ITEM 18

UWMP Optional Changes

Water Use	2020-2021	2021-2022	2022-2023	2023-2024	2024-2025
Landscape (Non-Potable)	1,025	1,077	907	765	828

Reclamation Project water demands were highest in fiscal year ending 2022 and have declined since that period. Water year 2021 and 2022 were classified as dry hydrologic years on the Monterey Peninsula. The region experienced an extremely wet hydrologic year in 2023, with water years 2024 and 2025 being above and below normal respectively. The wet and above normal hydrological conditions contribute to a decreased demand from area customers. The non-potable water use over the past five years is consistent with the longer historical record.

4.2.3 Distribution System Water Loss

Senate Bill (SB) 555 (2015) requires urban retail water suppliers to submit water loss audits to the state by October 1st of each year. As a wholesale water supplier, MPWMD is not subject to this requirement.

4.2.4 Projected Water Use

This section provides projections for water use in five-year increments through 2050, a 25-year projection beginning with the next UWMP cycle.

4.2.4.1 Demand Estimates by Retailer

Wholesalers and retailers are required to coordinate with each other on supply and demand estimates. MPWMD and Cal-Am coordinated supply and demand forecasts for almost four years as part of a California Public Utilities Commission (CPUC) proceeding. The CPUC oversees Cal-Am's rates, investments, and compliance with the law. In 2021, Cal-Am submitted Application A.21-11-024 to the CPUC requesting approval to enter the Amended PWM WPA, authorization to construct facilities needed to produce PWM water, and update supply and demand estimates used in a prior approval of Cal-Am's Monterey Peninsula Water Supply Project[8]. MPWMD was granted party status in the application. CPUC decision D.25-08-006 as amended on October 9, 2025 (CPUC 2025 Decision) provided direction on the supply and demand estimates.

~~As indicated in testimony to the CPUC, MPWMD along with the Public Advocates Office of the CPUC (Cal Advocates), Marina Coast Water District, and the City of Marina, argued that the Cal-Am water demand estimates presented to the CPUC overstate demand, count certain demand categories multiple times, are inconsistent with other estimates done by planning agencies such as the AMBAG, and do not consider decreasing per capita demand or the anticipated decrease in demand as water retailers come into compliance with the State's "Making Water Conservation a California Way of Life" regulation.~~

~~The CPUC found that the projected 2050 water demand is 13,732 AFY which, in MPWMD's view, double counts increased demand due to population increase with associated housing~~

[8] Cal-Am's Monterey Peninsula Water Supply Project consists of ASR, groundwater replenishment using PWM as the source, and a desalination plant.

~~increase, and increased demand due to non-residential growth with tourism rebound from pre-2009 recession conditions. MPWMD continues to dispute Cal-Am's water demand forecasts. The water demand estimates provided in this document and carried through the comparison of supply and demands use AMBAG population and economic growth forecasts also used by the CPUC and Cal-Am[9].~~

4.2.4.2 Pure Water Monterey

As previously stated, Cal-Am's annual use of PWM is contractually fixed at 5,750 AF each year.

Table 4-3. PWM Demand Projections (AF)

Water Demand	2030	2035	2040	2045	2050
Sales to Cal-Am	5,750	5,750	5,750	5,750	5,750

4.2.4.3 ASR

Recovery of stored ASR water has not been required to meet demand since Water Year 2020[10]. water years 2021 and 2022 both had dry hydrologic year type classifications. ~~.~~ In 2025 the final expansion of the PWM project began operation, increasing water supply by 2,250 AFY. Cal-Am is planning to construct additional water supply, please refer to their UWMP. For these reasons, MPWMD assumes there will be no required demand for stored ASR water over the projected time period.

~~[9] The CPUC proceeding used the 2022 AMBAG forecast; this UWMP uses the 2026 forecast.~~

[10] In water year 2023, an extremely wet hydrologic year, 806 AF of stored ASR water was recovered. That year 960 AF of legal Carmel River water was not ~~diverted~~used. ASR recovery in 2023 was not required.

