Table 3.2-6: Summary of Proposed Project Groundwater Recharge Analysis (Acre-Feet) [NEW TABLE]

Groundwater Pumping					
	Factors	Baseline		Project	
Groundwater Pumping (1)		*204.78*		*100.79*	
Groundwater Recharge					
	Recharge (2)	Landcover (3)	Recharge (4)	Landcover (3)	Recharge (4)
Landcover	AFY Per Acre	Acre	AFY	Acres	AFY
Turf	1.07	56.70	60.59	5.90	6.30
Developed Area - Impervious	NA	0.00	0.00	22.59	29.83
Developed Area - Pervious (5)	NA	0.00	0.00	14.46	15.45
Detention Basin (6)	NA	0.00	0.00	1.10	NA
Woodland	1.18	7.10	8.35	22.04	25.92
Scrub	1.04	10.90	11.35	0.50	0.52
Pond	0.47	1.40	0.65	0.00	0.00
Wetland	0.47	0.30	0.14	1.20	0.00
Grassland	0.64	0.00	0.00	8.60	5.49
Subtotal		*76.40*	*81.08*	*76.39*	*83.52*
Net Groundwater Recharge					
Net Recharge			-123.70		-17.27
				Change with Proposed Project	*106.42*

Notes:

1. Pumping amounts are total irrigation (See Chapter 3.10 and Appendix H).

2. Recharge estimates for natural and landscape land covers from soil-water balance calculations in Appendix H.

3. Land cover acreages from GIS analysis for biological resource evaluation. Adjustments made to avoid double-counting areas and to match baseline and project acreage overall.

4. Recharge estimated by multiplying recharge estimate per acre by land cover acreage, except for analysis of impervious areas for the Proposed Project which were estimated using a modified runoff-infiltration model used by Balance Hydrologics for the Preliminary Stormwater Management Plan.

5. Pervious areas within the development footprint were treated as if they were turf.

6. Detention basin is tied to impervious space; to avoid double-counting, no infiltration of direct precipitation in this area was included.

Therefore, with implementation of stormwater infiltration areas for recharge and the estimated minimal change in recharge combined with a reduction in water supply withdrawals, impacts on groundwater supplies would be *less than significant*.

From a water supply point of view, the overall increase in net recharge compared to baseline conditions ~~reduction in water use~~ would have a *beneficial* impact on the Carmel River aquifer.

The Proposed Project (or the 130-unit Alternative) would also change the relative timing of pumping with the shift from the baseline irrigation pumping (pumping between April and October accounts for about 89% of golf course pumping) to a more even pattern of pumping to support residential use (62% to 68% of pumping between April and October), since residential use has much less irrigated areas and indoor use does not vary with climatic conditions. ICF completed additional analysis of the change in seasonal use. The resultant analysis (see Appendix H) shows that the Proposed Project and the 130-unit Alternative would result in a slight increase in pumping from November to March and a decrease in pumping from April through October with a substantial net overall annual decrease, compared to baseline. The relative increase in pumping levels in November to March compared to baseline levels would be on the order of 1 to 6 AF. As a rough comparison, 6 AF per month is equivalent to approximately 0.2 AF per day, which corresponds to about 0.1 cubic feet per second (cfs) of flow. This amount of this change in daily pumping is not expected to result in any substantial change in instream flow conditions. The relative monthly decreased pumping levels in April to October compared to baseline levels is on the order of 4 to 23 AF. As a rough comparison, 23 AF per month is equivalent to approximately 0.74 AF per day, which corresponds to about 0.37 cubic feet per second (cfs) of flow. If anything, the relative shift from a baseline of more pumping in the spring and summer to a project condition of less spring/summer and more fall/winter pumping should be beneficial to instream flows during the critical low flow period in spring and summer.

No mitigation is required.

Page 3.2-34, lines 9-25 are revised as follows:

Operation

Groundwater conditions for the 130-Unit Alternative would be similar to the Proposed Project during operation in regards to groundwater quality but different in terms of groundwater supply.

The 130-Unit Alternative would include approximately 14 acres of new impervious surface in the residential element. Lot 130 is not likely to substantially change the amount of impervious space from existing conditions with the maintenance facility. The proposed stormwater treatment areas would be designed to accommodate any potential runoff volumes based on the additional new impervious area and would allow for infiltration.

Annual water use during operation of the 130-Unit Alternative would decrease because the golf course baseline irrigation (approximately 204 AFY on average) is greater than the 130-Unit Alternative water demand (estimated average of 130 AFY, including potential water transfers to other Cal-Am users).

The recharge analysis examined the net recharge to the Carmel Valley Alluvial Aquifer under baseline and with-130-unit Alternative conditions. The amount of recharge on-site was subtracted from the groundwater pumping to identify the net recharge to the aquifer under both baseline and

with-project conditions. The methodology was the same as described above for the Proposed Project.

The results of the analysis described above are presented in Table 3.2-7 (and in greater detail in Appendix H):

Table 3.2-7: Summary of Groundwater Recharge Analysis, 130-unit Alternative [NEW TABLE]

	Factors	Baseline		130-Unit Alternative	
Groundwater Pumping					
Groundwater Pumping (1)		*204.78*		122.21	
Groundwater Recharge					
	Recharge (2)	Landcover (3)	Recharge (4)	Landcover (3)	Recharge (4)
Landcover	AFY Per Acre	Acre	AFY	Acres	AFY
Turf	1.07	56.90	60.80	7.70	8.23
Developed Area - Impervious	NA	3.40	17.10	17.10	22.64
Developed Area - Pervious (5)	NA	0.00	0.00	11.40	12.18
Detention Basin (6)	NA	0.00	0.00	0.84	NA
Woodland	1.18	7.10	8.35	22.04	25.92
Scrub	1.04	10.90	11.35	0.50	0.52
Pond	0.47	1.40	0.65	0.00	0.00
Wetland	0.47	0.30	0.14	1.20	0.56
Grassland	0.64	0.00	0.00	19.26	12.28
Subtotal		*80.00*	*98.40*	*80.04*	*82.33*
Net Groundwater Recharge					
Net Recharge			-106.38		-39.88
				Change with 130-unit Alternative	*66.50*

Notes:

1. Pumping amounts are total irrigation (See Chapter 3.10 and Appendix H).

2. Recharge estimates for natural and landscape land covers from soil-water balance calculations in Appendix H.

3. Land cover acreages from GIS analysis for biological resource evaluation. Adjustments made to avoid double-counting areas and to match baseline and project acreage overall.

4. Recharge estimated by multiplying recharge estimate per acre by land cover acreage, except for analysis of impervious areas for the Proposed Project which were estimated using a modified runoff-infiltration model used by Balance Hydrologics for the Preliminary Stormwater Management Plan.

5. Pervious areas within the development footprint were treated as if they were turf.

6. Detention basin is tied to impervious space; to avoid double-counting, no infiltration of direct precipitation in this area was included.

Therefore, with construction and operation of stormwater infiltration areas for recharge and reduced overall water use per year, despite the reduction in gross recharge due to landcover change, overall there would be a net increase in recharge compared to baseline conditions ~~groundwater depletion would be avoided,~~ and impacts on groundwater recharge and supplies would be *less than significant*.

From a water supply point of view, the reduction in water use would have a *beneficial* impact on the Carmel River aquifer. No mitigation is required.

Page 3.2-34, lines 36-38 are revised as follows:

While the houses in the Rancho Cañada Village Project are unlikely to be flooded, the fill on which they are built and increases in runoff from new impervious area have the potential to cause a constriction in the river channel during high flow events, which could raise water levels upstream.

Page 3.2-36, lines 21-24 are revised as follows under Mitigation Measure HYD-6:

No protection should be needed for the downstream portions of the excavated area because rapid movement of water over a drop is not expected to occur there. To the extent that the upstream portion of the excavated area is exposed to higher velocities, erosion risks ~~can~~ will be mitigated through slope protection measures installed by the Project Applicant prior to issuance of a certificate of occupancy. Such measures ~~that~~ could include rock or turf-reinforced mats.

Page 3.2-36, lines 35-37 are revised as follows:

The 130-Unit Alternative was included in the CSA-50 2014 flood study (Balance Hydrologics 2014b) which shows that this alternative would not substantially change flooding conditions. In fact, the 130-Unit Alternative would provide flood control benefits to CSA-50. Under the 130-Unit Alternative, the Project Applicant proposes to raise the Rio Road emergency access road which would essentially fill in the gap in the area from west of the Project Site to the Val Verde tie back levee. This will directly address the large potential flood flow path down Rio Road from the river.

Chapter 3.3 – Biological Resources

Page 3.3-9, lines 20-24 are revised as follows:

Riparian vegetation grows sparsely along the banks of all three ponds, which could provide cover to amphibians. ~~If these ponds were to become substantially ponded again, they would be considered lower quality wildlife habitat due to the relative lack of vegetation along their edges and the absence of emergent vegetation~~.

Page 3.3-10, lines 25-26 are revised as follows:

Riparian woodland near the main entrance to Rancho Cañada Village site is dominated by arroyo willow in the overstory.

Page 3.3-23, Table 3.3-4. Special-Status Wildlife and Fish Species with Potential to Occur in the Project Vicinity:

California red-legged frog *Rana ~~aurora~~ draytonii*

Carmel River provides suitable habitat; the California bulrush wetland ~~ponds 1, 2, and~~ 3 may provide suitable breeding habitat depending on length of inundation. Anecdotal reference to CRLF sightings in Intermittent Drainage 2 and in a pond on the adjacent CMS biological project site (Hohenberger 2008).

Page 3.3-32, lines 1 – 5 are revised as follows:

One area within the project area provides potential breeding habitat for CRLF: the California bulrush wetland (**Figure 3.3-1**). Suitable habitat for CRLF is also present within the Carmel River. Based on surveys conducted in 2014, Ponds 1, 2, and 3 within the golf course, do not appear to pond water anymore and do not provide suitable aquatic habitat for ~~contain emergent vegetation necessary to support a breeding population of~~ CRLF. There are ~~also~~ additional ponds within the golf course but outside of the project area, that may also provide suitable habitat for CRLF.

Page 3.3-54, lines 25 to 32 are revised as follows:

Mitigation Measure BIO-2: Measures to Avoid or Minimize Impacts on Special-Status Plant Species Populations Relative to Lot 130 ~~by Redesigning the Project, Protecting Populations, and Implementing a Compensation Plan (If Necessary)~~

The Project Applicant will implement the following measures to avoid or minimize impacts on special-status plant species if any occurrences are documented in the surveys on prescribed in Mitigation Measure BIO-1. This measure is applicable only to Lot 130 included in the 130-Unit Alternative.

The Project Applicant shall present the findings of the special-status plant survey to the County. If special-status plants are found on Lot 130 that would be affected by the residential design, prior to construction, the Project Applicant will ~~redesign or~~ modify the Lot 130 residential design ~~Project~~ to avoid direct and indirect impacts on special-status plant species, if feasible. If the Project Applicant identified that avoidance or minimization is not feasible, they shall identify the reasons why in writing to the County who shall make the final determination of feasibility prior to issuance of any building permit for Lot 130.

Page 3.3-58, lines 32 -36 is revised as follows:

Mitigation Measure BIO-6: Minimize Disturbance of Riparian Forest and Woodland

Riparian forest and woodland outside of the construction footprint will be protected from disturbance. Prior to construction, the Project Applicant will secure the services of a qualified botanist to ~~will~~ erect environmentally sensitive area fencing (orange construction barrier fencing) around riparian forest and woodland areas near the construction area, to identify and protect these sensitive resources.

Page 3.3-62, lines 20 -22 are revised as follows:

~~The policies do not distinguish between native and planted redwood trees; thus even if the removed redwoods are planted, replacement is still required by ordinance.~~

Page 3.3-63, lines 6-15 are revised as follows:

Construction of the Proposed Project would result in the filling of the California bulrush wetland and ~~ponds 1, 2, and 3~~, which provides potential breeding habitat ~~and aestivation/dispersal habitat, respectively,~~ for CRLF (totaling 0.35 acre of wetland breeding habitat). The Proposed Project would

also result in the removal of ~~and~~ 1.4 acres of aestivation/dispersal habitat from the elimination of ponds 1, 2, and 3, which no longer pond water). Construction activities in suitable habitat could result in the mortality of adults, larvae, or eggs. ~~If CRLF were present in the California bulrush wetland or ponds, filling of these areas would result in the loss of aquatic habitat and the potential mortality of adults, larvae, or eggs.~~ The Project would also create a substantial impediment to CRLF movement between the Carmel River, across the golf course, and the small (<0.05 acre) pond/wetland in the CMS Biological Sciences Habitat area where CRLF have been anecdotally reported. If CRLF are using the school pond/wetland, the Project would block movement to and from the pond due to the presence of Rio Road and residential development.

Page 3.3-63, lines 41 through Page 3.3-64 line 3 are revised as follows:

While a new detention pond would be created, the detention pond is designed for infiltration to benefit aquifer recharge (which ultimately benefits the Carmel River and associated CRLF habitat), the pond will not be designed or managed to retain ponding for breeding habitat but would provide aestivation/movement habitat.

Although the proposed 2006 Restoration Plan would result in an increase in upland habitat for the CRLF along the Carmel River and would replace lost wetland habitat, the plan does not call for replacement of suitable breeding habitat for CRLF ~~(i.e., wetlands)~~ to mitigate for the direct removal of the bulrush wetland ~~ponds~~ on the site and the indirect effect on migration to the CMS pond/wetland, and thus the Project would have a significant impact related to the loss of suitable breeding habitat for the CRLF.

Page 3.3-64, lines 13-18 are revised as follows:

The 130-Unit Alternative would not affect any additional CRLF aquatic habitat, but would affect areas that serve as upland/dispersal habitat. While a new detention pond would be created under this Alternative, the detention pond is designed for infiltration to benefit aquifer recharge (which ultimately benefits the Carmel River and associated CRLF habitat), the pond will not be designed or managed to retain ponding for breeding habitat. Potential direct and indirect impacts from the 130-Unit Alternative would be the same as those

Page 3.3-65, lines 1 -6 are revised as follows:

Mitigation Measure BIO-12: Restrict Filling of Ponds/Wetlands and Initial Ground-Disturbing Activities in CRLF Habitat to the Dry Season (May 1 to October 15)

To minimize mortality of CRLF eggs, larvae, and adults, the Project Applicant would condition its contractor to ~~or its contractor would~~ only perform construction activities that would result in fill of ponds 1, 2, and 3, and the California bulrush wetland during May 1 through October 15. During this time of year, CRLF would have left ~~breeding~~ these areas to aestivate underground and would not be present ~~in ponds~~.

Page 3.3-65, lines 15 -18 are revised as follows:

Mitigation Measure BIO-13: Conduct a Preconstruction Survey for CRLF

Prior to construction activities, the Project Applicant ~~or its contractor~~ will condition its contractor to obtain the services of a qualified FWS-approved biologist. The biologist will conduct a preconstruction survey 2 weeks prior to the onset of work for CRLF.

Page 3.3-65, lines 27 -31 are revised as follows:

Mitigation Measure BIO-14: Monitor Initial Ground-Disturbing Construction Activities within CRLF Habitat

The Project Applicant ~~or its contractor would~~ will condition its contractor to retain the services of a qualified FWS-approved biologist to monitor initial ground-disturbing construction activities within CRLF upland habitat. The biologist will look for CRLF during grading, excavation, and vegetation removal activities.

Page 3.3-65, line 34 is revised as follows:

Any relocation of this ~~ese~~ species would require incidental take authorization through a Biological Opinion or Habitat Conservation Plan from the FWS.

Page 3.3-65, line 39 through Page 3.30-66 line 1:

The location and size of the compensation aquatic habitat area will be determined in consultation with FWS through the ESA Section 7 or Section 10 process, but under no circumstances should the compensation area be calculated on less than a 1:1 ratio (1 acre for each 1 acre lost) and potentially more if a greater ratio is determined by the FWS.

Page 3.3-66, lines 13-21:

- Onsite in Remnant Golf Course – Given that the project's effects are on a bulrush wetland ~~to golf course ponds~~ with a mix of adjacent golf course fairway and disturbed coyote brush scrub and indirect effects due to blocking access to a pond on the adjacent school property, it would be appropriate to create a new pond or ponds ~~on the retained portions of the golf course south of the Carmel River~~ within the proposed restoration areas or retained open space area as compensation for Project effects. The area south of the river is directly adjacent to the Palo Corona Regional Park and thus new pond(s) would have good connectivity to the river and to adjacent undeveloped upland habitat. In this scenario, the Project Applicant would be responsible to create, manage, and preserve the new pond or ponds only. The location of the pond(s) relative to the adjacent upland habitat would need to be approved by FWS.

