

EXHIBIT 15-A

Supply and Demand for Water on the Monterey Peninsula

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Monterey Peninsula Water Management District
Revised December 3, 2019

At its September 16, 2019 meeting, the Board accepted a report titled *"Supply and Demand for Water on the Monterey Peninsula"*, which was Exhibit 9-A of the Board packet. The report was reviewed by members of the public, local organizations, and state agencies. While publicly vetted, only three sets of comments were received: (a) California American Water provided a comment letter October 15, 2019, and (b) The Coalition of Peninsula Businesses provided letters September 15, 2019 and September 24, 2019. All three comment letters argued that the findings in the report contradict those of the California Public Utilities Commission, but the letters did not provide any substantive alternate assumptions or facts. The District's General Manager has encouraged the parties to provide their own forecast of growth and/or market absorption of water demand, but they have failed to do so.

At the November 14, 2019 Coastal Commission hearing former Pacific Grove mayor Bill Kampe did raise two substantive issues regarding the report: (a) pre-Cease and Desist Order (CDO) market absorption of water demand may have been constrained in some jurisdictions due to a lack of water allocation, and (b) new statewide focus on housing will require water.

Additionally, subsequent to the release of the initial report the 2019 water year was completed, providing an additional data point on current customer demand.

This revised report provides an update intended to address three items:

1. What is average current demand with the additional water year in the data?
2. What water will be required to meet future housing needs?
3. What might be the market absorption of water based on an objective third-party growth forecast?

As a result, certain figures or tables from the September 2019 *Supply and Demand for Water on the Monterey Peninsula* report were updated and included in this revision.

With the approval of the Monterey Peninsula Water Supply Project (MPWSP) and the continued environmental work on Pure Water Monterey (PWM) expansion as a back-up option, it is an opportune time to examine available supplies and their ability to meet current and long-term demand. This memorandum will also look at the changing nature of demand on the Monterey Peninsula, the underlying assumptions in the sizing of the water supply portfolio, and indicators of the market's ability to absorb new demand.

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Supply

Available sources of supply are shown in Table 1 below and are described in the discussion that follows. Despite the California Supreme Court’s decision to not hear the two petitions for writ of review, there remains the risk of additional legal challenges and not all permits have been issued for California American Water’s (Cal-Am) MPWSP desalination plant. For these reasons, supply has been shown with both desalination and with PWM expansion.

Table 1
Monterey Peninsula Available Supply
(Acre-Feet Annually)

Supply Source	w/ Desalination	w/ PWM Expansion
MPWSP Desalination Plant	6,252	0
Pure Water Monterey	3,500	3,500
PWM Expansion	0	2,250
Carmel River	3,376	3,376
Seaside Basin	774	774
Aquifer Storage & Recovery (ASR)	1,300	1,300
Sand City Desalination Plant	94	94
Total Available Supply	15,296	11,294

There also exists approximately 406 additional acre-feet of other available supplies as discussed on the next page.

Desalination: The 6.4 million gallon per day (MGD) MPWSP desalination plant is expected to deliver 6,252 acre-feet annually (AFA).¹ It is likely to begin deliveries in mid-2022, considering final permits in early 2020, a 21-month construction period, and 6-month commissioning and start-up window.²

Pure Water Monterey: Monterey One Water’s (M1W) project is expected to come online in February 2020 and begin deliveries of 3,500 AFA to Cal-Am in mid-2020. It completed its 14-day test in December 2019.

Pure Water Monterey Expansion: The expansion of Pure Water Monterey is expected to yield 2,250 AFA.³ The Notice of Preparation indicates source waters for the expansion are secure: “No new source water diversion and storage sites are necessary to achieve the Expanded

¹ CPUC Decision 18-09-017, September 13, 2018, page 70; Amended Application of California-American Water Company (U210W), Attachment H, March 14, 2016

² www.watersupplyproject.org/schedule

³ Notice of Preparation of a Supplemental Environmental Impact Report and Public Scoping Meeting Notice, page 4, May 15, 2019

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PWM/GWR Project's recycled water yield objective of an additional 2,250 AFY of replacement supplies. The Expanded PWM/GWR Project is designed to utilize existing M1W contractual rights to source waters and wastewaters." There are several different configurations of source waters that could be utilized for the expansion, but one proposed alternative is 81% contractual rights to wastewater and excess secondary effluent and 19% of Blanco Drain and Reclamation Ditch waters. This project could come online by January 2022.

Carmel River: Cal-Am has legal rights to 3,376 AFA from the Carmel River comprised of 2,179 AFA from License 11866, 1,137 AFA of pre-1914 appropriative rights, and 60 AFA of riparian rights. This does not include what is referred to as Table 13 rights, discussed under "*Other Available Supplies*" below.

Seaside Basin: The 2006 Seaside Groundwater Basin adjudication imposed triennial reductions in operating yield for Standard Producers such as Cal-Am until the basin's Natural Safe Yield is achieved. The last reduction will occur in 2021 and Cal-Am will have rights to 1,474 AFA. However, with the delivery of a long-term permanent water supply, the company would like to begin replacing its accumulated deficit of over-pumping by in-lieu recharge by leaving 700 AFA of its production right in the basin for 25 years. Hence, only 774 AFA is reflected as long-term supply available, although the additional 700 AF becomes available again in the future.

Aquifer Storage & Recovery: There are two water rights that support ASR. Permit 20808A allows maximum diversion of 2,426 AFA and Permit 20808C allows up to 2,900 AFA for a total of 5,326 AFA. However, these are maximums that may only be close to being achieved in the wettest of years. Based on long-term historical precipitation and streamflow data, ASR is designed to produce 1,920 AFA on average. The MPWSP assumes a lesser amount of 1,300 AFA to be conservative.

Sand City Desalination Plant: The Sand City plant was designed to produce a nominal 300 AFA, but has failed to achieve more than the 276 AF in 2011. Due to source water quality issues and discharge permit requirements the plant has averaged 188 AFA the past four years including water year 2019. The intakes will likely be augmented and production increased (see "*Other Available Supplies*", below.) Here only the 94 AFA of long-term production legally committed to offset Carmel River pumping is included.

Other Available Supplies: In 2013, Cal-Am received Permit 21330 from the State Water Board for 1,488 AFA from the Carmel River. However, the permit is seasonally limited to December 1 through May 31 each year and subject to instream flow requirements. As a result, actual production will vary by water year. Here, we have assumed 300 AFA on average. For the Sand City desalination plant the amount produced in excess of 94 AFA is available for general Cal-Am use and eventually to serve growth in Sand City. With new intakes, we have assumed average production of 200 AFA or 106 AFA of other available supply. There is also available unused

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capacity in the Seaside Basin which annually is reallocated to the Standard Producers such as Cal-Am as “Carryover Credit” under the adjudication decision. Such Carryover capacity has been on the order of 400 AFA recently. While not insignificant, Carryover Credit has not been included in the 406 AFA of “Other Available Supplies” stated earlier.