Table 4-4. ASR Demand Projections (AF)

Water Demand	2030	2035	2040	2045	2050
Transfers to Cal-Am	0	0	0	0	0

~~Projected ASR use, and therefore demand on MPWMD, depends on the overall water supply portfolio available to MPWMD's retailer Cal-Am. MPWMD estimates that with increased supply from the expanded PWM project in October 2025, there will be excess supply for several years going forward. It is in the best interest of the community to make sure annually renewable water supplies are used wisely, and that stored water is maximized for future shortages or emergencies. The demand for ASR will be calculated as the difference between the retailer's total demand and the annually renewed potable water supplies available to the retailer. If total demand exceeds the annually renewed supply, there would be a demand to recover ASR water from storage. The demonstration of total demand and available supplies is contained in Tables 4-4 and 4-5. Elements of the calculations of Table 4-4 are described below.~~

~~Overall future potable water demands were projected using the AMBAG residential and non-residential growth forecasts. Using AMBAG data ensures that water demand estimates align with official land use assumptions and demographic trends, providing a reliable foundation for forecasting future water demands. The 2026 Draft Final Regional Growth Forecast for the Association of Monterey Bay Area Governments provides projections in five-year increments through 2050.~~

~~The growth forecast is then applied to current water use. MPWMD used a five-year average of water production (Water Years 2021-2025)[11] as current water use, 9,247 AF. MPWMD allocated residential and non-residential water use based on proportionate percentages reported by Cal-Am to MPWMD as a requirement of Cal-Am's Water Distribution System permit. AMBAG growth rates for population and employment were then applied to residential and non-residential water use in five-year increments by jurisdiction. The total projected water demand is shown in Table 4-4.~~

~~Table 4-4. Calculation of Overall Potable Water Demand (AF)~~

-	2025	2030	2035	2040	2045	2050
Cal-Am Demands Estimated by MPWMD based upon AMBAG	9,096[1]	9,515	9,687	9,841	9,978	10,076

(1) This is the actual potable water demand in Water Year 2025.

~~Overall potable water demand is conservatively assumed to be unreactive to weather and regulatory changes. As shown in the Section 4.2.2 Past and Current Water Use, demand decrease strongly correlates with time, a proxy for conservation efforts and rising cost of water. Demand does not correlate with significant droughts as evidenced by the last major drought from Water Year 2012 to 2015 when demand continuously declined. Additionally, State water~~

[11] This time period follows a normal hydrologic water year with two hydrologically dry years, one extremely wet year, one above normal year, and one below normal year.

~~use efficiency laws continue to be implemented which will decrease some uses over time. Thus, the overall potable water demand projections in the prior table are assumed to be conservative for dry periods and the future.~~

~~A comparison of annually renewed potable supplies available to Cal-Am against projected demand informs the estimate of water required to be recovered from ASR storage. The comparison is provided in Table 4-5.~~

~~It is projected that there will be no regular demand for stored ASR water over the projected time period. MPWMD considers the projection to be conservative for the following reasons:~~

~~1. There are additional potable water supplies not included in Table 4-5 that Cal-Am accesses annually, including:~~

~~a. Cal-Am water right Permit 021330, commonly referred to as "Table 13", allows Carmel River diversions when specified hydrologic conditions are met. Delivery under this water right has averaged over 250 AFY since delivery began in 2015.~~

~~b. The Seaside Groundwater Basin Watermaster allows un-used production allocation from producers without storage rights to be divided amongst producers with storage rights. Cal-Am is a producer with storage rights and has received allocations averaging over 375 AFY since the adjudication pumping limit was achieved in 2021.~~

~~2. Native Seaside Groundwater Basin and PWM water can be stored in the Seaside Basin. If stored ASR water is recovered, it is possible that the ASR recovery was in-lieu of one of the other stored water supplies. In this case, the increase in another stored water supply offsets the decreased supply due to ASR recovery.~~

If stored ASR water is used for an unforeseen reason, there is sufficient stored water and annual deliveries to meet the anticipated demand.