Page 3.3-66, lines 27-29 are revised as follows under Mitigation Measure BIO-15:

Given the timing concerns noted above, the applicant will be required to create the new aquatic habitat concurrently with any disturbance to existing aquatic habitat and with any indirect effects to the potential CRLF aquatic habitat offsite at the CMS pond/wetland site. The compensation pond(s) will be designed such that they does not provide suitable breeding habitat (i.e., perennial ponding) for bullfrogs, either through designing the pond to be seasonal or by including a drain in the pond design so that water can be drained in the late summer or fall to limit bullfrog reproduction.

Page 3.3-71, lines 11 -18 are revised as follows:

Mitigation Measure BIO-20: Remove Vegetation during the Nonbreeding Season and Avoid Disturbance of Nesting Migratory Birds and Raptors

During construction of the Proposed Project or 130-Unit Alternative, the Project Applicant ~~or its contractor would~~ will condition its contractor to ~~will~~ ensure that construction contractors remove trees and shrubs only during the nonbreeding season for migratory birds (September 16 through January 30). In addition, removal of vegetation or filling of ponds or wetlands in the project area will also take place during the nonbreeding season to avoid impacts on nesting birds in these areas. To further minimize impacts, one of the following options will be implemented.

The following is added after Page 3.3-79, line 5 as follows:

E. Impact on Wildlife from Increased Presence of Dogs and Cats

Impact BIO-18: Potential Adverse Impact on Wildlife Increased Presence of Dogs and Cats Associated with Residential Development (less than significant with mitigation)

Proposed Project

The Project, once occupied, has the potential to increase the presence of dogs and cats in the habitat preserve and residential portion of the Project. Uncontrolled dogs have the potential to harass, injure, or kill wildlife. Cats that are let outside have the potential to harass, injure, or kill wildlife such as reptiles, birds, and rodents. The presence of trails through the preserve will guide people through the preserve and confine them to designated areas, thereby minimizing the area in which wildlife could be disturbed by dogs.

It is important to take into account that the current context is not a pristine riparian corridor – it is a golf course with active human presence in the form of golfers and maintenance workers, including the turf management activities that include mowing and the use of pesticides and herbicides.

While the Project would add residences at the project site and some residents will have cats or dogs (or both) that have the potential for the effects noted above, the Project would also restore riparian woodland to acres of golf course and would remove baseline golf course uses which is an improvement in wildlife habitat conditions compared to the baseline conditions.

The new restoration habitat area would serve as a buffer between the existing riparian corridor along the Carmel River and the residential area which will not be immediately adjacent to the river and existing riparian corridor. The provision of this new habitat helps to offset the effect not only of residential pets, but also human presence.

Mitigation Measure BIO-23 is recommended as a prudent measure to help control the effect of cats and dogs on wildlife (and vice-versa). Taking into account the improvement in habitat conditions along the Carmel River with the change from golf course to riparian woodland, the existing context of intense human use on the golf course, and the implementation of **Mitigation Measure BIO-23,** the addition of some residential cats and dogs will not result in an overall significant impact on wildlife.

130-Unit Alternative

Similar to the Proposed Project, the 130-Unit Alternative has the potential to increase the presence of dogs and cats in the habitat preserve and residential portion of the Project. **Mitigation Measure BIO-23** is recommended as a prudent measure to help control the effect of cats and dogs on wildlife (and vice-versa). Taking into account the improvement in habitat conditions along the Carmel River with the change from golf course to riparian woodland, the existing context of intense human use on

the golf course, and the implementation of **Mitigation Measure BIO-23,** the addition of some residential cats and dogs will not result in an overall significant impact on wildlife.

Mitigation Measure BIO-23: Install Signs Along and Within the Habitat Preserve about Restraining Dogs and Encouraging Cats to be Kept Inside

The Homeowners' Association (HOA) or other entity that is responsible for maintenance of the habitat preserve will ensure that signs are installed along and throughout the habitat preserve that contain the following information to educate pet owners about the potential impacts of dogs and cats on wildlife.

"*Please help minimize the harassment, injury, or mortality of wildlife by dogs and cats by following these measures.*

- *Dogs must be on leashes. Please keep control of your dog at all times.*
- *Please pick up after your dog.*
- *Recognize that keeping your cat inside keeps wildlife safe from cats and cats safe from wildlife."*

Chapter 3.4 – Aesthetics

Page 3.4-22, add the following after line 35 under Mitigation Measure AES-1:

- The Homeowner's Association (HOA) or other entity responsible for common landscaping areas outside of residential units shall ensure that all required planting shall be permanently maintained in good growing condition and, whenever necessary, replaced with new plant materials to ensure continued compliance with applicable landscaping requirements.

Page 3.4-23, lines 8-10 are revised as follows:

The development would be partially visible from Carmel Valley Road, a proposed scenic route. Views south from Carmel Valley Road toward the Rancho Cañada Village subdivision consist of forested hills and ridges in the background and views of existing semi-rural development in the foreground.

Chapter 3.5 – Land Use

Page 3.5-18, lines 14-19 are revised as follows:

Carmel River—The Project would restore approximately 15 acres of riparian habitat adjacent to the Carmel River that would enhance the function of the river as a riparian migration corridor. In addition, the project would lower well withdrawals from the ~~Carmel Valley aquifer~~ Carmel Valley Alluvial Aquifer, thus benefiting Carmel River flows. The Project's potential impacts related to hydrology and water quality (see Chapter 3.2, Hydrology and Water Quality) and biological resources (see Chapter 3.3, Biological Resources) can be mitigated to a less-than-significant level.

Page 3.5-19, the following text is added after line 18:

Without a general plan amendment, the 130-unit Alternative would be inconsistent with two other policies concerning affordable housing. The 130-unit Alternative is inconsistent with General Plan Policy LU-2.13 (which requires 25% affordable housing units and the project only proposes 20%) and the Inclusionary Housing Ordinance (Ordinance 3768 which requires 20% affordable units on-site). As discussed above, the physical impact on the environment is related to commutes that would be longer with less affordable housing considering that the 130-unit alternative would result in significant unavoidable traffic impacts. Thus inconsistency with these other policies is also a significant unavoidable impact like the inconsistency discussed above with Policy CV-1.27. The proposed General Plan amendment would address the level of affordability and resolve the inconsistency with other General Plan policies. However, while a change in the policies would resolve the policy inconsistency, it would not avoid the physical effects described in the RDEIR (e.g. longer commutes for workers from outside Carmel Valley contributing to significant and unavoidable traffic impacts described in the RDEIR).

Chapter 3.7 – Traffic

Page 3.7-10, Table 3.7-5 is revised as follows:

Table 3.7-5. Existing Intersection Levels of Service

Intersection	Peak Hour	Delay[1] (sec/veh)	LOS[2]
7 Carmel Valley Road/Rio Road (unsignalized)	AM	0.5 (33.8)	A (D) ~~(C)~~
	PM	1.5 (65.8)	**A (F)**

Page 3.7-23, Table 3.7-9 is revised as follows:

Table 3.7-9 Existing Plus Proposed Project Intersection Levels of Service

	Peak	Existing		Existing Plus Proposed Project	
Intersection		Delay[1] (sec/veh)	LOS[b]	Delay[2] (sec/veh)	LOS[2]
7. Carmel Valley Road /Rio Road[3]	AM	0.5 (33.8)	A (D) ~~(C)~~	8.2	A
	PM	1.5 (65.8)	A (F)	10.7	B

Page 3.7-29, lines 37-33 are revised as follows:

~~Implementation of Mitigation Measure TR-2, while required~~ In response to anticipated traffic congestion, Monterey County has sponsored RTP Project CT008, SR1-Carmel Operational Improvement Project which will begin construction in fiscal year 2016-17. The project will construct a climbing lane on SR 1 between Rio Road and Carmel Valley Road. Although RTP Project CT008 would help alleviate the impact, it would not reduce this impact to a *less-than-significant* level because the TAMC regional fee program does not include any proposed widening of SR1 in the Carmel Area north of Carmel Valley Road or south of Rio Road. Proposed Improvements between io

Road and Carmel Valley Road in the regional fee program would help to address current conditions for that segment.

Page 3.7-30, lines 18-22 are revised as follows:

In response to anticipated traffic congestion, Monterey County has sponsored RTP Project CT008, SR1-Carmel Operational Improvement Project which will begin construction in fiscal year 2016-17. The project will construct a climbing lane on SR 1 between Rio Road and Carmel Valley Road. Although RTP Project CT008 would help alleviate the impact, it ~~Implementation of Mitigation Measure TR-2, while required,~~ would not reduce this impact to a *less-than-significant* level because the TAMC regional fee program does not include any proposed widening of SR1 north of Carmel Valley Road or south of Ribera Road.

Page 3.7-31, lines 3-10 are revised as follows:

~~**Mitigation Measure TR-2: Contribute Fair-Share Regional Impact Fee**~~

~~The most recently adopted 2014 RTP and the TAMC *14-Year Investment Plan Transportation Plan* both include the following improvement.~~

- ~~RTP Project CT008, SR1—Carmel Operational Improvement. This Project, sponsored by Monterey County, will construct a northbound climbing lane on SR 1 between Rio Road and Carmel Valley Road to relieve congestion on this facility.~~

~~The Project Applicant will be responsible for contributing its a fair-share impact fee for regional traffic improvements as determined by TAMC in concert with Caltrans and Monterey County.~~

Chapter 3.8 – Air Quality

Page 3.8-26, line 18 through Page 3.8-27 Line 5 are revised as follows:

As noted above, ICF performed an HRA for the Rancho Cañada Village Project (formerly referred to as the Rancho Cañada Village Specific Plan Project) in 2011 which analyzed exposure to TACs, including DPM, associated with construction-related off-road construction equipment and on-road haul trucks and the 2011 HRA was updated to reflect a 2015 assumed construction start date and to reflect updates in methodology from OEHHA. In addition, the 2011 HRA was updated to account for the correct amount of on-site cut and fill.[2] Sensitive receptors were analyzed at the Carmel Middle School at two locations, a residential receptor along Carmel Valley Road and three residential receptor locations along Rio Road west of the project site.

As shown in **Table 3.8-12**, worst-case construction activities are expected to result in a maximum risk of ~~8.80~~ 8.63 cases of cancer per million and a chronic Health Index score of 0.03 ~~0.11~~ at the most affected ~~closest~~ receptor. This level is of exposure and risk is below MBUAPCD's cancer risk and hazard thresholds. Therefore, this impact would be *less than significant*. No mitigation is required.

[2] As described in the HRA in Appendix F, the 2011 HRA emissions were based on activity data from the Applicant's air quality consultant (Chapin 2007). This activity data only included 100,000 CY of on-site cut and fill, whereas the current project description includes 120,000 CY of on-site cut and fill. As part of the revisions to the RDEIR, ICF revised the emissions estimate for that activity to account for the corrected amount of on-site cut and fill. The activity data (Chapin 2007) correctly used 100,000 CY for the imported fill activity.

Table 3.8-12. Proposed Project Potential Health Risks to Air Quality Sensitive Receptors near the Project Site

		Cancer Risk (risk per million)	Chronic Non-Cancer Health Index Score
Proposed Project Risk	Off-road	~~6.35~~ 8.33	~~0.00~~ 0.02
	On-road	~~2.46~~ 0.70	~~0.11~~ 0.02
	Total	~~8.80~~ 8.63	~~0.11~~ 0.03
MBUAPCD Threshold		10	1.0
Above MBUAPCD Threshold?		No	No

Notes: The most affected sensitive receptor modeled for total DPM cancer risk was a residential receptor along Rio Road, assuming haul trucks were to import soil using Rio Road. The most affected sensitive receptor modeled for total non-cancer health effects for DPM was for a residential receptor along Carmel Valley Road assuming haul trucks were to import soil using Carmel Valley Road. The total risk shown is the total highest risk to a single receptor and thus does not reflect the addition of risks to different receptors (e.g. the off-road and on-road numbers will not necessarily add up to the total risk because they are for different receptors). The risk numbers shown in the RDEIR were pulled from a prior worksheet that was not finalized and the total risk numbers shown in the RDEIR were additive of risks from different receptors, which would have overstated impacts to the most affected receptor. The risk numbers shown in these revisions to the RDEIR were pulled from the final work sheet and adjusted for the corrected amount of on-site cut and fill.

HRA = health risk assessment.

MBUAPCD = Monterey Bay Unified Air Pollution Control District.

Page 3.8-27, line 18 through Page 3.8-28 Line 3 are revised as follows:

130-Unit Alternative

Similar to the Proposed Project, results from the 2011 HRA were adjusted to a 2015 assumed construction start date, for the correct amount on on-site cut and fill, and due to updates in methodology from OEHHA. Additionally, construction of the 130-Unit Alternative would include no soil import, so the risk presented in the 2011 HRA for truck hauling is not applicable to the 130-unit Alternative.

As shown in **Table 3.8-13**, worst-case construction activities are expected to result in a maximum risk of 5.38 ~~5.47~~ cases of cancer per million and a chronic Health Index score of 0.01 ~~0.00~~ at the closest receptor. This level of exposure and risk is below MBUAPCD's cancer risk and hazard thresholds. Therefore, this impact would be *less than significant*. No mitigation is required.

Table 3.8-13. 130-Unit Alternative Potential Health Risks to Air Quality Sensitive Receptors near the Project Site

		Cancer Risk (risk per million)	Chronic Non-Cancer Health Index Score
130 Unit Alternative Risk	Off-road	~~5.47~~ 5.38	0.01
	On-road	0.00	0.00
	Total	~~5.27~~ 5.38	0.01
MBUAPCD Threshold		10	1.0
Above MBUAPCD Threshold?		No	No

Notes: The most affected sensitive receptor modeled for total DPM cancer risk was a residential receptor along Rio Road. The most affected sensitive receptor modeled for total non-cancer health effects for DPM was for a ~~residential~~ school receptor along Carmel Valley Road. The 130-unit alternative would not include importation of soil and thus no soil haul truck emissions were included in the HRA for this alternative (unlike the Proposed Project). The total risk shown is the total highest risk to a single receptor and thus does not reflect the addition of risks to different receptors (e.g. the off-road and on-road numbers will not necessarily add up to the total risk because they are for different receptors). The risk numbers shown in the RDEIR were pulled from a prior worksheet that was not finalized and the total risk numbers shown in the RDEIR were additive of risks from different receptors, which would have overstated impacts to the most affected receptor. The risk numbers shown in these revisions to the RDEIR were pulled from the final work sheet and adjusted for the corrected amount of on-site cut and fill.

HRA = health risk assessment.

MBUAPCD = Monterey Bay Unified Air Pollution Control District.

Chapter 3.10 – Public Services, Utilities, and Recreation

Pages 3.10-2, Table 3.10-1 is revised as follows:

Table 3.10-1. Public Services, Utilities, and Recreation Impact Summary

Impact	Proposed Project Level of Significance	130-Unit Alternative Level of Significance	Mitigation Measure	Level of Significance after Mitigation
D. Water Demand				
PSU-5: Increased Water Supply Demand	Potentially Significant ~~LTS~~	Potentially Significant ~~LTS~~	PSU-1: Dedicate Water Rights for the Project; Design for, Meter, and Monitor Water to meet Water Budgets; Implement Remedial Action if Water Budgets Exceeded	LTS

Impact	Proposed Project Level of Significance	130-Unit Alternative Level of Significance	Mitigation Measure	Level of Significance after Mitigation
PSU-6: Increased Demand for Water and Sewer Infrastructure	Potentially Significant	Potentially Significant	PSU-2 ~~1~~: Test Well Supply, Identify Water Treatment and Distribution Facilities, and Avoid Impacts on Biological Resources	LTS
F. Wastewater Treatment Capacity				
PSU-7: Increased Wastewater Treatment Capacity	LTS	LTS	None Required	--
G. Utility Disruption during Construction				
PSU-8: Construction-Related Service Disruptions	Potentially Significant	Potentially Significant	PSU-3 ~~2~~: Coordinate with Appropriate Utility Service Providers and Related Agencies to Reduce Service Interruptions	LTS

Page 3.10-2, Table 3.10-2 is revised as follows:

Table 3.10-2 summarizes the service, utility and recreation provided in the project area.

