Section 3.12

Water Supply and Demand

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This section presents a discussion of relevant regulations and existing water supplies in the project area; and it identifies potential impacts of the project related to water supply and demand, including impacts on water supply, water supply infrastructure, and the Carmel River biological resources. A summary of impacts is presented in Table 3.12-1.

Table 3.12-1. Summary of Project Impacts on Water Supply and Demand

Project Impacts	Project Elements									Cumulative
	PBL	SBI	COL-EQC	Area M MH	Area M MR	RES SUB	RD	TRA	INF	
A. Water Supply and Demand										
WSD-A1. The project's water demand would represent an increase in water use above the 2011 Existing Conditions, but would be within the Applicant's current entitlement and could be legally supplied by Cal-Am through 2016. However, given the current uncertain nature of regional water supplies, the additional project water demand could intensify water supply shortfalls and rationing starting in 2017, if the Regional Project (or its equivalent) is not built by then.	● (Applies to project as a whole)									●
Mitigation Measures:	Mitigation is not feasible because any additional mitigation would be disproportionate to the impact of proposed project given Applicant's prior financing of the Recycled Water Project. The Applicant's use of water for this project is pursuant to a valid, legal water entitlement affirmed by MPWMD, Cal-Am, and SWRCB.									
B. Water Infrastructure Capacity										
WSD-B1. Local water infrastructure is included to serve the proposed project, and existing supply infrastructure outside the project area is adequate to serve the project through 2016. The Regional Project (or its equivalent) will need to be built by 2017 to serve existing demand and the increase in demand from the project; regional water supply infrastructure and operations will have secondary environmental impacts.	● (Applies to project as a whole)									●
Mitigation Measures:	Mitigation is not feasible because any additional mitigation would be disproportionate to the impact of proposed project given Applicant's prior financing of the infrastructure for the Recycled Water Project. The Applicant's use of water for this project is pursuant to a valid, legal water entitlement affirmed by MPWMD, Cal-Am, and SWRCB.									

Project Impacts	Project Elements									Cumulative
	PBL	SBI	COL-EQC	Area M MH	Area M MR	RES SUB	RD	TRA	INF	
C. Carmel River Biological Resources										
WSD-C1. The project's water demand would result in increased withdrawals from the Carmel River through 2016 and thus would have a significant and unavoidable impact on Carmel River biological resources. After 2017, SWRCB mandated reductions in Cal-Am withdrawals from the Carmel River will not be changed by the project demand.	● (Applies to project as a whole)									●

Notes:
● = Significant unavoidable impact.
⦿ = Significant impact that can be reduced to less than significant.
○ = Less-than-significant impact.
– = No impact or not applicable to the development site.
PBL – The Lodge at Pebble Beach; **SBI** – The Inn at Spanish Bay; **COL-EQC** – Collins Field–Equestrian Center–Special Events Area; **MH** – Area M Spyglass Hill—New Resort Hotel (Option 1); **MR** – Area M Spyglass Hill—New Residential Lots (Option 2); **RES SUB** – Residential Lot Subdivisions; **RD** – Roadway Improvements;
TRA – Trail Improvements; **INF** – Infrastructure Improvements; Cumulative – Proposed Project's Contribution to Cumulative Impacts

Overview

The water supply situation on the Monterey Peninsula is complex. The majority of the existing public water supply has been derived primarily from two sources: (1) the Carmel River alluvial aquifer and (2) the Seaside aquifer. Cal-Am is the regulated water utility that derives supply from both of these sources. In 1995, the State Water Resources Control Board (SCWRCB) found Cal-Am to be extracting water from the Carmel River in amounts far greater than its legal water rights to provide water to the local community. Cal-Am is required to cease all extractions beyond its legal rights by 2016. The Seaside Aquifer is also oversubscribed resulting in an adjudication of the basin and actions to reduce basin withdrawals to a sustainable level over time. A Regional Project (referred to as the Regional Project), whose principal element is a desalination plant, is planned to be completed by 2016 to replace the water that Cal-Am will no longer be able to withdraw from the Carmel River and the Seaside Aquifer, and to address both current water shortfalls and future planned growth. Although the Regional Project has completed environmental review and has been approved by the California Public Utilities Commission (CPUC), it is facing substantial challenges in implementation including issues surrounding permitting from the California Coastal Commission, cost concerns by ratepayers, and governance issues regarding the structure of project control and actions of one of the principal project consultants. Thus, the Regional Project is considered uncertain for the purposes of this analysis. Alternatives to the Regional Project are currently being proposed, but none of them have completed environmental review and are thus speculative at this time.

The applicant has previously funded a Recycled Water Project that treats wastewater to provide an irrigation source for golf courses and other large landscape areas within the Del Monte Forest in order to completely replace the use of potable water for these large irrigation uses. The applicant derived a water entitlement for a portion of the reduction in water use that it has used for several prior commercial developments. The applicant proposes to utilize this water entitlement for the proposed project.

This section also analyzes the impact of the project's increased demand for water on the water supplies in the Carmel River, on the need for new water infrastructure, and on the biological resources of the Carmel River. The analysis does not presume any new supply for this project from the Seaside Aquifer due to the existing adjudication mandating a substantial reduction in Cal-Am's withdrawals from this aquifer. This project is somewhat unique in that new development is inextricably related to a water entitlement derived from the prior reduction of water use due to the applicant's prior financing of the Recycled Water Project. This broader context is a fundamental part of the impact analysis used in this EIR. This section also analyzes cumulative demand due to other residential development in the Del Monte Forest and on the Monterey Peninsula in general that currently use water from the Carmel River and the Seaside Aquifer, in combination with the project's water demand.

Unlike other impact sections, this section describes the environmental setting before the description of the regulatory setting as an understanding of current water supply conditions is essential to understand the regulatory situation concerning water supply.

Environmental Setting

This setting describes the existing water supply sources, the history of the applicant's water entitlement, and the operational history of the CAWD/PBCSD Recycled[1] Water Project.

Water Supply Sources

Public potable water supply and distribution for the proposed project area are supplied by Cal-Am. Current water sources include wells in the Carmel Valley alluvial aquifer and wells in the Seaside Aquifer. Recycled water for the proposed project area is supplied by the CAWD/PBCSD Recycled Water Project.

Cal-Am Production History

Figure 3.12-1 shows the history of water production by source from Cal-Am and its predecessor companies. Table 3.12-2 shows the recent history of water production from the Carmel River and the Seaside Aquifer by Cal-Am between 1995 and 2010.

[1] The terms "recycled" and "reclaimed" in describing water are used interchangeably.

Table 3.12-2. Cal-Am Withdrawals, Carmel River Basin and Seaside Coastal Basin, 1995–2010

Water Year	Seaside Coastal Basin	Carmel River Basin			
	Ground Water	Ground Water	Surface Water	Subtotal	Total
1995	3,794	5,874	4,162	10,036	13,830
1996	4,319	8,174	3,527	11,701	16,020
1997	4,025	9,688	3,159	12,847	16,872
1998	3,910	8,597	1,557	10,154	14,064
1999	3,982	9,195	1,385	10,580	14,562
2000	3,754	11,092	258	11,350	15,104
2001	3,444	10,700	98	10,798	14,242
2002	3,521	10,893	175	11,068	14,589
2003	3,507	11,299	242	11,541	15,048
2004	3,918	11,282	0	11,282	15,200
2005	3,002	11,036	0	11,036	14,039
2006	3,264	10,954	0	10,954	14,218
2007	3,626	10,486	0	10,486	14,112
2008	3,390	10,835	0	10,835	14,225
2009	2,631	10,286	0	10,286	12,917
2010	3,284	9,786	0	9,786	13,069

Source: See Appendix H.

Notes:
Units are acre-feet per year (AFY). Production values for post water year 1998 are recorded values and include water produced from Carmel River Basin between January 1 and May 1 for injection into Seaside Groundwater Basin.

Carmel River

The water supply setting for the Carmel River presented below is based on the conditions described in the *Monterey Peninsula Long Term Water Supply Contingency Plan, Component Screening Report (Plan B)* (Monterey County 2005).

Hydrologic Setting

The Carmel River originates in the Ventana Wilderness at an elevation of approximately 5,000 feet and flows northwest for 35 miles before reaching the Pacific Ocean at Carmel Bay. The Carmel River Basin is comprised of the main stem of the Carmel River plus seven major tributaries and drains an area of approximately 250 square miles (see Figure 3.12-2).

Flows in the river rise rapidly in response to significant rainfall and fall quickly after rainfall ceases. Flows can peak in a matter of hours after rainfall begins, and very high flows seldom persist longer than three days.

The first significant rains of the season typically begin in November, but significant changes in instream flow resulting from these rains normally do not occur until December or January. Fall rains replenish soils that have dried out during summer; consequently little run-off occurs during this period.

The Carmel Valley aquifer is unconfined (there are no impermeable barriers between the groundwater surface and the atmosphere) and is highly permeable (laterally and vertically), recharging rapidly after extended dry periods. The aquifer is under the direct influence of the Carmel River. Due to the close connection between the alluvial aquifer and surface flows in the Carmel River, the SWRCB defines the alluvial aquifer as surface water. Historically, due to heavy reliance on the Carmel Valley aquifer as a source of water supply, the return flow from the aquifer to the river has decreased.

Surface Water Diversions

There are two dams on the Carmel River: San Clemente Dam and Los Padres Dam. Both are owned and operated by Cal-Am and have been used to regulate streamflow and supply water to users on the Monterey Peninsula. Diversions have been made from the San Clemente Reservoir though the Carmel Valley Filter Plant (CVFP) in the past. In 2003, the California Division of Safety of Dams (DSOD) required San Clemente Dam to be drawn down year-round, essentially eliminating the surface diversion from the reservoir. In 2008, the California State Coastal Conservancy (CSCC), Cal-Am, and National Marine Fisheries Service (NMFS) entered in to a Memorandum of Understanding (MOU) to indicate their intent to jointly seek implementation of dam removal and rerouting the river. In 2010, another MOU between these parties was entered into for dam removal and rerouting the river. Removing the dam would address DSOD safety concerns and remove the barrier to threatened Central Coast steelhead trout. Dam removal is anticipated to start in 2013 and be completed by 2016.

Instream Flows

Unimpaired Carmel River flows at the San Clemente Reservoir site, as reconstructed by MPWMD, indicate the variable nature of the hydrology of the basin. The average annual unimpaired Carmel River flows at the San Clemente Reservoir site are approximately 69,700 AFY (Monterey County 2005). Reconstructed unimpaired annual flows ranged from as low as 2,855 AFY in 1977 to as high as 318,987 AFY in 1983. Prior reservoir operations and aquifer pumping have a great impact on the actual Carmel River flows at various reaches along the river (Monterey County 2005).

Seaside Aquifer

Within the Seaside Basin, the major Cal-Am and other significant water wells serving the local community are located in the Coastal Subareas portion of the Seaside Aquifer. The Seaside Coastal Subareas include the Northern Coastal and Southern Coastal portions of the Seaside Groundwater Basin and are shown in Figure 3.12-3. Roughly 25% of the Cal-Am municipal supply currently is extracted from the Basin (See Appendix H). Table 3.12-3 shows water production from the Seaside Coastal Subareas.

A lesser portion of Cal-Am's water and community water is derived from the Laguna Seca and Northern Inland4 subareas which are located inland of the Coastal Subareas.

Table 3.12-3. Seaside Coastal Basin Water Production (1995-2010)

Year	Cal-Am	Other	Total
Reporting Year 1995	2,800	479	3,279
Reporting Year 1996	4,429	636	5,065
Reporting Year 1997	4,651	797	5,448
Reporting Year 1998	3,563	588	4,151
Reporting Year 1999	3,578	659	4,237
Reporting Year 2000	4,013	1,011	5,024
Reporting Year 2001	3,307	979	4,286
Water Year 2002	3,522	903	4,425
Water Year 2003	3,507	959	4,466
Water Year 2004	3,918	953	4,871
Water Year 2005	3,002	848	3,850
Water Year 2006	3,264	841	4,105
Water Year 2007	3,626	722	4,348
Water Year 2008	3,390	931	4,321
Water Year 2009	2,631	888	3,519
Water Year 2010	3,284	399	3,683
Average 1995 - 2010	3,530	787	4,317

Source:
Appendix H
Note:
Units are acre-feet per year (AFY).

CAWD/PBCSD Recycled Water Project

The CAWD/PBCSD Recycled Water Project is a cooperative effort involving the CAWD, PBCSD, MPWMD and the Pebble Beach Company.

The Recycled Water Project involved the construction of a new tertiary treatment plant located on the site of the existing CAWD secondary wastewater treatment plant, the construction of a new distribution system and storage tank used to distribute the recycled water to the receptor sites in Pebble Beach, and irrigation system improvements. The tertiary treatment plant produces water which meets Title 22 standards specified by the California Department of Health Services (CDHS), and which is a quality acceptable for human contact.

Certificates of Participation (COPs) were executed and delivered at the direction of the MPWMD in December 1992 in the amount of $33,900,000 to finance construction of the Recycled Water Project. The MPWMD owns the recycled water for the purpose of resale of such water and agreed to provide all revenues from recycled water sales to fund operating costs of the Recycled Water Project as well as principal and interest on the COPs. To the extent of any shortfall in revenues, Pebble Beach Company has guaranteed payment of principal and interest on the COPs as well as any operating deficiencies. Because of PBC's guarantee, no other assets or revenues of MPWMD are at risk due to the Recycled Water Project. Construction of Phase I of the Project was completed in October, 1994.

The Recycled Water Project began supplying treated water in late 1994 (Water Year 1995). Between 1995 and 2010, the Recycled Water Project supplied between 550 and 1,000 AFY for irrigation of eight golf courses, athletic fields and other landscaped areas in the Del Monte Forest. Irrigation was supplemented with potable water usage of approximately 110 to 430 AFY. Use is highest in summer and lowest in winter. Summaries of water supplied from the plant are presented in Appendix H.

Prior to 2009, the Recycled Water Project had to supplement recycled water with potable water for turf irrigation for three reasons: wastewater availability, peak demand, and recycled water quality. Prior to 2009, there were insufficient storage facilities for treated wastewater, peak demand would often exceed recycled plant production capacity, and recycled water was too high in salt content to irrigate sensitive turf areas (in particular golf course greens) without periodically flushing these areas with potable water. Phase II of the project was implemented between 2006 and 2009 and consisted of two elements: 1) the rehabilitation of Forest Lake Reservoir to provide a large recycled water storage facility, and 2) the installation of an additional microfiltration/reverse osmosis treatment facility at the Recycled Water Project to reduce the salt content of the recycled water. Phase II of the project relieved the constraints on the plant in regard to wastewater availability (by producing recycled water during low demand months and then storing in the reservoir), peak demand (by storing backup supply in the reservoir), and water quality (through additional treatment). In 2009, supplemental potable water was reduced to just 6% of the overall irrigation water supplied through the plant. In 2010 and 2011 (to date), no potable water has been necessary for irrigation and this is expected to continue in the future.

To help finance the eventual $33 million cost of Phase II, MPWMD adopted Ordinance 109 on May 27, 2004. Ordinance 109 allowed Pebble Beach Company to sell up to 175 AF of the Company's remaining unused water entitlement to interested Del Monte Forest residential property owners, with the proceeds from such sales to be used to pay for Phase II. Since 2004, Pebble Beach Company has sold approximately 130 AF of its remaining 355 AF water entitlement to Del Monte Forest residents, of which such residents connected are using approximately 30 AF. Therefore there is approximately 225 AF of unused water entitlement for Pebble Beach Company and residents have 100 AF of unused water entitlement, for a total remaining unused water entitlement of 325 AF.

Table 3.12-4 provides a summary of Recycled Water Project production between 1995 and 2010.