Historical Water Demand for which MPWSP Desalination Plant is Sized

The MPWSP was initially sized solely as a replacement supply⁴ for current customer demand, but this has changed over time as described below. Consideration was also given to peak month and peak day. Additional demand was recognized to accommodate legal lots of record, a request by the hospitality industry to anticipate a return to occupancy rates similar to that which existed prior to the World Trade Center tragedy, and to shift the buildout of Pebble Beach off the river.⁵ Table 2 below shows the demand assumptions used in sizing the MPWSP. Each component is discussed below.

Table 2
Water Demand Assumed in Sizing the MPWSP
(Acre-Feet Annually)

Demand Component	Acre-Feet Annually
Average Current Customer Demand	13,290
Legal Lots of Record	1,181
Tourism Bounce-Back	500
Pebble Beach Buildout	325
Total Water Demand	15,296

Average Current Customer Demand: The Application of Cal-Am to the California Public Utilities Commission (CPUC) in April 2012 utilized 13,290 AFA which was the 5-year average demand for 2007-2011.⁶ As stated earlier, this was to be replacement supply and the Application stated “At this point future demands of the Monterey System have not been included in the sizing of the plant.”⁷ At that time, the 5-year average maximum month was 1,388 AF and the highest month was 1,532 AF.⁸

In a January 2013 CPUC filing, average demand was reiterated by Cal-Am to be 13,290 AFA but Cal-Am added that the plant would need to be increased larger by approximately 700 acre-feet per year for the in-lieu recharge of the Seaside Basin.⁵ However, as can be seen in comparing

⁴ Direct Testimony of Richard C. Svindland, April 23, 2012, pages 4,5,7

⁵ Supplemental Testimony of Richard C. Svindland, January 11, 2013, pages 4-5

⁶ Direct Testimony of Richard C. Svindland, April 23, 2012, page 21

⁷ Direct Testimony of Richard C. Svindland, April 23, 2012, page 36

⁸ Direct Testimony of Richard C. Svindland, April 23, 2012, page 22

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Tables 1 and 2 above, supply equals demand at 15,296 AFA without changing the size of the plant from the initial Application.

In a 2016 update to the CPUC, Cal-Am recognized that average demand had declined in the intervening three years.⁹ The 5-year average had declined to 10,966 AFA and the maximum month declined to 1,250 AF. At the time of the 2016 update, Cal-Am suggested that it should size the plant based on the backward-looking 10-year average demand and maximum month, instead of the 5-year average in the original Application, as well as several alternate assumptions about return of water to the Salinas Valley. They concluded *“we do not believe the size of the plants should be changed.”*¹⁰

In a September 2017 filing to the CPUC, Cal-Am acknowledged continuing declines in demand, but indicated that the plant sizing remained appropriate saying *“We anticipate demand to rebound over time after these new water supplies are available, the drought conditions continue to subside, the moratorium on new service connections is lifted, and strict conservation and water use restrictions are eased.”*¹¹ The company also for the first time introduced the use of future population and demand as a way to “normalize” the average demand used in sizing, a departure from the “replacement supply” basis under the initial Application in 2012.¹² This resulted in their estimate of average “current” system demand of 12,350 AFA. This amount, combined with the same lots of record, tourism bounce-back, and Pebble Beach buildout results in demand of 14,355 AFA – a reduction from the initial Application – but the company asserted that the plant need not be resized because this would allow it to run at 86% capacity, a more reasonable operating rate compared to the 95% posed in the original Application. The CPUC, in its September 2018 Decision, determined that Cal-Am’s overall future water demand will be approximately 14,000 AFA¹³ and agreed that “current” demand was 12,350 AFA, therefore the 6.4 MGD desalination plant is warranted.

Legal Lots of Record: The 2012 Application to the CPUC also included 1,181 AFA for Legal Lots of Record.^{14, 5} Legal lots of record are defined as lots resulting from a subdivision of property in which the final map has been recorded in cities and towns, or in which the parcel map has been recorded in Parcels and Maps or Record of Surveys. Lots of record may include vacant lots on vacant parcels, vacant lots on improved parcels, and also included remodels on existing improved, non-vacant parcels. Ultimately, not all legal lots are buildable. While the District is the source of the 1,181 AFA estimated demands for the lots of record, the number was lifted from the 2009 Coastal Water Project environmental impact report.

⁹ Supplemental Testimony of Richard C. Svindland, April 14, 2016 (Errata), pages 7-11

¹⁰ Supplemental Testimony of Richard C. Svindland, April 14, 2016 (Errata), page 9

¹¹ Direct Testimony of Ian Crooks Errata Version, September 27, 2017, page 10

¹² Direct Testimony of Ian Crooks Errata Version, September 27, 2017, pages 11-13

¹³ CPUC Decision 18-09-017, September 13, 2018, page 68

¹⁴ Direct Testimony of Richard C. Svindland, April 23, 2012, pages 22, 37.

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Tourism Bounce-Back: The 500 AFA for economic recovery was originally proffered by the hospitality industry to handle a recovery of occupancy rates in the tourist industry in a post-World Trade Center tragedy setting.^{15, 5} The industry felt that their most successful occupancy rates were in the three years prior to September 11, 2001 and felt 500 AFA would provide a buffer for a return to that level.

Pebble Beach Buildout: Ever since the State Water Board issued Order 95-10 and the Cease and Desist Order (CDO) it has recognized the Pebble Beach Company's investment in the Reclamation Project and the Company's right to serve its entitlements from the Carmel River. However, the State Water Board has stated a desire to have the Pebble Beach entitlements shifted away from the river and be satisfied by a new supply. At the time of the 2012 Application, the Pebble Beach company had approximately 325 AF of entitlements still available.

Current Water Demand Assumptions

The original MPWSP desalination project plant sizing was done almost eight years ago in 2012. With the passage of time and the opportunity to perform deeper research, it is possible to revisit the assumptions about consumer demand for water in the current context.

Average Current Customer Demand: Figure 1 on the next page shows water production for customer service, a proxy for customer demand, for the past twenty-one-year period, updated for 2019 data. As can be seen, demand has been in decline, but somewhat leveled out over the past five years.