Table 3.10-2. Summary of Public Service, Utility, and Recreation Providers in the Project Area

Public Service or Utility	Service Provider
Water	On-site wells (golf course irrigation Cal-Am (Rancho Canada Golf Course clubhouse)
Wastewater	Carmel Area Wastewater District
Electricity and Natural Gas	Pacific Gas & Electric Company
Communication Services	AT&T
Solid waste	Monterey Regional Waste Management District
Education	Carmel Unified School District
Police	Monterey County Sheriff's Office
Fire	Cypress Fire Protection District
Parks	Monterey County Parks Department/ Monterey Peninsula Regional Park District / California State Parks

Page 3.10-5, lines 5-9 are revised as follows:

The three 'beat' areas that cover Carmel-by-the-Sea and the Carmel Valley are, Beat 7, Beat 8A, and Beat B. Together these beats cover the area of Carmel Valley Road from Ocean Avenue east to the 38-mile marker past Laureles Grade. ~~Each beat is manned at minimum with one deputy, with an~~

~~extra two deputies patrolling the entire area between the hours of 10 pm to 8 am. Average response time for Beat 7, 8a, and 8B is 7 minutes~~ The project area is located in the Beat 7 Area. The North and South boundaries of Beat 7 are both sides of Hwy 1 from Carmel High School to Rocky Point. The East and West boundaries are both sides of Carmel Valley Road from Hwy 1 to Rancho San Carlos Road. The project site is within the jurisdiction of the Coastal Station in Monterey. This is a Sheriff's Office Substation. The nearby Beat areas also encompassed within the Coastal Station jurisdiction are 6A, 6B, 8A, 8B and 9. During the Lincoln (Day) shift which is from 7am-5pm there is one deputy in a patrol vehicle patrolling Beat 7. During the X-Ray (Swing) shift which is from 3 p.m.-1 a.m., there is not a Coastal Station Deputy assigned to Beat 7. There are two deputies (each in a patrol vehicle) assigned from the X-Ray shift at the Central Station in Salinas. They travel to the Monterey Peninsula to cover all the Coastal Station Beat areas. In addition to Beat 7, these two patrol units also cover all the Calls for Service in the other beat areas of 6A, 6B, 8A, 8B and 9. During the Zebra (Midnight Shift) which is from 9 p.m.-7:00 a.m., like the X-Ray shift, there is not a dedicated Coastal Station assigned to Beat 7. There are two deputies (each in a patrol vehicle) assigned from the Zebra shift at the Central Station in Salinas. They travel to the Monterey Peninsula to cover all the Coastal Station Beat areas. In addition to Beat 7, these two patrol units also cover all the Calls for Service in the other beat areas of 6A, 6B, 8A, 8B and 9. During the time frame of Jan-Dec 2013 the average response time was 9 minutes, 7 seconds. This statistic includes both emergency and non-emergency calls for service. However, now with much lower staffing levels and not one unit dedicated to Beat 7 for the Swing and Midnight shift, this response time would be much higher. (Galletti pers. comm.).

Page 3.10-6, lines 5-6 are revised as follows:

Private wells are subject to regulation by the Monterey Peninsula Water Management District (MPWMD), the State Water Resources Control Board, and the Monterey County Health Department.

Page 3.10-6, Table 3.10-3 is revised as follows:

The Golf Club wells have produced between 309 and 522 acre-feet per year (AFY) over the past 24 ~~23~~ years (Table 3.10-3) for irrigation of the golf course ~~(Zischke 2015).~~ Cal-Am also has a potable water supply well located on the golf course property.

Table 3.10-3. Existing Rancho Cañada Golf Course Use, 1991 - 2014

Year	Irrigation (AFY)[1]	Type[2]	Precipitation (inches)[3]	~~Precipitation (inches)[3]~~	Type[2]
1991	358.4	RY1991	11.9	~~13.7~~	WY1991
1992	425.0	RY1992	15.3	~~18.0~~	WY1992
1993	440.5	RY1993	25.8	~~30.2~~	WY1993
1994	465.9	RY1994	12.0	~~13.9~~	WY1994
1995	337.6	RY1995	24.4	~~28.5~~	WY1995
1996	457.2	RY1996	18.0	~~20.9~~	WY1996
1997	499.8	RY1997	18.7	~~21.6~~	WY1997
1998	346.6	RY1998	40.6	~~47.2~~	WY1998
1999	309.4	RY1999	17.2	~~20.2~~	WY1999
2000	489.3	RY2000	18.0	~~20.9~~	WY2000
2001	430.8	RY2001	16.5	~~19.4~~	WY2001
2002	522.0	WY2002	13.4	~~15.6~~	WY2002
2003	451.9	WY2003	15.8	~~18.4~~	WY2003
2004	451.8	WY2004	14.1	~~16.4~~	WY2004
2005	379.4	WY2005	26.2	~~30.5~~	WY2005
2006	368.8	WY2006	21.3	~~24.8~~	WY2006
2007	404.3	WY2007	12.1	~~14.1~~	WY2007
2008	443.3	WY2008	12.3	~~14.4~~	WY2008
2009	411.8	WY2009	19.7	~~17.5~~	WY2009
2010	324.1	WY2010	18.8	~~23.9~~	WY2010
2011	309.1	WY2011	19.9	~~24.5~~	WY2011
2012	340.6	WY2012	8.9	~~13.5~~	WY2012
2013	419.3	WY2013	8.9	~~13.1~~	WY2013
2014	442.3	WY2014	5.9	~~8.9~~	WY2014
Avg. 1991–2014 ~~2013~~	409.6		**17.3**	~~20.9~~	
"Low Use Year"	355.42				
"High Use Year"	451.85				
"Very High Use Year"	482.29				

Notes:

[1] 1991 – 2005 from Lombardo, T. (Lombardo 2006: 08/23/06, Exhibit A), based on MPWMD records ("WMCALC" spreadsheets for each year. 2006 – 2014 from J. Zischke. (Zischke 2014a: 09/15/14 and Zischke 2014b: 12/22/14).

[2] RY = Reporting Year = July 1 to June 30; WY = Water Year = October 1 through September 30

~~[3] 1991-Sep 1994 Precipitation from Weather Station #5795 via Hopkins Marine Station; Precipitation Oct. 1994–2014 from National Weather Service Climatological Station, Monterey, California 93940 (elevation 385'), accessed via web at: http://met.nps.edu/~ldm/renard_wx/~~

[3] Site precip. for 2009-2016 from CIMIS for on-site Weather Station #210 (http://www.cimis.water.ca.gov/); Site precip. for 1991 - 2008 estimated through linear regression using Monterey Weather Station data for 2008 - 2016 compared to site precip. and applying to earlier years. Monterey precip. for 1991 - Sept. 1994 and Oct. 2014 - Sept. 2016 from Hopkins Marine Station, Weather Station #5795; accessed via Web at http://www-marine.stanford.edu/HMSweb/climate.html; Monterey precip. For Oct. 94 - Sep.2014 from NWS Climatological Station, Monterey, California 93940 (elevation 385'), accessed via web at: accessed via web at: http://met.nps.edu/~ldm/renard_wx/.

[4] "Low use", "high use" and "very high use" years based on 25th, 75th and 90th percentile, respectively. "Low use", "high use" and "very high use" years would have 87%, 110% and 118% of average irrigation amounts. Use years not intended to be predictive; only to present a range of irrigation pumping. The RDEIR utilized "wet", "dry" and "very dry" categories to reflect the range. Review of the irrigation vs. precipitation data indicated a weak correlation. Other factors (temperature, evapotranspiration, timing of precipitation, etc.) appear more related than total precipitation. For these revisions to the RDEIR, it was decided to use "low", "high", and "very high" use scenarios to reflect the range instead.

Page 3.10-8, the following is added after line 19:

Senate Bill 50

Senate Bill 50 (SB 50), the Leroy F. Greene School Facilities Act of 1998, was signed into law on August 27, 1998. SB 50 allows governing boards of school districts to establish fees to offset costs associated with school facilities made necessary by new construction within their respective district boundaries. Payment of these fees is required prior to the issuance of building permits. Pursuant to Government Code Section 65995, the payment of these fees by a developer serves to fully mitigate all potential project impacts on school facilities from implementation of a project.

Page 3.10-10, Lines 1 through 9 are revised as follows:

In October 2009, the State Water Board issued Order WR2009-0060, a cease and desist order (CDO), which prescribes a series of significant cutbacks to Cal-Am's pumping from the Carmel River from 2010 through December 2016. Specifically, it included~~s~~ a schedule for Cal-Am to reduce diversions from the Carmel River, bans new water service connections (with certain exceptions), 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. The CDO stated that 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.

The CDO was amended on July 19, 2016 (Order WR 2016-0016) to grant Cal-Am a five-year extension. The extension includes a diversion limit of 8,310 AFY and also includes seven milestones over the next five years that must be met or Cal-Am will face a reduction to the diversion limit by 1,000 AFY per milestone.

Page 3.10-10, lines 18 through 3.10-11, Line 40 are revised as follows:

Water Rights Context for Rancho Cañada Golf Club and the Project

The Project Applicant has asserted they have both riparian and appropriative water rights and provided information to the County to support this assertion (Zischke 2014c, Zischke 2014d, Zischke 2014e, Rancho Canada de la Segunda, Inc. 1992, Zischke 2016)

The Applicant has presented substantial evidence of a riparian right through a chain of title (Zischke 2014 c) showing continuity of the project property as connected to the water source (Carmel River/Carmel Valley Alluvial Aquifer) and the County, as part of a separate project independently reviewed that chain of title (see discussion below). The County finds that the riparian rights are valid for use on the project site itself. However, the riparian rights could not be used to support a water transfer to other off-site properties.

An appropriative right requires approval by SWRCB. An Application for an appropriative right has been submitted to SWRCB in relation to the entire golf course property, of which the project site is part. The Applicant's proposal to transfer water as part of the 130-unit Alternative would require approval of the appropriative right by the SWRCB. The appropriative rights have not been "perfected" in that they have not been formally recognized by the State Water Resources Control Board or by a court of law. That does not mean they are not valid. In the end, water rights is a legal matter, not a CEQA matter, since CEQA is focused on physical impacts on the environment. The legal matters will be a matter for the Project Applicant and the SWRCB to resolve, but if the SWRCB

does not approve the appropriative right, the 130-unit Alternative would ultimately result in less water use due to elimination of the proposed water transfer.

Groundwater use on the property that is now used for the golf course reportedly started in approximately 1875 initially for dairy, irrigated pasture, and irrigated vegetable crops. Since 1969, the primary use has been irrigation of the two golf courses, with some use for supporting riverbank vegetation (Rancho Canada de la Segunda, Inc.1992). The golf club has a series of five on-site wells that it ~~presently uses~~ has used historically to draw water for irrigation from the lower ~~Carmel Valley aquifer~~ Carmel Valley Alluvial Aquifer.

The Project Applicant provided the County with a chain of title (Zischke 2014c) showing that the property on which the site is located has apparently never been "severed" from the Carmel River, which is a key determination as to whether the project has riparian water rights. The County has previously conducted an independent review of chain of title as part of a prior project. In the fall of 2002, the Monterey County Resource Management Agency – Planning Department retained Downey Brand LLP (Sacramento, CA) to perform an independent review of the water rights of September Ranch Development Application (PLN050001) to determine whether valid riparian rights exist. The analysis concluded that the riparian rights were not severed from the property formerly owned by the Hatton Family. The Rancho Cañada Village project site originates from the same chain of title of property ~~formally~~ formerly owned by the Hatton Family. ~~The Rancho Cañada Golf Club holds pre-1914 and riparian water rights to the Carmel Valley aquifer. As documented in Table 13 of Decision 1632, State Water Board also recognized that Rancho Cañada holds a superior water right to Cal-Am post-1914 appropriation permits that have been issued to the District stemming from Decision 1632.~~ The riparian rights have not been adjudicated, but as a result of the deed mentioned above between Hatton and Pacific Improvement Co., the riparian rights appurtenant to the Rancho Cañada property likely have a priority superior to Cal-Am's appropriative rights to the Carmel River and Carmel River underflow excluding Cal-Am's right to extract from the Carmel Valley Basin under its pre-1914 appropriative water rights.

The applicant has also asserted that project site has both pre-1914 and post-1914 appropriative water rights in addition to riparian rights. In 1992, Rancho Canada de la Segunda, Inc. the lessee and operator of the Rancho Canada Golf Course, applied for an appropriative right (per Application A03111) to the SWRCB in relation to irrigation use for the golf course in the amount of 700 AFY and ongoing diversion of up to 2.36 cubic feet per second (cfs) (Rancho Canada de la Segunda, Inc. 1992). The 700 AFY amount was later reduced in 2003 to 545 AFY by Rancho Canada de la Segunda, Inc. in order to qualify for a CEQA exemption (for the water right application – not for this project) (SWRCB 2011).

In 1995, SWRCB made determinations in Decision 1632 regarding potential appropriative rights being sought by MPWMD in relation to the prior Los Padres Dam project. The decision required SWRCB to examine how the potential appropriative rights being sought for that might project would affect existing water right and potential water rights claims of others concerning the Carmel River and the Carmel River Alluvial Aquifer. Table 13 of Decision 1632 recognizes ~~a right to~~ that if the SWRCB were to approve an appropriative right permit for up to 700 AFY for the Rancho Cañada golf course propert~~y~~ies, those appropriative rights would be senior to any appropriative rights that might have been issued to MPWMD in relation to the Los Padres Dam project. ~~The Project Applicant has also identified a prior 155 AFY reduction in water allocations for instream beneficial purposes, which results in a remaining 545 AFY for the property. A reservation of an amount of water on Table 13 of State Water Board Decision 1632 is not the same as obtaining an appropriative water right~~

~~permit from the State Water Board, which entails a formal approval process.~~ SWRCB did not recognize a right *per se* to 700 AFY for the Rancho Cañada property in Decisions 1632. Instead, under Decision 1632, the SWRCB reserved 700 AFY for a potential future appropriation subject to SWRCB approval of an appropriative right.

~~The Project Applicant has submitted an application with the State Water Board for an appropriative water right permit (Application #A30111).~~ In order for an appropriative water right to be valid, the State Water Board must follow the public notification, protest, and environmental review process specified in the California Water Code before issuing a permit for diversion and use of water. The State Water Board has determined the application is complete, and issued notice of the Application A30111. To date, a permit has not yet been issued for Application A30111; Application A30111 is still being processed and considered for the irrigation purposes applied for by Rancho Cañada de la Segunda. ~~If the Rancho Cañada Village project is approved (or if an alternative such as the 130-Unit Alternative is approved), then a change petition will be filed with the State Water Board~~

Given that appropriative rights are subject to a seniority system, the exercise of such rights (if validated) could be limited in the event of water shortages and in favor or potential senior water rights. There are numerous challenges concerning the Carmel River and the Carmel River Alluvial Aquifer given the long-standing effects of groundwater pumping on instream flows supporting Central Coast steelhead, California red-legged frog, and other resources as well as the situation concerning Cal-Am. The SWRCB informed Rancho Canada de La Segunda, Inc. in 2011 that the appropriative rights that they applied for may be conditioned to require the maintenance of minimum daily instream flows for the Carmel River (SWRCB 2011).[3] The SWRCB noted that they believe that the proposed condition would resolve a number of public trust protests to Application A03111 and the application could be permitted with inclusion of the condition. Rancho Canada de la Segunda, Inc. has reportedly not responded to the 2011 SWRCB letter. If the proposed condition were ultimately required and instream flows cannot be maintained to meet this condition (due to cumulative ongoing pumping regardless of whether the project would worsen baseline conditions or not), this may mean that any appropriative use, including any water transferred to parcels not benefitted by a riparian right, may be subject to interruption. An interruptible water supply may be insufficient to allow MPWMD to issue water use permits.

Prior to any Cal-Am service to the Rancho Cañada Village project, the Project Applicant will seek a State Water Board determination to either confirm that water diverted under the project site properties ~~Rancho Cañada's~~ rights are not subject to Ordering paragraphs 2 and 3.(a)(5) of WR 2009-0060, or to modify its order to allow same. Nonetheless, the Project would not necessarily rely solely on Cal-Am water service, but rather as set forth in Chapter 2, *Project Description*, the water will be supplied to the Project either through the Cal-Am distribution system, or through the creation of a separate community services district or mutual water company.

If the Rancho Cañada Village project is approved, then the Project Applicant intends to file a change petition with the State Water Board to change the proposed water us in Application A03111 from irrigation to residential. If the 130-Unit Alternative is approved by the County, then State Water Board and MPWMD approvals would be obtained in order to implement both the proposed uses, including the proposed water transfer. This would entail a change petition to change the purpose

[3] The instream flow requirements are based on National Marine Fisheries Service (NMFS, 2002) study of requirements for steelhead are as follows: December 1 to April 15 – minimum bypass of 40 cfs at the SR 1 bridge prior to lagoon opening and minimum bypass of 120 cfs at the SR1 bridge after lagoon opening; April 16 to May 31 – minimum bypass of 80 cfs at SR1 bridge; June 1 to November 30 – minimum bypass of 5 cfs at the SR1 bridge.

and place of use for approval by the State Water Board (as noted above for the Proposed Project), and the Project Applicant would seek confirmation from the State Water Board that water diverted under Rancho Cañada's rights for new subscriber use does not conflict with WR 2009-0060. Also, a new ordinance by the MPWMD similar to the ordinance allowing transfer of water entitlements from the Pebble Beach Company to other users would need to be approved, which would entail a new rule for issuance of water use permits under this entitlement. (See for example MPWMD Rules 23.5 (Pebble Beach Water Entitlement) and 23.6 (Sand City Water Entitlement). The new MPWMD ordinance would dictate the restrictions for issuance of a water use permit to approved developments and existing lots of record.