Table 3.12-4. CAWD/PBCSD Recycled Water Project, Water Production, Water Years 1995-2010

Water Year	Recycled	Potable	Total Used	% of Total Used that is Recycled Water	Rainfall	Rainfall Year Type
1995	615	178	792	78%	28.4	Wet
1996	552	384	936	59%	21.0	Average
1997	782	327	1109	71%	21.7	Average
1998	590	111	701	84%	47.4	Wet
1999	667	235	902	74%	20.1	Average
2000	769	299	1068	72%	21.0	Average
2001	599	373	972	62%	19.2	Average
2002	734	303	1037	71%	15.6	Dry
2003	721	308	1030	70%	18.4	Average
2004	791	435	1226	65%	16.4	Dry
2005	674	207	881	77%	30.5	Wet
2006	768	152	920	83%	24.8	Wet
2007	918	160	1078	85%	14.1	Critically Dry
2008	1023	110	1133	90%	14.4	Critically Dry
2009	991	64	1055	94%	17.5	Average
2010	903	0	903	100%	23.9	Wet
1995 to 2010 Average	756	228	984	77%	22.1	
1950 to 2010 Average					19.4	
Wet Condition	710	129	839		25.8	Rainfall more than 15% above 1950 - 2010 Average
Average Year Condition	726	284	1010		19.9	Rainfall Within 15% of 1950 - 2010 Average
Dry Condition	762	369	1132		16.0	Rainfall More than 15% below 1950 - 2010 Average
Critically Dry Condition	971	135	1106		14.3	Rainfall More than 25% below 1950 - 2010 Average

Source: CAWD/PBCSD Production Reports, 1995 - 2010
Rainfall data from sources in Appendix B

Effect of Recycled Water Project on Carmel River Withdrawals

The Recycled Water Project has reduced the amount of withdrawals from the Carmel River to serve irrigation demand in the Del Monte Forest starting in Water Year 1995 through the use of recycled

water. Table 3.12-5 and Figure 3.12-4 shows the historic effect of the Recycled Water Project on Cal-Am withdrawals from the Carmel River. [2]

Table 3.12-5. Carmel River Withdrawals with and without the Recycled Water Project

Year	Type	Cal-Am Carmel River Withdrawals	RWP Historic Reductions	Historic Carmel River without the RWP
1995	Wet	10,036	615	10,651
1996	Average	11,701	552	12,253
1997	Average	12,847	782	13,629
1998	Wet	10,154	590	10,744
1999	Average	10,580	667	11,247
2000	Average	11,350	769	12,119
2001	Average	10,798	599	11,397
2002	Dry	11,068	734	11,802
2003	Average	11,541	721	12,262
2004	Dry	11,282	791	12,073
2005	Wet	11,036	674	11,710
2006	Wet	10,954	768	11,722
2007	Critically Dry	10,486	918	11,404
2008	Critically Dry	10,835	1023	11,858
2009	Average	10,286	991	11,277
2010	Wet	9,786	903	10,689
Avg.	All	10,921	756	11,677

Source:
Appendix H

[2] Prior to the Recycled Water Project originally coming on line in 1994, golf course irrigation in the Del Monte Forest was consuming 850 to over 1,000 AF per year (See Appendix H). Between 1994 and 2005, the Recycled Water Project offset 550 to 780 AFY of Carmel River withdrawals through production of recycled water for turf irrigation. With completion of the Forest Lake Reservoir improvements (in 2006) and the Reverse Osmosis plant at the CAWD WWTP (in 2009), the Recycled Water Project can now offset all turf irrigation demands from the golf courses in the Del Monte Forest (as well as a few other users). At present, the Recycled Water Project offsets Carmel River withdrawals through provision of recycled water in the amount of 839 AF to 1132 AF, depending on water year type (see Appendix H). This total is approximately two to three times the total entitlement amount of 380 AF, including 15 AF for two parties other than the Applicant. As such, the water entitlement is directly related to the offset of a documented prior potable water use of up to more than 1,000 AFY in exchange for a water entitlement of 380 AF. However, as discussed below this EIR discloses impacts relative to existing conditions, not to a prior year baseline before the Recycled Water Project became operations.

Carmel River Biological Resources Setting

Introduction

The Carmel River and its watershed are shown on Figure 3.12-2.

Existing diversions from the Carmel River have had an adverse effect on:

- The riparian corridor along the river below San Clemente Reservoir (River Mile (RM) 18.5 - river miles represent distances measured upstream of the mouth of the Carmel River).
- Steelhead and other fish that inhabit the river.
- The wildlife which depend on riparian and riverine habitat (SWRCB 1995)

The focus of this setting is on the same resources, in particular, riparian vegetation, steelhead, and the California red-legged frog. These resources are the most obvious indicators of the river's biological health. Riparian (streamside) vegetation often defines a stream's presence to the human eye and provides habitat to a broad array of vertebrate and invertebrate species. The steelhead trout that occupy the river are the largest aquatic species in the system and are sought after by both fishermen and vertebrate predators. The riparian vegetation and the steelhead are also excellent indicators of water quality and flow conditions in the river. Past water supply project impact analyses on the Carmel River have identified potential significant effects on riparian vegetation and the steelhead trout (MPWMD 1990 and the red-legged frog (MPWMD 1998). The California Department of Fish and Game (CDFG) considers riparian vegetation a sensitive plant community because of its long-term loss to agriculture and development, and because of the species diversity it supports. The steelhead trout and the red-legged frog are the focus of analyses because ESA protects them as threatened species.

The biological resources setting related to water supply impacts focuses on these three resources. Other biological resources dependent on the Carmel River are noted below as well.

Riparian Vegetation

Vegetation Composition

Vegetation along all portions of the Carmel River generally consists of the same species; however, the relative species abundance and canopy structure differs between the river segments in the Upper, Middle, and Lower Carmel Valley.

The Upper Carmel Valley, upstream of San Clemente Dam (RM 18.6), consists mostly of narrow canyons with a narrow strip of riparian forest generally conforming to Holland's (1986) Central Coast Cottonwood-Sycamore Riparian Forest. Dominant species include western sycamore (*Platanus racemosa*), black cottonwood (*Populus balsamifera* ssp. *trichocarpa*), white alder (*Alnus rhombifolia*), coast live oak (*Quercus agrifolia*), California bay (*Umbellularia californica*), California buckeye (*Aesculus californicus*), and willows (*Salix species*). Understory species typically include poison oak (*Toxicodendron diversilobum*), coffeeberry (*Rhamnus californica*), blackberries (*Rubus species*), and others. Marshy vegetation occurs along slower reaches of the river (Monterey County 2005).

Riparian vegetation in the Middle Carmel Valley (San Clemente Dam to The Narrows) (RM 9.5) and in the Lower Carmel Valley (the Narrows to the river mouth) conforms generally to Holland's (1986)

Central Coast Arroyo Willow Riparian Forest. It is dominated by arroyo willow (*S. lasiolepis*), with red willow (*S. laevigata*), shining willow (*S. lucida* ssp. *lasiandra*), and narrow-leaved willow (*S. exigua*); and with black cottonwood as an important component of the overstory and with sycamore, box elder (*Acer negundo*) the other species listed above. In the drier outer floodplains of this region, coast live oak may dominate and the riparian vegetation conforms generally to Central Coast Live Oak Riparian Forest (Holland 1986). The Middle Carmel Valley has a steeper gradient and a more braided, less stable channel than the Lower Carmel Valley (Kondolf and Curry 1984). The vegetation in the Middle Carmel Valley tends to be more discontinuous than in the Lower Carmel Valley, where a more continuous riparian woodland or forest has developed (Monterey County 2005).

McNiesh's mapping of the riparian corridor downstream from San Clemente Dam, based on 1986 aerial photographs, showed that the riparian zone was on average 271 feet wide, 86 feet being channel and 185 feet being riparian vegetation (Monterey County 2005). The total area of riparian vegetation was 410 acres, with 299 acres made up of riparian woodlands and 111 acres of non-continuous cover.

Riparian Vegetation along the Carmel River

Riparian vegetation along the Carmel River has been affected by a number of important natural and human-induced events.

The most important natural events that have affected riparian vegetation include floods and droughts. Major floods occurred in 1862, 1911, 1914, 1995, and 1998 (Kondolf and Curry 1986, Monterey County 2005). Major floods caused bank erosion and loss of riparian vegetation, but perhaps more importantly may also affect channel form and depth.

Droughts have probably had a substantial effect on riparian vegetation; however, the effect of droughts cannot be separated fully from human activities. For example, the drought of 1976-1977 led to extremely heavy groundwater pumping and unprecedented drawdown in the lower Carmel Valley (Monterey County 2005). To what extent the drawdown was the result of pumping or of the natural effects of drought cannot be determined. However, an analysis of simulated unimpaired flows for 1977, using the MPWMD's Carmel Valley Simulation Model (CVSIM) model, shows that the river would have been dry at the USGS "Near Carmel" gauge site (RM 3.6) without the presence of dams and pumping wells. McNiesh points out that drought alone cannot be blamed for vegetation decline in the Carmel Valley, because vegetation decline occurred prior to the 1970's drought and continued after the water table recovery that followed the drought (Monterey County 2005).

The major human-induced changes that have affected the riparian vegetation include encroachment on the riparian vegetation as the result of farming, housing development, and golf course construction, construction of San Clemente (1921) and Los Padres (1948) Dams, and groundwater pumping (Monterey County 2005). In addition, installation of bank protection has reduced lateral movement of the river (Monterey County 2005). The dams have relatively small reservoirs that have relatively little effect on flood peaks. Diversions and groundwater pumping have caused the once perennial river to become characteristically dry in late summer. However, reservoir releases also periodically cause increased flows in reaches below the dams that otherwise would have been dry. The dams also trap sediment which has led to downstream channel incision (Kondolf and Curry 1984). Groundwater pumping by Cal-Am and others has been identified as a major impact on riparian vegetation (Monterey County 2005).

McNiesh, Zinke, and others have demonstrated that groundwater pumping has led to local riparian vegetation mortality (Monterey County 2005). This mortality has been associated with local bank erosion. McNiesh has shown that not only total drawdown, but also the rate of drawdown, is critical for survival of riparian trees. The precise amount of drawdown that can be tolerated by vegetation cannot be defined, because it is dependent on a large number of interrelated factors (Monterey County 2005). However, a general model outlined by McNiesh can be used to predict thresholds of damage to vegetation. Mild stress of riparian trees occurs if drawdown is between 4 and 8 feet in a season or between 1 and 2 feet per week. Severe stress occurs when seasonal drawdown is greater than 8 feet, or drawdown in a week exceeds 2 feet. These are drawdown rates in excess of the normal seasonal fluctuation in groundwater levels.

Steelhead

NMFS has listed steelhead trout in the Carmel River Basin as a threatened species. NMFS considers these fish to be part of a broader population designated as the south-central California Coast Distinct Population Segment (DPS). The steelhead population within the California Central Coast was listed as threatened under the federal Endangered Species Act in 1997 and critical habitat was designated in 2005, including the Carmel River

Life History

Steelhead are anadromous (sea-run) rainbow trout that spawn in freshwater, spend the first year (or years) of life in freshwater, and then migrate to the ocean where they continue to grow and mature before returning to spawn.

Following upstream migration, the female establishes a territory and digs a redd (gravel nest) with her tail, usually in areas where there is sufficient subsurface flow to sustain eggs and alevins (yolk-sac fry) through the incubation period (usually the lower ends of pools or heads of riffles). She then lays the eggs in the redd where they are fertilized by one or more males. Eggs buried in redds hatch in 3-4 weeks (at 10-15 degrees Celsius), and fry emerge from the gravel 2-3 weeks later. The fry initially live in quiet waters close to shore and soon establish feeding territories that they defend against other juveniles. As they grow during spring and summer, juvenile steelhead move to faster, deeper water in riffles, runs, and pools. They typically maintain positions near swift currents that carry drifting aquatic and terrestrial insects on which they feed. Some juveniles may move downstream to the lower reaches of streams or lagoons during the summer and fall to complete their freshwater rearing phase.

After one year of stream residence, most juveniles become smolts (juveniles adapted to seawater) and migrate downstream to the ocean in late winter and spring. Some juveniles remain in fresh water 1-2 more years before they enter the ocean. Because juvenile steelhead rear for a year or more in freshwater, juveniles of different age groups are usually present year-round in California coastal streams.

Most steelhead spend 1-3 years in the ocean before returning to spawn. Some adults return to the ocean after spawning (kelts) and return to spawn again. Occasionally, juvenile steelhead mature in freshwater and spawn without migrating to the ocean. This occurs most frequently during droughts when juveniles are trapped in the river and cannot migrate to the ocean.

Steelhead within the Carmel River

The upstream migration of adults in the lower Carmel River primarily occurs from mid-December through mid-April in response to flows of sufficient magnitude and duration to stimulate movement of adults, permit passage of adults past critical riffles in the lower river, and keep the river mouth open between storms. Although suitable migration conditions may occur earlier, adults typically do not begin arriving at San Clemente Dam until late December or January. Depending on migration opportunities later in the season, the migration of adults may continue into April.

The primary spawning season for steelhead in the Carmel River is February through March, but spawning may continue through mid-April. Downstream of San Clemente Dam, the highest concentration of redds generally occurs upstream of the Narrows but redds have been observed further downstream.

In the Carmel River, most steelhead fry emerge from the gravel in April-June and rear for at least one year in the river before migrating to the ocean as smolts. Juveniles may migrate downstream to lower reaches of the Carmel River in late spring or early summer of their first year of life (young-of-the-year or age 0+ juveniles) or in late fall and early winter of their first, second, or third years (as yearling and older juveniles). Juveniles of all age classes may migrate as far downstream as the lagoon in years when flows to the lagoon are sustained through the summer and fall. Substantial downstream movement of juveniles in late fall and early winter appears to be associated with the initial storms of the season that result in spill and increased flows downstream of San Clemente Dam. Viable steelhead populations in the Carmel River depend on sufficient attraction flows, passage flows for adults and smolts, suitable spawning and egg-incubation conditions, and good rearing conditions (Monterey County 2005).

Many juvenile steelhead in the Carmel River become smolts and enter the ocean in late winter and spring after one year in the river. A small number remains for two to three years before emigrating.

The steelhead run in the Carmel River at the time of the Spanish explorers was believed to be upwards of 12,000 fish (SWRCB 1995). The river was overfished during the mid-to-late 1800s, and the runs subsequently declined. Snider (1983) reported annual runs of 1,200 adult steelhead at the San Clemente Dam fishway during the mid-1970s. During droughts in 1976-77 and the late 1980s, no steelhead passed San Clemente Dam. The Lagoon never opened during the four years from 1987 to 1990. The density of rearing juvenile steelhead reached very low levels by 1989 but has increased in subsequent years. After lows of zero returning adult steelhead in 1989-90, one fish in 1991, and 15 in 1992, the run has increased to an average of a few hundred fish.

California Red-Legged Frog

The CRLF is listed as threatened under the federal Endangered Species Act. It has been extirpated from 70% of its former range and now is found primarily in coastal drainages of central California, from Marin County, California, south to northern Baja California, Mexico. CRLF has been reported from several relatively isolated, although widely distributed locations, along the Carmel River. This Carmel River population has been identified by USFWS as a core population, and is targeted for development and implementation of a management plan (USFWS 2002).

Information on CRLF occurrences in the lower Carmel River floodplain, between approximately RM 28 (above Los Padres Dam reservoir) and the Carmel River Lagoon, was taken primarily from information provided in the Draft Interim Biological Assessment for the Carmel River Dam and

Reservoir Project (Monterey County 2005), although other sources such as the Recovery Plan for the CRLF (USFWS 2002) were also reviewed.

The USFWS most recently updated designated critical habitat for the CRLF in 2010 (USFWS 2010). Most of the lower Carmel River watershed was included in critical habitat. Only a few localities in California have been identified with more than 350 adults; one of these is Rancho San Carlos, a private ranch on the upper portion of the Carmel River Valley (USFWS 2002).

As part of their efforts to characterize habitat for CRLF, EcoSystems West Consulting Group (2001) identified a total of 100 potential reproductive sites along the Carmel River floodplain. Twenty-two of these occurred in the main stem of the river and 78 occurred in off-channel sites. Numerous additional non-reproductive habitats were also identified. Incidental observations of CRLF in the Carmel River floodplain made during the habitat characterization and critical habitat mapping efforts included observations of adults at 69 sites, sub-adults at 22 sites, young of the year at 15 sites, and tadpoles at 13 sites (Monterey County 2005). The majority of potential reproductive sites tend to cluster in two general locations: behind the two existing reservoirs and below RM 1 in the Carmel River lagoon. Surveys conducted by Mullen (1996) indicate that CRLF populations occur in several tributaries of the Carmel River in addition to those identified in the main stem and its floodplain.

Other Biological Resources

The fish community in the Carmel River is diverse relative to other Central Coast streams. Twenty species have been identified within the river and lagoon, including 12 native and 8 introduced species. Sculpin (*Leptocottus armatus*), brown trout (*Salmo trutta*), hitch (*Lavinia exilicauda*), stickleback (*Gasterosteus aculeatus*), and steelhead are the most abundant species. Species composition in the lower river and lagoon may change as a function of the connectivity of the mouth of the river with the ocean (Monterey County 2005).

While other biological resources of interest (such as birds, benthic invertebrates, amphibians) are also dependent on the overall health of the river system, impacts on these groups can be assessed with some reliability by considering impacts on flow on riparian vegetation, steelhead, and CRLFs. Riparian vegetation provides habitat for numerous wildlife species including neotropical song birds and raptors. Special-status birds that may occur in the area and nest and forage in riparian habitat along the river include the federal and state endangered least Bell's vireo (*Vireo bellii*), the yellow warbler (*Dendroica petechia brewsteri)*, and the yellow-breasted chat *(Icteria virens*) (Monterey County 2005). Special-status raptors that may utilize riparian vegetation in the Carmel Valley include sharp-shinned hawks (*Accipiter striatus*) and Cooper's hawk *(Accipiter cooperi)* (Monterey County 2005). Other sensitive amphibian and reptile species that could be affected by increased diversions include the southwestern pond turtle (*Clemmys marmorata pallida*) and possibly the foothill yellow-legged frog (*Rana boylii*) (MPWMD 1998).