¹⁵ Direct Testimony of Richard C. Svindland, April 23, 2012, page 37

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Figure 1
Annual Water Production for Customer Service (Demand)
Last 21 Years
(Acre-Feet)

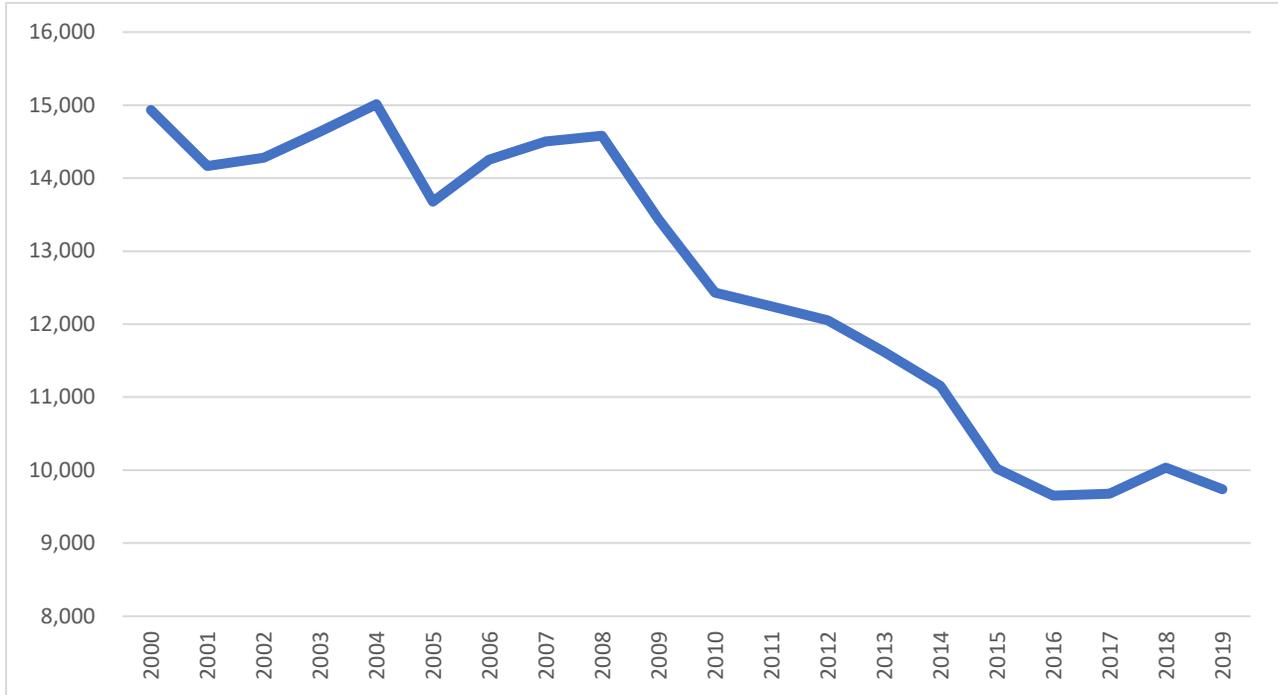


Table 3 shows how the 10-, 5-, and 3-year average demand compares to the CPUC and Cal-Am’s most recent 12,350 AFA assumption.

Table 3
Alternate Average Current Customer Demand Assumptions
Updated for 2019 Water Year
(Acre-Feet)

Period	Amount	Difference to CPUC/Cal-Am #
CPUC/Cal-Am Assumption	12,350	
10-Year Average - Actual	10,863	1,487
5-Year Average - Actual	9,825	2,525
3-Year Average - Actual	9,817	2,533

The trend is similar for peak month demand: 10-year maximum month through 2018 was 1,111 AF, the 5-year max was 966 AF, and the 3-year max was 950 AF, requiring approximately 15 MGD of firm capacity. By comparison, the maximum month at the time the plant was first sized was 1,532 AF. The proposed desalination plant, in conjunction with the other production

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facilities can meet peak month/peak day requirements. Pure Water Monterey expansion adds 4 new extraction wells, two for production and two for redundancy. Preliminary analysis shows that peak month/peak day can be met with both supply alternatives.

Hence, the case could be made that the average customer demand assumption in the sizing of the MPWSP should be 9,817 to 10,863 AFA.

Legal Lots of Record: The 1,181 number is derived from the October 2009 Coastal Water Project Final Environmental Impact Report and references a 2001 District analysis as the source. It was actually sourced from a Land Systems Group Phase II February 2002 interim draft report that used the number 1,181.438 AF. A calculation error was corrected and the report was subsequently updated in June 2002 and the number was revised to 1,210.964. However, the earlier number seems to have been used going forward. Both versions did not include vacant lots on improved parcels in the unincorporated County. Table 4 shows how the corrected number was calculated.

Table 4
Legal Lots of Record Estimates (2002)
Unincorporated County Not Included
(Acre-Feet)

Type of Parcel	Amount
Vacant Lots on Vacant Parcels	729.9
Vacant Lots on Improved Parcels	288.2
Anticipated Remodels (10 years)	192.8
Total	1,210.9

Table 5
Assumptions Driving the Legal Lots of Record Conclusions

Category	Units on Vacant Parcels	Units on Improved Parcels	Estimated Number of Remodels	Water Use Factor	Total Water Usage
Single Family Dwellings	688	152		0.286 AF	240.2
Multi-Family Dwellings	846	204		0.134 AF	140.7
Commercial/Industrial	556	288		0.755 AF	637.2
Residential Remodels			3765	0.029 AF	109.2
Commercial Remodels			513	0.163 AF	83.6
	2,091	789	4,278		1,210.9

Since the study, the District’s conservation programs have resulted in reductions in the average water use factors. For example, with single-family water use at 0.2 AFA, multifamily use at 0.12 AFA, and commercial customer connections averaging 0.66 AFA (2016 data), these changes

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alone would reduce the total above by 167.1 AF. Further, some of these lots may have been built upon, others determined unbuildable. Many of the remodels have likely occurred. General plans have been rewritten and housing elements recalculated. These factors taken together could result in another 150 AF reduction in the assumption.

Compared to the 1,890 units from the 2002 Land Systems Group study shown above, going forward, AMBAG's Regional Housing Needs Allocation (RHNA) Plan: 2014-2023 showed 1,271 additional housing units expected in the 6 cities for a ten-year period. This is shown in Appendix B of this report. Assuming single-family water use at 0.2 AFA and multifamily use at 1.2 AFA, this equates to approximately 395-405 AFA over a 20-year period¹⁶. Most of AMBAG's projected growth occurs in Seaside and Monterey, which if slated for the former Fort Ord would not be served by Cal-Am. Unfortunately, it is not possible to accurately distinguish the Cal-Am served housing growth from the non-Cal-Am housing growth, but the 405 AFA likely overstates the Cal-Am growth. The AMBAG assumptions appear consistent with the Land Systems Group estimates. The RHNA is expected to be updated soon and the allocation could change. The water for housing can be thought of as captured within the population growth component of the third-party growth forecast discussed later in this report and in Appendix A.

The case could be made that the legal lots of record demand assumption in the sizing of the MPWSP should be 864 to 1,014 AFA.