Another water rights issue concerns the disposition of rights between the different owners of the golf course land. The entire golf course is approximately 270 acres. In 2016, the Trust for Public Land (TPL) purchased 140 acres (the Hatton parcel) of the golf course and has been pursuing acquisition of the 50 acre parcel of the golf course owned by the Lombardo Land Group II (although this second acquisition has not yet occurred). The remaining 80 acres are within the Rancho Canada Village project site, which is owned by the Lombardo Land Group I, which is working with the Project proponent. TPL intends that the land be used for park and open space purposes. TPL, in a letter to the County (TPL 2016) identified that there is a pre-existing contractual allocation of water rights between the different property owners and that 180 AFY is allocated to the developer of the Rancho Canada Village project for use at their discretion. TPL, the Rancho Canada project developer, and the Lombardo Land Group II entered into a forbearance agreement to temporarily constrain the exercise of the riparian water rights appurtenant to the remaining golf course property. This agreement will reportedly result in approximately 1,000 AFY (in total) over several years to be dedicated for Carmel River beneficial use. This agreement is temporary and would not constrain project use after the end of the forbearance agreement. The Lombardo Land Group II also sent a letter to the County (Lombardo Land Group II 2016) confirming the same details noted in the TPL letter that are described above. As such, in regards to the TPL acquisition and its potential second future acquisition of the Lombardo Land Group II property, there does not appear to be any legal restriction to the Project Applicant's use of up to 180 AFY for project purposes. The agreement between the different landowners does not in itself validate the legality or amount of a water right; it only resolves any dispute between the parties as to the division of the potential 545 AFY appropriative water right (pursuant to the SWRCB application) among the parties.

While this water rights discussion provides useful context, CEQA is solely concerned with determining the nature and extent of physical impacts on the environment that may result from a proposed project. With respect to water supply, CEQA is concerned with whether the proposed supply is physically available, and whether the use of the supply will result in any significant physical changes to environmental resources such as, a groundwater basin, water supply for other users, or biological resources.

There is one other circumstance in which a water right analysis may be relevant to a CEQA analysis, and that is if the exercise of a riparian or overlying right would displace existing water uses by virtue of the "seniority'' of the riparian or overlying right, so that the existing uses were required to obtain a water supply elsewhere. For this reason, and in order to respond to specific questions from the Court of Appeal in *Save Our Peninsula Committee v. Monterey County Bd. of Supervisors* (2001) 87 Cal. App. 4th 99, Monterey County has included this ~~a~~ water rights analysis (as described above) in this Draft Recirculated EIR. This analysis concludes that: (i) substantial evidence indicates that the owners of Rancho Cañada Golf Course have apparent pre-1914 and riparian rights; (ii) any post-1914 appropriative rights will need SWRCB approval and (iii) under either riparian or appropriative

water right system, the Project's use of water from the CVA will not injure any senior water right holders and will not displace junior water users because the Project (or the 130-unit Alternative) will result in a net reduction of water use (see impact analysis below). In this regard, it should be noted that Monterey County is not the final arbiter of whether any particular property has riparian or overlying rights. Such a binding determination may only be a ruling of a court of competent jurisdiction and/or, with respect to appropriative rights, SWRCB.

Page 3.10-13, the following text is added after Line 9:

Goal PS-3. Ensure that New Development is assured a Long-Term Sustainable Water Supply

Policy PS-3.1 Except as specifically set forth below, new development for which a discretionary permit is required, and that will use or require the use of water, shall be prohibited without proof, based on specific findings and supported by evidence, that there is a long-term, sustainable water supply, both in quality and quantity to serve the development. [Exceptions listed in policy not included herein].

Policy PS-3.2. Specific criteria for proof of a Long Term Sustainable Water Supply and an Adequate Water Supply System for new development requiring a discretionary permit, including but not limited to residential or commercial subdivisions, shall be developed by ordinance with the advice of the General Manager of the Water Resources Agency and the Director of the Environmental Health Bureau. A determination of a Long Term Sustainable Water Supply shall be made upon the advice of the General Manager of the Water Resources Agency. The following factors shall be used in developing the criteria for proof of a long term sustainable water supply and an adequate water supply system:

a. Water quality;

b. Authorized production capacity of a facility operating pursuant to a permit from a regulatory agency, production capability, and any adverse effect on the economic extraction of water or other effect on wells in the immediate vicinity, including recovery rates;

c. Technical, managerial, and financial capability of the water purveyor or water system operator;

d. The source of the water supply and the nature of the right(s) to water from the source;

e. Cumulative impacts of existing and projected future demand for water from the source, and the ability to reverse trends contributing to an overdraft condition or otherwise affecting supply; and

f. Effects of additional extraction or diversion of water on the environment including on in-stream flows necessary to support riparian vegetation, wetlands, fish or other aquatic life, and the migration potential for steelhead, for the purpose of minimizing impacts on the environment and to those resources and species.

g. Completion and operation of new projects, or implementation of best practices, to renew or sustain aquifer or basin functions.

The hauling of water shall not be a factor nor a criterion for the proof of a long term sustainable water supply.

PS-3.9. A tentative subdivision map and/or vesting tentative subdivision map application for either a standard or minor subdivision shall not be approved until the applicant provides evidence of a long-term sustainable water supply in terms of yield and quality for all lots that are to be created through subdivision.

Page 3.10-23, Line 24 to 3.10-28 Line 28 are revised as follows:

D. Water Demand

Impact PSU-5: Increased Water Supply Demand (less than significant with mitigation)

Baseline for Impact Analysis

In order to assess water supply impacts, an existing use baseline must be established. The existing golf courses uses between 309 and 522 AFY for irrigation (based on 1991 to 2014 data shown in **Table 3.10-3**), with an average annual use of 410 AFY. The Project will result in the elimination of one of the two Rancho Cañada golf courses and the baseline irrigation use is considered to be 50% of the current golf course irrigation use. ~~which on average would be about 205 AFY. Current baseline use depends on climatic factors and is estimated to range from 164 to 256 AFY, depending on precipitation (**Table 3.10-4**).~~

Most irrigation occurs during the drier parts of the year (April through October) and thus a large portion of the irrigation on the golf course ~~(likely in excess of 80%)~~ is consumed by the golf turf through evaporation and transpiration (referred to as evapotranspiration). Based on the recommendation of MPWMD, the baseline for this RDEIR is the consumptive use of water, as opposed to the total amount of pumping. Consumptive use of water is defined as the water that is used under baseline or project conditions and is not returned to the Carmel Valley Alluvial Aquifer. For irrigated areas, consumptive use is defined as evapotranspiration.

Using data from the on-site CIMIS weather station on precipitation and reference evapotranspiration, irrigation data from the golf course, data on crop plant factors for turfgrass, and data on site soils, a soil-water balance analysis was completed for the 1991 – 2014 period in order to estimate evapotranspiration (See calculations in Appendix H). The identified average turf evapotranspiration factors for different types of years was applied to the irrigation pumping data to derive the baseline consumptive use as shown in **Table 3.10-4**.

Table 3.10-4. Baseline Consumptive Water Use for the ~~on~~ Rancho Cañada Village Project ~~Site~~ (acre-feet)

	Average Year	Low-Use (2) ~~Wet Year~~ (84% ~~80%~~ avg.)	High-Use (2) ~~Dry Year~~ (110% avg.)	Very High-Use (2) ~~Very Dry Year~~ (118% ~~125%~~ avg.)
Irrigation Pumping (1)	204.8	177.7 ~~163.8~~	225.9 ~~225.3~~	241.1 ~~256.0~~
Consumptive Use (3)	145.1	113.4	170.8	195.0

Notes:
Data presented in Appendix H
1. Baseline irrigation pumping use is assumed to be the water use of one of the two golf courses on-site because with the Project, only one golf course will remain in operation.
2. Assumptions for "low-use", "high use" and "very high use" year irrigation pumping in Table 3.10-3.
3. Consumptive use determined through a soil-water balance analysis to estimate evapotranspiration. Evapotranspiration for different type of years used same percentiles as used for irrigation pumping in Table 3.10-3 See Appendix B.

Proposed Project

ICF developed water demand estimates for different types of housing units using MPWMD fixture unit methodology (**Table 3.10-5**). MPWMD mandatory water efficiency requirements required by MPWMD regulation for high efficiency toilets and washing machines were assumed. ICF then prepared a demand estimate using these fixture estimates and estimates of the Maximum Applied Water Allowable (MAWA) for common landscape areas ~~and conservative use assumptions~~ (**Table 3.10-6**). ICF also estimated evapotranspiration for the landscaping water demand (both within residential lots and common landscaped areas) using the same factors used to determine baseline consumption use. These estimates were then combined to derive an estimate of project consumptive use. Consumptive use includes residential indoor use (which is discharged to the CAWD treatment plant and not returned to the Carmel Valley Alluvial Aquifer) and evapotranspiration in landscaped areas.

The ~~that estimates~~ average project consumptive ~~demand~~ use is estimated as 88 ~~115~~ AFY including treatment and system transmission losses. The ICF estimate was used for the EIR analysis. Accounting for ~~precipitation~~ climatic variation[4], project consumptive use is estimated to range from 82 to 99 AFY ~~92 to 143~~ AFY (**Table 3.10-5**).

Based on these estimates, there would be a net reduction in water use ranging from 31 to 96 ~~72 to 113~~ AFY, with an average of 57 ~~90~~ AFY (**Table 3.10-7**). ~~This estimate is based on conservative assumptions for demand, treatment, and system losses, and may understate the amount of the net reductions. Further, the same percentage adjustments were made to the baseline use case for golf course irrigation for wet, dry, and very dry years as for the Project residential demand. Residential demand, particularly for the proposed residential development which has relatively compact development and limited yards would vary far less than golf course irrigation and thus, in dry and very dry years, the estimated Project demand is likely higher than it will actually be.~~

[4] The variation by climatic conditions for "low use", "high use" and "very high use" conditions was estimated by using the same factors as noted above in Table 3.10-3, but the variation factor was only applied to landscape uses, as indoor uses were assumed to not vary due to climatic conditions.

~~Given the existing impact of Cal-Am withdrawals on the Carmel River, this net reduction is a beneficial impact for both water supply and for biological resources in the river, such as steelhead. In addition, wastewater would be conveyed to the Carmel Area Wastewater District's (CAWD) water recycling plant for eventual release into the Carmel Valley Lagoon. Presently, during the summer and fall months the lagoon waters are at critically low levels, which jeopardize the lagoon's steelhead populations. With additional wastewater flows, such as those from the Rancho Cañada Village Project, CAWD would have increased opportunity to release more wastewater. Therefore, the Project would provide environmental benefits to the steelhead habitat.~~

The water source for the Project would be the on-site wells using water rights held by the property, as described above, or a connection to Cal-Am facilitated by dedication of an appropriate amount of the Project Applicant's water right to Cal-Am (See discussion of water rights in an earlier section of this Chapter). ~~The state has reserved 700 AFY for allocation to the Rancho Cañada property, of which 545 AFY remain which exceeds the amount needed for golf course irrigation and the Project.~~

Table 3.10-5. Water Demand by Housing Type

		Condo		Townhouse		SFR- Small		SFR-Medium		SFR-Large	
Type of Fixture	FU Value	No.	FU Count	No.	FU Count	No.	FU Count	No.	FU Count	No.	FU Count
Wash Basins (lavatory sink) each	1.0	2	2.0	2	2.0	3	3.0	3	3.0	~~4~~	4.0
Two washbasins in Master Bathroom	1.0									1	1.0
Toilet (ULF, 1.6 gpf)	1.8	~~2~~	~~3.6~~	~~2~~	~~3.6~~	~~3~~	~~5.4~~	~~3~~	~~5.4~~	~~4~~	~~7.2~~
Toilet (HET, 1.3 gpf)	1.3	2	2.6	2	2.6	3	3.9	3	3.9	4	5.2
Toilet (UHET, 0.8 gpf)	0.8										
Masterbath (Tub, sep. shower)	3.0		0.0		0.0		0.0	1	3.0	1	3.0
Large bathtub (w/ showerhead)	3.0									1	
Standard bathtub (w/ showerhead)	2.0	1	2.0	2	4.0	2	4.0	2	4.0	2	4.0
Shower, separate stall	2.0		0.0		0.0		0.0		0.0		0.0
Kitchen sink and dishwasher	2.0	1	2.0	1	2.0	1	2.0	1	2.0	2	4.0
Kitchen sink and HE dishwasher	1.5										
Laundry/utility sink	2.0		0.0		0.0	1	2.0	1	2.0	2	4.0
Washing Machine	2.0	~~1~~	~~2.0~~	~~1~~	~~2.0~~	~~1~~	~~2.0~~	~~1~~	~~2.0~~	~~1~~	~~2.0~~
Washing Machine (HEW, WF 5 or less)	1.0	1	1.0	1	1.0	1	1.0	1	1.0	1	1.0
Bidet	2.0		0.0		0.0		0.0		0.0		0.0
Bar sink	1.0		0.0		0.0		0.0		0.0		0.0
Entertainment sink	1.0									1	1.0
Vegetable sink	1.0		0.0		0.0		0.0		0.0		0.0
~~*Subtotal Interior Fixture Units*~~	~~-~~	~~-~~	~~*11.6*~~	~~-~~	~~*13.6*~~	~~-~~	~~*18.4*~~	~~-~~	~~*21.4*~~	~~-~~	~~*30.2*~~
~~*Landscaping (Interior FUs X 0.5)*~~	~~-~~	~~-~~	~~*5.8*~~	~~-~~	~~*6.8*~~	~~-~~	~~*9.2*~~	~~-~~	~~*10.7*~~	~~-~~	~~*15.1*~~
Subtotal Interior Fixture Units			9.6		11.6		15.9		18.9		27.2
Landscaping (Interior FUs X 0.5)			4.8		5.8		8.0		9.5		13.6
Swimming Pools (per 100 SF)	1.0		0.0		0.0		0.0	3	3.0 ~~0.0~~	4.5	4.5
~~*Fixture Unit Count*~~	~~-~~	~~-~~	~~*17.4*~~	~~-~~	~~*20.4*~~	~~-~~	~~*27.6*~~	~~-~~	~~*32.1*~~	~~-~~	~~*49.8*~~
~~Acre-Feet/Unit (0.01 AF/FU)~~	~~-~~	~~-~~	~~0.17~~	~~-~~	~~0.20~~	~~-~~	~~0.28~~	~~-~~	~~0.32~~	~~-~~	~~0.50~~
Fixture Unit Count			*14.4*		*17.4*		*23.9*		*31.4*		*45.3*
Acre-Feet/Unit (0.01 AF/FU)			**0.14**		**0.17**		**0.24**		**0.31**		**0.45**
Prepared by ICF using MPWMD Fixture Unit Methodology. All Assumptions about number of fixtures by ICF											

Table 3.10-6. Rancho Cañada Village Estimated Water Demand/Use (by ICF)

	Units	AF/Unit (1)	Total	~~Total~~
Average Year Direct Water Demand				
Housing				
Condominiums	35	0.14 ~~0.17~~	5.0	~~6.1~~
Townhouses	64	0.17 ~~0.20~~	11.1	~~13.1~~
Small Lot Single Family	67	0.24 ~~0.27~~	16.0	~~18.5~~
Medium Lot Single Family	114	0.31 ~~0.32~~	35.7	~~36.6~~
Large Lot Single Family	1	~~0~~.45 ~~0.50~~	0.45	0~~.5~~
Housing Subtotal	*281*		*68.3*	*~~74.7~~*
Active Park (2)	2.6	1.0 ~~2.5~~	2.6	~~6.5~~
Landscape Parkways (2)	3.3	2.3 ~~2.5~~	7.7	~~8.3~~
Landscape Total			*10.3*	*~~14.8~~*
Residential Element Subtotal			78.6	~~89.5~~
Treatment (15%) and System (7%) Loss			22.2	~~18.7~~
Average Year Direct Water Demand			***100.8***	***~~114.7~~***
Low Use ~~Wet~~ Year (87% ~~80%~~ of avg.) (3)			*95.2*	*~~91.8~~*
High Use ~~Dry~~ Year (110% ~~110%~~ of avg.) (3)			*105.2*	*~~126.2~~*
Very High Use ~~Dry~~ Year (118% ~~125%~~ of avg.) (3)			*108.3*	*~~143.4~~*
Average Year Consumptive Use				
Residential Element Subtotal (from Above)			78.6	
Evapotranspiration Adjustment for Landscaping in Housing Area (4)			*-6.6*	
Evapotranspiration Adjustment for Shared Park/Parkways (4)			*-3.0*	
Revised Residential Element Subtotal			69.0	
Treatment (15%) and System (7%) Loss			19.5	
Average Year Consumptive Use			***88.5***	
Low Use Year (87% of avg.) (3)			*81.9*	
High Use Year (110% of avg.) (3)			*93.8*	
Very High Use Year (118% of avg.) (3)			*98.8*	

Notes:

1. From Table 3.10-5
2. Used MWELO MAWA limit for park and parkways.
3. With consumptive use approach, the total landscape demand is not included, only the evapotranspiration amount (as was done in the baseline).
4. Only landscaping demand was adjusted for different years. Indoor use was not.