Historic Effect of the Recycled Water Project on Carmel River Biological Resources

As discussed above, the Recycled Water Project has reduced withdrawals from the Carmel River to serve irrigation uses in the Del Monte Forest from late 1994 to the present, which has benefitted (and will continue to benefit) biological resources dependent on the river as follows:

- **Riparian vegetation**: A reduction in groundwater pumping reduces stress to local riparian vegetation and increases access to water and reduces local bank erosion. Species dependent on riparian vegetation benefit through maintenance and expansion of forage, nesting, and rearing habitat. Bank stability is improved with the expansion of extant riparian vegetation. Stream temperatures are lowered due to increase in shade cover affecting steelhead and other aquatic resources sensitive to stream temperature fluctuations.
- **Steelhead:** Existing low-flow conditions in the Carmel River during average, dry, and very dry years are improved by decreased groundwater pumping which results in improvement of migration potential and stream connectivity, expanding spawning areas, lowering temperatures, increasing dissolved oxygen, and reducing salinity in downstream coastal areas.
- **California Red-Legged Frog:** Reduced groundwater pumping in average, dry, and very dry years increases the water table, potentially improving successful breeding and expanding rearing locations for CRLF. Potential increases in riparian vegetation described above also favorably affect this species, which utilize riparian areas for foraging and dispersal.
- **Other Resources:** Other fish species and other aquatic resources dependent on adequate flows and water quality experience similar benefits described above for steelhead. Special-status birds, raptors and other species gain breeding and foraging locations with expansion of riparian vegetation and areas. Special-status wildlife species, such as southwestern pond turtle, also see an improvement of habitat conditions due to increase of flow and raising of water tables, particularly in summer and early fall periods of average, dry, and very dry years.

Regulatory Setting and Water Supply Planning

Relevant state and local regulations and prior legal rulings that apply to water supply and demand are discussed below.

SB 610 and SB 221 Applicability

SB 610 and SB 221 (Water Code Section 10912 and Government Code Section 65867.5, respectively) are companion measures that support planning between water suppliers and local jurisdictions. SB 610 expands the existing requirement that lead agencies confer with affected public water agencies when preparing a negative declaration, mitigated negative declaration, or EIR for certain large projects. The water agency is required to provide the lead agency a detailed water supply assessment (WSA) of whether the water agency has sufficient current and future water supplies to service the proposed project and other expected future projects (Water Code Section 10910). The WSA must be considered during the CEQA process. If there is insufficient water, the County must include that determination in its findings for the project (Water Code Section 10911).

A WSA (per Water Code Section 10912) is required for:

1. A proposed residential development of more than 500 units.
2. A proposed shopping center or business establishment employing more than 1,000 persons or having more than 500,000 square feet of floor space.
3. A proposed commercial office building employing more than 1,000 persons or having more than 250,000 square feet of floor space.

4. A proposed hotel or motel, or both, having more than 500 rooms.
5. A proposed industrial, manufacturing, or processing plant, or industrial park planned to have more than 1,000 persons, occupying more than 40 acres of land, or having more than 650,000 square feet of floor area.
6. A mixed-use project that includes one or more of the projects specified in this subdivision.
7. A project that would demand an amount of water equivalent to, or greater than, the amount of water required by a 500 dwelling unit project.

To determine if the proposed project would demand more water than a proposed residential development of 500 units, a factor of 0.42 acre-feet per year (AFY) per dwelling unit used by the MPWMD was used (Monterey County 2005). Based on this threshold (500 x 0.42 AFY = 210 AFY), even under the higher demand scenario of Option 1 (New Resort Hotel) for Area M Spyglass Hill, the average year demand for water would be 135 AFY, substantially less than the threshold AFY for a WSA. Under Area M, Option 2, average year demand for water would be 114 AFY. Therefore, preparation of a WSA was not required and was not prepared for the proposed project.

Carmel River: SWRCB Order WR95-10 and SWRCB Order WR2009-0060 (CDO)

In 1995, the SWRCB issued Order WR 95-10, which found that Cal-Am did not have sufficient water rights for its existing water diversions from the Carmel River. SWRCB found that Cal-Am had rights to only 3,376 AFY, and ordered Cal-Am to do the following: (1) immediately cease and desist from diverting any water from the Carmel River in excess of 14,106 AFY; (2) obtain appropriative permits for its diversions; (3) obtain water from other sources to make 1:1 reductions in unlawful diversions; and/or (4) contract with another agency having rights to divert and use water from the Carmel River. Cal-Am was also ordered to implement a water conservation plan to further reduce diversions to 11,990 AFY in 1996 and to 11,285 AFY in 1997 and subsequent years. SWRCB subsequently required Cal-Am to maintain a water conservation program with the goal of limiting annual diversions to 11,285 AFY until full compliance with the order was achieved (SWRCB 1995). A discretionary exemption to certain limitations of WR 95-10 related to the applicant's entitlement is discussed in the section on the history of the entitlement below.

SWRCB (in Decision D-1632, as amended in Order WR 98-04) has also determined that the Carmel River is a "fully appropriated stream" from the mouth of the river upstream to the Sleepy Hollow Gage (RM 17.2) between May 1 through December 31 and that SWRCB has permit authority in this reach. Certain existing diversions present prior to Decision D-1632 are allowed to apply for a permit to allow diversion between May and December; all other applicants must limit their diversions to between January and April.

In October 2009, the SWRCB issued Order WR2009-0060, a cease and desist order (CDO), which prescribes a series of significant cutbacks to Cal-Am's pumping from Carmel River from 2010 through December 2016. Specifically, it includes a schedule for Cal-Am to reduce diversions from the Carmel River, bans new water service connections (with certain exceptions, including for connections related to the Applicant's entitlement), bans increased use of water at existing service connections resulting from a change in zoning or use, establishes a requirement to build smaller near-term water supply projects, and requires reporting procedures. If a new water supply cannot be built by the end of 2016, the CPUC, which regulates Cal-Am as a water utility, may require water

rationing and/or a moratorium on new water permits for construction/remodels. Customers in Del Monte Forest using an entitlement from the Pebble Beach Wastewater Reclamation Project (including the proposed project) are not subject to the moratorium, but are subject to any rationing program that affects the Cal-Am water system. Lawsuits have been filed challenging the CDO, and proceedings are pending in Santa Clara Superior Court. Ongoing litigation is not anticipated to be resolved until late 2011 (MPWMD 2011).

Seaside Aquifer Adjudication

Most of the Seaside Area groundwater basin is within the incorporated cities of Marina, Seaside, and Sand City. The Seaside Area basin is composed of a number of smaller sub-basins, and the boundaries of the basin are poorly understood, particularly under Monterey Bay. Current water use within the basin (2005–2010) has averaged about 4,000 AFY (see Appendix H).

Because of the 1995 Order WR 95-10 that ruled Cal-Am did not have a legal right to approximately 70% of the water it had been diverting from the Carmel River (refer to Carmel River discussion above), Cal-Am began drawing more water from groundwater wells within the Seaside groundwater basin. In 2006, the basin was adjudicated and a watermaster was appointed to manage the basin and bring its groundwater budget into balance. The adjudication resulted in a court-ordered physical solution to the basin's groundwater problem. The operating yield for three years beginning in 2007 for the basin as a whole was defined as 5,600 AFY (including 4,611 AFY for the coastal subareas) including both Cal-Am and other users. The judgment requires a 10% decrease in operating yield for the coastal subareas every three years beginning in 2010. The decreases are to continue until production reaches the "natural safe yield" of 3,000 AFY established under the judgment. The watermaster adopted the Seaside Monitoring and Maintenance Program in 2006 to implement the decreases (MPWMD 2007). Cal-Am's current (2011) allocation for the Seaside Aquifer is 3,448 AFY (including 3,202 AFY for the Coastal Subareas and 246 AFY for the Laguna Seca Subareas). Cal-Am's ultimate adjudicated allocation is 1,474 AFY and withdrawals will be reduced to that level over time.

This analysis presumes that there will be no increase in supply from the Seaside Aquifer to serve water demand generated by the project from this aquifer due to the constraints noted above.

History of Pebble Beach Company's Water Entitlement

Following is a summary of the water entitlement relative to the applicant's properties within the Del Monte Forest.

In 1989, MPWMD adopted Ordinance 39, which offered to provide a permanent dedication of potable water to users who guaranteed financing of the CAWD/PBCSD Recycled Water Project, which would reclaim wastewater for irrigation use on golf courses and other uses in the Del Monte Forest. The intent of the Recycled Water Project was to lower use of potable water for irrigation by an average of 800 AFY by provision of recycled water for irrigation.

A Fiscal Sponsorship Agreement was signed by MPWMD and the Pebble Beach Company, in which the applicant guaranteed financing for the Recycled Water Project to be operated by CAWD and PBCSD. In return, the applicant would be granted a dedicated water entitlement of 365 AFY of potable water for specific "benefited" properties in the Del Monte Forest. An additional 15 AFY entitlement would be granted to two other property owners on Areas S and W in the Del Monte

Forest who also participated in the agreement. The total entitlement granted was for 380 AFY of potable water. The right to the remaining water savings would be held by MPWMD.

The Agreement identifies this entitlement as a vested property right and allows the applicant the right to reallocate the water entitlement among the benefited properties, provided that the annual water usage among all benefited properties does not exceed the aggregate water entitlement held by the applicant.

In 1994, the Recycled Water Project and the distribution and storage system were constructed and began operations.

As noted above, in 1995, the SWRCB found that Cal-Am did not have sufficient water rights for its existing water diversions from the Carmel River (Order WR 95-10) and required Cal-Am to reduce its diversions and take actions to implement a water project to replace its illegal diversions. In 2009, the SWRCB issued a cease and desist order directing Cal-Am to take various actions to further curtail and reduce its illegal diversions of water from the Carmel River (Order WR2009-0060). Order WR 2009-0060 allowed Cal-Am to divert water to supply the applicant's water entitlement from MPWMD until December 31, 2016. The Order prohibits Cal-Am from diverting water from the Carmel River after December 31, 2016, to supply the applicant's water entitlement. The Applicant and other parties separately filed petitions with the SWRCB for reconsideration of Board Order WR 2009-0060. The Applicant's petition focused on challenging the prohibition of Cal-Am diversions to supply the water entitlement. Upon review of this petition, SWRCB determined that Cal-Am could provide water from the Carmel River to supply the applicant's water entitlement, provided the water provided is within Cal-Am's legal water rights. SWRCB also determined that WR 2009-0060 does not contain language extinguishing the applicant's entitlements but affirms that the entitlements must be served in a manner consistent with the water rights held by Cal-Am. When Cal-Am develops a new source of water that makes water available for new connections consistent with Order WR 2009-0060, the entitlements will apply to that new supply (SWRCB 2010).

In summary, Cal-Am can provide water from the Carmel River to supply new connection for the applicant's entitlements until December 31, 2016 without limitation. After December 31, 2016, Cal-Am would have to supply the applicant's entitlement from water withdrawn from the Carmel River within its legal rights or from other legal sources, such as the Regional Project. The Seaside Aquifer cannot supply additional water for Cal-Am under current conditions (without replenishment of the aquifer from external sources) because the aquifer is oversubscribed and subject to constraint by the basin adjudication described above.

Pursuant to MPWMD Ordinance 109 the Applicant is allowed to transfer up to 175 AFY of their remaining entitlement to other residential users. As of 2011, the Applicant had used 10 AFY of the entitlement for the previously developed Casa Palmero project and has sold approximately 130 AFY to other residential users. Subtracting these amounts from the original 365 AFY, there is approximately 225 AFY remaining entitlement for project or other use. As of 2011, the total amount of the original entitlement of 365 AFY actually used was approximately 40 AFY, leaving 325 AFY unused (MPWMD 2011).

Monterey Bay Regional Water Supply Project

The Monterey Regional Water Supply Project (Regional Project) is an adopted program to replace the water illegally withdrawn from the Carmel River by Cal-Am and water above Cal-Am's

adjudicated allocation for the Seaside Aquifer in the short-run and to provide additional water for planned growth in the future.

The California Public Utilities Commission (CPUC) originally studied a Coastal Water Project focused solely on replacing the unlawful diversions of Carmel River water. The CPUC's certified Final EIR for the Coastal Water Project also analyzed the Regional Project, as a project alternative, that would produce additional water beyond Cal-Am's current Carmel River replacement needs. In addition to Cal-Am's replacement needs, the Regional Project would provide sufficient additional water to the Marina Coast Water District to meet the future needs of Fort Ord (2,700 AFY), to provide for build-out of the Monterey Peninsula in accordance with existing local general plans (4,500 AFY), and to provide for the North County (5,900 AFY). The Regional Project is envisioned as a phased project, with first priority being 12,500 AFY of replacement water for Cal-Am and 2,700 AFY to meet future Fort Ord demand. Phase I of the Regional Project would therefore provide up to 15,200 AFY in a critically dry weather year. If fully built out with Phase II, the Regional Project would supply up to 25,600 AFY (CPUC 2009).

As described in the Coastal Water Project Final EIR (CPUC 2009), Phase I of the Regional Project would include the following facilities and would provide up to 15,200 AFY in critically dry years:

- Sand City desalination plant and distribution system which began operation in 2010 (300 AFY).
- Regional Urban Water Augmentation Project, which includes delivery of recycled water from the Salinas Valley Reclamation Plant for urban irrigation uses (currently in design) (1,000 AFY).
- Seaside Basin Aquifer Storage and Recovery (ASR) project expansion (1,300 AFY including n existing 920 AFY plus expansion of 380 AFY).
- Regional Desalination Facility, which is a new 10.9 mgd plant and associated intake wells proposed to be located in North Marina. (8,800 AFY on average with up to 10,900 AFY).
- Groundwater use in critically dry years (1,700 AFY) with replacement of water from use of additional desalination water in off-peak years to balance basin.

Phase II could include some combination of the following additional facilities, none of which are currently approved (CPUC 2009):

- Pacific Grove urban runoff diversion project.
- Salinas River Diversion Facility.
- Castroville Seawater Intrusion Project expansion.
- Expansion of the Surface Water Treatment Plant proposed under Phase 1 of the Coastal Water Project.
- Expansion of the Regional Desalination Facility proposed under Phase 1 of the Coastal Water Project to utilize brackish water wells.
- Seaside Basin groundwater replenishment activities.
- Seaside Basin ASR and reservoir expansion.

The CPUC certified the Final EIR for the CWP in December 2009 and issued its decision approving the Regional Desalination Project, granting a Certificate of Public Convenience and Necessity (CPCN), for California-American Water Facilities on December 3, 2010.

The Regional Project is being implemented through a Water Purchase Agreement (MCWRA/MCWD/Cal-Am 2011): a three-way partnership of the Marina Coast Water District (MCWD), the MCWRA and Cal-Am, whereby the overall purpose of each agency is:

- MCWD provides water service to the City of Marina and the former Fort Ord. MCWD acts on behalf of persons served to furnish water for beneficial use, to protect the groundwater underlying MCWD, and to conserve the water supply for future as well as present use.
- MCWRA's boundaries are coexistent with Monterey County's boundaries, and MCWRA is responsible under the Agency Act to control groundwater extractions to prevent the loss of usable groundwater through intrusion of seawater, to replace groundwater through the development and distribution of a substitute surface supply, and to prohibit groundwater exportation from the Salinas Basin.
- Cal-Am provides water service in various areas within California, including a service area in Monterey County, adjacent to MCWD Service Area and within the boundaries of MCWRA.

Phase 1 of the Regional Project was planned for completion of construction by the end of 2015 and operation in 2016, but implementation of the Regional Project has faced numerous challenges to date that may delay or result in change to the Regional Project:

- California Coastal Commission: The project must be approved by the California Coastal Commission for project elements located within the coastal zone. No permit for the project has been issued to date. The CCC recently (August 2011) postponed consideration of an application for a test well for the project, which is needed to support project design. The delay of this permit could delay design and construction of the project. Approval of the overall project by the CCC is also uncertain as well.
- Cost: Water derived from the desalination element of the project will be much more expensive than the current supplies from the Carmel River and the Seaside Aquifer. As a result, there is substantial concern on behalf of ratepayers about the future increased cost of water. Cal-Am recently commissioned a study on alternatives to the project, specifically to examine the potential to reduce costs (see discussion below). It is unknown at this time whether cost concerns might result in a change to the project to a different technology or different project configuration; should this happen, completion of the project and provision of replacement water supply could be delayed.
- Governance: Certain issues have been raised recently concerning project governance. Some stakeholders have advocated for a different structure of control than the current control of MCWD, MCWRA, and Cal-Am. In addition, concerns have been raised about potential conflicts of interest on behalf of the project manager for the project's management consultant, RMC. While governance issues can ultimately be resolved, resolution of these issues may result in delays for project implementation or result in alternatives.