Tourism Bounce-Back: As stated earlier, the 500 AFA for economic recovery was originally suggested by the hospitality industry to account for a recovery of occupancy rates in the tourist industry in a post-World Trade Center tragedy setting.^{5, 15} Representatives of the Coalition of Peninsula Businesses indicated in testimony that the hospitality industry was hurt by the recent recession and that occupancy rates needs to increase by 12 to 15 percent to re-attain the levels of decades ago.¹⁷ It is true that the Salinas-Monterey market was one of five California markets, out of 22, to experience double digit declines after the events of 2001, from 71.8% in 2000 to 63.0% in 2001.¹⁸ It is also true that the decline persisted and was still down when the MPWSP desalination plant was sized, with occupancy rates of 62.8% in 2011-12 and 64.1% in 2012-13.¹⁹ However, occupancy rates have since recovered with no notable increase in water demand. Hotel occupancy locally is back at approximately 72% and is estimated by Smith Travel Research to be higher for better quality properties on the Monterey Peninsula.^{20, 21} The commercial sector water demand is shown below in Table 6 for the year prior to the World Trade Center tragedy, the year of the MPWSP plant sizing, and the most recent year. As can be

¹⁶ Appendix B of this report

¹⁷ Testimony of John Narigi (to CPUC), September 29, 2017, page 5

¹⁸ HVS San Francisco, August 19, 2003

¹⁹ Monterey County Convention and Visitors Bureau Annual Report 2012-13, page ii

²⁰ Fiscal Analysis of the Proposed Hotel Bella Project, Applied Development Economics, April 6, 2016

²¹ Cannery Row Company, January 9, 2019

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seen, commercial demand, which is heavily influenced by the hospitality industry remains in decline, despite the already absorbed “bounce-back” in occupancy rates.

Table 6
Commercial Sector Water Demand
Selected Years
(Acre-Feet)

Year	Demand
2001	3,387
2012	2,770
2018	2,442

There is a secular change in commercial demand that is due to permanent demand reductions resulting from targeted rebate programs, conservation standards for the visitor-serving sector since 2002, mandatory conservation standards for other commercial businesses instituted in 2013, and commercial inspection/enforcement by the District. A “bounce-back” of 500 AFY would represent an increase in water use demand of 20% in the entire commercial sector, not just the hospitality industry. The District does not view this as likely in the near-term, nor due to a return to higher occupancy rates.

Hence, the case could be made that the tourism bounce-back demand assumption in the sizing of the MPWSP should be 100 to 250 AFA.

Pebble Beach Buildout: As cited earlier, at the time of the 2012 Application, the Pebble Beach company had approximately 325 AF of entitlements still available and that number was added to the MPWSP sizing needs. However, the final environmental impact report certified in 2012 envisioned 145 AFA for the buildout projects and 154 AFA in other entitlement demand.²²

The other entitlement demand goes away when a new water supply comes online because homeowners will have no reason to pay \$250,000 per AF for an entitlement when connecting directly to Cal-Am is possible when the moratorium on new service connections is lifted. In the ten years since the CDO was imposed, Pebble Beach entitlement water demand has averaged 4.9 AF added each year. It is reasonable to assume only another 15 AFA during the next three years before a permanent water supply is online.

The project buildout is 145 AFA not 325 AFA used in project sizing. Further, the buildout number includes estimated water use that may never materialize in decades, if ever. Table 7 shows the elements that comprise the Pebble Beach buildout.

²² Pebble Beach Final Environmental Impact report (FEIR), April 2012, Appendix H “Water Supply and Demand Information for Analysis”

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Table 7
Components of Pebble Beach Buildout
(Acre-Feet)

Project	Demand
Lodge	13.11
Inn at Spanish Bay	12.85
Spyglass Hotel	30.59
Area M Residential	10.00
Other Residential	77.00
Driving Range	0.33
Roundabout	0.70
Total	144.58

Two elements of the project warrant greater discussion: "Other Residential" includes 66 single family residences at 1.0 AF each and 24 residences at 0.50 AF each (and a decrement of 1 AF in the total calculation for other reasons.) District research in 2006 determined the average large lot Pebble Beach home utilized 0.42 AFA. Building conservation standards have increased since then. Many of the proposed homes are not utilized year-round. The estimate could be overstated by one-third or more. Spyglass Hotel is not currently being pursued and there are no plans to do so in the near-term. The project could be a decade or two away, if ever.

Hence, the case could be made that the Pebble Beach buildout demand assumption in the sizing of the MPWSP should be 103 to 160 AFA.

Summary of Demand v. Supply

Table 8 shows the range of demand estimates that have been established in the foregoing analysis. These long-term demand estimates can be compared to existing current demand to determine how much water supply is needed.

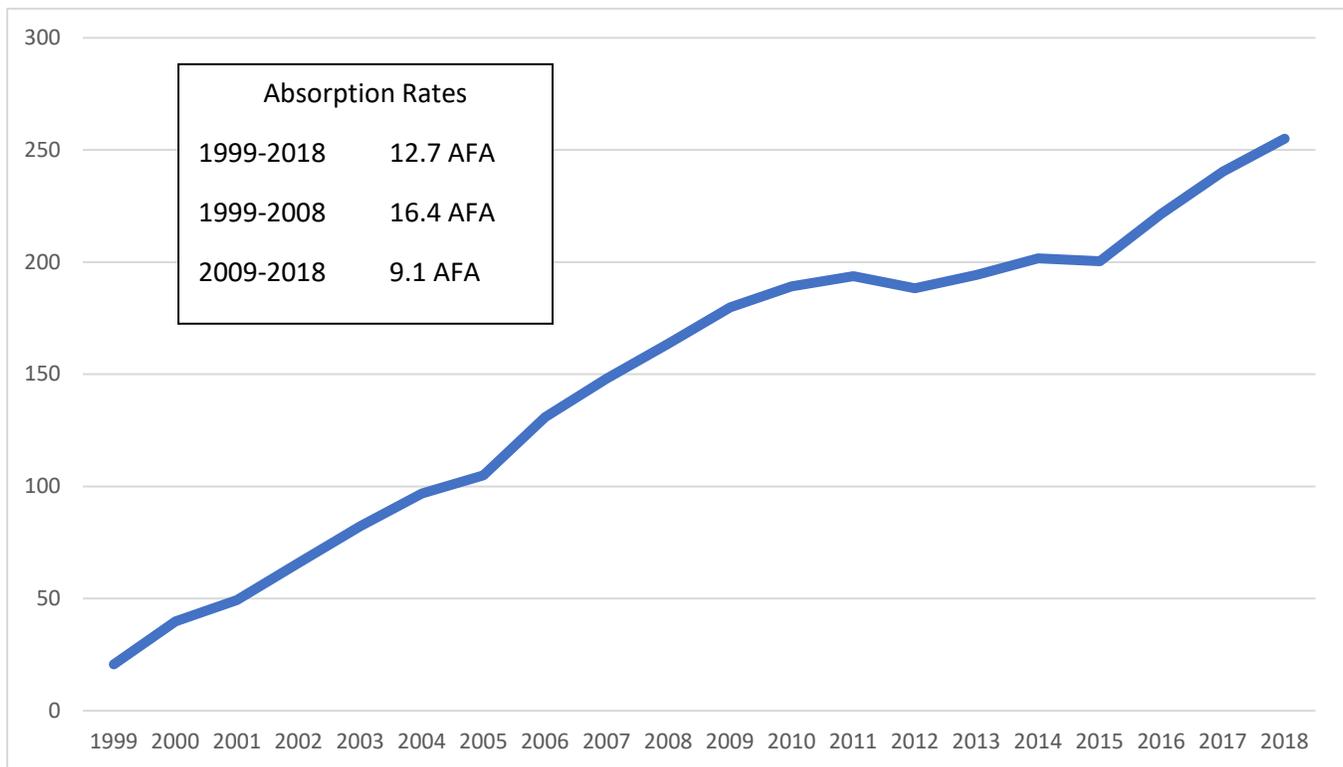
Table 8
Range of Potential Demand Scenarios in MPWSP Sizing
(Acre-Feet)