Table 3.10-7. Rancho Cañada Village Water Impact (Acre-Feet)

	Baseline Consumptive Use	Project Consumptive Use	Net Change
Average Year	145.1	88.5	-56.7
Low Use Year	113.4	81.9	-31.5
High Use Year	170.8	93.8	-77.0
Very High Use Year	195.0	98.8	-96.3
~~Average Year~~	~~204.1~~	~~114.7~~	~~-90.1~~
~~Wet Year~~	~~163.3~~	~~91.8~~	~~-72.0~~
~~Dry Year~~	~~224.5~~	~~126.2~~	~~-99.1~~
~~Very Dry Year~~	~~255.1~~	~~143.4~~	~~-112.6~~

Note: This estimate is based on ~~conservative~~ assumptions described in text and Appendix H. ~~and may underestimate the amount of net reduction.~~

Water for the new homes would be supplied either through the Cal-Am distribution system by assigning a portion of ~~Rancho Cañada's~~ water rights associated with the project property to Cal-Am for delivery back to the development, or though the creation of independent community services (private or public), contract or dedication to use the existing ~~Rancho Cañada~~ wells on the project property to pump, treat, and purvey the amount of water necessary for the Project. Reduction in water use would be documented through the meters on the wells which are already in place as required by ordinance with MPWMD.

Because the Proposed Project would result in an overall reduction in water use, this impact would be *less than significant* provided the project would result in no more than amount of consumptive water described above. ~~No mitigation is necessary~~.

Mitigation Measure PSU-1, described below, will require the project to meet the water budgets in this RDEIR, by requiring dedication of adequate water rights for the residential development, designing new development to be water efficient, installation of water meters for the development in accordance with MPWMD regulations, monitoring and reporting of water use to the County and MPWMD, remedial action if the project exceeds established water budgets.

Infrastructure impacts related to a potential new water system are discussed below separately.

~~The following are recommended as conditions of approval to ensure impacts remain *less than significant*:~~

- ~~(1) Require a permanent dedication of 143 of the Project Applicant's water right that reserves its use solely for the Rancho Cañada Village residential development (including the park and preserve) and precludes any future use of this amount by the Project Applicant for golf course irrigation, other use, or transfer. This amount is based on the estimated net demand during a very dry year indicated in **Table 3.10-7**~~.
- ~~(2) It is thus further recommended that the County, as a condition of approval, require monthly reporting of water use on the golf course to verify that water use does not exceed the estimated remaining amount of the Project Applicant's water right (402 AF). This amount was determined by subtracting the 143 AF dedication for Rancho Cañada Village from the 545 AFY remaining site appropriation. Based on historic data this appears to be more than adequate for these uses.~~

130-Unit Alternative

ICF then prepared a demand estimate for the 130-Unit Alternative using the housing type water demand estimates from **Table 3.10-5** and ~~conservative use~~ assumptions similar to those used for the Proposed Project. ~~With the restrictions in water supply at present, the dedication amount can serve as a hard limit on potential water use.~~ As shown in **Table 3.10-8** below, this Alternative would result in a consumptive water use ~~demand~~ of 112 AFY ~~130 AFY~~ including 60 AFY proposed for transfer to other Cal-Am uses. The ICF estimate is used for the EIR analysis. Accounting for ~~precipitation~~ use variation, ~~Project~~ 130-unit Alternative consumptive use is estimated to range from 106 to 120 AFY ~~104 to 162 AFY~~ (**Table 3.10-8**).

Table 3.10-8. 130-Unit Alternative Estimated Water Demand/Use (by ICF)

	Units	AF/Unit (1)	Total	~~Total~~
Housing				
Condominiums	12	0.14 ~~0.17~~	1.7	~~2.1~~
Small Lot Single Family	110	0.24 ~~0.28~~	26.2	~~30.4~~
Medium Lot Single Family	7	0.31 ~~0.32~~	2.2	~~2.2~~
Large Lot Single Family	1	0.45 ~~0.50~~	0.5	~~10.5~~
Housing Subtotal	*130*		*30.6*	~~*35.2*~~
Open Space Irrigation (2)	7.7	2.3 ~~2.5~~	17.9	~~19.3~~
Residential Element Subtotal			48.5	~~54.4~~
Treatment (15%) and System (7%) Loss			13.7	~~15.4~~
Average Year Direct Water Demand			**62.2**	~~**69.8**~~
Low Use ~~Wet~~ Year (87% ~~80%~~ of avg.) (3)			*57.4*	~~*55.8*~~
High Use ~~Dry~~ Year (110% ~~110%~~ of avg.) (3)			*65.9*	~~*76.8*~~
Very High Use ~~Dry~~ Year (118% ~~125%~~ of avg.) (3)			*68.6*	~~*87.2*~~
Water Transfer to Other Cal-Am Users			*60.0*	~~*60.0*~~
Net Water Demand (Average Year)			***122.2***	~~***129.8***~~
Low Use ~~Wet~~ Year (87% ~~80%~~ of avg.) (3)			*117.4*	~~*103.8*~~
High Use ~~Dry~~ Year (110% ~~110%~~ of avg.) (3)			*125.9*	~~*142.8*~~
Very High Use ~~Dry~~ Year (118% ~~125%~~ of avg.) (3)			*128.6*	~~*162.3*~~
Dedication for Instream Purposes (based on high use ~~average~~ year)			51.4	~~50.2~~
Water Demand + Instream Dedication (based on high use ~~average~~ year)			**180.0**	~~**180.0**~~
Average Year Consumptive Use				
Residential Element Subtotal (from Above)			48.5	
Evapotranspiration Adjustment for Landscaping in Housing Area (4)			*-3.0*	
Evapotranspiration Adjustment for Shared Park/Parkways (4)			*-5.2*	
Revised Residential Element Subtotal			40.3	
Treatment (15%) and System (7%) Loss			11.4	
Average Year Consumptive Use			***51.7***	
Low Use Year (87% of avg.) (3)			*46.1*	
High Use Year (110% of avg.) (3)			*56.2*	
Very High Use Year (118% of avg.) (3)			*60.5*	

Water Transfer to Other Cal-Am Users	*60.0*
Net Water Demand (Average Year)	***111.7***
Low Use Year (87% of avg.) (3)	*106.1*
High Use Year (110% of avg.) (3)	*116.2*
Very High Use Year (118% of avg.) (3)	*120.5*
Dedication for Instream Purposes (based on high use year)	59.5
Water Demand + Instream Dedication (based on high use year)	**180.0**

Notes:
1. From Table 3.10-5
2. Used MWELO MAWA limit for landscaping area.
3. With consumptive use approach, the total landscape demand is not included, only the evapotranspiration amount (as was done in the baseline).
4. Only landscaping demand was adjusted for different years. Indoor use was not.

Based on these estimates (excluding the instream dedication), there would be a net reduction in water use ranging from 7 ~~60~~ to 75 ~~93~~ AFY, with an average of 33 ~~74~~ AFY (**Table 3.10-9**). This estimate is based on ~~conservative~~ the assumptions for demand, treatment, and system losses discussed in this Chapter and in Appendix H, ~~and may understate the amount of the net reductions~~. Further, the same percentage adjustments were made to the baseline use case for golf course irrigation for low use, high use, and very high use ~~wet, dry, and very dry~~ years as for the Project residential demand. ~~Residential demand, particularly for the proposed residential development which has relatively compact development and limited yards would vary far less than golf course irrigation and thus, in dry and very dry years, the estimated Project demand is likely higher than it will actually be.~~

Similar to the Proposed Project, given the existing impact of Cal-Am withdrawals on the Carmel River, this net reduction is a beneficial impact for both water supply and for biological resources in the river, such as steelhead.

Table 3.10-9. 130-Unit Alternative Water Impact (acre-feet)

	Baseline Consumptive Use	~~Project~~ 130-unit Alternative Consumptive Use	Net Change
Average Year	145.1	111.7	-33.4
Low Use Year	113.4	106.1	-7.3
High Use Year	170.8	116.2	-54.6
Very High Use Year	195.0	120.5	-74.5
~~Average Year~~	~~204.1~~	~~129.8~~	~~-74.3~~
~~Wet Year~~	~~163.3~~	~~103.8~~	~~-59.5~~
~~Dry Year~~	~~224.5~~	~~142.8~~	~~-81.7~~
~~Very Dry Year~~	~~255.1~~	~~162.3~~	~~-92.8~~

Note: This estimate is based on ~~conservative~~ assumptions described in text and in Appendix H~~. and may underestimate the amount of net reduction. Project~~ 130-unit Alternative use does not include ~~presumed~~ proposed dedication of 50 AFY for instream purposes.

Because the 130-Unit Alternative would result in an overall reduction in water use, this impact would be *less than significant* provided the project would result in the amount of consumptive water

described above. However, without enforcement and monitoring, there is no guarantee that the project will limit its water use to the amounts estimated above. ~~No mitigation is necessary.~~

Mitigation Measure PSU-1, described below, will require the project to meet the water budgets in this RDEIR, by requiring dedication of adequate water rights for the residential development, designing new development to be water efficient, installation of water meters for the development in accordance with MPWMD regulations, monitoring and reporting of water use to the County and MPWMD, remedial action if the project exceeds established water budgets.

Infrastructure impacts related to a potential new water system are discussed below separately.

~~The following are not mitigation measures, but recommended as conditions of approval to ensure impacts remain less than significant:~~

- ~~It is recommended that the County, as a condition of approval, require a permanent dedication of 87 AF of the Project Applicant's water right that reserves its use solely for the 130-Unit Alternative residential development (including the park and preserve) and precludes any future use of this amount by the Project Applicant for golf course irrigation, other use, or transfer. This amount is based on the estimated net demand during a very dry year indicated in **Table 3.10-8**.~~
- ~~It is thus further recommended that the County, as a condition of approval, require monthly reporting of water use on the golf course to verify that water use does not exceed the estimated remaining amount of the Project Applicant's water right. Combining the 130-Unit residential dedication (87 AFY) with the water transfer to other Cal-Am users (60 AFY), and the instream dedication (50 AFY using the estimate above), the total dedicated would be 197 AFY. From the 545 AFY remaining portion of the site's appropriation, this would leave up to 348 AFY for use for the remaining golf course and the clubhouse. Based on historical data, this appears adequate to cover these remaining uses.~~

Mitigation Measure PSU-1: Dedicate Water Rights for the Project; Design for, Meter, and Monitor Water to meet Water Budgets; Implement Remedial Action if Water Budgets Exceeded

The Project Applicant, the Homeowner's Association (HOA), individual property owners, and any other parties responsible for water use for the project shall implement the following measures to ensure that the overall project consumptive use of water does not exceed the amounts estimated in this RDEIR:

- (1) The Project Applicant shall obtain a permanent dedication of 108 AFY (Proposed Project) or 60 AFY (130-unit Alternative) of the water rights associated with the project site that reserves its use solely for the on-site residential development (including the park and preserve) and precludes any future use of this amount for any other use or transfer. These amounts are based on the estimated net demand during a very high use year as indicated in **Table 3.10-7** (Proposed Project) and in **Table 3.10-8** (130-unit Alternative).
- (2) The Project Applicant shall provide MPWMD and the County evidence of SWRCB approval of any appropriative rights in sufficient amounts for any proposed on-site residential uses that would rely on appropriative rights and/or any proposed water transfer prior to issuance of any building or water use permit. If the site residential development would only rely on riparian rights and no water transfer is advanced, then this portion of this measure would not apply.

- (3) The Applicant (if they build parts or all of the development), individual homeowners (for lot development not built by the Applicant), or other parties proposing water uses on-site shall demonstrate to MPWMD and the County at the final design phase (prior to issuance of a building permit or any water use permits) that the project employs all MPWMD mandated efficiency measures, will meter the new development as required by MPWMD and will require reporting on actual water use on-site monthly and annually to MPWMD and the County. All water use on-site shall be conditioned that MPWMD shall retain the ability to mandate feasible and reasonable reductions in water use in the future as necessary to constrain water use to the established water budgets.
- (4) MPWMD and the County shall track building permit and water use permit approvals to assure that the development overall will remain within the water budgets in this RDEIR. If tracking indicates that the project overall trend would result in an exceedance of the established water budgets upon full buildout, then MPWMD and the County shall require conditioning of all future building and water use permits with reductions in water use in order to restore the trend to compliance with the established water budgets. This limitation may ultimately include limitations on residential improvements (such as numbers of fixtures, swimming pools, or other limits), changes in landscaping amounts, types, or irrigation practices, a limit on overall amount of landscaping or other measures.
- (5) If monitoring/reporting indicates that the project is exceeding the estimated water budget in this RDEIR on average over two or more years or the "high use" estimate in any one year, MPWMD and the County shall require responsible parties (HOA, individual property owners, and/or any other entity responsible for water use on the project) to modify landscaping and irrigation practices and/or add additional water efficiency measures to the project as necessary to reduce the water use to the average yearly consumptive use shown in this RDEIR. If triggered, the responsible parties for water use shall implement remedial measures within one year of the exceedance.
- (6) Failure to comply with these requirements will result in a request from the County to MPWMD to impose mandatory limitations on project consumptive water use until compliance is achieved.
- (7) If a separate water system is proposed, the Project Applicant shall be required to obtain all necessary permits for the separate water delivery system and to demonstrate to the County's satisfaction that the water delivery system can deliver water consistently and perpetually to the project prior to issuance of the first building permit.

Consistency Relative to Long-Term Sustainable Water Supply Goals and Policy in the 2010 General Plan

The focus of a CEQA evaluation of consistency with local land use policies is not to make a final determination of consistency with the policies (which is up to the Planning Commission and the Board of Supervisors), but rather to identify rather any inconsistencies might give rise to a physical impact on the environment and whether that physical impact is significant or not. An inconsistency with a local land use policy does not inherently result in a significant physical impact on the environment. It depends on the character of the resource affected and the nature and extent of the project impact. Thus, what ultimately matters for CEQA is the physical impact of the environment, which in this case is the impact on water supply.

Water supply impacts are analyzed in this Chapter including the cumulative context of the impact of prior and ongoing withdrawals from the Carmel Valley Alluvial Aquifer and the effects on Carmel River Biota as well as regional water supply conditions in which water is not available for new connections while the regional water supply project is being completed. The significance threshold used for this evaluation is no net increase in withdrawals from the aquifer, which was identified in recognition of the critical state of the Carmel River and the biological resources dependent upon it as well as the current regional water supply condition.

The fundamental intent of the County General Plan Goal PS-3 and associated policies PS-3.1 and PS-3.9 (and other related policies) is that new development must have a long-term water supply in terms of quantity and quality. The analysis shows that the Proposed Project (or the 130-unit Alternative) would not increase consumptive water use, would result in increased recharge to the Carmel Valley Alluvial Aquifer, and would not result in any substantial adverse effect on Carmel River instream flows. In regards to quality, the Proposed Project (or the 130-unit Alternative) would draw water from the same location that Cal-Am already draws water to serve its customers. Regardless of the modality of water delivery for the proposed residential use (Cal-Am distribution system or a separate community services district or mutual water company), the water can be treated to all regulatory standards just like the water being drawn at present from Cal-Am wells on the Rancho Canada golf course property and in nearby adjacent areas. Thus, the water source is of an acceptable water quality.

The proposed water supply for this project was reviewed using the criteria in County General Plan Policy PS-3.2:

- *Water Quality*: Water is the same quality as current local Cal-Am wells and is thus of acceptable water quality. See discussion above.
- *Authorized production capacity of a facility operating pursuant to a permit from a regulatory agency, production capability, and any adverse effect on the economic extraction of water or other effect on wells in the immediate vicinity, including recovery rates:* The analysis in this Chapter shows that the on-site pumping levels would be less than baseline pumping levels which will help with groundwater recharge and thus would have no adverse effects to other wells or groundwater level recovery.
- *Technical, managerial and financial capability of the water purveyor or water system operator: If the project is served by Cal-Am, it has proven capabilities to deliver water.* If a separate water system is proposed, the Project Applicant will be required to obtain all necessary permits for the separate water delivery system and to demonstrate to the County's satisfaction that the water delivery system can deliver water consistently and perpetually to the project. With mitigation, the project's water supply can meet this criteria.
- *The source of the water supply and the nature of the right(s) to water from the source:* Please see discussion of water rights above and in Chapter 3.10, *Public Services, Utilities, and Recreation*. As discussed therein, there are riparian rights associated with the project site and the Project Applicant is seeking to obtain an appropriative right from the SWRCB in order to facilitate the proposed water transfer.
- *Cumulative impacts of existing and projected future demand for water from the source, and the ability to reverse trends contributing to an overdraft condition or otherwise affecting supply:* Cumulative conditions were taken into account when establishing significance criteria for the water supply analysis in this EIR as no net increase in consumptive water use, no net reduction

in groundwater recharge, and no substantial adverse change in instream flows in the Carmel River. The project's water supply impact will not exceed any of the significance criteria. The project would reduce water use relative to baseline and help to reverse cumulative trends of water supply impacts on the Carmel River.

