 2024 production from Table 1 (MCWRA, 2025).

3. Average 2021-2023 water use and number of connections in 2023.

Table 5
Proposed Future PSMCSD Moss Landing Water Demand

Water Use Sector	Future ¹ (AFY)						Connections at Buildout	Water Demand/ Connection (AFY)
	2025 ²	2030	2035	2040	2045	2050 ³		
Single Family	11.69	11.73	11.77	11.81	11.85	11.89	60	0.20
Multi-family	8.31	12.42	16.53	20.64	24.75	28.86	147	varies, see Tables 2 and 4
Commercial/Industrial	63.53	77.58	91.62	105.66	119.70	133.74	unknown	-
Public/Institutional	2.97	3.00	3.00	3.00	3.00	3.00	7	0.43
Water Sold	86.50	104.72	122.92	141.11	159.30	177.49	214	-
Unaccounted-for Losses ⁴	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	-	-
Total ⁵	96.11	116.36	136.57	156.79	177.00	197.22	-	-
Additional MLCP Water Use Not Supplied by PSMCSD ⁶						300.00		
Total Water Use in PSMCSD and MLCP						497.22		

1. PSMCSD is anticipating a new connection, usually commercial, every other year (PSMCSD, 1/27/25). Table 5 assumes 13 new commercial connections at a rate of 0.96 AFY/connection (see Table 4). MLCP buildout is projected to occur around 2050. Assumes linear increase in demands between 2025 and 2050.

2. 2025 was assumed to be averages of 2021, 2022 and 2023 to take into account possible low water use in 2023.

3. 2050 is 2025 values plus MLCP projected water use at 2050 (buildout) (Table 2). Includes 1 new single family home with the remaining 134 residential units (49 second story, 55 employee housing, 30-room dorm) in the multifamily water sector row. All the commercial, industrial and hotels are in the commercial/industrial water sector row.

4. Unaccounted-for loss estimate of 10% is average 2018-2023 unaccounted-for water percentage.

5. Total of 197.22 AF in 2050 is 2025 water use (96.11 AF) plus 87.21 MLCP (Table 2) and 13.87 AF PSMCSD (12.48 + 10%).

6. From Tables 1 and 4 (MCWRA, 2025). Assumes MLMWC use will be slightly above its recent maximum use (293 AFY in 2023).

Table 6
Past, Current, and Future Supply Use in a Normal Year

Pumping in AFY	Past and Current																Future					
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2025	2030	2030	2035	2045	2050
PSMCSD Pumped Groundwater ¹	109	90	90	86	93	96	91	89	80	90	90	89	90	98	104	89	96	116	137	157	177	197
Other MLCP Pumped Groundwater ²	NA	NA	NA	NA	NA	126	NA	158	236	168	150	139	167	152	293	183	240	300	300	300	300	300
Estimated Supply Used within PSMCSD and MLCP Areas	-	-	-	-	-	222	-	247	316	258	240	229	257	250	397	272	337	416	437	457	477	497
Groundwater Supply Rights	PSMCSD pumping volumes are not restricted, however, two PVWMA ordinances restrict the export of water from wells within PVWMA boundaries ³ to the Moss Landing service area. The Moss Landing wells are not within the PVWMA area. The Salinas Valley Basin Groundwater Sustainability Agency (see Section 4.2) could implement management actions that involve pumping allocations, pumping controls (including pumping fees), and pumping reductions. While the projects and management actions in the GSP Update are indicated to be sufficient to mitigate existing overdraft, demand planning could be used if other projects and management actions do not reach sustainability goals and mitigate overdraft.																					

1. Pumping by PSMCSD Moss Landing service area, 2008-2023 pumping from PSMCSD emails (3/19/13, 5/15/19, 9/11/19, and 5/8/24).

2. See Tables 1 and 5. 2025 production was assumed to be the same as 2024 (240 AFY). Data from MCWRA, 2025 and California SWRCB, 2025. NA=data for some years were not available.