Given this uncertainty, at present it is unknown whether the Regional Project would be completed by the end of 2016 and whether the Regional Project will be completed at all. As a result, this EIR considers potential water supply impacts under two alternative scenarios for 2017:

- 2017 Scenario A: Regional Project completed as proposed by 2016.
- 2017 Scenario B: Regional Project (or an alternative) not completed by 2016.

Alternatives to the Regional Project

In light of the challenges to the Regional Project, a number of parties have been considering alternatives. A review of potential alternatives was completed in October 2011 by RBF Consulting on behalf of Cal-Am (RBF, 2011). Alternatives reviewed by RBF include the following:

- Alternative 1 Regional Project. This is the proposed 10 mgd desalination project included in the Regional Project, along with 1,300 AFY of groundwater recharge to the Seaside Aquifer using water from the Carmel River.
- Alternative 2 - Reduced Marina Desal Project plus an Extended ASR system plus Groundwater Recharge of Treated Wastewater. This alternative would include a smaller (6.5 mgd) desalination plant in Marina, 2,700 AFY of groundwater recharge to the Seaside Aquifer with treated wastewater from the regional wastewater treatment plant, and 2,700 AFY of groundwater recharge to the Seaside Aquifer using water from the Carmel River.
- Alternative 3- Lower Carmel Valley Filtration Plant (LCVFP) plus an Extended ASR System. This alternative would include a 35 mgd filtration plant in Carmel Valley using high flow diversion water with 6,700 AFY of groundwater recharge to the Seaside Aquifer.
- Alternative 4 - LCVFP plus an Extended ASR System plus Groundwater Recharge Using Treated Wastewater. This alternative would include a 24 mgd LCVFP along with 2,700 AFY of groundwater recharge using treated wastewater and 4,200 AFY of groundwater recharge from the Carmel River.
- Alternative 5 - LCVFP plus a Desal Plant in Marina plus an Extended ASR System. This alternative would include a 32 mgd LCVFP, a 3.5 mgd desalination plant in North Marina, and 5,500 AFY of groundwater recharge.
- Alternative 6 - LCVFP plus Sand City Desal Expansion plus an Extended ASR System. This alternative would include a 35 mgd LCVFP, expansion of the existing Sand City desalination plan from 0.3 mgd to 1.0 mgd, and 6,500 AFY of groundwater recharge.
- Alternative 7 - LCVFP plus Monterey Desal Plant plus an Extended ASR System. This alternative would include a 32 mgd LCVFP, a 3.0 mgd desalination plant near the Naval Post Graduate School and 5,200 AFY.
- Alternative 8 - Lower Carmel Valley Iron Removal Plant plus a Monterey Desal Plant plus an Extended ASR System. This alternative would include a 20 mgd iron removal plant, a 3.0 mgd desalination plant near the Naval Post Graduate School and 5,100 AFY of groundwater recharge.
- Alternative 9 - Salinas River Filtration Plant plus an Extended ASR System. This alternative would include a 35 mgd filtration plant and 6,900 AFY of groundwater recharge.
- Alternative 10 - Deep Water Desalination at Moss Landing. This alternative would include a 10 mgd desalination plant near Moss Landing along with 1,300 AFY of groundwater recharge.
- Alternative 11 - Marina Desal Plant plus Groundwater Recharge of Treated Wastewater plus Conservation or Table 13 Direct Diversion[3]. This alternative would include a 5 mgd desalination plant in Marina, 2,700 AFY of groundwater recharge from the Carmel River, more aggressive conservation to reduce demand by 1,500 AFY. A variant of this alternative would be to obtain

[3] "Table 13" refers to Table 13 in SWRCB's Decision D-1632 implementing Order WR 95-10 and identifies the holders of priority rights for diversion of water from the Carmel River.

Table 13 direct diversion rights (meaning established rights to Carmel River diversion) in lieu of additional conservation.

RBF estimated capital costs for these different alternatives vary between $362 million for the 10. RBF estimated unit costs for these alternatives vary between $2,680/AF for the Regional Project, which is the lowest of all alternatives up to $4,460/AF for Alternative 10. These cost estimates are sensitive to the underlying cost assumptions for each alternative.

At present, none of the alternatives are undergoing formal environmental review or approval processes, and thus it is speculative to articulate full-blown alternatives to the Regional Project for evaluation in this EIR.

Given this uncertainty, this EIR considers potential water supply under two scenarios for 2017 at a very general level:

- 2017 Scenario B: Regional Project (or an Alternative) not completed by 2016 (as discussed above).
- 2017 Scenario C: Alternative to the Regional Project completed as proposed by 2016 (same as 2017 Scenario A in terms of provision of water supply but potentially different secondary environmental impacts due to construction/operation of alternative).

Local Coastal Plan

Existing Local Coastal Plan

The existing Del Monte Forest Land Use Plan was adopted and certified in 1984. There have been substantial changes in water supply conditions since that time including the development of the Recycled Water Project, SWRCB Order WR95-10 and the CDO (WR2009-0060), the listing of the California red-legged frog and California Coastal Steelhead under the Federal Endangered Species Act, and the increase in water demands with growth.

The existing Del Monte Forest Land Use Plan and Coastal Implementation Plan describe the reservation of water for developments in the Del Monte Forest from the County's allotment of water. Coastal Act policies require, where public works facilities can accommodate only a limited amount of new development, that coastal-dependent land uses, including recreation and visitor-serving land uses, shall not be precluded by non-priority residential development. The County has previously allocated all of its available allotment, so it has no allotments of water that could be utilized for new development. At present, the only available water for development in the Del Monte Forest is that related to the applicant's water entitlement.

The existing LCP designates much of the Del Monte Forest, including the land proposed for development by the proposed project, as resource constrained (B-8). Per LUP Policy 113, the Resource Constraint Area (B-8) designation shall only be removed when water and sewer capacity sufficient to serve such development becomes available and that highway capacity and circulation solutions have been agreed upon and adopted. Until such time that resource problems are solved, the existing LCP specifies that there shall be no development other than existing lots of record. In addition the LCP does not allow the drilling of new wells within the Del Monte Forest to serve new development (per CIP Section 20.147.110.A.4).

Proposed Local Coastal Plan Amendment

As discussed in Chapter 2, Project Description, the proposed LCP Amendment would update the LCP to reflect the current water supply conditions. As described therein, a lack of adequate, long-term public water sources and supplies is a significant constraint to development in the Del Monte Forest. The LCP Amendment prescribes that development in the Del Monte Forest can only be approved if it is first clearly demonstrated that the development will be served by an adequate, long-term public water supply, and where such development incorporates all necessary measures to assure no net increase in water demand from Cal-Am sources where extraction is leading to resource degradation. The only exception is the remaining portion of the applicant's water entitlement consistent with all applicable law for such use, including as circumstances surrounding such use change over time (e.g., in relation to SWRCB order or otherwise). Thus, the LCP amendment recognizes the validity of the water entitlement and recognizes that new development that relies on the remaining entitlement is allowable provided other applicable law does not dictate otherwise.

Impacts Analysis

Methodology

Approach

To evaluate potential impacts on water supply and demand resulting from the proposed project, the water demand from the project elements were evaluated against the criteria for determining significance below.

With the proposed project, the Pebble Beach Driving Range in Area V would be relocated to Collins Field, which is currently irrigated with recycled water. Recycled water used at the existing Driving Range would be eliminated as the area would be converted to residential use. The project would therefore result in a reduction in the amount of turf irrigation compared to 2011 Existing Conditions. Irrigation for proposed visitor-serving and residential landscaping is presumed to use potable water due to lack of recycled water infrastructure to serve dispersed development areas. As a result, the project would not result in an increase in recycled water demand, and there would be no demand for new recycled water treatment or distribution lines.

In the Del Monte Forest, potable water is supplied by Cal-Am from sources in the Carmel Valley alluvial aquifer and the Seaside Aquifer. As discussed below, given the constraints in the Seaside Aquifer and the basin adjudication, which will reduce Cal-Am's withdrawals over time, it is presumed that the project would not be supplied by Cal-Am with water from the Seaside Aquifer. It is presumed that the project will be supplied from the Carmel River through 2016, and either from the Carmel River or from the Regional Project or an alternative to the Regional Project after 2017.

CEQA guidelines (Section 15125) specify that the environmental setting extant at the time of an EIR's Notice of Preparation will "normally" constitute the baseline physical condition by which a lead agency determines whether an impact is significant. Water supply conditions as they exist in 2011 are considered the CEQA baseline for this analysis. This EIR defines existing water supply conditions to be the actual withdrawals of water from the Carmel River and the Seaside Aquifer as follows: 2011 Existing Conditions are defined in terms of the current level of withdrawals from the Carmel River and the Seaside Aquifer and the current level of water demand served by Cal-Am. Non-

Cal-Am water users are presumed to derive their water from the Carmel River, Seaside Aquifer, or other sources but are not included in the analysis as they are not presumed to be served by Cal-Am who would supply water to the proposed project. Carmel River withdrawals from 1995 to 2010 were used for this analysis (Table 3.12-6), but were adjusted (as discussed in Appendix H) to account for the relatively wetter conditions during this period compared to long-term conditions.

Table 3.12-6. Carmel River Withdrawals for 2011 Existing Conditions based on 1995 to 2010 Averages by Water Type (in Acre-Feet)

Year	Water Year Type	Historic Withdrawals
1995	Wet	10,036
1996	Average	11,701
1997	Average	12,847
1998	Wet	10,154
1999	Average	10,580
2000	Average	11,350
2001	Average	10,798
2002	Dry	11,068
2003	Average	11,541
2004	Dry	11,282
2005	Wet	11,036
2006	Wet	10,954
2007	Critically Dry	10,486
2008	Critically Dry	10,835
2009	Average	10,286
2010	Wet	9,786
1995 to 2010	**Annual Average**	**10,921**
	Water Year Type	**2011 Existing Conditions[1]**
	Wet	*10,393*
	Average	*11,300*
	Dry	*11,175*
	Critically Dry	*10,660*

Notes:
[1] 2011 Existing Conditions = Carmel River withdrawals based on sources listed in Appendix H.

Criteria for Determining Significance

In accordance with CEQA, the State CEQA Guidelines, Monterey County plans and policies, and agency and professional standards, a project impact would be considered significant if the project would:

A. Water Supply and Demand

- Result in a water demand that exceeds water supplies available to serve the project from existing entitlements and resources, and/or require new or expanded supplies.

B. Water Infrastructure Capacity

- Result in water demand that exceeds capacity of the water supply or infrastructure system, requiring substantial expansion of water supply and treatment facilities and/or water infrastructure, the construction of which could cause significant environmental effects.

C. Carmel River Biological Resources

- Result in water demand that would result in new or substantially more severe impacts on sensitive biological resources of the Carmel River, including associated riparian vegetation.

Impacts and Mitigation Measures

A. Water Supply and Demand

WSD-A1. The project's water demand would represent an increase in water use above the 2011 Existing Conditions, but would be within the Applicant's current entitlement and could be legally supplied by Cal-Am through 2016. However, given the current uncertain nature of regional water supplies, the additional project water demand could intensify water supply shortfalls and rationing starting in 2017, if the Regional Project (or its equivalent) is not built by then. (Significant and unavoidable)

Water Demand

The proposed project would create an estimated demand for water of between 114 and 135 AFY in an average year, depending on the development option selected for Area M Spyglass Hill. A summary of water demands is provided in Table 3.12-7. A more detailed estimate of water demand is provided in Appendix H. This water demand includes irrigation demand for the visitor-serving and residential portions of the project. The applicant is not proposing to use recycled water for new landscaped areas associated with the visitor-serving and residential portions of the project due to the lack of existing recycled water lines to serve these locations. Since the total demand with Area M Option 1 (New Resort Hotel) would be 135 AFY and the total demand with Area M Option 2 (New Residential Lots) would be 114 AFY, the higher demand of 135 AFY is generally used in the remainder of this impact analysis.

Table 3.12-7. Direct Water Demand of Proposed Project

Development Area	Projected Demand	
The Lodge at Pebble Beach	13.11	
The Inn at Spanish Bay	12.85	
Area M Spyglass Hill		
Option 1 New Resort Hotel	30.59	
Option 2 New Residential Lots	10.00	
Residential Lot Subdivisions	77.00	
Equestrian Center Reconstruction	0.00	
Driving Range Relocation	0.33	
SR 1/SR 68/17-Mile Drive Intersection Reconstruction	0.70	
	Total with Option 1	**Total With Option 2**
Project Total - Average Year	134.57	113.99
Project Total - Wet Year	127.84	108.29
Project Total - Dry Year	141.30	119.69
Project Total - Very Dry Year	148.03	125.39

Source:
Appendix H
Note:
Units are acre-feet per year (AFY).

Water Supply Impact Analysis

As noted above, the applicant's proposal is to use water pursuant to a water entitlement that was derived through financing the replacement of potable water used for turf irrigation in the Del Monte Forest with recycled water. Given the constraints on the Seaside Aquifer and the basin adjudication which will reduce Cal-Am's withdrawals over time, it is presumed that the project would not be supplied by Cal-Am with water from the Seaside Aquifer up to 2016. After 2016, the project could be supplied by Cal-Am with water from the Carmel River within Cal-Am's water rights, or through new water supplies from the Regional Project (or an equivalent alternative).

Change in Carmel River Withdrawals through 2016 With the Project

The project's increase in demand would result in increased withdrawals by Cal-Am from the Carmel River aquifer up to 2016, compared to 2011 Existing Conditions. The project-related increases in withdrawals can be estimated, as shown in Table 3.12-8. Depending on water year type, project increased withdrawals are estimated at 128 to 145 AF from the Carmel River.

Table 3.12-8. Project Changes in Withdrawals from the Carmel River

Low Use (Wet Year)	Acre Feet Per Year (AFY)
2011 Existing Conditions[a]	*10,393*
Project Demand	128
Total Withdrawal	*10,521*
Change Relative to 2011 Existing Conditions	**128**
Average Use (Average Rainfall Year)	
2011 Existing Conditions[b]	*11,205*
Project Demand	135
Total Withdrawal	*11,340*
Change Relative to 2011 Existing Conditions	**135**
High Use (Dry Year)	
2011 Existing Conditions[c]	*11,489*
Project Demand	142
Total Withdrawal	*11,631*
Change Relative to 2011 Existing Conditions	**142**
Very High Use (Very Dry Year)	
2011 Existing Conditions[d]	*11,773*
Project Demand	145
Total Withdrawal	*11,918*
Change Relative to 2011 Existing Conditions	**145**

Source:
Appendix H.
Notes:
[a] Average of Cal-Am Carmel River Withdrawals Water Years 1995, 1998, 2005, 2006 and 2010.
[b] Average of Cal-Am Carmel River Withdrawals Water Years 1995–2010, adjusted by 2.6%.
[c] Average of Cal-Am Carmel River Withdrawals Water Years 1995–2010, adjusted by 5.2%.
[d] Average of Cal-Am Carmel River Withdrawals Water Years 1995–2010, adjusted by 7.8%.

The results shown in Table 3.12-8 are shown graphically in Figure 3.12-5 and supporting data are provided in Appendix H.

Change in Carmel River Withdrawals in 2017 with the Project

Starting in 2017, Cal-Am is required to reduce its withdrawals from the Carmel River to the level of its existing water rights (3,376 AFY) and over time to reduce its withdrawals from the Seaside Aquifer to its ultimate adjudicated allocation (1,474 AFY). Several scenarios of what will occur in 2017 were evaluated:

- **2017 Scenario A (Regional Project on Time)**. This scenario evaluates water supply and demand conditions in 2017, presuming that the Regional Project is completed as proposed in the Final EIR for the Coastal Water Project (CPUC 2009) to replace water from the Carmel River

that is above Cal-Am's existing water rights and water from the Seaside Aquifer in excess of Cal-Am's adjudicated ultimate allocation. Under this scenario, the proposed project would be supplied by water from either the Carmel River or the Regional Project.