- *Effects of additional extraction or diversion of water on the environment including on in-stream flows necessary to support riparian vegetation, wetlands, fish or other aquatic life, and the migration potential for steelhead, for the purpose of minimizing impacts on the environment and to those resources and species*: The project's water supply will not result in a net increase in consumptive water use, no net reduction in groundwater recharge, and no substantial adverse change in instream flows in the Carmel River. Thus, it will not result in any additional extraction or diversion of water impacts on the environment and will not result in impacts to riparian vegetation, wetlands, fish or other aquatic life, or migration potential for steelhead. The project instead should benefit riparian vegetation, wetlands, fish and other aquatic life and help improve spring and summer instream flows.
- *Completion and operation of new projects, or implementation of best practices, to renew or sustain aquifer or basin functions:* As noted above, the project will not adversely affect aquifer or basin functions and will not hinder other efforts to renew aquifer or basin functions, such as the development of an alternative water supply to Cal-Am's withdrawals in excess of its current water rights or the dedication of water to instream uses by others. The project will instead contribute to sustaining aquifer and basin functions.
- *The hauling of water shall not be a fact or nor a criterion for the proof of a long term sustainable water supply:* Hauling of water is not proposed.

As indicated above, with proposed Mitigation Measure PS-1 to ensure delivery of the project's water supply (as noted above) and constrain it to a maximum of the amounts estimated in this RDEIR, the Proposed Project (or the 130-unit Alternative) is considered to have a long-term sustainable water supply because it has already met the relevant criteria and/or will be required to meet the relevant criteria prior to issuance of any building permits.

Page 3.10-29, lines 9-14 are revised as follows:

As described above in Impact PSU-5, water for the new homes would be supplied either through the Cal-Am distribution system or though the creation of independent community services (public or private), contract, or dedication to use the existing ~~Rancho Cañada~~ wells to pump, treat, and purvey the amount of water necessary for the Project. The Project Applicant has identified the location of the treatment facilities as within the 2 acre park, and the wells are on-site so the pipeline routing would likely be across the golf course and through the residential development.

Page 3.10-29, lines 24-25 are revised as follows:

Implementation of **Mitigation Measures PSU-2 ~~1~~** would reduce this impact to a *less-than-significant* level

Page 3.10-29, lines 33-37 are revised as follows:

As described above, for the Proposed Project and in Impact PSU-5, water for the new homes would be supplied either through the Cal-Am distribution system or though the creation of independent community services (public or private), contract, or dedication to use the existing ~~Rancho Cañada~~

wells to pump, treat, and purvey the amount of water necessary for the Project or 130-Unit Alternative.

Page 3.10-30, lines 4-21 are revised as follows:

Implementation of **Mitigation Measures PSU-2 ~~1~~** would reduce this impact to a *less-than-significant* level

Mitigation Measure PSU-2~~1~~: Test Well Supply, Identify Water Treatment and Distribution

Facilities, and Avoid Impacts on Biological Resources Prior to construction, the Project Applicant ~~or its contractor would~~ will condition its contractor to ~~will~~ test the proposed water supply for the Project (or 130-Unit Alternative) for California Title 22 constituents for potable water supply and will design and fund any necessary treatment and distribution facilities needed to transport treated water to the project site. Testing results will be provided to the County. The design for the new facilities will be submitted to Monterey County for review and approval. The new facilities can be placed within the existing golf course and/or other non-habitat disturbed areas (such as existing roads or golf paths). Under no circumstances will the new facilities result in permanent loss of native vegetation, ponds, or wetlands. All biological mitigation described for construction-related impacts of the Project (or 130-Unit Alternative) will apply to any potential impacts of new facilities (this shall include the following, as applicable to impacts of construction of the new facilities: Mitigation Measures BIO-1 through BIO-6; BIO-8 through BIO-21).

No grading for the Proposed Project (or 130-Unit Alternative) will be allowed until the new facilities have been approved by Monterey County and all biological resource mitigation has been approved by the County, USFWS, and CDFW. The Project Applicant will be required to fund all necessary improvements. This mitigation also applies to any new facilities required if the Project (or 130-Unit Alternative) utilizes a connection to the Cal-Am distribution system.

Page 3.10-31, lines 18-19 are revised as follows:

Implementation of **Mitigation Measures PSU-3 ~~2~~** would reduce this impact to a *less-than-significant* level.

Page 3.10-31, lines 30-33 are revised as follows:

Implementation of **Mitigation Measures PSU-3 ~~2~~** would reduce this impact to a *less-than-significant* level.

Mitigation Measure PSU-3 ~~2~~: Coordinate with Appropriate Utility Service Providers and Related Agencies to Reduce Service Interruptions

Page 3.10-32, lines 15-35 are revised as follows:

Impact PSU-9: Increased Student Enrollments (less than significant)

Proposed Project

The Proposed Project could potentially increase student enrollments within the CUSD. A conservative multiplying factor of ~~0.18~~ 0.34 students per household was used to determine the

potential increase of school-age children attending public schools.~~5~~ Using the estimated build-out population projected, approximately ~~51~~ 96 school-aged children would be generated from the Proposed Project. The introduction of new students would result in placing further demands upon school services. ~~Although CUSD has been experiencing an increase in enrollment, the addition of 51 students to the district would represent a 2.3% increase in total enrollment and additional facilities would not be required.~~ The CUSD levies school developer fees as authorized by SB 50, and the Project Applicant would be legally required to pay these fees. Pursuant to Government Code Section 65995, the payment of these fees by a developer serves to fully mitigate all potential project impacts on school facilities from implementation of a project. Therefore, this ~~This~~ impact is *less than significant*. No mitigation is necessary.

130-Unit Alternative

Similar to the Proposed Project, the 130-Unit Alternative could potentially increase student enrollments within the Carmel Unified School District. A conservative multiplying factor of ~~0.18~~ 0.34 students per household was used to determine the potential increase of school-age children attending public schools.~~6~~ Using the multiplying factor of ~~0.18~~ 0.34 students per household, the 130-Unit Alternative would generate approximately ~~23~~ 44 school-aged children. The introduction of new students would result in placing less demand upon school services than the Proposed Project due to the decrease in residential units from 281 to 130. ~~Therefore, although CUSD has been experiencing an increase in enrollment, the addition of 23 students to the district would represent a 1% increase in total enrollment and additional facilities would not be required.~~ The CUSD levies school developer fees as authorized by SB 50, and the Project Applicant would be legally required to pay these fees. Pursuant to Government Code Section 65995, the payment of these fees by a developer serves to fully mitigate all potential project impacts on school facilities from implementation of a project. Therefore, this ~~This~~ impact would be *less than significant*. No further mitigation is necessary.

Page 3.10-34, lines 25-26 are revised as follows:

Like the Proposed Project, the end result of the 130-Unit Alternative is that there will be only one golf course instead of two on the ~~Rancho Cañada~~ property.

Chapter 3.12 – Population and Housing

Page 3.12-10, lines 16-19 are revised as follows:

Thus, the 130-Unit ~~a~~Alternative, including only the consideration of the 130 units at the ~~Rancho Cañada~~ project site, would not result in a higher level of housing or population growth in the CVMP area than anticipated in the adopted CVMP.

5 Personal communication with Rick Blanckmeister. Chief Business Official. Carmel Unified School District. Telephone conversation with Rich Walter and Heidi Mekkelson – August 29, 2016. Email correspondence - August 30, 2016. Telephone conversation with Heidi Mekkelson – September 9, 2016.

6 Ibid.

Chapter 4 – Other CEQA-Required Sections

Page 4-10, lines 23-25 are revised as follows:

In addition, the Proposed Project includes a 84-inch buried pipe to convey DA-27 drainage along the western side of the ~~Rancho Canada~~ project site to the Carmel River, which would help in management of DA-27 flows that could otherwise result in flooding in CSA-50.

Page 4-13, lines 11 to Page 4-15 Line 8 are revised as follows: Figure 4-2 is deleted; the following text edits are also made:

- **Between Rio Road (East) and Rancho Cañada Clubhouse and Between the Clubhouse and Via Mallorca**—Wildlife can currently move from undeveloped areas south of the Carmel River, across the Rancho Cañada golf course between Rio Road (east) and the golf course clubhouse, across the clubhouse access road, and across Carmel Valley Road to undeveloped areas north of the road. The narrowest part (approximately 700 feet) of the corridor is between Rio Road (east) and the clubhouse parking lot. N~~ew visitor-serving development could be placed within this corridor as allowed by the 2013 CVMP, which could block this corridor. However, if the~~ With the TPL acquisition of most of the east golf course ~~occurs, then~~ this area ~~would~~ will be used for park and restoration purposes, which would preserve the wildlife corridor.
- **Between Rancho Cañada Clubhouse and residences west of Via Mallorca**—Wildlife can currently move from undeveloped areas south of the Carmel River, across the Rancho Cañada golf course between the clubhouse and the residences west of Via Mallorca, and across Carmel Valley Road to undeveloped areas north of the road. The narrowest part (approximately 1,600 feet) of the corridor is between the clubhouse and the residences west of Via Mallorca. ~~New visitor-serving development could be placed within this corridor as allowed by the 2013 CVMP. However, if the~~ With the TPL acquisition of most of the east golf course occurs, then this area would be used for park and restoration purposes, which would preserve the wildlife corridor.

~~The 2013 CVMP allows for development of up to 175 visitor-serving units west of Via Mallorca, but is non-specific as to the location of such development. Although developing within the 100-year floodplain of the Carmel River (as proposed by the Proposed Project) is technically possible, as noted above, it is more likely that visitor-serving development would be placed somewhere between Carmel Valley Road and the 100-year floodplain. If the golf course area were to be preserved, development most likely would occur closer to Carmel Valley Road in the areas west and east of the clubhouse (if the clubhouse were retained). Visitor-serving development often includes additional amenities such as tennis courts, swimming pools, and other services. While unknown how much of the 50-acre area north of the 100-year floodplain might be occupied by the new visitor-serving development and the clubhouse, new development could block or substantially impede wildlife movement through the corridors east and west of the clubhouse.~~

As noted above, the Trust for Public Land has ~~announced its intention to~~ purchased the 140-acre Hatton parcel containing the clubhouse and most of the east golf course and conservation groups are also in conversations with the Lombardo Land Group II ~~family~~ about purchasing an additional 50 acres south of the clubhouse that contains land north and south of the Carmel River (see **Figure 4-1**). If both of these acquisitions were to come to fruition, then the area east of the Proposed Project would be retained as a wildlife corridor. If only the ~~Hatton parcel were~~ Lombardo Land Group II parcel is not acquired by TPL, there is a possibility of development of 50-acre area, but there would remain a wildlife corridor on either side of the 50-acre parcel.

With the proposed restoration and the TPL purchase and conversion of much of the east golf course to park and open space purposes, the two primary wildlife movement corridors east and west of the clubhouse would be preserved and the project would not have a considerable contribution to cumulative adverse effects on wildlife movement corridors.

~~However, if the two wildlife movement corridors east and west of the clubhouse were substantially impeded by future cumulative development, then the corridor through the CMS habitat would be the only unimpeded corridor in the part of the Mouth of the Valley between Via Mallorca and SR 1. In this context, loss of the corridor through the CMS habitat area from the Proposed Project would be cumulatively *significant*.~~ **~~Mitigation Measure BIO-23~~**~~, would reduce the cumulative impact of cumulative development on wildlife movement corridors to a *less-than-cumulatively significant level* by ensuring an effective north-south wildlife migration corridor in this part of Carmel Valley.~~

~~Mitigation Measure BIO-23 would not be necessary if the TPL acquisition occurs and a wildlife corridor is preserved through the 140-acre parcel.~~

130-Unit Alternative

The 130-Unit Alternative would make similar contributions to cumulative impacts on biological resources as the Proposed Project. Lot 130 is already developed and would not add to cumulative impacts on wildlife movement. Therefore, impacts and mitigation discussed under the Proposed Project apply to the 130-Unit Alternative. With implementation of mitigation measures described in Section 3.3, *Biological Resources* ~~and **Mitigation Measure BIO-23**~~, as well as through implementation of the proposed 2006 Restoration Plan, there would be a *less-than-significant* cumulative impacts on wildlife migration corridors.

~~**Mitigation Measure BIO-23: Monterey County to Require Dedication of an Open Space Easement on a Portion of the Rancho Cañada Golf Course for a Wildlife Movement Corridor as a Condition of Approval of Future Development on the Remaining Portion of the Golf Course**~~

~~If any future development is proposed on the remaining golf course (outside of the area of the Proposed Project or the 130 unit Alternative), Monterey County shall require, as a condition of approval, dedication of an irrevocable open space easement over the specified portion of the land at the Rancho Cañada Golf Course between the Carmel River and Carmel Valley Road as described below in order to maintain a wildlife movement corridor from the Carmel River across the golf course and northward across Carmel Valley Road.~~

~~The goal of this mitigation is to preserve a wildlife movement corridor east of the Rancho Cañada clubhouse and wildlife movement from the habitat preserve along the north side of the Carmel River to link up with the movement corridor east of the clubhouse.~~

~~A preliminary outline of the easement area is shown in **Figure 4-2**. The area of the easement will include, at a minimum, a portion of the golf course north of the Carmel River that is east of the habitat preserve, south of the Rancho Cañada clubhouse, and east of the Rancho Cañada clubhouse. The easement will exclude the existing footprint of the Rancho Cañada clubhouse, access road, and ancillary facilities. The width of the wildlife corridor to the east of the clubhouse shall be a minimum of 1,000 feet wide from Carmel Valley Road to a point parallel to the southernmost edge of the clubhouse and then shall include a connections to areas south to the Carmel River as shown in **Figure 4-2**.~~

~~The open space easement may allow for continued golf course use and periodic alteration of the golf course for golf course purposes (including excavation, grading, and realignment of holes and greens). The open space easement will not allow development of the land for residential, visitor-serving, commercial, or institutional uses.~~

~~The easement area and easement language shall be approved by the County prior to issuance of any building permit for any future development on other parts of the golf course. The easement shall be obtained and recorded prior to the start of construction of any future development on other parts of the golf course. The easement will either be held by the County or by a third-party qualified to hold open space easements approved by the County the landowner. The easement shall be in perpetuity and will be irrevocable without exception.~~

Page 4-34, Lines 41-42 are revised as follows:

The secondary impacts of such facilities would be reduced to a less-than-significant level by **Mitigation Measure PSU-2 ~~1~~** (described in Section 3.10).

Page 4-35, Lines 16-18 are revised as follows:

However, **Mitigation Measure PSU-3 ~~2~~** would reduce the Project's contribution to any cumulative impact to a less-than-considerable level by providing coordination with utility service providers to reduce the potential for service interruptions.

Page 4-36, Lines 13-15 are revised as follows:

With the implementation of **Mitigation Measures PSU-2 ~~1~~** and **PSU-3 ~~2~~**, the 130-Unit Alternative would have less-than-considerable contributions to impacts related to water infrastructure and utility disruptions.

Chapter 5 – Alternatives Analysis

Page 5-21, lines 15 to 26 are revised as follows:

The 130-Unit Alternative would result in less residential development at the ~~Rancho Cañada~~ project site compared to the Proposed Project and Alternative 3.

Page 5-23, lines 34-35 are revised as follows:

As described in Section 3.2, Hydrology and Water Quality, the Project is not estimated to increase flooding upstream or downstream of the ~~Rancho Cañada property~~ project site.

Page 5-25, lines 29-31 are revised as follows:

In scoping, comments suggested the following additions to the Project: (1) a Monterey-Salinas Transit (MST) bus stop inside the project area; (2) a stoplight at Via Nona Marie Road and Rio Road; and (3) relocation of the stoplight at the middle school to the entrance to the Rancho Cañada Village.

Page 5-25, lines 32-37 are revised as follows:

As described in Section 3.7, Transportation and Traffic, MST provides bus service along Carmel Valley Road in front of the project site. The 24 line provides service between Carmel Valley Village and the Monterey Transit Plaza with 60-minute headways during weekday peak hours. Lines 91, 92,

and 94 have bus stops in The Crossroads Carmel and the Barnyard and are designed to service seniors and their specific travel and lifestyle needs. ~~Lines 4, 5, 24, and 36 provide service in the shopping area at the mouth of the valley and travel near the project area.~~ A bus stop is located in the project vicinity, on Carmel Valley Road near the Rio Road/Carmel Valley Road intersection.