3. Pumping restrictions from LAFCO (2006).

Table 7
Comparison of Supply and Demand

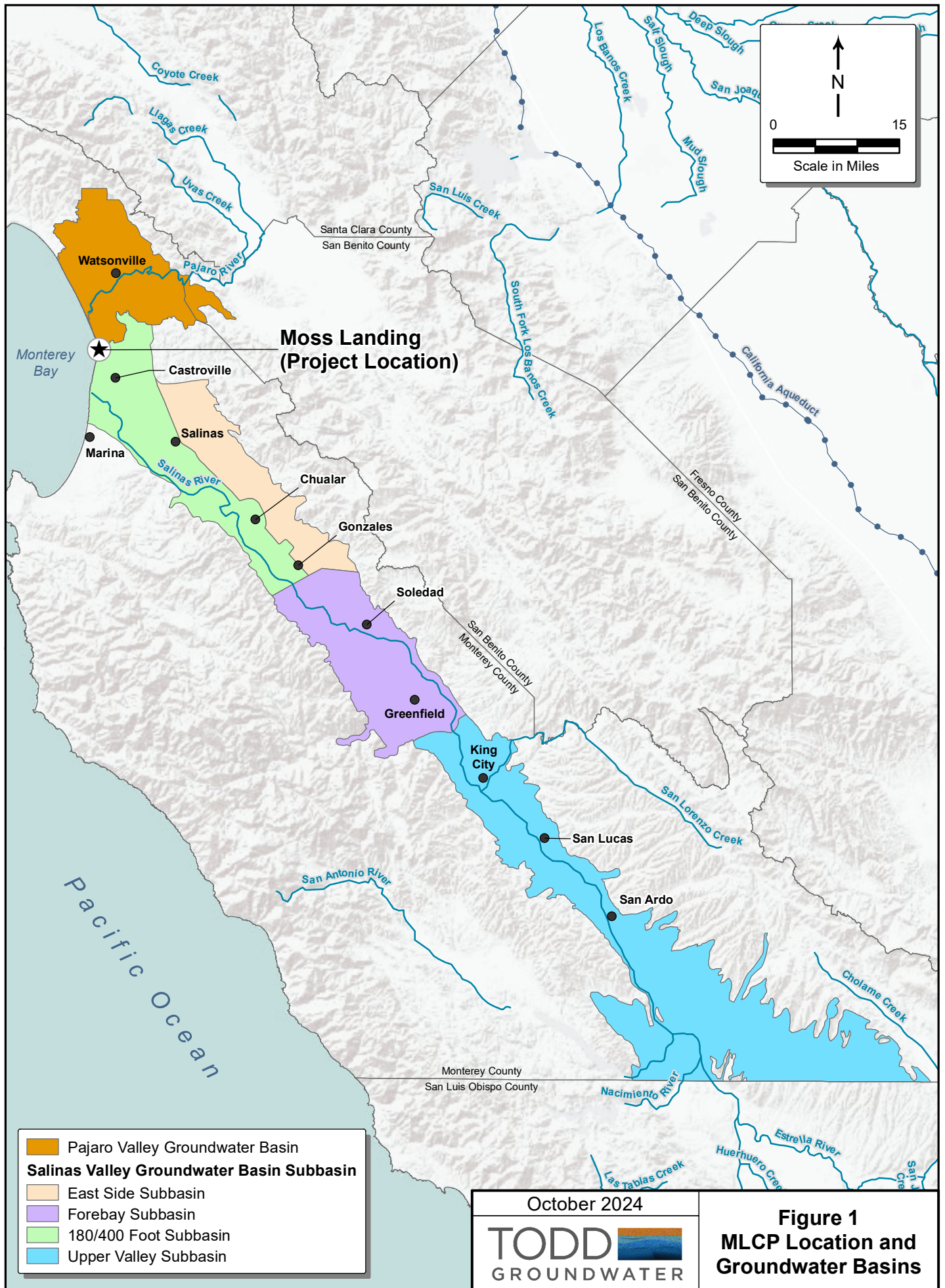
	Current			Buildout		
	Normal Year	Single Dry Year	Multiple Dry Years	Normal Year	Single Dry Year	Multiple Dry Years
Supply Available/Needed (AFY)						
PSMCSD Pumped Groundwater	98	103	108	197	207	217
Other MLCP Pumped Groundwater¹	240	252	264	300	315	330
Estimated Supply Used within PSMCSD and MLCP Areas	338	355	372	497	522	547
Demand² (AFY)						
PSMCSD Pumped Groundwater	98	103	108	197	207	217
Other MLCP Pumped Groundwater¹	240	252	264	300	315	330
Estimated Supply Used within PSMCSD and MLCP Areas	338	355	372	497	522	547
Difference³ (AFY)						
PSMCSD Pumped Groundwater	0	0	0	0	0	0
Other MLCP Pumped Groundwater¹	0	0	0	0	0	0
Estimated Supply Used within PSMCSD and MLCP Areas	0	0	0	0	0	0

1. See Tables 1,4 5, and 6.

2. Buildout demands are assumed to be the same as supply needed. Demand numbers do not include potential future drought conservation. PSMCSD currently does not have a water shortage contingency plan.