Demand Component	Current Project	Revised High	Revised Low
Average Current Customer Demand	13,290	10,863	9,817
Legal Lots of Record	1,181	1,014	864
Tourism Bounce-Back	500	250	100
Pebble Beach Buildout	325	160	103
Total Water Demand	15,296	12,287	10,884

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However, the ability of the Monterey Peninsula to generate or “absorb” the housing and commercial growth will help determine when such water supply is needed. Figure 2 shows the past 20 years of market absorption of water demand based on water permits issued. The average growth or absorption in water use was 12.7 AF per year. The first decade preceded the CDO and was a period of relative economic stability, available property, no moratorium on new service connections, and lower water rates resulting in 16.4 AF per year of absorption. The second decade was after the CDO and moratorium on service connections and understandably had a lower absorption rate of 9.1 AF per year.

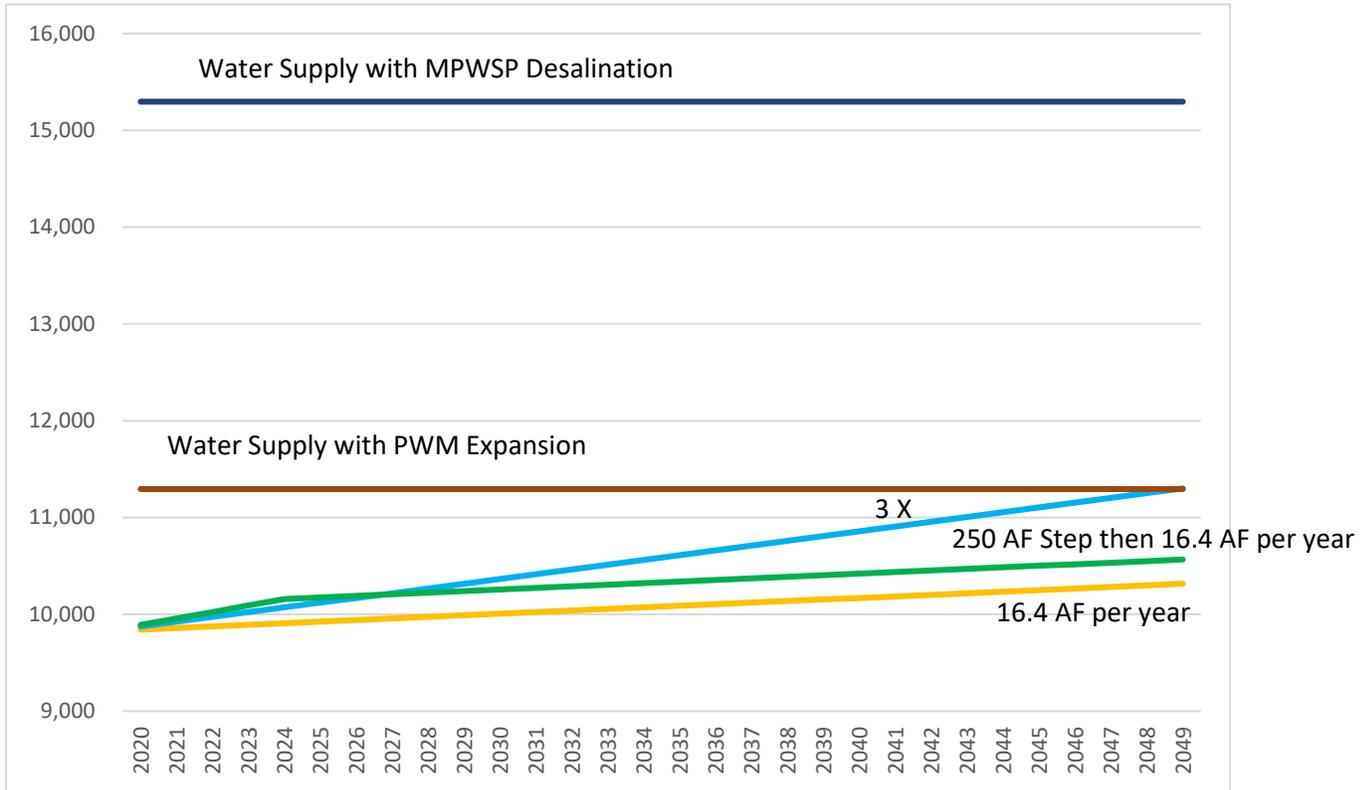
Figure 2
Market Absorption of Water Demand
Last 20 Years
(Acre-Feet)



By adopting assumptions about current demand and market absorption rates, it can be determined the sufficiency of certain supply alternatives over time. In Figure 3, the current demand assumption of 9,825 AF (most recent 5-year average) is shown with three market absorption rates: (a) 16.4 AF per year (pre-CDO decade rate), (b) three times that rate, and (c) 250 AF over the first five years on top of the pre-CDO rate. These are also compared to the two supply alternatives in Table 1.

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Figure 3
Market Absorption of Water Demand Compared to Water Supply
Current Demand at 5-Year Average
(Acre-Feet)