- **2017 Scenario B (No Regional Project or Alternative).** This scenario evaluates water supply and demand conditions in 2017, presuming that the Regional Project (or an equivalent alternative) is not completed by 2017 to replace water from the Carmel River that is above Cal-Am's existing water rights and water from the Seaside Aquifer in excess of Cal-Am's adjudicated ultimate allocation. Under this scenario, the proposed project would be supplied by water from the Carmel River, but due to regional supply shortfalls would be subject to water rationing as would all existing demand. This scenario would also apply to interim years between the start of 2017 and when a Regional Project (or an equivalent alternative) would be completed.
- **2017 Scenario C (Alternative to Regional Project).** This scenario evaluates water supply and demand conditions in 2017, presuming that a project equivalent to the Regional Project is completed by the end of 2016 to replace water from the Carmel River that is above Cal-Am's existing water rights and water from the Seaside Aquifer in excess of Cal-Am's adjudicated ultimate allocation. The amount of production is assumed to be the same as that proposed with the Regional Project. Under this scenario, the proposed project would be supplied by water from either the Carmel River or the alternative to the Regional Project. Since the assumed production of the alternative supply project is the same as the Regional Project, this alternative is the same in terms of water supply and demand as 2017 Scenario A but varies in terms of environmental impact as analyzed under Impact WSD-2 below.

Carmel River withdrawals including the project demand would be the same whether or not the Regional Project (or an alternative project) is completed due to the fixed limits on Cal-Am's withdrawals from the Carmel River per SWRCB orders. The estimated change in withdrawals with the project in 2017 is shown in Table 3.12-9 and Table 3.12-10.

Table 3.12-9. Project Changes in Cal-Am Withdrawals from the Carmel River, 2017 Scenario A (with the Regional Project) (Acre-Feet)

Low Use (Wet Year)	
2011 Existing Conditions[a]	*10,393*
Cal-Am Maximum Withdrawals per SCWRB Order WR2009-0060[b]	3,376
Project Demand (presuming from Carmel River)[c]	128
Reduction in Cal-Am service to Other Existing Users[d]	-128
Withdrawals with Project[e]	*3,376*
Change over 2011 Existing Conditions	-7,017
Average Use (Average Rainfall Year)	
2011 Existing Conditions[a]	*11,205*
Cal-Am Maximum Withdrawals per SCWRB Order WR2009-0060[b]	3,376
Project Demand (presuming from Carmel River)[c]	135
Reduction in Cal-Am service to Other Existing Users[f]	-135
Withdrawals with Project[e]	*3,376*
Change over 2011 Existing Conditions	-7,829
High Use (Dry Year)	
2011 Existing Conditions[a]	*11,489*
Cal-Am Maximum Withdrawals per SCWRB Order WR2009-0060[b]	3,376
Project Demand (presuming from Carmel River)[c]	142
Reduction in Cal-Am service to Other Existing Users[d]	-142
Withdrawals with Project	*3,376*
Change over 2011 Existing Conditions	-8,113
Very High Use (Critically Dry Year)	
2011 Existing Conditions[a]	*12,098*
Cal-Am Maximum Withdrawals per SCWRB Order WR2009-0060[b]	3,376
Project Demand (presuming from Carmel River)[c]	145
Reduction in Cal-Am service to Other Existing Users[d]	-145
Withdrawals with Project[e]	*3,376*
Change over 2011 Existing Conditions	-8,722

Notes:

[a] Existing Condition Water Year scenarios from Table 3.12-8.

[b] Cal-Am withdrawals from the Carmel River limited to Cal-Am water rights amount after 12/31/16.

[c] Project can be supplied per water entitlement per allowance in SWRCB Order WR 2009-0060, but not in excess of water right amount.

[d] If project supplied from Carmel River, then Cal-Am will need to supply existing users with an equivalent amount from the Regional Project. If the project is supplied from the Regional Project, then the net effect is the same as Cal-Am withdrawals are limited to their existing water rights (3,376 AFY).

[e] Assumes no new demand is met from the Carmel River except that of the project due to Cal-Am limits.

Source: Appendix H.

Table 3.12-10. Table 3.12-10 Project Changes in Cal-Am Withdrawals from the Carmel River for 2017 Scenario B (No Regional Project) (Acre-feet)

Low Use (Wet Year)	
2011 Existing Conditionsa	*10,393*
Cal-Am Maximum Withdrawals per SCWRB Order WR2009-0060b	3,376
Project Demand At 65% rationing c	45
Reduction in Cal-Am service to Other Existing Usersd	-45
Withdrawals with Projecte	*3,376*
Change over 2011 Existing Conditions	-7,017
Average Use (Average Rainfall Year)	
2011 Existing Conditions[a]	*11,205*
Cal-Am Maximum Withdrawals per SCWRB Order WR2009-0060[b]	3,376
Project Demand At 65% rationing[c]	47
Reduction in Cal-Am service to Other Existing Users[c]	-47
Withdrawals with Project[e]	*3,423*
Change over 2011 Existing Conditions	-7,782
High Use (Dry Year)	
2011 Existing Conditions[a]	*11,489*
Cal-Am Maximum Withdrawals per SCWRB Order WR2009-0060[b]	3,376
Project Demand At 65% rationing[c]	50
Reduction in Cal-Am service to Other Existing Users[d]	-50
Withdrawals with Project[e]	*3,426*
Change over 2011 Existing Conditions	-8,063
Very High Use (Critically Dry Year)	
2011 Existing Conditions[a]	*12,098*
Cal-Am Maximum Withdrawals per SCWRB Order WR2009-0060[b]	3,376
Project Demand At 65% rationing[c]	51
Reduction in Cal-Am service to Other Existing Users[d]	-51
Withdrawals with Project[e]	*3,427*
Change over 2011 Existing Conditions	-8,671

Source:
Appendix H

Notes:

[a] Existing Condition Water Year scenarios from Table 3.12-8.

[b] Cal-Am withdrawals from the Carmel River limited to Cal-Am water rights amount after 12/31/16.

[c] Project can be supplied per water entitlement per allowance in SWRCB Order WR2009-0060, but not in excess of water right amount. Presumed project is supplied from Carmel River by Cal-Am, but is subject to rationing like other users. Amount of rationing rounded up to 65% (from 61%) based on calculation of shortfall without the Regional Project (or equivalent by 2017) as shown in Appendix H.

[d] Increase of project demand intensifies rationing by equivalent amount.

[e] Assumes no new demand is met from the Carmel River except that of the project due to Cal-Am limits.

Significance Evaluation

Impacts of the increased water demand from the proposed project were analyzed with respect to: (a) whether sufficient water could be supplied to service the proposed project; and (b) the potential to require development of additional supply to meet project demand.

Ability to Supply Water for Project

As described above under "Environmental Setting," there is a remaining unused water entitlement of 325 AFY. Provision of water pursuant to this entitlement by Cal-Am is not constrained by the requirements of SWRCB Order WR 95-10 or Order WR2009-0060 up to December 31, 2016 (see discussion of water supply and distribution in "Environmental Setting" above). The estimated increased supply needed to serve project demands could range between 128 and 145 AFY, depending on water year type. Even if all of this water were derived from the Carmel River, it is less than the remaining entitlement; thus, Cal-Am would be able to supply project demand without incurring any additional risk of enforcement activity from SWRCB pursuant to Order WR 95-10 or Order WR2009-0060 up to December 31, 2016.

After December 31, 2016, Cal-Am would be limited to supplying the applicant's water entitlement from the Carmel River within its legal water rights limit or from future new connection to other legal sources, such as the Regional Project (or an equivalent alternative). Given recognition by SWRCB, MPWMD, and Cal-Am of the validity of the applicant's water entitlement and its basis in a net reduction of Carmel River withdrawals due to the Recycled Water Project operations, the project can be supplied water from legal sources of water after December 31, 2016.

However, given the uncertainty with the Regional Project at this time (as described above), it is possible that there will be no new water supply adequate to fully meet existing demand and project demand by 2017. As a result, there is the possibility of a supply shortfall and water rationing. If the Regional Project (or an equivalent) is not completed by the end of 2016, the project's water demand would intensify the need for water rationing for existing water uses. The project would be subject to rationing like other existing demand, but the additional project demand would mean the impact of rationing would be more intense.

Based on the estimated shortfall in supply without the Regional Project (or its equivalent) (see Appendix H), water rationing could reach 65%. Water rationing could result in economic disruption of commercial and industrial activities on the Monterey Peninsula as well as disruption of residential use. It is also possible that current users of Cal-Am water who have overlying rights to groundwater may increase pumping in certain areas, which may exacerbate environmental conditions (unless other prohibitions like the Seaside aquifer adjudication prevent such activity). The exact response of the community to deep, persistent water rationing is difficult to estimate. This is considered a significant and unavoidable impact related to water supply if the Regional Project (or its equivalent) is not built by the end of 2016.

Under constitutional limitations established in the U.S. Supreme Court decisions in the *Nollan* and *Dolan* cases[4], a project can only be required to mitigate proportionately to their level of impact. No further mitigation is feasible on the part of the Applicant because any additional mitigation would be disproportionate to their water supply impact in light of the Applicant's prior financing of the

[4] *Nollan v. California Coastal Commission*, 483 U.S. 825 (1987), and *Dolan v. City of Tigard*, 512 U.S. 374 (1994),

Recycled Water Project which has restored more water to the Carmel River than the Applicant proposes to use for the proposed project pursuant to their water entitlement.

In summary, the project would be able to obtain water through 2016, would be able to obtain water in 2017 and after if the Regional Project (or its equivalent) is completed by then, and could obtain water in 2017 and after if the Regional Project (or its equivalent) is not completed by then, but would be subject to deep rationing and would intensity the level of rationing for existing users which is considered a significant unavoidable water supply impact.

Need for New Water Supplies

Before December 31, 2016, the project water demand would be drawn from the Carmel River but would be supplied pursuant to the Applicant's entitlement and Cal-Am is allowed by SCWRB order WR 2009-0060 to supply water through 2016. Thus, up to 2016, the additional project demand would not require the construction of new water supply facilities.

After December 31, 2016, the project water demand may be drawn from the Carmel River within Cal-Am's legal rights, but, if so, it would displace an equivalent amount of supply for other existing Cal-Am users. Alternatively, the project could be supplied directly from the Regional Project (or its equivalent). In either case, compared to 2011 Existing Conditions, the project would increase demand for new supply.

The Regional Project is being designed to accommodate the existing demand that would be displaced by the restrictions on Cal-Am withdrawals from the Carmel River and the Seaside Aquifer. MPWMD estimates the existing demands based on estimates of water use within the Cal-Am system between 1996 and 2006, and then adjusted those demands upward to account for the relatively wet conditions in this period compared to long-term averages. The use of potable water by the PBCSD Recycled Water Project between 1996 and 2006 is included in MPWMD's estimates and averaged 285 AFY. Using the MPWMD's adjustment factors, the potable water demand of the Recycled Water Project would be 292 AFY (average year) up to 307 AFY (critically dry year) (see calculations in Appendix H). Thus, MPWMD included up to 307 AFY in its estimate of existing water demand, which was used to size the Regional Project.

Subsequent to 2006, the PBCSD Recycled Water Project was upgraded with the Phase 2 improvements which have virtually eliminated all potable water use. Thus, the 307 AFY included in the MPWMD's estimates of existing demand is no longer needed for the Recycled Water Project and is available. Since the Applicant financed the upgrades to the plant that eliminated this water use, it is reasonable to consider this 307 AFY available to serve the Applicant's entitlement. Thus, although the project's water demand will be met either directly from the Regional Project (or its equivalent) or indirectly from the Regional Project (due to displacement of other existing demand from being met via Carmel River water), the project would not require an expansion of the Regional Project (or its equivalent) beyond its currently planned capacity. This is considered a less than significant impact.

The project's impact on water infrastructure and associated secondary impacts on the environment of infrastructure are discussed separately below.

B. Water Infrastructure Capacity

WSD-B1. Local water infrastructure is included to serve the proposed project and existing supply infrastructure outside the project area is adequate to serve the project through 2016. The Regional Project (or its equivalent) will need to be built by 2017 to serve existing demand and the increase in demand from the project. Regional water supply infrastructure and operations will have secondary environmental impacts. (Significant and Unavoidable)

Inside the Del Monte Forest, local distribution water lines are included in the project to deliver water from current distribution lines to the point of demand. The project's new demand could range from 128 to 148 AFY. This amount is less than the amount of potable water previously provided by Cal-Am from the Carmel River to the Del Monte Forest for use in irrigation of golf courses and other large turf areas, which averaged up to 1,000 AFY and over in the past (see Appendix H). With Phase 2 of the Recycled Water Project, this demand for potable water use for irrigation of golf courses and large turf areas no longer occurs. The infrastructure already exists to deliver the project's water demand from the Carmel River to the Del Monte Forest, taking into account the local connecting water lines included in the project. Thus, no water infrastructure impacts would occur due to the project related to supplying the project from the Carmel River.

After 2016, the project's water demand must either be provided from the Carmel River or from the Regional Project (or an equivalent). If the project is provided water from the Carmel River (by Cal-Am pursuant to its existing water rights), then a proportionate amount of water would need to be supplied to other existing users from the Regional Project (or an equivalent). Regardless of whether the project's demand is serviced from the Carmel River or from the Regional Project (or its equivalent), the Regional Project or an equivalent will need to be built to meet existing demand and proposed project demand. In the CPUC's Final EIR (CPUC 2009), the Regional Project was identified as having significant and unavoidable impacts in the following area: air quality (during construction only for both Phase 1 and Phase 2); geology, soils and seismicity (specifically concerning liquefaction for Phase 2 only); and greenhouse gas emissions (for both Phase 1 and Phase 2).

The physical impacts of alternatives to the Regional Project have not been evaluated under CEQA yet, but it is possible they may have similar or different significant, unavoidable impacts than the Regional Project. Of note, many of the alternatives to the Regional Project propose increases in high flow diversions from the Carmel River during winter that are greater than those included in the Regional Project, and thus may result in impacts on steelhead and other Carmel River biological resources, but this has not yet been evaluated and thus are considered speculative under CEQA. Alternatives including desalination elements are likely to have similar greenhouse gas emission impacts as the Regional Project (though perhaps changed in degree) due to the energy intensity of desalination. Alternatives could also result in impact associated with air quality and water quality during construction as well as impacts related to geology, soils, and seismicity. Alternatives involving acquisition of additional Carmel River diversion rights would mean smaller reductions in withdrawals from the river compared to the Regional Project. Due to the early stage of development of these alternatives, it is conservatively assumed for this EIR that alternatives to the Regional Project would also result in one or more significant environmental impacts.

The project would indirectly contribute to these secondary physical impacts on the environment because the project would add additional demand for new regional water supply infrastructure. This is considered a significant and unavoidable impact. For the Regional Project, the CPUC has documented the reasons why further mitigation is not available to reduce identified significant and

unavoidable impacts. For alternatives to the Regional Project, environmental review has not been completed and thus it is unknown whether or not all significant impacts could be avoided, but it is assumed that such large scale infrastructure would have one or more unavoidable impacts.

C. Carmel River Biological Resources

WSD-C1. The project's water demand would result in increased withdrawals from the Carmel River through 2016 and thus would have a significant and unavoidable impact on Carmel River biological resources. After 2017, SWRCB mandated reductions in Cal-Am withdrawals from the Carmel River will not be changed by the project demand. (Significant and unavoidable)

Compared to 2011 Existing Conditions, the proposed project would increase withdrawals from the Carmel River through 2016, which would affect biological resources dependent on the Carmel River, including riparian vegetation, steelhead, CRLF, and other sensitive biological resources dependent on the river and its aquifer.

As described in the "Environmental Setting" for the Carmel River above, existing groundwater pumping (and prior surface diversions) has adversely affected the biological resources found in the Carmel River. Withdrawal of additional water from the Carmel River aquifer to meet project water demand (and increased amounts from cumulative demand) would lower the water table, shorten the amount and period of flow, and contribute to ongoing impacts on Carmel River resources.

In wet years, limited increases are less likely to adversely affect biological resources in the Carmel River due to the relative abundance of available water for both withdrawal and to support the river and its resources. Based on the analysis above, the project would result in increased withdrawals of around 128 AFY in a wet year. The wettest year in the last fifteen years was Water Year 1998 (> 47 inches of rain on the Monterey Peninsula) (see Appendix H) and Cal-Am Carmel River withdrawals totaled around 10,154 AF. In such a wet year, the project would add about 1% to withdrawals compared to 2011 Existing Conditions. In their study of instream flow needs for steelhead, National Marine Fisheries Service (NMFS), identified that in above normal rainfall years, there could be somewhere between 13,000 and 17,000 AF available for withdrawal on an annual basis without affecting critical flows identified as necessary for steelhead in the Carmel River (NMFS 2002). Thus in wet years, the limited withdrawals associated with the project are not expected to result in adverse effects to Carmel River biological resources on an annual basis compared to 2011 Existing Conditions.