~~**Table 4-5. Calculation of Cal-Am Demand ASR Project (AF)**~~

-	2025	2030	2035	2040	2045	2050
Total Retailer Demands Estimate by MPWMD	9,096	9,515	9,687	9,841	9,978	10,076
Demand Satisfied by PWM[1]	-5,750	-5,750	-5,750	-5,750	-5,750	-5,750
Demand Satisfied by Legal Carmel River Diversion[2]	-3,376	-3,376	-3,376	-3,376	-3,376	-3,376
Demand Satisfied by Seaside Basin Allocation[3]	-766 to -1,466	-766 to -1,466	-766 to -1,466	-766 to -1,466	-766 to -1,466	-766 to -1,466
Demand Satisfied by Sand City Desalination Plant[4]	-130 to -200	-130 to -200	-130 to -200	-130 to -200	-130 to -200	-130 to -200
Demand Satisfied by Wheeled Carmel River Water[5]	-86	-86	-86	-86	-86	-86
Demand Satisfied by Wheeled Seaside Basin Water[6]	-22	-22	-22	-22	-22	-22
Demand for Recovery of Stored ASR Water	0	0	0	0	0	0

1. For information on PWM supplies in Normal and Dry Years see Section 6.3.1.
2. Carmel River diversions are taken from the alluvium, which has enough storage to provide water for a 7-year drought.
3. Cal-Am must payback 700 AFY of over drafted Seaside Basin native water for 25 years. The payback could begin within the next 25 years; the lower value 766 AFA is only required while the payback is occurring.
4. CPUC Decision D.10-12-017 dated April 18, 2013 found that 31.3% of the Sand City Desalination Plant capacity, 94 AF, is available to offset illegal river diversions and that Cal-Am can use the remaining production to serve the rest of the Peninsula until growth in Cal-Am's Sand City service area grows. Sand City growth is captured in AMBAG's forecast and MPWMD's total water use projection. Illegal diversions have ceased and Cal-Am's CPUC Application A.25-07-003 testimony states Sand City Desalination Plant produces 200 AFY. Production in a dry year is taken as the most recent single dry year, 2021, 130 AF.
5. Mal Paso Water Right License 13866BA allowed MPWMD to issue a Water Entitlement to Malpaso Water Company through the Cal-Am water distribution system; Cal-Am wheels water under this water right to serve demand in Cal-Am's service area.
6. Cal-Am wheels Seaside Basin water within Cal-Am's service area using allocations from the City of Seaside, 13 AFY, D.B.O. Development No. 30, 5.3 AFY, Cypress Pacific Investors, 3.4 AFY.

4.2.4.4 Reclamation Project

The non-potable Reclamation Project use is not expected to change significantly from historical use. Even with climate change, the Monterey Peninsula remains foggy and in the 60s (degrees Fahrenheit), though reclaimed source waters are dependent on temporal precipitation patterns which are proving to be unpredictable. During the longest dry period since project inception, 2012-2015, average reclaimed water use was 995 AFY and there was no trend as the drought progressed[12]. The previous five-year average demand, which includes two dry, one extremely wet, one above normal, and one below normal hydrologic classifications, is used for the projection.

Table 4-4. Non-Potable Water Demand Projections (AF)

Water Use	2030	2035	2040	2045	2050
Recycled Water	920	920	920	920	920

[12] Reclamation Project annual use during the longest drought since project inception: 2012 - 977 AF, 2013 - 964 AF, 2014 - 1,039 AF, 2015 - 1,001 AF.

Anticipated supplies from PWM are summarized in Table 6-2.

Table 6-2. Estimated Supply PWM (AF)
(DWR Table 6-9)

	2030	2035	2040	2045	2050
Normal Year					
PWM Annual Deliveries	5,750	5,750	5,750	5,750	5,750
MPWMD Operating Reserve	2,875	2,875	2,875	2,875	2,875
Single-Dry Year					
PWM Annual Deliveries	5,750	5,750	5,750	5,750	5,750
MPWMD Operating Reserve	2,530	2,530	2,530	2,530	2,530
Five Consecutive Dry Years					
PWM Annual Deliveries Yrs 1-5	5,750	5,750	5,750	5,750	5,750
MPWMD Op. Res. 1st Year[1]	2,530	2,530	2,530	2,530	2,530
MPWMD Op. Res. 2nd Year[1]	2,185	2,185	2,185	2,185	2,185
MPWMD Op. Res. 3rd Year[1]	1,840	1,840	1,840	1,840	1,840
MPWMD Op. Res. 4th Year[1]	1,495	1,495	1,495	1,495	1,495
MPWMD Op. Res. 5th Year[1]	1,150	1,150	1,150	1,150	1,150

1. Operating Reserve is shown at the first year of drought and decreases by 345 AF each year during drought. It is rebuilt by excess deliveries during wet and normal years.