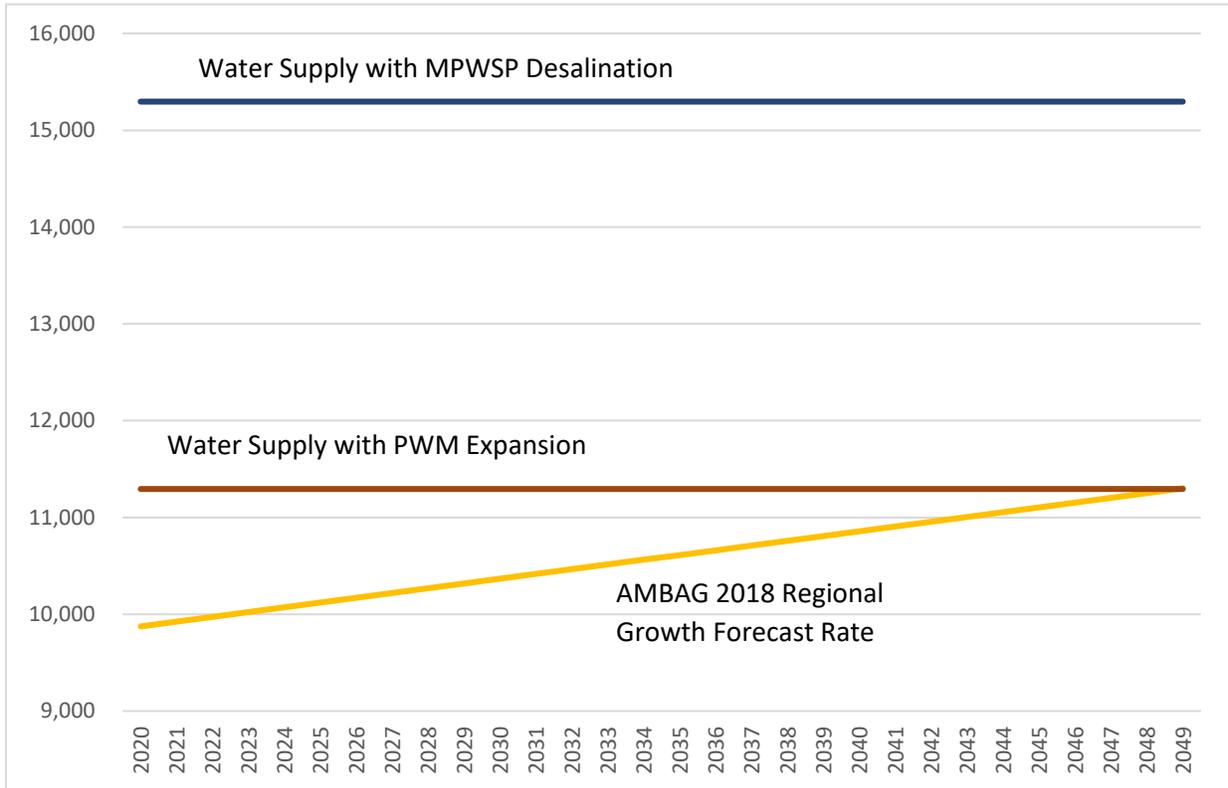


This chart shows that, assuming a starting current demand at the 5-year average, both water supply alternatives meet 30-year market absorption at the historical rate, 250 AF in the first 5 years on top of the historical rate, and at 3-times the historical absorption rate.

Rather than to rely on pre-CDO absorption of water demand or alternative theoretical future demand scenarios, as was done in the September report, it is instructive to instead look at a regional growth forecast by an objective third-party. Here, as shown in Appendix A, we evaluated AMBAG’s 2018 Regional Growth Forecast, specifically the subregional population forecast as a proxy for residential water demand, and the subregional employment forecast, using job growth as a proxy for commercial water demand. (Certainly, other factors could be considered.) Using this methodology, the total water demand increase in the 20 year study period is 984 AF or 49.2 AFA. Applying the 49.2 AFY linearly across a 30-year horizon results in the demands shown in Figure 4 on the next page.

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Figure 4
Market Absorption of Water Demand Compared to Water Supply
Current Demand at 5-Year Average
AMBAG 2018 Regional Growth Forecast
(Acre-Feet)



This chart shows that, assuming a starting current demand at the 5-year average (inclusive of water year 2019), both water supply alternatives meet 30-year market absorption at the AMBAG 2018 Regional Growth Forecast rate.

Additional Factors Affecting Future Demand

Cost: The future water supply will significantly impact rates. It is expected that the combined cost of new water supply and regular annual rate increases will almost double a residential ratepayer's water bill by 2023. Rules of price elasticity suggest the cost of water might dampen demand. The cost of each major component of supply is shown below:

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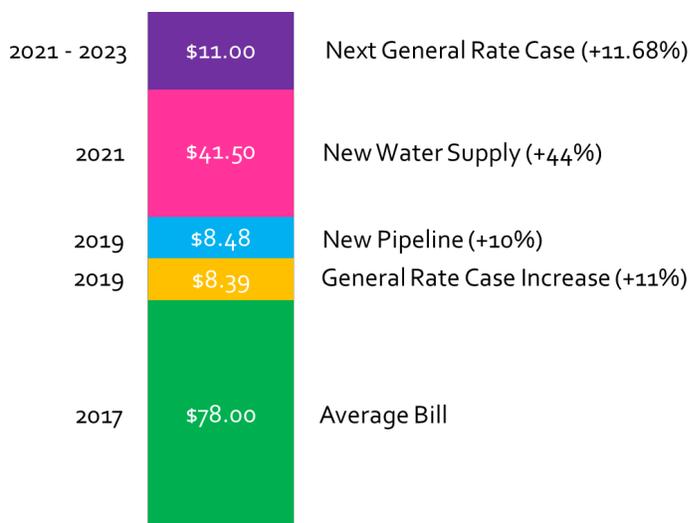
Desalination Plant	\$6,094 per acre-foot ²³
Carmel River:	\$271 per acre-foot ²⁴
Seaside Basin:	\$130 per acre-foot ²⁵
Pure Water Monterey:	\$1,976 per acre-foot ²⁶
PWM with Expansion:	\$2,077 per acre-foot ²⁵

Further, if the desalination plant capacity is not fully utilized, the cost per acre-foot rises due to the fixed costs, as shown below.

Production by Desal Plant – AF	<u>6,252</u>	<u>5,000</u>	<u>4,300</u>
Variable Cost (\$ Million)	7.8	6.2	5.4
Fixed Cost (\$ Million)	<u>30.3</u>	<u>30.3</u>	<u>30.3</u>
Total Annual Cost to Customer	38.1	36.5	35.7
Cost per Acre-Foot	\$6,094	\$7,308	\$8,294

The rate impact can be seen in Figure 5 below, which is calculated based on full utilization of the desalination plant.

Figure 5
Ratepayer Impacts of New Water Supply²⁷



²³ Attachment C-3 California American Water Company Advice Letter 1220 "Total Yr 1 Cost to Customer" \$38.1 million, divided by 6,252 acre-feet per year

²⁴ MPWSP Model- V 2.1 submitted to CPUC; February 2018 and October 2017 versions, 6.4 MGD scenario, "Avoided Costs" worksheet

²⁵ MPWSP Model- V 2.1 submitted to CPUC; February 2018 and October 2017 versions, 6.4 MGD scenario, "Avoided Costs" worksheet

²⁶ Presentation by Monterey One Water at June 27, 2019 Monterey Peninsula Regional Water Authority meeting

²⁷ "Your Rates Are Changing" California American Water mailer, April 2019 and "Notice of General Rate Case Application filed" July 2019

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Legislation: On May 31, 2018, Governor Brown signed two bills which build on the ongoing efforts to “make water conservation a California way of life.” SB 606 (Hertzberg) and AB 1668 (Friedman) reflect the work of many water suppliers, environmental organizations, and members of the Legislature. The mandates will fall on urban water suppliers – not customers.