3. Although groundwater storage can meet the MLCP demands, the issue of an overdrafted basin still exists.

Figures





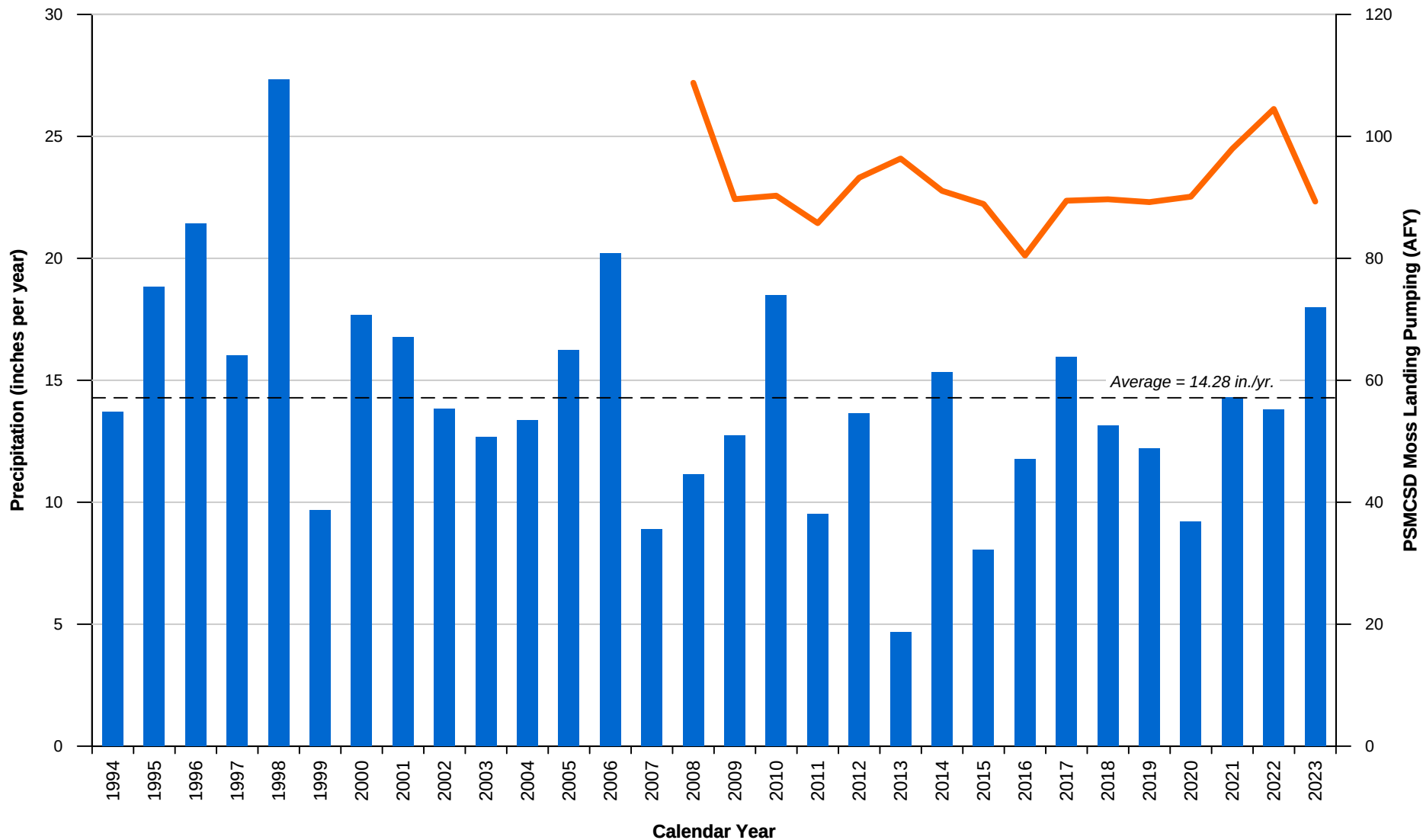
Note: The area/building numbers (such as D-1) shown on Figure 3 are locations of projected MLCP buildout areas identified in Table 2. Note that NH-3, I-10, D-4, MISC-3 and MISC-4 are not identified on Figure 3 because they do not have specific locations identified at this time.