However, even during wetter years, lower flows in the Carmel River can still occur in summer and early fall. Under 2011 Existing Conditions (including existing withdrawals), the Carmel River can still go dry in its lower reaches (as it did in early September 1998 during the wettest year in the last 25 years), and surface flow to Carmel Lagoon can cease. NMFS has identified that new diversions from the Carmel River should be avoided between June and October of wet years (as well as other years) to avoid further adverse effects on steelhead (NMFS 2002). By increasing diversions compared to 2011 Existing Conditions through 2016, the project could contribute to the river drying earlier in the spring which would affect river resources and could contribute to lower lagoon levels and reduced water quality in Carmel Lagoon.

Given that existing average year withdrawals from the Carmel River are already in excess of 10,000 AF (and dry year withdrawals can be higher) and have been identified as having adverse effects on river resources, project increases in withdrawals in average, dry, and very dry years would

adversely affect Carmel River biological resources compared to 2011 Existing Conditions. Due to the constraints in SWRCB Order WR 2009-0060, this change would only occur through the end of 2016. Effects on biological resources are as follows:

- **Riparian vegetation**: Increased groundwater pumping could lead to local riparian vegetation mortality through stress, lack of access to water and local bank erosion. Species dependent on riparian vegetation would be indirectly affected due to the loss of forage, nesting, and rearing habitat. Bank stability could be lessened with the loss of extant riparian vegetation. Stream temperatures could rise due to a reduction of shade cover affecting steelhead and other aquatic resources sensitive to stream temperature fluctuations.
- **Steelhead:** Existing low-flow conditions in the Carmel River during average, dry, and very dry years would be exacerbated by increased groundwater pumping. Successful migration, spawning, and rearing are dependent on appropriate flow conditions and adequate water quality. The depletion of the aquifer in the summer by pumping can cause the first fall flows to infiltrate very quickly. This process may delay adult upstream migration or reduce duration of suitable upstream migration periods. Shallow areas within the river channel may present migration barriers to adult steelhead under low flow conditions; pumping has the potential to reduce river flows below critical thresholds for migration at these low points in the stream. Lower flows in average, dry, and very dry years could lower the available spawning areas by drying suitable locations. Juvenile steelhead are routinely stranded and isolated during summer drying of the river, leading to mortality. With increased pumping, drying would occur earlier and more often in rearing areas. In addition, reduction in flow would reduce water quality in terms of further depressed dissolved oxygen levels and increased temperatures affecting juveniles and adults. Elevated temperatures, low dissolved oxygen levels, and lack of flow constrain migration of smolts to the ocean in summer and fall; increased pumping would further limit periods of feasible migration in average, dry, and very dry years. Steelhead rearing habitat and suitable smolt holding areas in Carmel lagoon are also limited by shallower than natural water depths and salinity stratification in summer and fall due to existing withdrawals and this could be exacerbated by increased withdrawals.
- **California Red-Legged Frog:** CRLF require streams or ponds that hold water for lengthy periods of time (3.5–7 months) for successful breeding and maturation of larvae. They utilize the Carmel River and adjacent creeks and ponds that are supported by groundwater connected to the Carmel River aquifer. Increased groundwater pumping in average, dry, and very dry years will lower the water table even further, potentially reducing successful breeding and rearing locations for CRLF. Loss of riparian vegetation described above would also affect this species, which utilize riparian areas for foraging and dispersal.
- **Other Resources:** Fish and other aquatic resources dependent on adequate flows and water quality would be subject to similar effects described above for steelhead. Special-status birds, raptors and other species could lose breeding and foraging locations in the event of loss of riparian vegetation and areas. Special-status wildlife species, such as southwestern pond turtle, could also see a loss of habitat due to reduction of flow and lowering of water tables, particularly in summer and early fall periods of average, dry, and very dry years.

This impact is a significant and unavoidable impact through 2016. As discussed above, no further mitigation is feasible on the part of the Applicant because any additional mitigation would be disproportionate to their water supply impact in light of the Applicant's prior financing of the Recycled Water Project. As shown in Table 3.12-5, the project demand (and their entitlement) is

much less than the amount of water already saved from the Applicant's financing of the Recycled Water Project, which has restored more water to the Carmel River than the Applicant proposes to use. Thus, when comparing PBC's usage of water before the Recycled Water Project with the project's proposed water use, there is still a net benefit to the Carmel River that should be acknowledged.

After 2016, SWRCB Order WR95-10 and Order WR2009-0060 will result in a substantial reduction in Cal-Am withdrawals from the Carmel River. Because the SWRCB orders cap the amount that Cal-Am can withdraw from the Carmel River, the potential provision of water from the river to the project from either the Carmel River or from the Regional Project (or an equivalent) would not result in any change in the amount of Cal-Am withdrawals from the Carmel River (as shown in Tables 3.12-9 and Table 3.12-10). Thus, the project would not have a significant impact on biological resources in the Carmel River after 2016.

Cumulative Impacts

A. Water Supply and Demand

WSD-A1(C). Cumulative water demand on the Monterey Peninsula exceeds current water supplies requiring new regional water supplies to be developed. The project's water demand would represent an increase in water use above the 2011 Existing Conditions. Through 2016, the project can be supplied from the Carmel River regardless of other cumulative demands. In 2017 and after, given the current uncertain nature of the Regional Project, the additional project water demand could intensify cumulative water supply shortfalls and rationing starting in 2017, if the Regional Project or its equivalent is not built by then. (Significant and unavoidable)

Cumulative Water Demand

Cumulative demand was analyzed in two ways: (1) Cumulative impacts were evaluated due to the use of the remaining unused portion of the Applicant's water entitlement combined with project water demand to examine potential near-term impacts on withdrawals from the Carmel River; and 2) Cumulative impacts were evaluated due to cumulative demands on the Monterey Peninsula for 2011, 2017, and 2030. As described in Section 3.0, cumulative development within the Del Monte Forest consists of residential development of perhaps up to 105 new single-family dwelling units[5]. As shown in Table 3.12-11, these units could result in a demand of up to 82 AFY. It is expected that Del Monte Forest new residential owners may purchase a portion of the Applicant's entitlement; if not they would be new demand that would have to be supplied by Phase 2 of the Regional Project (or an equivalent alternative). MPWMD Ordinance No. 109 allowed up to 175 AF to be sold by the Applicant to other Del Monte Forest benefitted properties. As of September 2011, of the 175 AF, only 30 AF was being used, leaving 145 AF that could be used in future. It was assumed that all of the remaining 145 AF of residential entitlement would be used in the near future and that the 82 AF of cumulative Del Monte Forest growth would either be accommodated through use of the residential

[5] As described in Table 3-2 in the introduction to Chapter 3, there are 96 undeveloped (vacant) existing residential lots, 8 new lots allowed in Area X based on County-issued certificates of compliance, and 1 new lot allowed in Area Y based on the presumption that presence of environmentally sensitive habitat area (ESHA) may prevent further subdivision – thus the potential for up to 105 new dwelling units.

entitlement or would be deferred until new regional supplies were available.[6] These demands are summarized in Table 3.12-11.

On the Monterey Peninsula, cumulative water demands were examined in the Final EIR for the Coastal Water Project (California Public Utilities Commission 2009), which also analyzed the Regional Project. Using data from the Final EIR and several other data sources, cumulative water demand was analyzed for 2011, 2017, and 2030 in comparison to available or projected water supplies. The results of this analysis are discussed later in this section.

[6] If residential owners do not purchase a portion of the Applicant's water entitlement, they would not be able to obtain a Cal-Am connection until such a time as Phase 2 of the Regional Project (or an equivalent) were built that included allocations for new growth, which could be at a distant future period.

Table 3.12-11. Other Future Entitlement Demand

	Units	Use factor (AFY/unit)	Demand AFY)	Factor AFY/unit)	Notes
Del Monte Forest Buildout (other than the Project)					
Existing Vacant Lots					
Future SFD Development	96	0.8	76.8	0.8	DMF Average
Area X and Y					
Future SFD Development	9	0.8	7.2	0.8	DMF Average
Total			84		Assumed that such properties would either purchase PBC entitlement or would have to be served by future expansions of the Regional Project.
PBC Entitlement Allocations					
Total entitlement			365		
Amount in use as of 2011			40		10 AF - PBC, 30 AF – others (MPWMD 2011)
Remaining unused entitlement			325		
Entitlement used for project			145		Based on critically dry year estimate
Remaining entitlement outside of project for future other residential use			145		MPWMD Ordinance 109 allows up to 175 AF to be sold to DMF benefitted properties. As of September 2011, PBC had sold 117 AF, leaving 58 AF more that could be sold. Of the 175 AF, only 30 AF is being used as of 2011 leaving 145 AF that could be used in future.
Unused entitlement			34		Remaining entitlement not currently being used minus amount to be used for project minus amount unused DMF benefited properties. (Note numbers do not precisely add due to rounding).

Sources
DMF residential development calculations - ICF.
Entitlement information: MPWMD, 2011, Monthly Entitlement Report, October 17, 2011 (for September 2011).

Water Supply Impact Analysis

As noted above, the applicant's proposal is to use water pursuant to a water entitlement that was derived through financing the replacement of potable water used for turf irrigation in the Del Monte Forest with recycled water. Given the constraints in the Seaside Aquifer and the basin adjudication which will reduce Cal-Am's withdrawals over time, it is presumed that the project and any future other entitlement demand would be supplied by water from the Carmel River through 2016. After 2016, the project and future other entitlement demand could be supplied by Cal-Am with water from the Carmel River within Cal-Am's water rights, or through new water supplies from the Regional Project (or an equivalent).

Cumulative Change in Carmel River Withdrawals Through 2016

The cumulative effect of project demand plus future other entitlement demand on Carmel River withdrawals through 2016 is shown in Table 3.12-12. Compared to 2011 Existing Conditions, project demand plus future other entitlement demand would increase withdrawals up to 2016 by 266 to 301 AFY.

Table 3.12-12. Cumulative Changes in Withdrawals from the Carmel River (through 2016) (Acre-Feet)

Low Use (Wet Year)	
2011 Existing Conditions[a]	*10,393*
Project Demand	128
Other Water Entitlement Demand	138
Withdrawal	*10,659*
Change relative to 2011 Existing Conditions	**266**
Average Use (Average Rainfall Year)	
2011 Existing Conditions[b]	*11,205*
Project Demand	135
Other Water Entitlement Demand	145
Withdrawal	*11,485*
Change relative to 2011 Existing Conditions	**280**
High Use (Dry Year)	
2011 Existing Conditions[c]	*11,489*
Project Demand	142
Other Water Entitlement Demand	153
Withdrawal	*11,783*
Change relative to 2011 Existing Conditions	**294**
Very High Use (Critically Dry Year)	
2011 Existing Conditions[d]	*11,773*
Project Demand	145
Other Water Entitlement Demand	156
Withdrawal	*12,074*
Change relative to 2011 Existing Conditions	**301**

Source:
Appendix H

Notes:
Totals may not add precisely due to rounding.

[a] Wet Year = Water Years 1995, 1998, 2005, 2006, and 2010.

[b] Average = Average of 1995 to 2010 conditions, adjusted by MPWMD factor of 2.6% to reflect relative wetter conditions than long-term averages (see Appendix H).

[c] Dry = Average of 1995 to 2010 conditions, adjusted by MPWMD factor of 5.2%

[d] Critically Dry = Average of 1995 to 2010 conditions, adjusted by MPWMD factor of 7.8%.

Cumulative Change in Carmel River Withdrawals in 2017 With the Project and Future Other Entitlement Demand

Starting in 2017, Cal-Am is required to reduce its withdrawals from the Carmel River to the level of its existing water rights (3,376 AFY). As described above, several scenarios of what will occur in 2017 were evaluated:

- **2017 Scenario A (Regional Project on Time)**. This scenario evaluates water supply and demand conditions in 2017, presuming that the Regional Project is completed as proposed in the Final EIR for the Coastal Water Project (CPUC 2009).
- **2017 Scenario B (No Regional Project or Alternative.** This scenario evaluates water supply and demand conditions in 2017, presuming that the Regional Project (or an equivalent alternative) is not completed by 2017.
- **2017 Scenario C (Alternative to Regional Project).** This scenario evaluates water supply and demand conditions in 2017, presuming that an equivalent to the Regional Project is completed by the end of 2016. Since the assumed production of the alternative supply project is the same as the Regional Project, this alternative is the same in terms of water supply and demand as 2017 Scenario A but varies in terms of environmental impact as analyzed under Impact WSD-2 below.

Carmel River withdrawals including the project demand and future other entitlement demand would be the same whether or not the Regional Project (or an alternative project) is completed. The net change in withdrawals is as shown in Table 3.12-13 and Table 3.12-14. However, as discussed below, the addition of cumulative demand (including the project) will intensify potential water rationing if the Regional Project (or its equivalent) is not completed.

Table 3.12-13. Cumulative Changes in Withdrawals from the Carmel River for 2017 Scenario A (with Regional Project)

Low Use (Wet Year)	
2011 Existing Conditions[a]	*10393*
Cal-Am Maximum Withdrawals per SCWRB Order WR 2009-0060 [b]	3376
Project Demand[c]	128
Other Future Entitlement Demand[c]	138
Reduction in Cal-Am service to Other Existing Users[d]	-266
Withdrawals with Project and other Entitlement Demand	*3376*
Change over 2011 Existing Conditions	**-7017**
Average Use (Average Rainfall Year)	
2011 Existing Conditions[a]	*11205*
Cal-Am Maximum Withdrawals per SCWRB Order WR 2009-0060[a]	3376
Project Demand[c]	135
Other Future Entitlement Demand[c]	145
Reduction in Cal-Am service to Other Existing Users[d]	-280
Withdrawals with Project and other Entitlement Demand	*3376*
Change over 2011 Existing Conditions	**-7829**
High Use (Dry Year)	
2011 Existing Conditions[a]	*11814*
Cal-Am Maximum Withdrawals per SCWRB Order WR 2009-0060[b]	3376
Project Demand[c]	142
Other Future Entitlement Demand[c]	153
Reduction in Cal-Am service to Other Existing Users[d]	-294
Withdrawals with Project and other Entitlement Demand	*3376*
Change over 2011 Existing Conditions	**-8113**
Very High Use (Critically Dry Year)	
2011 Existing Conditions[a]	*11773*
Cal-Am Maximum Withdrawals per SCWRB Order WR 2009-0060[b]	3376
Project Demand[c]	145
Other Future Entitlement Demand[c]	156
Reduction in Cal-Am service to Other Existing Users[d]	-301
Withdrawals with Project and other Entitlement Demand	*3376*
Change over 2011 Existing Conditions	**-8397**

Table 3.12-14. Cumulative Changes in Withdrawals from the Carmel River for 2017 Scenario B (No Regional Project)

Low Use (Wet Year)	
2011 Existing Conditions[a]	*10393*
Cal-Am Maximum Withdrawals per SCWRB Order 2009-0060[b]	3376
Project Demand At 65% rationing[c]	45
Other Future Entitlement Demand at 65% rationing[c]	48
Reduction in Cal-Am service to Other Existing Users[d]	-93
Withdrawals with Project and other Entitlement Demand	*3376*
Change over 2011 Existing Conditions	**-7017**
Average Use (Average Rainfall Year)	
2011 Existing Conditions[a]	*11205*
Cal-Am Maximum Withdrawals per SCWRB Order 2009-0060[b]	3376
Project Demand At 65% rationing[c]	47
Other Future Entitlement Demand at 65% rationing[c]	51
Reduction in Cal-Am service to Other Existing Users[d]	-98
Withdrawals with Project and other Entitlement Demand	*3376*
Change over 2011 Existing Conditions	**-7829**
High Use (Dry Year)	
2011 Existing Conditions[a]	*11489*
Cal-Am Maximum Withdrawals per SCWRB Order 2009-0060[b]	3376
Project Demand At 65% rationing[c]	50
Other Future Entitlement Demand at 65% rationing[c]	53
Reduction in Cal-Am service to Other Existing Users[d]	-103
Withdrawals with Project and other Entitlement Demand	*3376*
Change over 2011 Existing Conditions	**-8113**
Very High Use (Critically Dry Year)	
2011 Existing Conditions[a]	*11773*
Cal-Am Maximum Withdrawals per SCWRB Order 2009-0060[b]	3376
Project Demand At 65% rationing[c]	51
Other Future Entitlement Demand at 65% rationing[c]	55
Reduction in Cal-Am service to Other Existing Users[d]	-106
Withdrawals with Project and other Entitlement Demand	*3376*
Change over 2011 Existing Conditions	**-8397**

Source:
Appendix H

Notes:

[a] Existing Condition Water Year scenarios from Table 3.12-7.

[b] Cal-Am withdrawals from the Carmel River limited to Cal-Am water rights amount after 12/31/16.