Specifically, the bills call for creation of new urban efficiency standards for indoor use, outdoor use, and water lost to leaks, as well as any appropriate variances for unique local conditions. Each urban retail water agency will annually, beginning November 2023, calculate its own *objective*, based on the water needed in its service area for efficient indoor residential water use, outdoor residential water use, commercial, industrial and institutional (CII) irrigation with dedicated meters, and reasonable amounts of system water loss, along with consideration of other unique local uses (i.e., variances) and “bonus incentive,” or credit, for potable water reuse, using the standards adopted by the State Water Board.

The indoor water use standard will be 55 gallons per person per day (gallons per capita daily, or GPCD) until January 2025; the standard will become stronger over time, decreasing to 50 GPCD in January 2030. For the water use objective, the indoor use is aggregated across population in an urban water supplier’s service area, not each household. Presently, the average June 2014-May 2019 gallons per capita per day for the Cal-Am Monterey system is 57 gpcd. Hence, existing users are unlikely to increase their water consumption with the availability of new water supply.

Principal Conclusions

- Either supply option can meet the long-term needs of the Monterey Peninsula
- Either supply option is sufficient to lift the CDO
- The long-term needs of the Monterey Peninsula may be less than previously thought
- Several factors will contribute to pressure on decreasing per capita water use

EXHIBIT 15-A

Appendix A
Water Required to Meet
AMBAG 2018 Regional Growth Forecast

Water Required for Population Growth²⁸

	Monterey	Pacific Grove	Carmel-by-the-Sea	Sand City	Seaside	Del Rey Oaks	County ²⁹	TOTAL
Population in 2020	28,726	15,349	3,833	544	34,301	1,949	7,182	91,884
Population in 2040	30,976	16,138	3,876	1,494	37,802	2,987	7,541	100,814
Increase	2,250	789	43	950	3,501	1,038	359	8,930
GPCD ³⁰	56.8	56.8	56.8	56.8	56.8	56.8	56.8	56.8
Acre-Feet per Year	143 AF	50 AF	3 AF	60 AF	223 AF	66 AF	23 AF	568 AF

*: Likely overstates population growth in Cal-Am service area due to some growth attributable to the Fort Ord build-out.

Water Required for Employment Growth³¹

	Monterey	Pacific Grove	Carmel-by-the-Sea	Sand City	Seaside	Del Rey Oaks	County ³²	TOTAL
Jobs in 2020	34,434	5,093	2,998	1,569	10,161	371	4,300	58,926
Jobs in 2040	40,173	5,808	3,378	1,810	11,299	432	4,845	67,745
Increase	16.7%	14.0%	12.7%	15.4%	11.2%	16.4%	12.7%	
Commercial Consumption In 2019 ³³	1,371 AF	248 AF	203 AF	54 AF	282 AF	21 AF	651 AF	2,830 AF
Commercial Consumption In 2040 ³⁴	1,600 AF	283 AF	229 AF	62 AF	314 AF	24 AF	734 AF	3,246 AF
Increase	229 AF	35 AF	26 AF	8 AF	32 AF	3 AF	83 AF	416 AF

Using this methodology, total water demand increase in 20 year period is 984 AF or 49.2 AFY.

²⁸ Association of Monterey Bay Area Governments. 2018. "2018 Regional Growth Forecast." Table 8, page 32

²⁹ Uses Cal-Am service area population reported in SWRCB June 2014 – September 2019 Urban Water Supplier Monthly Reports (Raw Dataset), minus urban areas, escalated at 5%.

³⁰ SWRCB June 2014 – September 2019 Urban Water Supplier Monthly Reports (Raw Dataset); Average gallons per capita per day for August 2018 – July 2019; www.waterboard.ca.gov

³¹ Association of Monterey Bay Area Governments. 2018. "2018 Regional Growth Forecast." Table 7, page 30

³² California Employment Development Department, Monthly Labor Force Data for Cities and Census Designated Places. November 15, 2019. Sum of Carmel Valley Village CDP and Del Monte Forest CDP. Escalated at same rate as Carmel-by-the-Sea.

³³ Cal-Am. 2019. "Customers and Consumption by Political Jurisdiction"

³⁴ Assumes escalation at same rate as job growth 2020 to 2040



A

Regional Growth Forecast

EXHIBIT 15-A

Table 7: Subregional Employment Forecast

Geography	2015	2020	2025	2030	2035	2040	Change 2015-2040	
							Numeric	Percent
AMBAG Region	337,600	351,800	363,300	374,100	384,800	395,000	57,400	17%
Monterey County	203,550	211,799	218,203	224,207	230,212	235,822	32,272	16%
Carmel-By-The-Sea	2,935	2,998	3,096	3,195	3,289	3,378	443	15%
Del Rey Oaks	359	371	387	404	418	432	73	20%
Gonzales	4,477	4,963	5,064	5,166	5,278	5,371	894	20%
Greenfield	7,024	7,552	7,729	7,813	7,911	7,982	958	14%
King City	4,441	4,692	4,862	5,013	5,154	5,287	846	19%
Marina	6,340	6,649	6,886	7,140	7,373	7,620	1,280	20%
Monterey	34,030	34,434	35,970	37,405	38,814	40,173	6,143	18%
Pacific Grove	5,000	5,093	5,272	5,466	5,637	5,808	808	16%
Salinas	64,396	67,270	69,660	71,958	74,160	76,294	11,898	18%
Sand City	1,517	1,569	1,633	1,698	1,758	1,810	293	19%
Seaside	9,650	10,161	10,455	10,726	11,020	11,299	1,649	17%
Soledad	3,442	3,584	3,694	3,786	3,885	3,978	536	16%
Balance Of County	59,939	62,503	63,497	64,438	65,516	66,390	6,451	11%
San Benito County	18,000	19,240	19,957	20,617	21,264	21,913	3,913	22%
Hollister	13,082	14,035	14,608	15,132	15,650	16,172	3,090	24%
San Juan Bautista	559	591	615	639	662	685	126	23%
Balance Of County	4,359	4,614	4,734	4,846	4,951	5,056	697	16%
Santa Cruz County	116,050	120,761	125,141	129,275	133,324	137,265	21,215	18%
Capitola	7,062	7,199	7,464	7,727	7,979	8,228	1,166	17%
Santa Cruz	40,986	43,090	44,647	46,153	47,616	49,085	8,099	20%
Scotts Valley	7,475	7,612	7,820	8,004	8,180	8,349	874	12%
Watsonville	22,644	23,482	24,382	25,200	26,008	26,772	4,128	18%
Balance Of County	37,883	39,339	40,826	42,191	43,541	44,831	6,948	18%

Sources: Data for 2015 from InfoUSA and the California Employment Development Department.

Forecast years were prepared by AMBAG and PRB.