Reference: EMC Fig 3-15 (1/22/25)

February 2025

TODD 
GROUNDWATER

Figure 3
MLCP Buildout Areas



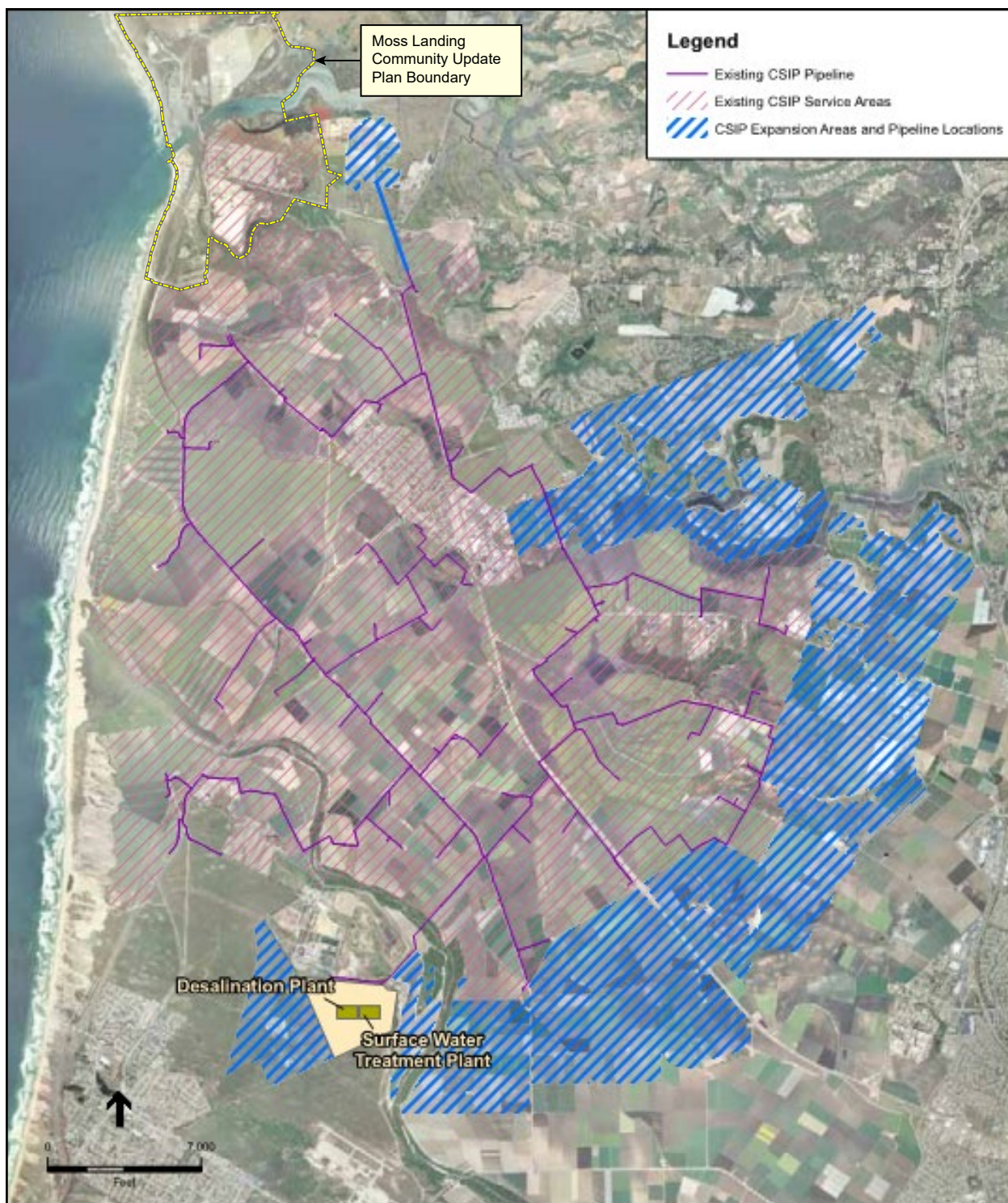
— PSMCSD Pumping
■ Precipitation

Source: CIMIS Salinas North #116

October 2024



Figure 4
Precipitation
and Pumping



Reference: SVBGSA, 2022, Figure 9-8.