6.3.2 ASR

As stated in the Section 3, ASR supply is potable water from the Carmel River that MPWMD stores in the Seaside Groundwater Basin for future recovery by Cal-Am. When there is sufficient flow in the Carmel River, water is diverted under Water Permits 20808A and 20808C. The water rights allow stored ASR water to be recovered by Cal-Am for municipal use. The stored water provides a supply during times of drought and water shortage, helping to ensure only legal diversions are taken from the Carmel River. Thus, ASR like PWM has two components – annual delivery to storage and the water already in storage.

~~In determining when stored ASR water should be used, other potable water supplies are evaluated by Cal-Am and the Quarterly Water Budget group. If there are other supplies that can meet demand, recovery of stored ASR water is not required. When annually renewed supplies are insufficient to meet demand, recovery of stored ASR water can meet demand without illegally diverting water from the Carmel River. Stored water is a climate change resilient supply and maximizing stored water is wise management of the groundwater basin subject to seawater intrusion. See also Tables 4-4 and 4-5.~~

~~Recovery of stored ASR water has not been required to meet demand since Water Year 2020[17]. MPWMD has calculated that recovery of stored ASR supply is not required over the next few~~

~~[17] In water year 2023, 806 AF of stored ASR water was recovered. That year, 960 AF of legal Carmel River water was not diverted. Hence, ASR recovery was not "required" in 2023.~~

~~decades, discussed in Section 4.2.4 Projected Water Use. Cal-Am's CPUC Application A.21-07-004 testimony and the resulting CPUC 2025 Decision both estimate that supply will exceed demand for at least the next decade. During this time of mutually – agreed water supply excess, stored water can be increased to the benefit of the public and natural resources.~~

Aspects of annual supply reliability are discussed below.

Available Storage for ASR
Studies by the Seaside Watermaster document the feasibility of storing water in the Seaside Basin, the reader is directed to the Seaside Basin Watermaster Annual Report – 2025, Attachment 2.

Hydrologic Year Type
Diversions for the ASR system are contingent on maintaining minimum daily instream Carmel River flows. Precipitation and streamflow vary from year to year, and this affects the annual delivery of the ASR project. The CPUC 2025 Decision utilized a Cal-Am ASR Availability and Analysis Technical Memorandum dated July 15, 2022 which utilized a 59-year hydrologic cycle including a four-year and a five-year drought. The simulated ASR injection ranged from 0 AFY up to 2,840 AFY, with the average long-term annual delivery of 1,220 AFY. Water storage allows greater than average diversions during wet years to offset less than average diversions during dry years.

To project delivery in dry years, some historical background is required:

- The four ASR injection wells' construction was completed in phases beginning in 2002 and ending in 2013.
- ASR has delivered water to storage in all water years[18] since project inception except Water Year 2014, the third of four consecutive dry years, when 0 AF was delivered.
- Water Year 2015 was the only other dry year with all four ASR wells injecting, the fourth of four consecutive dry years; and delivery to storage was 215 AF.
- The only other dry years since 2014 were Yater Years 2021 and 2022. To understand ASR delivery in those years the ASR injection wells status must be discussed.
    - In Water Year 2021, two of the four ASR injection wells were placed in full-time production service, reducing annual delivery capacity by approximately 33%[19].
    - Water Years 2021 and 2022 actual injection with two injection wells is scaled up for four injection wells; 100 AF in 2021 and 107 AF in 2022.

For the analysis in this UWMP, MPWMD has conservatively assumed 100 AF of annual delivery in a single dry year and in the two years of a consecutive five-year drought[20], and 0 AF annual delivery in the third through fifth year of a consecutive five-year drought.

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[19] Cal-Am expects to return the two ASR injection wells to injection service before 2030 after their new production wells, Bayonet 1 and 2, and associated facilities are operational.

[20] 100 AF of ASR annual delivery is very conservative. In water year 2012, the first of four consecutive dry years, the third ASR well was being conditioned and the fourth was not constructed. Injection that year