Chapter 6 – References Cited

Page 6-10 under Chapter 3.8, Air Quality, the following reference is added:

Don Chapin Company. 2007. Rancho Canada Village. Construction Phase Emissions of the Rancho Canada Village Specific Plan. July.

Page 6-11 and 6-12 under Chapter 3.10, Public Services, Utilities and Recreation, the following references are added:

Lombardo Land Group II (LLGII) 2016. Letter on Water Rights re: Rancho Canada Village Project. 10/25/16.

NMFS. 2002. Instream Flow Needs for Steelhead in the Carmel River: Bypass Flow recommendations for water supply projects using Carmel River waters. June 3.

Rancho Canada de la Segunda, Inc. 1992. Application to Appropriate Water by Permit (Application A030111)

SWRCB. 2011. Letter RE: Application 30111 of Rancho Canada de la Segunda, Inc., Carmel River Subterranean Stream in Monterey County, August 23..

Trust for Public Land (TPL) 2016. Letter on Water Rights re: Rancho Canada Village Project. 10/25/16.

Zischke 2014a. Rancho Canada Golf Course Water Use Data. September 15.

Zischke 2014b. Rancho Canada Golf Course Water Use Data and Other Information. December 22.

Zischke 2014c. Chain of Title and September Ranch Excerpt. September 18.

Zischke 2014d. Response to MPWMD Comment Letter, September 16.

Zischke 2014e. Response to TOMP 2008 Comment Letter, September 18.

Zischke 2016. Response to ICF Data Request, October 7.

Page 6-16 under Chapter 4 – Other Required CEQA Analysis, is revised as follows:

~~———. 2015a. Carmel Canine Sports Center. Available: http://www.co.monterey.ca.us/government/departments-i-z/resource-management-agencyrma-/planning/current-major-projects/carmel-canine-sports-complex. Accessed: January 20, 2016.~~

~~———. 2015b. Before the Planning Commission in and for the County of Monterey, State of California. February 25. Available: http://www.co.monterey.ca.us/planning/docs/resolutions.~~

Appendix E – Rancho Canada Draft Transportation Impact Study

Table 7 on page 18 is revised by bolding certain conditions for Intersection #1 and #4

Intersection	Peak Hour	Existing		Existing Plus Project		Existing + 130-unit Alternative	
		Delay	LOS	Delay	LOS	Delay	LOS
1.Highway 1/Carpenter Street	AM PM	19.4 **39.9**	B **D**	19.8 **43.3**	B **D**	19.6 **41.2**	B **D**
4. Highway 1/Rio Road	AM PM	25.1 **41.4**	C **D**	25.4 **42.6**	C **D**	25.2 41.6	C **D**

The following text is added near the bottom of Page 18:

The following intersections would operate below the desired service level:

- Intersection #1: The Highway 1/Carpenter Street intersection operates below the C/D cusp Caltrans standard for the State Highway System. Deficient operations would be made slightly worse than under existing conditions with the Project or the 130-unit Alternative, but operations would remain at LOS D.
- Intersection #4: The Highway 1/Rio Road intersection operates below the C/D cusp Caltrans standard for the State Highway System. Deficient operations would be made slightly worse than under existing conditions with the Project or the 130-unit Alternative, but operations would remain at LOS D.

Appendix F – Air Quality

Appendix F.2.2, Health Risk Assessment-Scaling Calculations were revised in two ways: 1) The scaled results presented in the RDEIR (first page in Appendix F2.2) were based on a worksheet that was not finalized; the finalized worksheet was used for calculations for the revisions to the RDEIR; and 2) the scaling calculations presented in the RDEIR were based on the HRA 2011 which has an incorrect assumption for the on-site cut to fill amount based on the Applicant's air quality report (Chapin 2007). The cut to fill amount was updated to the correct amount and a scaling factor was applied to the HRA results to take into account this change. Thus, Appendix F2.2 is changed as follows:

1) The first sheet in the appendix entitled "Health Risk Assessment for both Rancho Canada Village alternatives" is replaced in its entirety by the enclosed new table.

2) An additional calculation sheet is added entitled "Adjustment for Cut to Fill Amounts for Revisions to the RDEIR (11/5/16).

Health Risk Assessment for both Rancho Canada Village Alternatives (Revised 11/5/16)

Scaling for 2015 Adjustements for RDEIR

	Max Annual Average Concentration (µg/m3) from 2011 HRA		Risk as shown in 2011 HRA		2011 HRA, Revised based on 2015 OEHHA guidance														Chronic Hazard		Proposed Project			130-unit Alternative		
					Dose						Cancer Risk															
			Haul	Haul	Haul Route 1			Haul Route 2			Haul Route 1				Haul Route 2				Haul	Haul	Scaling		Chronic	Scaling		Chronic
	Haul Route 1	Haul Route 2	Route 1	Route 2	3rd Tri	0<2	2<9	3rd Tri	0<2	2<9	3rd Tri	0<2	2<9	sum	3rd Tri	0<2	2<9	sum	Route 1	Route 2	Factor	Cancer	HI	Factor	Cancer	HI
OFFROAD																										
Receptor 1: School 1	0.06	0.06	1.03	1.03	0.0E+00	0.0E+00	2.4E-05	0.0E+00	0.0E+00	2.4E-05	0.0000	0.0000	1.1305	*1.13*	0.0000	0.0000	1.1305	*1.13*	0.01	0.01	0.58	0.66	0.01	0.38	0.43	0.00
Receptor 2: School 2	0.14	0.14	2.54	2.54	0.0E+00	0.0E+00	5.9E-05	0.0E+00	0.0E+00	5.9E-05	0.0000	0.0000	2.7932	*2.79*	0.0000	0.0000	2.7932	*2.79*	0.03	0.03	0.58	1.63	0.02	0.38	1.05	0.01
Receptor 3: Residential 1	0.08	0.08	6.63	6.63	2.6E-05	7.9E-05	4.6E-05	2.6E-05	7.9E-05	4.6E-05	1.0295	9.3251	0.0000	*10.35*	1.0295	9.3251	0.0000	*10.35*	0.02	0.02	0.58	6.05	0.01	0.38	3.91	0.01
Receptor 4: Residential 2	0.10	0.10	9.12	9.12	3.6E-05	1.1E-04	6.3E-05	3.6E-05	1.1E-04	6.3E-05	1.4165	12.8309	0.0000	*14.25*	1.4165	12.8309	0.0000	*14.25*	0.02	0.02	0.58	8.33	0.01	0.38	5.38	0.01
Receptor 5: Residential 3	0.03	0.03	2.85	2.85	1.1E-05	3.4E-05	2.0E-05	1.1E-05	3.4E-05	2.0E-05	0.4428	4.0109	0.0000	*4.45*	0.4428	4.0109	0.0000	*4.45*	0.01	0.01	0.58	2.60	0.00	0.38	1.68	0.00
Receptor 6: Residential 4	0.04	0.04	3.39	3.39	1.3E-05	4.0E-05	2.3E-05	1.3E-05	4.0E-05	2.3E-05	0.5264	4.7685	0.0000	*5.29*	0.5264	4.7685	0.0000	*5.29*	0.01	0.01	0.58	3.10	0.00	0.38	2.00	0.00
ONROAD			*9.1*	*9.1*															*0.0*	*0.0*		*8.33*	*0.02*		*5.38*	*0.01*
Receptor 1: School 1	0.02	0.25	0.04	0.49	0.0E+00	0.0E+00	8.6E-06	0.0E+00	0.0E+00	1.1E-04	0.0000	0.0000	0.04	*0.04*	0.0000	0.0000	0.5452	*0.55*	0.00	0.05	0.22	0.12	0.01	0.00	0.00	0.00
Receptor 2: School 2	0.02	0.06	0.04	0.12	0.0E+00	0.0E+00	8.6E-06	0.0E+00	0.0E+00	2.6E-05	0.0000	0.0000	0.04	*0.04*	0.0000	0.0000	0.1309	*0.13*	0.00	0.01	0.22	0.03	0.00	0.00	0.00	0.00
Receptor 3: Residential 1	0.12	0.02	1.13	0.19	4.2E-05	1.3E-04	7.3E-05	6.9E-06	2.1E-05	1.2E-05	0.7030	0.0000	0.00	*0.70*	0.1172	0.0000	0.0000	*0.12*	0.02	0.00	0.22	0.16	0.01	0.00	0.00	0.00
Receptor 4: Residential 2	0.23	0.02	2.17	0.19	8.0E-05	2.4E-04	1.4E-04	6.9E-06	2.1E-05	1.2E-05	1.3474	0.0000	0.00	*1.35*	0.1172	0.0000	0.0000	*0.12*	0.05	0.00	0.22	0.30	0.01	0.00	0.00	0.00
Receptor 5: Residential 3	0.53	0.03	5.00	0.28	1.8E-04	5.5E-04	3.2E-04	1.0E-05	3.1E-05	1.8E-05	3.1048	0.0000	0.00	*3.10*	0.1757	0.0000	0.0000	*0.18*	0.11	0.01	0.22	0.70	0.02	0.00	0.00	0.00
Receptor 6: Residential 4	0.03	0.53	0.28	5.00	1.0E-05	3.1E-05	1.8E-05	1.8E-04	5.5E-04	3.2E-04	0.1757	0.0000	0.00	*0.18*	3.1048	0.0000	0.0000	*3.10*	0.01	0.11	0.22	0.70	0.02	0.00	0.00	0.00
TOTAL			*5.0*	*5.0*															*0.1*	*0.1*		*0.70*	*0.02*		*0.00*	*0.00*
Receptor 1: School 1	0.0758	0.3058	1.07	1.52	0.0E+00	0.0E+00	3.3E-05	0.0E+00	0.0E+00	1.3E-04	0.0000	0.0000	1.1741	*1.17*	0.0000	0.0000	1.6757	*1.68*	0.02	0.06	-	0.78	0.02	-	0.43	0.00
Receptor 2: School 2	0.1579	0.1979	2.58	2.65	0.0E+00	0.0E+00	6.8E-05	0.0E+00	0.0E+00	8.5E-05	0.0000	0.0000	2.8368	*2.84*	0.0000	0.0000	2.9240	*2.92*	0.03	0.04	-	1.66	0.02	-	1.05	0.01
Receptor 3: Residential 1	0.1957	0.0957	7.76	6.82	6.8E-05	2.0E-04	1.2E-04	3.3E-05	1.0E-04	5.8E-05	1.7324	9.3251	0.0000	*11.06*	1.1466	9.3251	0.0000	*10.47*	0.04	0.02	-	6.21	0.01	-	3.91	0.01
Receptor 4: Residential 2	0.3342	0.1242	11.29	9.31	1.2E-04	3.5E-04	2.0E-04	4.3E-05	1.3E-04	7.5E-05	2.7639	12.8309	0.0000	*15.59*	1.5337	12.8309	0.0000	*14.36*	0.07	0.02	-	8.63	0.02	-	5.38	0.01
Receptor 5: Residential 3	0.5626	0.0626	7.85	3.13	1.9E-04	5.9E-04	3.4E-04	2.2E-05	6.5E-05	3.8E-05	3.5476	4.0109	0.0000	*7.56*	0.6185	4.0109	0.0000	*4.63*	0.11	0.01	-	3.30	0.03	-	1.68	0.00
Receptor 6: Residential 4	0.0687	0.5687	3.67	8.39	2.4E-05	7.2E-05	4.2E-05	2.0E-04	5.9E-04	3.4E-04	0.7022	4.7685	0.0000	*5.47*	3.6313	4.7685	0.0000	*8.40*	0.01	0.11	-	3.79	0.03	-	2.00	0.00
max	*5.63E-01*	*5.69E-01*	*11.29*	*9.31*	*2E-04*	*6E-04*	*3E-04*	*2E-04*	*6E-04*	*3E-04*	*3.55*	*12.83*	*2.84*	*15.59*	*3.63*	*12.83*	*2.92*	*14.36*	*0.11*	*0.11*	*-*	*8.63*	*0.03*	*-*	*5.38*	*0.01*

Adjustment for Cut to Fill Amounts for Revisions to RDEIR (11/5/16)

		HRA 2011	PM10 Emission	Notes:
HRA 2011	Cut to Fill	100,000 CY	0.085	Based on Chapin, 2007
Adjusted 2016	Cut to Fill	120,000 CY	0.102	Adjusted by ICF 2016
Delta			*0.017*	
HRA 2011	Total PM10		0.790	From HRA 2011
Adjusted 2016	Total PM10		0.807	Adjusted by ICF 2016
Delta			0.017	
Change (%)			2.1%	Change in overall emissions

Appendix H – Water Supply Calculations

A new appendix has been added to the RDEIR to show the water supply analysis calculations and data used. This is found in the next part of this document.

Appendix H
Water Supply Calculations

Appendix H

Water Supply Calculations

Summary

The Proposed Project (or the 130-unit Alternative) will create water demands, consumptively use water, and will change groundwater recharge conditions on the project site. This appendix presents the baseline information on Rancho Canada golf course irrigation use, data on precipitation and evapotranspiration, Proposed Project/130-unit Alternative proposed water uses, consumptive use impacts compared to baseline, recharge analysis of non-impervious land covers using a soil-water balance model, and recharge analysis for impervious areas.

Table H1-1 presents Rancho Canada Golf Course Irrigation Data for 1991 to 2014 along with estimated precipitation at the project site.

Table H1-2 presents Rainfall Averages for the Monterey Peninsula and for the site from 1991 to 2014.

Table H1-3 presents the fixture unit count assumptions used to estimate Proposed Project/130-unit Alternative water demands.

Table H1-4 presents the estimated baseline consumptive use for different types of use years. The evapotranspiration factors used in the estimate of baseline consumptive use were derived from the soil-water balance modelling (see Table H2-1).

Table H1-5 presents the estimated water demands and consumptive use for the Proposed Project.

Table H1-6 compares the Proposed Project's consumptive use to the baseline consumptive use.

Table H1-7 presents the estimated water demands and consumptive use for the 130-unit Alternative.

Table H1-8 compares the 130-unit Alternative's consumptive use to the baseline consumptive use.

Table H1-9 presents monthly data on golf course irrigation, precipitation, and reference evapotranspiration for Water Years 2009 to 2014. Figures and graphs follow this table to illustrate the relationship between irrigation, precipitation and evapotranspiration.

Table H1-10 presents a profile of change in seasonal pumping from baseline conditions to Proposed Project and 130-unit Alternative Conditions.

Table H1-11 presents data on individual wells on the Rancho Canada golf course including location, ownership, and pumping amounts from 1986 to 2014.

Table H1-12 presents reported data on Cal-Am system losses in Water Years 2014 and 2015.

Table H2-1 presents the results of the groundwater recharge analysis.

Table H2-2 presents the land cover acreages used in the recharge analysis as well as plant factors for different land cover types.

Table H2-3 presents data on precipitation and evapotranspiration used for the recharge analysis from the on-site CIMIS weather station (#210) on the Rancho Canada golf course for WY 2009 to WY 2016.

Table H2-4 presents measured and modelled precipitation and reference evapotranspiration for Rancho Canada Golf Course for Water Years 1991 to 2016.

Table H2-5 describes the factors and data used to estimate available water capacity for use in the soil-water balance modelling and describes the soil-water balance model source.

Table H2-6 summarizes the results of the soil-water balance modelling for turf/landscape areas for 1991 – 2016.

Table H2-7 summarizes the results of the soil-water balance modelling for woodland areas for 1991 – 2016.

Table H2-8 summarized the results of the soil-water balance modelling for scrub areas for 1991 – 2016.

Table H2-9 summarized the results of the soil-water balance modelling for wetland areas for 1991 – 2016.

Table H2-10 summarized the results of the soil-water balance modelling for pond areas for 1991 – 2016.

Table H2-11 summarized the results of the soil-water balance modelling for grassland areas for 1991 – 2016.

Table H3-1 presents the results of the infiltration analysis for impervious parts of the Proposed Project and the 130-unit Alternative to estimate how much of runoff from impervious areas will contribute to recharge due to being routed to proposed infiltration basin(s). The analysis was done for Water Years 2003 and 2009 to 2016, as hourly precipitation and evapotranspiration data were available for those periods. Two example output sheets from the modelling follow the table.