[c] Project can be supplied per water entitlement per allowance in SWRCB order WR2009-0060, but not in excess of water right amount. Presumed project is supplied from Carmel River by Cal-Am, but is subject to rationing like other users. Amount of rationing rounded up to 65% based on calculation of shortfall (61%) without Regional Project (or equivalent by 2017) as shown in Appendix H.3.

[d] Increase of project demand intensifies rationing by equivalent amount.

Change in Water Supply Balance on the Monterey Peninsula Compared to 2011, 2017, and 2030 Conditions

Cumulative conditions were also evaluated for the Monterey Peninsula as a whole considering existing and future demands, including the project demands, and future other entitlement demands noted above. The results of this analysis are shown in Table 3.12-15. As shown therein, there is adequate supply at present to serve cumulative demand (taking into account current restrictions on new connections) in 2017 and 2030 presuming, respectively, that Phase 1 of the Regional Project (or its equivalent) is built by 2016 and Phase 2 of the Regional Project is built in time to anticipate new demands beyond the demands met by Phase 1. If the Regional Project (or its equivalent) is not built, then there will be substantial shortfalls and likely water rationing.

Significance Evaluation

Impacts of the increased cumulative water demand was analyzed with respect to: (a) whether sufficient water could be supplied to service cumulative demand; and (b) the potential to require development of additional supply to meet project demand.

Ability to Supply Water for Cumulative Development

As shown in Table 3.12-12, the increased project demand and future other entitlement demand would result in withdrawals more than 2011 Existing Conditions but less than the total remaining entitlement amount. As a result, Cal-Am can legally supply water for both the project and future other entitlement demand up to 2016.

After December 31, 2016, Cal-Am would be limited to supplying the applicant's water entitlement from the Carmel River within its legal water rights limit or from other legal sources, such as the Regional Project (or an equivalent alternative). Given recognition by SWRCB, MPWMD, and Cal-Am of the validity of the applicant's water entitlement and its basis in a net reduction of Carmel River withdrawals due to the Recycled Water Project operations, the project and future other water entitlement use can be supplied water from legal sources of water after December 31, 2016.

However, given the uncertainty with the Regional Project at this time (as described above), it is possible that there will be no new water supply adequate to fully meet existing demand, project demand, and future other entitlement demand by 2017. As a result, there is the possibility of a supply shortfall and water rationing. If the Regional Project (or an equivalent) is not completed by the end of 2016, the project's water demand and future other entitlement demand would intensify the need for water rationing for existing water uses. The project and future other entitlement demand would be subject to rationing like other existing demand, but the additional project and future other entitlement demand would mean the impact of rationing would be more intense.

Table 3.12-15. Water Supply and Demand on the Monterey Peninsula, 2011, 2017, and 2030

	2011	2017 with no RWSP	2017 with RWSP Phase 1	2030 with RWSP Phase 2	Sources and Notes
Water Demand					
Existing demand from Carmel River served by Cal-Am[a]	11,015	11,015	11,015	11,015	CPUC 2009. Average year demand.
Existing demand from Seaside Aquifer served by Cal-Am[a]	3,695	3,695	3,695	3,695	CPUC 2009. Average year demand.
Future Monterey Peninsula Demand		455[b]	455[b]	4,546	CPUC 2009 for 2030 estimate.
Marina Coast Water District for former Fort Ord area (outside Cal-Am service Area)				2,700	CPUC 2009.
North County (outside Cal-Am service area				5,900	CPUC 2009.
Proposed Project Demand	135	135	135	135	Average year demand.
Future Other PBC Entitlement Demand	145	145	145	145	Average year demand.
Total Demand	*14,990*	*15,444*	*15,444*	*28,136*	
Water Supply					
Carmel River (Cal-Am water rights)	3,376	3,376	3,376	3,376	CPUC 2009.
Carmel River (Cal-Am interim limit over water rights)	7,909	0	0	0	CPUC 2009. Eliminated at end of 2016 per SWRCB order.
Seaside Aquifer (Cal-Am withdrawals)	3,448[c]	1,474[c]	1,474[c]	1,474[c]	Seaside Groundwater Basin Watermaster, 2010.
Seaside Aquifer Storage and Recovery (ASR)	920	920	920	920	CPUC 2009.
Subtotal Existing Sources	*15,653*	*5,770*	*5,770*	*5,770*	
RWSP: Conservation		0[d]	0[d]	0[d]	CPUC 2009.
RWSP: Sand City Desalination	300	300	300	300	CPUC 2009. Desal facility in operation in May 2010.
RWSP: Regional Urban Water Augmentation Project (RUWAP)		0	1,000	1,000	CPUC 2009.
RWSP: Seaside ASR Expansion		0	380	380	CPUC 2009. MPWMD estimates it may be able to obtain up to 1,000 AFY, but this analysis assumes only the 380 AFY in CPUC 2009.
RWSP: Desalination		0	10,900	10,900	CPUC 2009. Critically dry year supply; in average years would be 8,800 AFY.
RWSP: Groundwater use in critically dry years		0	1,700	1,700	CPUC 2009. Groundwater use in peak periods offset by desalination production in off peak periods

	2011	2017 with no RWSP	2017 with RWSP Phase 1	2030 with RWSP Phase 2	Sources and Notes
Total Additional Supply (with Phase 1)	*300*	*300*	*14,280*	*14,280*	
Total Supply (with Phase 1)	***15,953***	***6,070***	***20,050***	***20,050***	
Supply/ Demand Balance	**963**	**-9,374**	**4,606**	**-8,086**	
RWSP: Phase 2	0	0	0	10,400	CPUC 2009. Additional amount beyond Phase 1
Total Additional Supply (with Phase 2)	*15,953*	*6,070*	*20,050*	*20,050*	
Total Supply (with Phase 2)	***15,953***	***6,070***	***20,050***	***30,450***	
Supply/ Demand Balance	**963[e]**	**-9,374**	**4,606[e]**	**2,314[e]**	

Sources:

[a] CPUC, 2009. Final EIR, Coastal Water Project, Chapters 2 and 5.

[b] Project Demand and Future Other Entitlement Demand from Appendix H.2

[c] Seaside Basin Watermaster. 2010. Reported Quarterly and Annual Water Production from the Seaside Groundwater Basin.

Notes:

RWSP = Regional Water Supply Project or the Regional Project

[a] Does not include existing non–Cal-Am demand or supply. Other existing users not supplied by Cal-Am are presumed to derive water from the Carmel River and the Seaside Aquifer per their existing rights.

[b] Due to current moratorium on most new connections, only limited new hookups are allowed (including pursuant to the entitlement from the PBCSD Recycled Water Project and the Sand City Desalination project and certain areas in the Laguna Seca Subarea). The exact amount of new demand in these areas up to 2017 has not been estimated; 10% of 2030 new demand was assumed for the 2017 scenarios, excluding entitlements from the Recycled Water Project which were accounted for separately below.

[c] 2011 amount shown is for 2011 (~3,202 AFY for the coastal subareas and 246 AFY for the Laguna Seca Subarea). Allocation reduced to adjudicated rights (1,474 AFY per CPUC 2009) over time. Analysis assumes reduction to 1,474 AFY will occur by 2017 but may occur later in time.

[d] No number assumed in CPUC 2009. Also excluded 300 AFY mentioned in CPUC 2009 for unaccounted water recovery as unproven water savings.

[e] Although a nominal surplus is shown for 2011, >2016 (with RWSP Phase 1) and 2030 (with RWSP Phase 2), the water demand shown is normal-year demand and does not account for dry or critically dry -year demands. Thus, this should not be considered a true surplus in toto, but rather mostly a reserve for use during critical years. RWSP Phase 1, includes 15,200 AFY (including 920 AFY of existing ASR) to meet the immediate needs of the Monterey Peninsula, and replace a previously approved supply for part of the former Fort Ord within the MCWD service area. Similarly, the nominal surplus for 2011 and 2030 (with RWSP Phase 2) should not be seen as excess supply but rather reserve for dry or critically-dry years.

Based on the estimated shortfall in supply without the Regional Project (or its equivalent) (see Appendix H), water rationing in 2017 and after could reach 65%. Impacts associated with water rationing were discussed above. This is considered a significant impact related to water supply because the project demand would intensify the level of water rationing in this scenario. Under constitutional limitations established in the U.S. Supreme Court decisions in the *Nollan* and *Dolan* cases[7], a project can only be required to mitigate proportionately to their level of impact. No further mitigation is feasible on the part of the Applicant because any additional mitigation would be disproportionate to their water supply impact in light of the Applicant's prior financing of the Recycled Water Project which has restored more water to the Carmel River than the Applicant proposes to use for the proposed project pursuant to their water entitlement.

As shown in Table 3.12-15, by 2030, cumulative demand would far exceed water supplies developed with Phase 1 of the Regional Project (or its equivalent) but cumulative demand could be met if Phase 2 of the Regional Project (or its equivalent) were completed. As described in the EIR for the 2010 Monterey County General Plan, existing City, County, MPWMD, and SWRCB policies and restrictions would constrain new development in absence of a long-term water supply and thus cumulative demands beyond that serviced by Phase 1 of the Regional Project would not worsen the water supply conditions.

In summary, the project contribution to cumulative impacts is as follows: 1) the project's water demand would not worsen the cumulative water supply conditions through 2016 and existing demand, project demand, and future other entitlement demand could be met with existing supplies, 2) cumulative demands due to existing demand, project demand and future other entitlement demand would be able to obtain water in 2017 and after if the Regional Project (or its equivalent) is completed by then; 3) project demand and other entitlement demand could be serviced by Cal-Am in 2017 and after even if the Regional Project (or its equivalent) is not built, but would be subject to deep rationing and would intensify the cumulative level of rationing which is considered a significant unavoidable water supply impact; 4) in 2030, in absence of Phase 1 and 2 of the Regional Project (or its equivalent), cumulative demand will far exceed regional water supplies and the project demand would contribute to that shortfall and likely rationing but if both phases of the Regional Project (or its equivalent) are completed, then cumulative water demands can be met.

Need for New Water Supplies

Before December 31, 2016, the project and future other entitlement water demands would be drawn from the Carmel River but would result in a level of withdrawal less than the remaining unused water entitlement and would not require the construction of new water supply facilities.

After December 31, 2016, the project and future other entitlement water demands may be drawn from the Carmel River within Cal-Am's legal rights, but if so, it would displace an equivalent amount of supply for other existing Cal-Am users. Alternatively, the project could be supplied directly from the Regional Project (or its equivalent). In either case, compared to 2011 Existing Conditions, the project and future other entitlement demand would increase demand for new supply.

As described above, MPWMD included up to 307 AFY in its estimate of existing water demand for the potable water demand of the PBCSD Recycled Water Project which is no longer needed when it estimated existing demand for the Regional Project. The project and future other entitlement water

[7] *Nollan v. California Coastal Commission*, 483 U.S. 825 (1987), and *Dolan v. City of Tigard*, 512 U.S. 374 (1994),

demand would range from 266 to 301 AFY, which is less than the 307 AFY freed up by Phase 2 of the PBCSD Recycled Water Project and thus would not result in a need to expand the Regional Project beyond current planning. This is considered a less than considerable contribution to cumulative water supply impacts and thus a less than significant impact.

Cumulative impacts on water infrastructure, associated secondary impacts on the environment of infrastructure, and the project's contribution to cumulative impacts are discussed separately below.

B. Water Infrastructure Capacity

WSD-B1(C). Water infrastructure is adequate to serve the project and future other entitlement demand through 2016. Phase 1 of Regional Project (or its equivalent) will need to be built by 2017 to serve existing demand, project demand and future other entitlement demand. Phase 2 of the Regional Project (or its equivalent) will be needed to be built to meet new cumulative demand. Regional water supply infrastructure and operations will have significant and unavoidable secondary environmental impacts and the project contributes to the need for such infrastructure. (Significant and unavoidable)

Inside the Del Monte Forest, distribution water lines are included in the project to deliver water from current distribution lines to the point of demand. Other cumulative development inside the Del Monte Forest is limited to residential development. The project's new demand and future other entitlement demand could range from 266 to 301 AFY. This amount is less than the amount of potable water previously provided to the Del Monte Forest for use in irrigation of golf courses and other large turf areas, which averaged up to 1,000 AFY and over in the past (see Appendix H). With Phase 2 of the Recycled Water Project, this demand for potable water use for irrigation of golf courses and large turf areas no longer occurs. Thus, the infrastructure already exists to deliver the project's water demand and other entitlement demand from the Carmel River to the Del Monte Forest, taking into account the local connecting water lines included in the project. Thus, no water infrastructure impacts would occur due to the project or future other entitlement demand related to supplying them with water from the Carmel River through 2016.

After 2016, project and future other entitlement water demand must either be provided from the Carmel River or from the Regional Project (or an equivalent). If the project and future other entitlement demand is provided from the Carmel River (by Cal-Am pursuant to its existing water rights), then a proportionate amount of water would need to be supplied to other existing users from the Regional Project (or an equivalent). As discussed above for the project analysis, regional water infrastructure would likely have one or more significant unavoidable impacts on the environment. The project would indirectly contribute to these secondary physical impacts on the environment because the project would add additional demand (along with cumulative demand) for new regional water supply infrastructure.

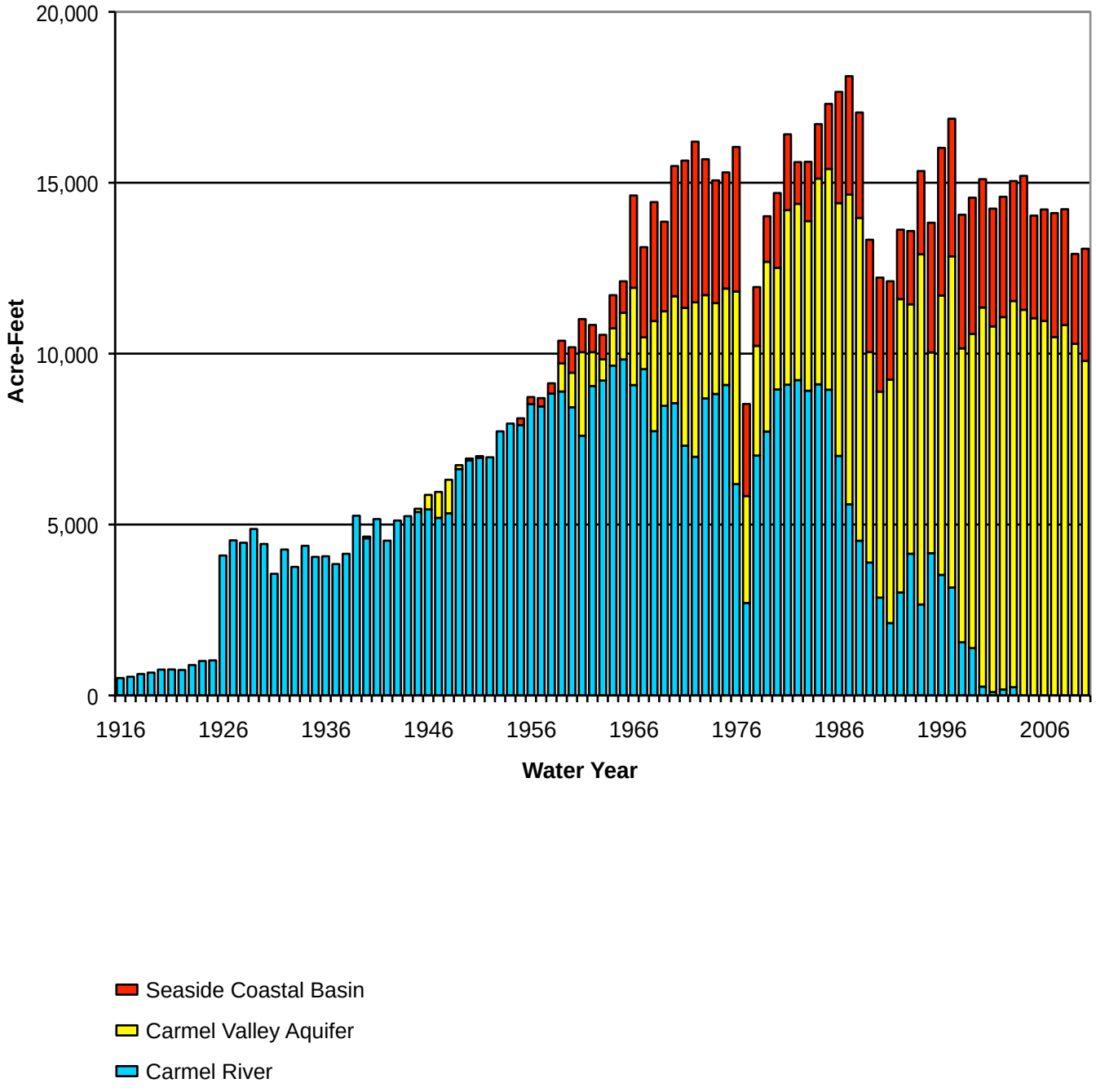
This is considered a significant and unavoidable impact. For the Regional Project, the CPUC has documented the reasons why further mitigation is not available to reduce identified significant and unavoidable impacts. For alternatives to the Regional Project, environmental review has not been completed and thus it is unknown whether or not all significant impacts could be avoided, but it is assumed that such large scale infrastructure would have one or more unavoidable impacts.