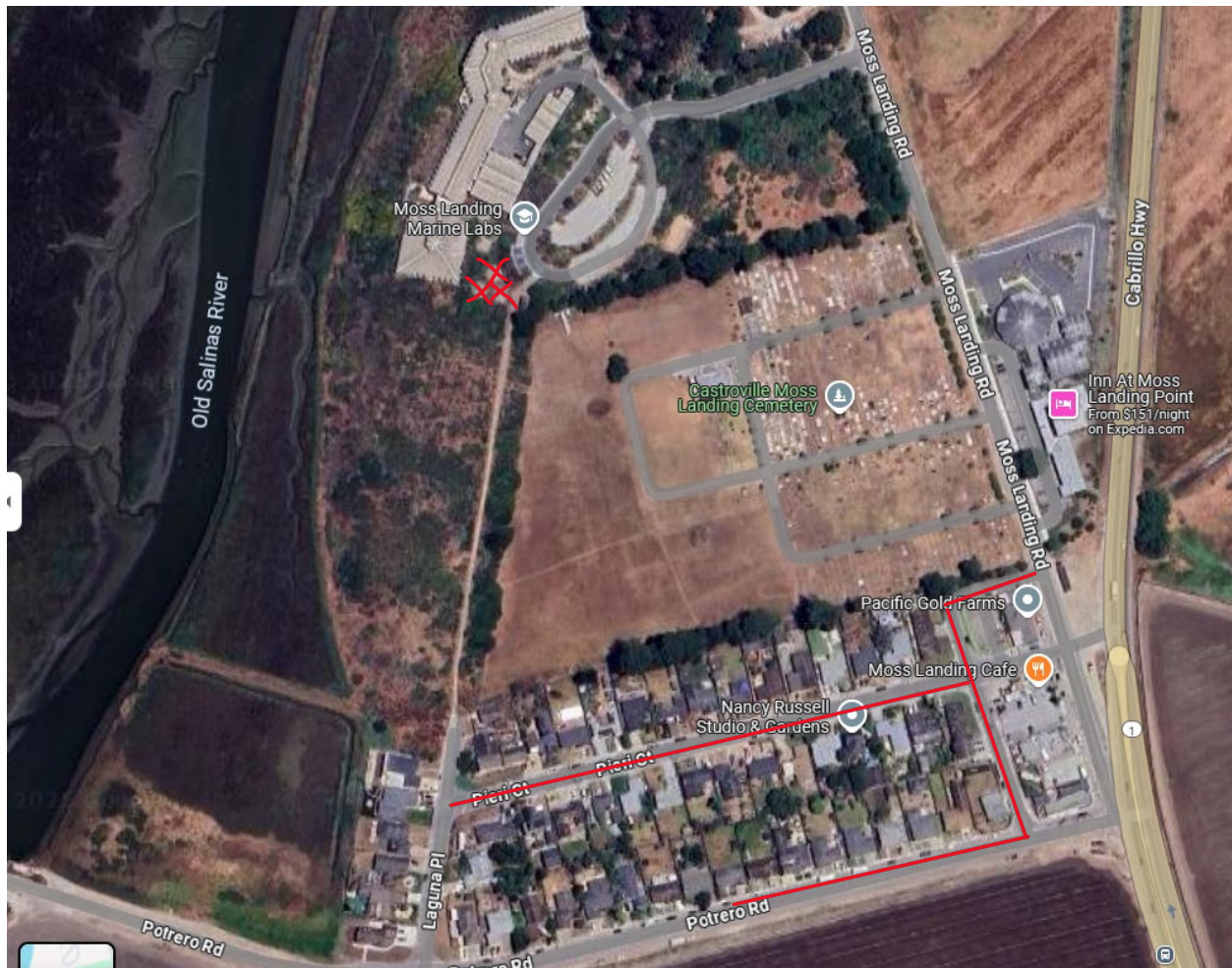
February 2025

TODD 
GROUNDWATER

Figure 5
Existing and
Potential Future CSIP
Distribution System

Appendix A

Appendix A. PSMCSD Tanks and Moss Landing Heights Mainline Locations



X Tank Location

_____ Moss Landing Heights 2" mainline that will need to be replaced with 6" mainline

From PSMCSD, April 2025