EXHIBIT 15-A

Table 8: Subregional Population Forecast

Geography	2015	2020	2025	2030	2035	2040	Change 2015-2040	
							Numeric	Percent
AMBAG Region	762,676	791,600	816,900	840,100	862,200	883,300	120,624	16%
Monterey County	432,637	448,211	462,678	476,588	489,451	501,751	69,114	16%
Carmel-By-The-Sea	3,824	3,833	3,843	3,857	3,869	3,876	52	1%
Del Rey Oaks	1,655	1,949	2,268	2,591	2,835	2,987	1,332	80%
Gonzales	8,411	8,827	10,592	13,006	15,942	18,756	10,345	123%
Greenfield	16,947	18,192	19,425	20,424	21,362	22,327	5,380	32%
King City	14,008	14,957	15,574	15,806	15,959	16,063	2,055	15%
Marina	20,496	23,470	26,188	28,515	29,554	30,510	10,014	49%
Marina balance	19,476	20,957	22,205	22,957	23,621	24,202	4,726	24%
CSUMB (portion)	1,020	2,513	3,983	5,558	5,933	6,308	5,288	518%
Monterey	28,576	28,726	29,328	29,881	30,460	30,976	2,400	8%
Monterey balance	24,572	24,722	25,324	25,877	26,456	26,972	2,400	10%
DLI & Naval Postgrad	4,004	4,004	4,004	4,004	4,004	4,004	0	0%
Pacific Grove	15,251	15,349	15,468	15,598	15,808	16,138	887	6%
Salinas	159,486	166,303	170,824	175,442	180,072	184,599	25,113	16%
Sand City	376	544	710	891	1,190	1,494	1,118	297%
Seaside	34,185	34,301	35,242	36,285	37,056	37,802	3,617	11%
Seaside balance	26,799	27,003	27,264	27,632	28,078	28,529	1,730	6%
Fort Ord (portion)	4,450	4,290	4,340	4,490	4,690	4,860	410	9%
CSUMB (portion)	2,936	3,008	3,638	4,163	4,288	4,413	1,477	86%
Soledad	24,809	26,399	27,534	28,285	29,021	29,805	4,996	20%
Soledad balance	16,510	18,100	19,235	19,986	20,722	21,506	4,996	30%
SVSP & CTF	8,299	8,299	8,299	8,299	8,299	8,299	0	0%
Balance Of County	104,613	105,361	105,682	106,007	106,323	106,418	1,805	2%
San Benito County	56,445	62,242	66,522	69,274	72,064	74,668	18,223	32%
Hollister	36,291	39,862	41,685	43,247	44,747	46,222	9,931	27%
San Juan Bautista	1,846	2,020	2,092	2,148	2,201	2,251	405	22%
Balance Of County	18,308	20,360	22,745	23,879	25,116	26,195	7,887	43%
Santa Cruz County	273,594	281,147	287,700	294,238	300,685	306,881	33,287	12%
Capitola	10,087	10,194	10,312	10,451	10,622	10,809	722	7%
Santa Cruz	63,830	68,381	72,091	75,571	79,027	82,266	18,436	29%
Santa Cruz balance	46,554	49,331	51,091	52,571	54,027	55,266	8,712	19%
UCSC	17,276	19,050	21,000	23,000	25,000	27,000	9,724	56%
Scotts Valley	12,073	12,145	12,214	12,282	12,348	12,418	345	3%
Watsonville	52,562	53,536	55,187	56,829	58,332	59,743	7,181	14%
Balance Of County	135,042	136,891	137,896	139,105	140,356	141,645	6,603	5%

Sources: Data for 2015 are from the U.S. Census Bureau and California Department of Finance. Forecast years were prepared by AMBAG and PRB.

EXHIBIT 15-A

Appendix B
Water Required to Meet
Regional Housing Needs Allocation Plan: 2014-2023

2014-2023 RHNA Goals by Local Jurisdiction³⁵

	Monterey	Pacific Grove	Carmel-by-the-Sea	Sand City	Seaside	Del Rey Oaks	TOTAL
Total Allocation	650	115	31	55	393	27	1,271
Very Low (24.1%)	157	28	7	13	95	7	307
Low (15.7%)	102	18	5	9	62	4	200
Moderate (18.2%)	119	21	6	10	72	5	233
Above Moderate (42%)	272	48	13	23	164	11	531

*: Does not include unincorporated Monterey County, which might be 15-25 additional AFY to full build-out

Estimated Water Required to Meet RHNA Goals on the Monterey Peninsula

	TOTAL RHNA GOAL	Water Required (AFY) ³⁶	Factor Used
Very Low (24.1%)	307	37	0.12 AFA (multi-family)
Low (15.7%)	200	24	0.12 AFA (multi-family)
Moderate (18.2%)	233	37	0.16 (half single family/half multi-family)
Above Moderate (42%)	531	92	0.173 (2/3 single family/1/3 multi-family)
Total Allocation/Water Required	1,271	190	

Over two similar 10-year periods, total water required for housing calculated with this methodology is 380 AF over twenty years, or 395 – 405 AF including estimate for unincorporated County (footnote above.)

³⁵ Association of Monterey Bay Area Governments. ND. "Regional Housing Needs Allocation Plan: 2014-2023." Available at: https://ambag.org/sites/default/files/documents/RHNP%202014-2023_Final_revised.pdf.

³⁶ Calculated based on the RHNA goals for the six cities in the Monterey Peninsula and MPWMD's water use factors for single family units (0.2 AFA) and multi-family units (0.12 AFA).



REGIONAL HOUSING NEEDS ALLOCATION PLAN: 2014 - 2023

ASSOCIATION OF MONTEREY BAY AREA GOVERNMENTS

EXHIBIT 15-A

Regional Housing Needs Allocation Plan: 2014 - 2023

RHNA Allocation

Geography	Total Allocation	Very Low (24.1%)	Low (15.7%)	Moderate (18.2%)	Above Moderate (42.0%)
AMBAG Region	10,430	2,515	1,640	1,900	4,375
Monterey County	7,386	1,781	1,160	1,346	3,099
Carmel-By-The-Sea	31	7	5	6	13
Del Rey Oaks	27	7	4	5	11
Gonzales	293	71	46	53	123
Greenfield	363	87	57	66	153
King City	180	43	28	33	76
Marina	1,308	315	205	238	550
Monterey	650	157	102	119	272
Pacific Grove	115	28	18	21	48
Salinas	2,229	538	350	406	935
Sand City	55	13	9	10	23
Seaside	393	95	62	72	164
Soledad	191	46	30	35	80
Balance Of County	1,551	374	244	282	651
Santa Cruz County	3,044	734	480	554	1,276
Capitola	143	34	23	26	60
Santa Cruz	747	180	118	136	313
Scotts Valley	140	34	22	26	58
Watsonville	700	169	110	127	294
Balance Of County	1,314	317	207	239	551