C. Carmel River Biological Resources

WSD-C1(C). Project and future other entitlement water demand would represent an increase in water use above the 2011 Existing Conditions and would have a significant unavoidable impact on Carmel River biological resources through 2016. After 2017, SWRCB mandated reductions in Cal-Am withdrawals from the Carmel River will not be changed by cumulative demand. (Less than significant)

As discussed above, project and future other entitlement water demand would increase Cal-Am withdrawals above the 2011 Existing Conditions and thus would contribute to existing cumulative impacts on Carmel River biological resources through 2016. The character of impacts on the river are as discussed above under project impacts but would be greater due to additional other entitlement demand.

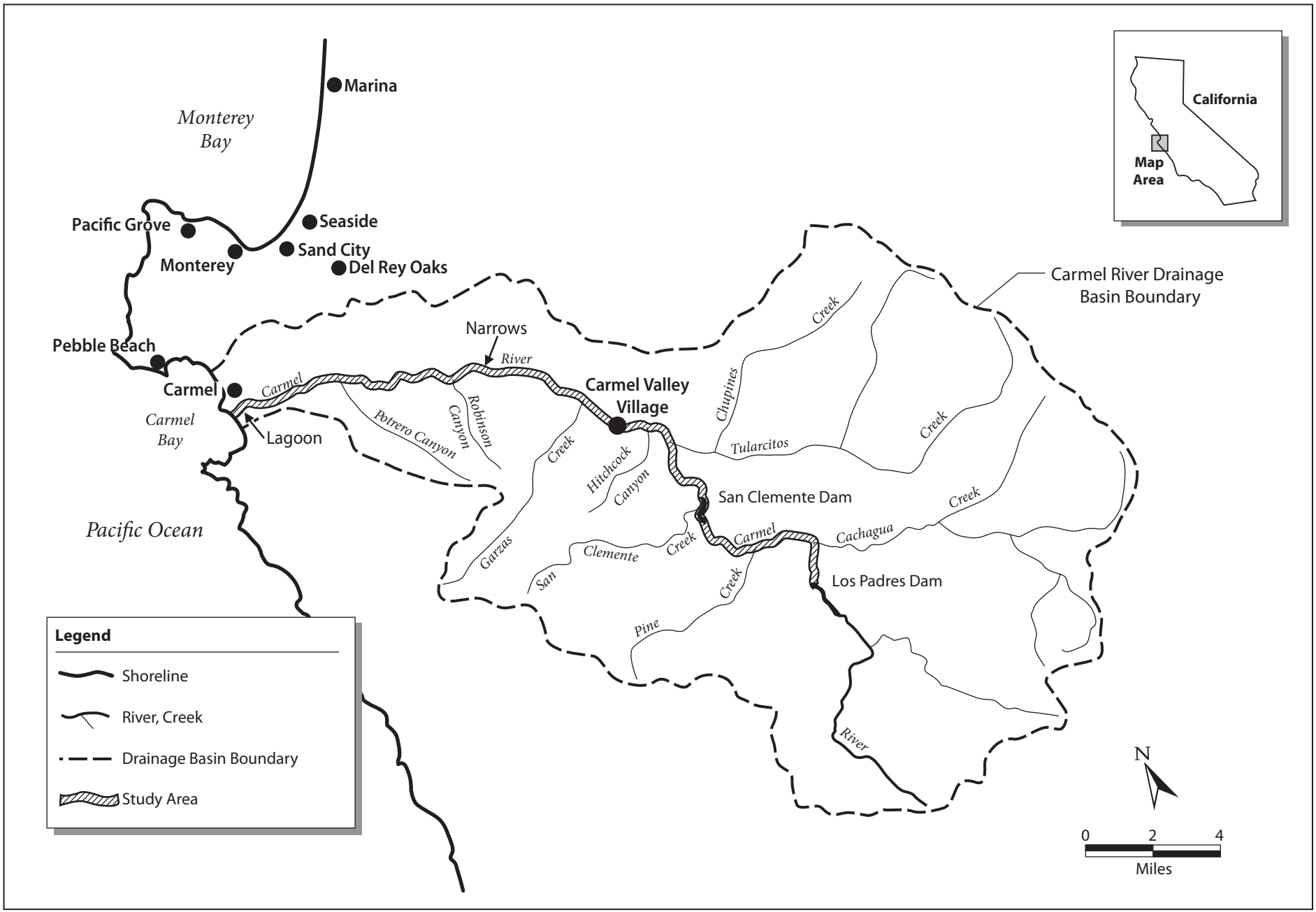
As noted above, after December 31, 2016, Cal-Am withdrawals from the Carmel River will be limited to its existing legal rights, which are far less than current levels of withdrawals and withdrawals overall will be far less than 2011 Existing Conditions. Cumulative demand from the project, future other entitlement demand, or other sources will not change the allowable levels of Cal-Am withdrawals from the river and thus withdrawals would be the same with or without the project. Because withdrawals would be unchanged for 2017 and after, the project would not contribute to any adverse effect on Carmel River biological resources in 2017 and after.



Note: "Cal-Am" refers to the California-American Water Company and its predecessor companies.

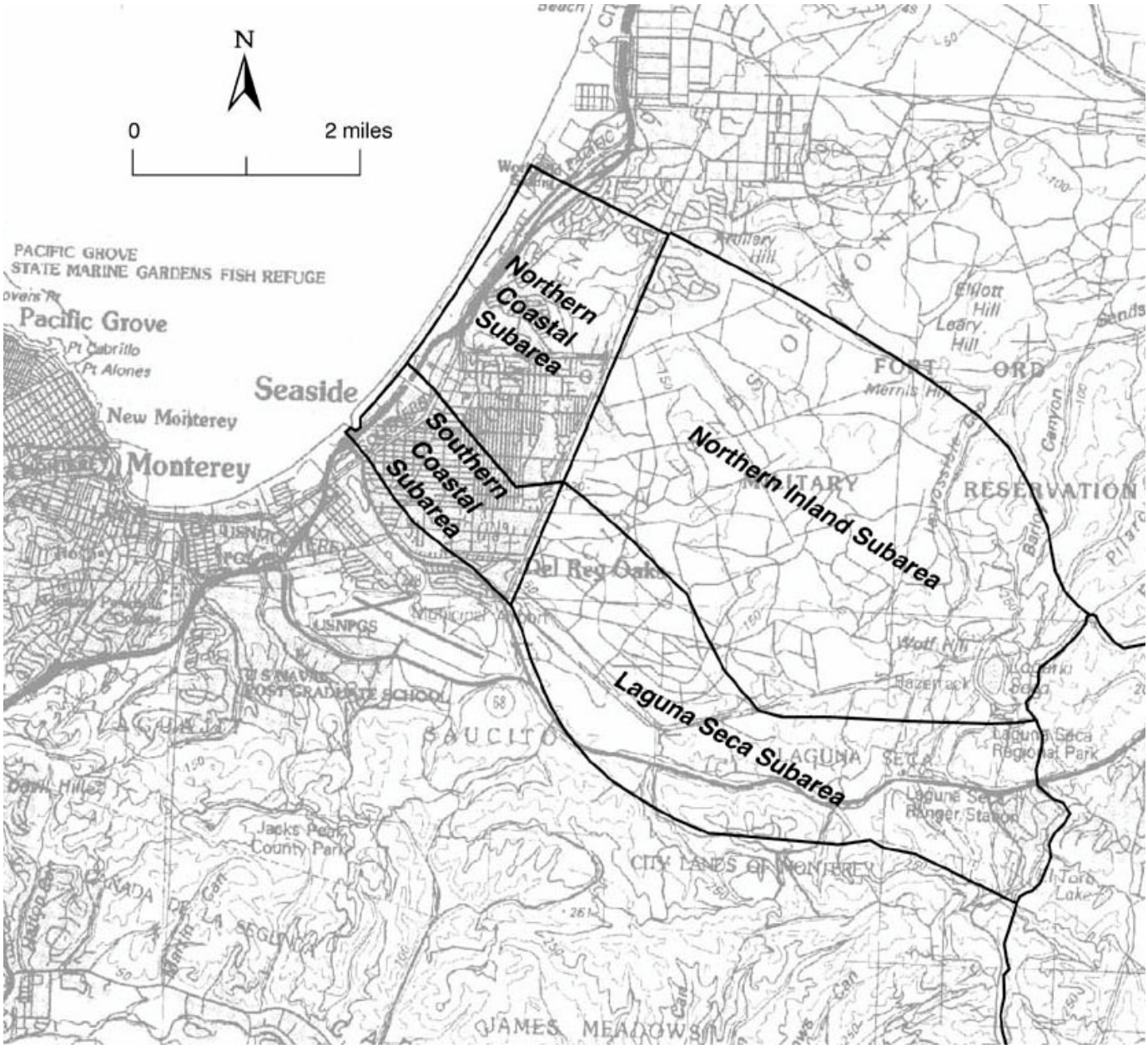
Graphics ... 00106:11 (8-11)

Figure 3.12-1
Cal-Am Water Production by Source: 1916-2010



Graphics ... 00106.11 (9-11)

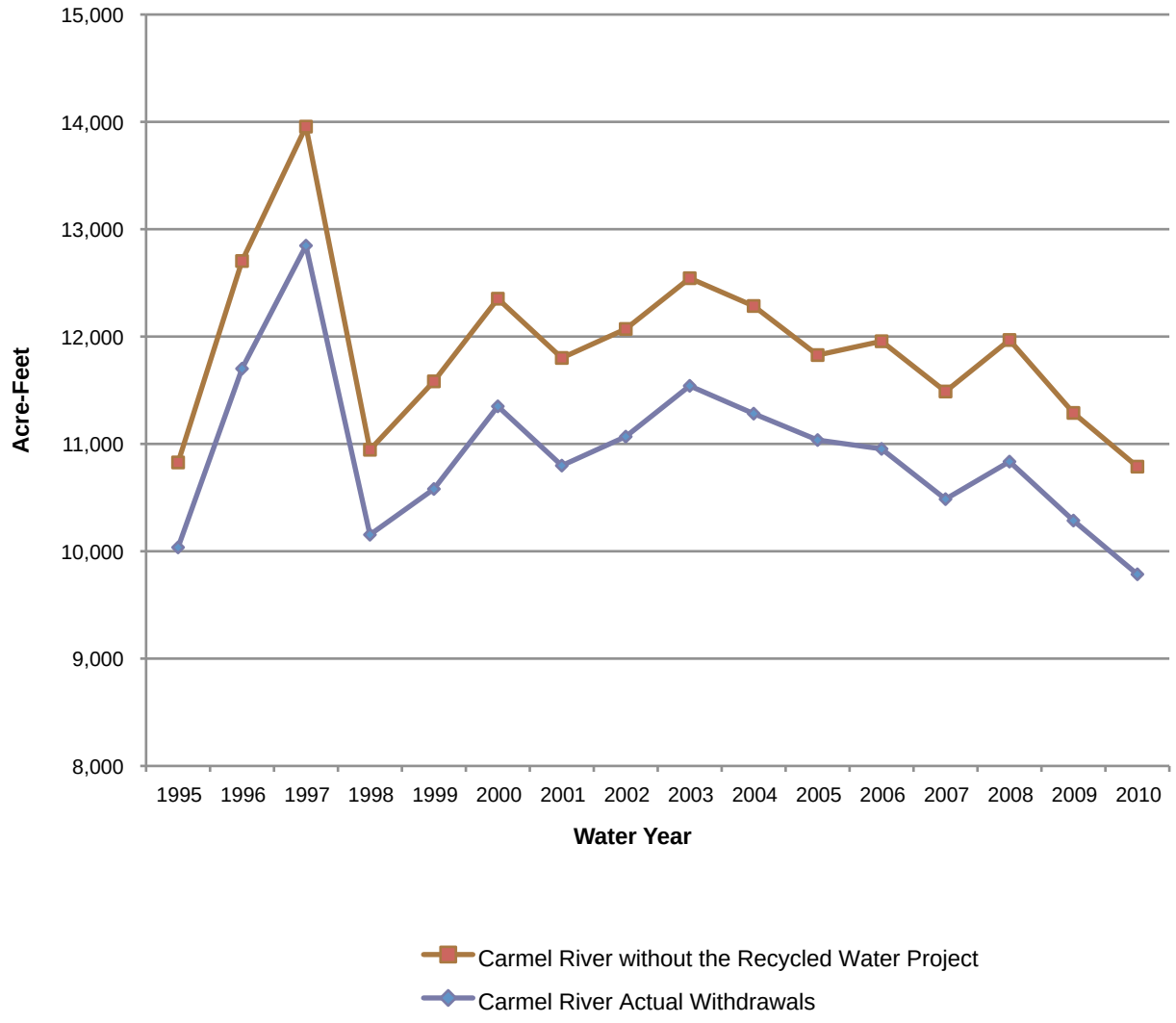
Figure 3.12-2
Carmel River Watershed



Source: Modified from Yates, Feeney, and Rosenberg 2002, Figure 1.

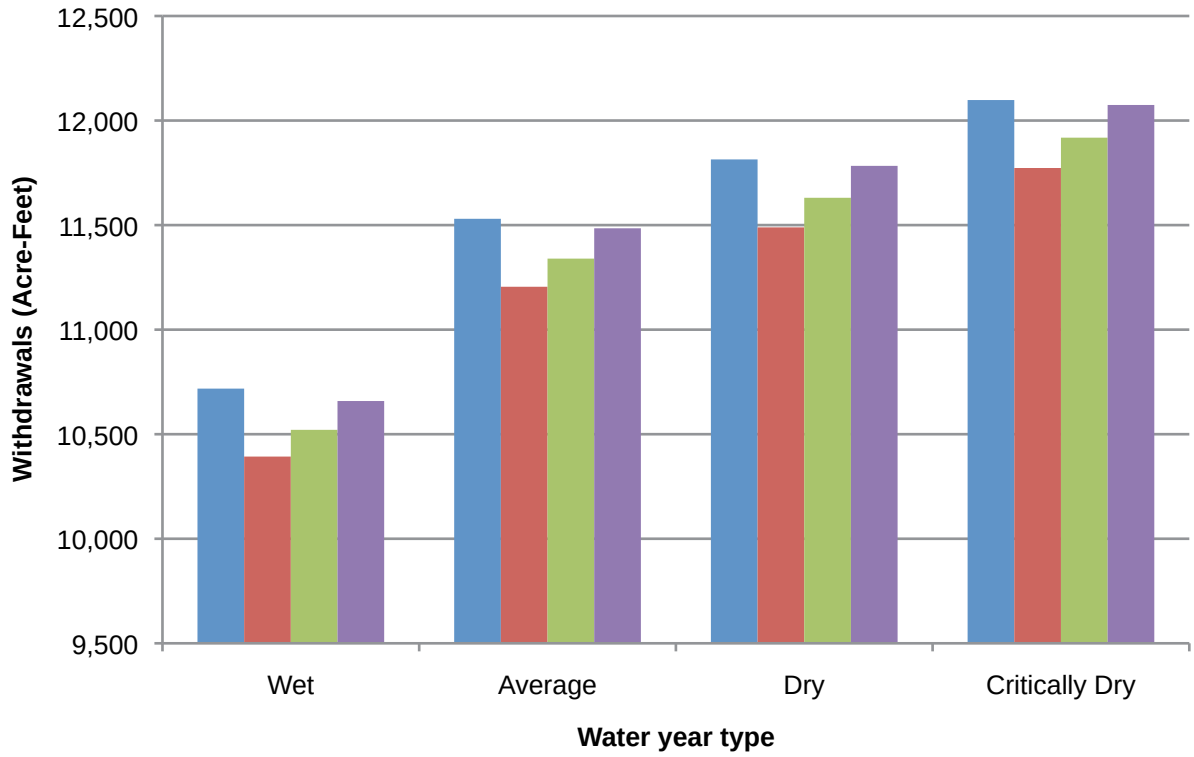
Graphics ... 00106.11 (8-11)

Figure 3.12-3
Seaside Groundwater Basin



Graphics ... 00106.11 (8-11)

Figure 3.12-4
Carmel River Withdrawals with and without the Recycled Water Project, 1995 - 2010 (acre-feet)



* The 2011 Baseline equals the 2011 Existing Conditions plus unused Pebble Beach Company entitlement.

Graphics ... 00106.11 (11-11)

Figure 3.12-5
Cal-Am Carmel River Withdrawals through 2016 with Project