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Table H1-1: Existing Rancho Canada Golf Course Use., 1991 - 2014				
Year	**Irrigation**	**Type**	**Precip**	**Type**
1991	358.4	RY1991	11.9	WY1991
1992	425.0	RY1992	15.3	WY1992
1993	440.5	RY1993	25.8	WY1993
1994	465.9	RY1994	12.0	WY1994
1995	337.6	RY1995	24.4	WY1995
1996	457.2	RY1996	18.0	WY1996
1997	499.8	RY1997	18.7	WY1997
1998	346.6	RY1998	40.6	WY1998
1999	309.4	RY1999	17.2	WY1999
2000	489.3	RY2000	18.0	WY2000
2001	430.8	RY2001	16.5	WY2001
2002	522.0	WY2002	13.4	WY2002
2003	451.9	WY2003	15.8	WY2003
2004	451.8	WY2004	14.1	WY2004
2005	379.4	WY2005	26.2	WY2005
2006	368.8	WY2006	21.3	WY2006
2007	404.3	WY2007	12.1	WY2007
2008	443.3	WY2008	12.3	WY2008
2009	411.8	WY2009	19.7	WY2009
2010	324.1	WY2010	18.8	WY2010
2011	309.1	WY2011	19.9	WY2011
2012	340.6	WY2012	8.9	WY2012
2013	419.3	WY2013	8.9	WY2013
2014	442.3	WY2014	5.9	WY2014
Avg. 1991 - 2014	**409.6**		**17.3**	
"Low Use Year" (25th percentile)	355.42			
"High Use Year" (25th percentile)	451.85			
"Very High Use Year" (90th percentile)	482.29			

Source: Water Use 1991 - 2005 from Lombardo 2006, based on MPWMD records (WMCALC spreadsheets); 2006 to 2014 based on Zitschke 2014a and 2014 .

Notes:

1. RY = Reporting Year = July 1 to June 30; WY = Water Year = October 1 through September 30

2. Assumptions for low, high, and very high use year as follows: "Low use" year based on 25th percentile; "high use" year based on 75th percentile, and "very high use" year based on 95th percentile. Resultant calculations are that a "low use" year would be 87% of average, "high use" year would be 110% of average, and "very high use year" would be 118% of average. These assumption are not intended to be predictive for any particular year, but rather to reflect the range in the baseline irrigation use.

3. Site precip for 2009-2016 from CIMIS for on-site Weather Station #210 (http://www.cimis.water.ca.gov/);Site precip for 1991 - 2008 estimated through linear regression using Monterey Weather Station data for 2008 - 2016 compared to site precip from CIMIS. MontereyWeather Station Precipitation 1991 - Sept. 1994 and Oct. 2014 - Sept. 2016 from Hopkins Marine Station, Monterey Weather Station #5795; accessed via Web at http://www-marine.stanford.edu/HMSweb/climate.html; Precip Oct. 94- Sep.2014 from National Weather Service Climatological Station, Monterey, California 93940 (elevation 385'), accessed via web at: accessed via web at: http://met.nps.edu/~ldm/renard_wx/.

Table H1-2
Monterey Peninsula and Site Rainfall 1991 - 2016 (inches)

	Monterey	Site
Year	**WY**	**WY**
1991	13.2	11.9
1992	17.9	15.3
1993	30.1	25.8
1994	14.0	12.0
1995	28.4	24.4
1996	21.0	18.0
1997	21.7	18.7
1998	47.4	40.6
1999	20.1	17.2
2000	21.0	18.0
2001	19.2	16.5
2002	15.6	13.4
2003	18.4	15.8
2004	16.4	14.1
2005	30.5	26.2
2006	24.8	21.3
2007	14.1	12.1
2008	14.4	12.3
2009	17.5	19.7
2010	23.9	18.8
2011	24.5	19.9
2012	13.5	8.9
2013	13.1	8.9
2014	8.9	**5.9**
2015	9.6	9.6
2016	25.5	25.5
Avg. 95 - 14	**20.7**	**17.5**
Avg. 91 - 16	**21.9**	**17.3**

Note: Precipitation 1991 - Sept. 1994 from Hopkins Marine Station, Monterey Weather Station #5795; accessed via Web at http://www-marine.stanford.edu/HMSweb/climate.html; Precip Oct. 94- Sep.2014 from National Weather Service Climatological Station, Monterey, California 93940 (elevation 385'), accessed via web at: accessed via web at: http://met.nps.edu/~ldm/renard_wx/. Site precip from CIMIS, 10/24/2008 - 09/30/16; Site precip fro 1991 - 2008 estimated through linear regression using Monterey Weather Station data for 2008 - 2016 compared to site precip from CIMIS.

Table H1-3
Water Demand by Housing Type

		Condo		Townhouse		SFR- Small		SFR-Medium		SFR-Large	
	FU Value	**No.**	**FU Count**	**No.**	**FU Count**	**No.**	**FU Count**	**No.**	**FU Count**	**No.**	**FU Count**
Wash Basins (lavatory sink) each	1.0	2	2.0	2	2.0	3	3.0	3	3.0	4	4.0
Two washbasins in Master Bathroom	1.0									1	1.0
Toilet (ULF, 1.6 gpf)	1.8										
Toilet (HET, 1.3 gpf)	1.3	2	2.6	2	2.6	3	3.9	3	3.9	4	5.2
Toilet (UHET, 0.8 gpf)	0.8										
Masterbath (Tub, sep. shower)	3.0		0.0		0.0		0.0	1	3.0	1	3.0
Large bathtub (w/ showerhead)	3.0									1	
Standard bathtub (w/ showerhead)	2.0	1	2.0	2	4.0	2	4.0	2	4.0	2	4.0
Shower, separate stall	2.0		0.0		0.0		0.0		0.0		0.0
Kitchen sink and dishwasher	2.0	1	2.0	1	2.0	1	2.0	1	2.0	2	4.0
Kitchen sink and HE dishwasher	1.5										
Laundry/utility sink	2.0		0.0		0.0	1	2.0	1	2.0	2	4.0
Washing Machine	2.0										
Washing Machine (HEW, WF 5 or less	1.0	1	1.0	1	1.0	1	1.0	1	1.0	1	1.0
Bidet	2.0		0.0		0.0		0.0		0.0		0.0
Bar sink	1.0		0.0		0.0		0.0		0.0		0.0
Entertainment sink	1.0									1	1.0
Vegetable sink	1.0		0.0		0.0		0.0		0.0		0.0
Subtotal Interior Fixture Units			*9.6*		*11.6*		*15.9*		*18.9*		*27.2*
Landscaping (Interior FUs X 0.5)			*4.8*		*5.8*		*8.0*		*9.5*		*13.6*
Swimming Pools (per 100 SF)	1.0		0.0		0.0		0.0	3.0	3.0	4.5	4.5
Fixture Unit Count			*14.4*		*17.4*		*23.9*		*31.4*		*45.3*
Acre-Feet/Unit (0.01 AF/FU)			**0.14**		**0.17**		**0.24**		**0.31**		**0.45**

Prepared by ICF using MPWMD Fixture Unit Methodology (2015b). All Assumptions about number of fixtures by ICF

Table H1-4: Baseline Consumptive Use (Acre-Feet)				
	Average Year	**Low Use Year**	**High Use Year**	**Very High Use Year**
Proposed Project				
Irrigation Pumping	204.8	177.7	225.9	241.1
Evapotranspiration of Irrigation	145.1	113.4	170.8	195.0
Baseline Consumptive Use	*145.1*	*113.4*	*170.8*	*195.0*

Notes:

1. Average Irrigation identified based on 50% of the average irrigation per golf course turf acre (1991-2014, see Table H1-1.

2. Assumptions for low, high, and very high irrigation pumping years as follows: "Low use" year based on 25th percentile; "high use" year based on 75th percentile, and "very high use" year based on 95th percentile. Resultant calculations are that a "low use" year would be 84% of average, "high use" year would be 107% of average, and "very high use year" would be 118% of average. These assumption are not intended to be predictive for any particular year, but rather to reflect the range in the baseline irrigation use. These assumptions are general only to give an idea of the range of irrigation demand in the baseline and to reflect that range in the analysis.

3. Consumptive use determined by determining average year evapotranspiration by conducting an soil-moisture water balance analysis using monthly data from 1991 to 2014 on applied water (irrigation), reference evapotranspiration, precipitation, using an appropriate turfgrass plan coefficent to adjust reference evapotranspiration, accounting for soil moisture change and then calculating evapotranspiration (see Table H2-1 and following tables). Approach to low, high, and high use the samed method as above for irrigation pumping.

Table H1-5
Rancho Canada Village Estimated Water Demand/Use
(by ICF)

	Units	AF/Unit	Total	Landscape Irrigation Adjustments			
Housing				100%	87%	110%	118%
Condominiums	35.0	0.14	5.0	1.7			
Townhouses	64.0	0.17	11.1	3.7			
Small Lot Single Family	67.0	0.24	16.0	5.3			
Medium Lot Single Family	114.0	0.31	35.7	11.9			
Large Lot Single Family	1.0	0.45	0.5	0.1			
Housing Water Demand	*281*		*68.3*	22.7	*19.7*	*25.1*	*26.8*
Evapotranspiration adjust for landscape in units			-6.6	-6.6	-7.1	-6.1	-5.1
Housing Consumptive Use			*61.7*	61.7	*58.2*	*64.6*	*67.3*
Shared Landscape Areas							
Active Park (per MAWA limit from MWELO)	2.6	1.0	2.6				
Landscape Parkways (per MAWA limit from MWELO)	3.3	2.3	7.7				
Landscape Water Demand			*10.3*	*10.3*	*8.9*	*11.3*	*12.1*
Evapotranspiration adjust for shared landscape			-3.0	-3.0	-3.2	-2.8	-2.3
Landscape Consumptive Use			*7.3*	*7.3*	*5.7*	*8.6*	*9.8*
Subtotal Water Demand			**78.6**	**78.6**	**74.3**	**82.0**	**84.5**
Treatment (15%) and System (7%) Loss)			*22.2*	*22.2*	*20.9*	*23.1*	*23.8*
Subtotal Consumptive Use			**69.0**	*69.0*	*63.9*	*73.1*	*77.0*
Treatment (15%) and System (7%) Loss)			*19.5*	*19.5*	*18.0*	*20.6*	*21.7*
Average Year Water Demand			**100.8**	**100.8**	**95.2**	**105.2**	**108.3**
Wet Year			*95.2*				
Dry Year			*105.2*				
Very Dry Year			*108.3*				
Average Year Consumptive Use			**88.5**	**88.5**	**81.9**	**93.8**	**98.8**
Wet Year			*81.9*				
Dry Year			*93.8*				
Very Dry Year			*98.8*				

MAWA = ETo X 0.62 X(ET adj X LA + 1-Ead jX SLA)	10.27	Source		Acres	MAWA	Total (AFY)
Eto	40.10	CIMIS	Park	2.6	2.3	7.7
ET adj	0.7	MWELO	Parkways	3.3	1.0	2.6
LA (landscaped area in SF)	143,748	Project Data				10.3
0.62 - conversion for gallons	0.62	Factor				
325851 - gallons per AF	325,851	Factor				
SLA (special landscape area)	113,256	Park				

Table H1-6
Rancho Canada Village Water Impact
(Acre-Feet)

	Baseline Use	Project Use	Net Change
Average Year	145.1	88.5	-56.7
Wet Year	113.4	81.9	-31.5
Dry Year	170.8	93.8	-77.0
Very Dry Year	195.0	98.8	-96.3

Sources: See Tables H.1-4 and H.1-5.

Table H1-7
130 unit Alternative Estimated Water Demand/Use
(by ICF)

	Units	AF/Unit	Total	Notes	Landscape Adjustments for Evaporation			
					100%	87%	110%	118%
Housing								
Condominiums	12	0.14	1.7	Rev MPWMD factor	0.6			
Small Lot Single Family	110	0.24	26.2	Rev MPWMD factor	8.7			
Medium Lot Single Family	7	0.31	2.2	Rev MPWMD factor	0.7			
Large Lot Single Family	1	0.45	0.5		0.1			
Housing Direct Water Demand	*130*		*30.6*		10.2	*8.8*	*11.2*	*12.0*
Unit landscaping adjusted			*-3.0*		-3.0	-3.2	-2.7	-2.3
Housing Consumptive Use			*27.6*		27.6	26.1	28.9	30.1
Shared Landscaping								
Open Space Irrigation Demand	7.7	2.3	17.9	Used MAWA from	*17.9*	*15.5*	*19.8*	*21.1*
Shared landscaping adjusted			*-5.2*		-5.2	-5.6	-4.8	-4.0
Shared Landscaping Consumptive Use			*12.7*		*12.7*	*9.9*	*14.9*	*17.1*
Subtotal Water Demand			**48.5**		*48.5*	*44.8*	*51.4*	*53.5*
Treatment (15%) and System (7%) Loss)			13.7	Total of 22% loss	*13.7*	*12.6*	*14.5*	*15.1*
Subtotal Consumption Use			**40.3**		*40.3*	*36.0*	*43.9*	*47.2*
Treatment (15%) and System (7%) Loss)			11.4	Total of 22% loss	*11.4*	*10.2*	*12.4*	*13.3*
Residential Element Water Demand			**62.2**		**62.2**	**57.4**	**65.9**	**68.6**
Wet Year			*57.4*					
Dry Year			*65.9*					
Very Dry Year			*68.6*					
Residential Element Consumptive Use			**51.7**		**51.7**	**46.1**	**56.2**	**60.5**
Wet Year			*46.1*					
Dry Year			*56.2*					
Very Dry Year			*60.5*					
Water Transfer								
Water Transfer to Other Cal-Am Users			60.0					
Net Water Demand (Average Year)			**122.2**					
Wet Year			*117.4*					
Dry Year			*125.9*					
Very Dry Year			*128.6*					
Net Water Use (Average Year)			**111.7**					
Wet Year			*106.1*					
Dry Year			*116.2*					
Very Dry Year			*120.5*					

MAWA = EToX 0.62 X(ET adj X LA + 1-Ead jX SLA)	17.91	Acre-Feet
MAWA = EToX 0.62 X(ET adj X LA + 1-Ead jX SLA)	2.3	Acre-Feet per Acre
Eto	40.10	Inches
ET adj	0.7	Factor from MWELO
LA (landscaped area in SF)	335,412	Square Feet
0.62 - conversion for gallons	0.62	Conversion factor
Gallons per AF	325,851	Conversion factor
SLA (special landscape area)	0	N/A

Table H1-8
130 Unit Alternative Water Impact
(Acre-Feet)

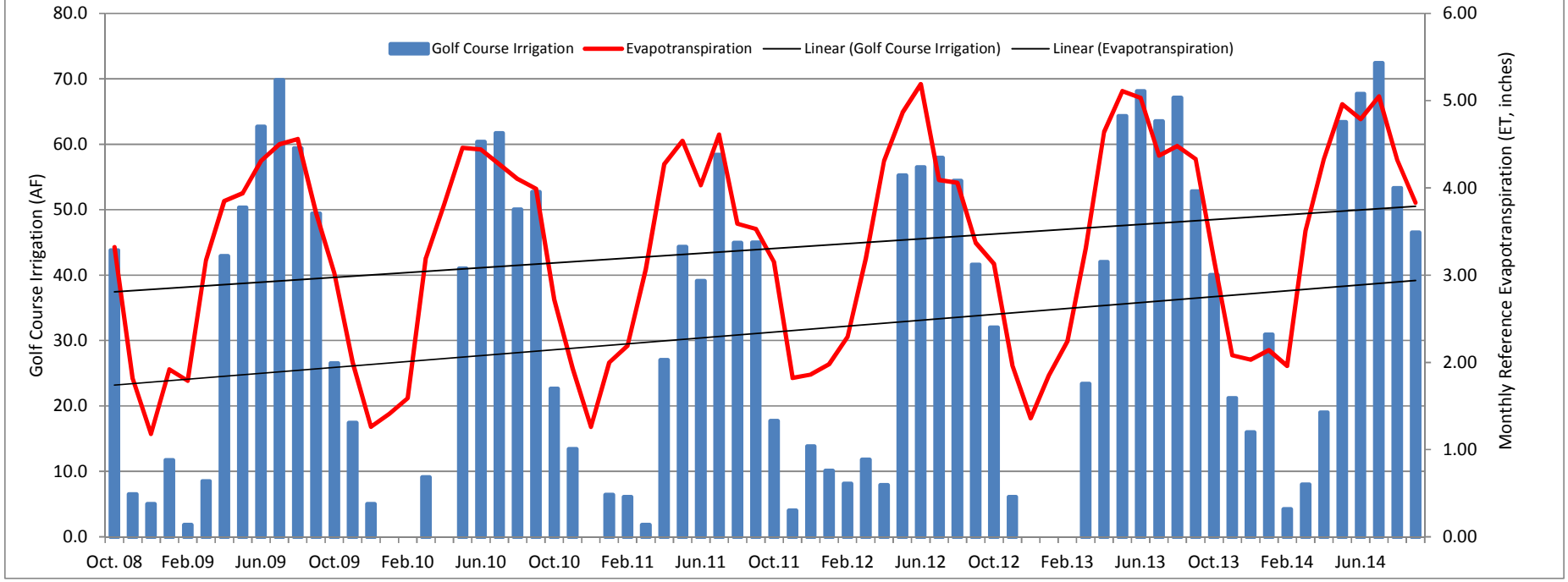
	Baseline Use	Alternative Use	Net Change
Average Year	145.1	111.7	-33.4
Wet Year	113.4	106.1	-7.3
Dry Year	170.8	116.2	-54.6
Very Dry Year	195.0	120.5	-74.5

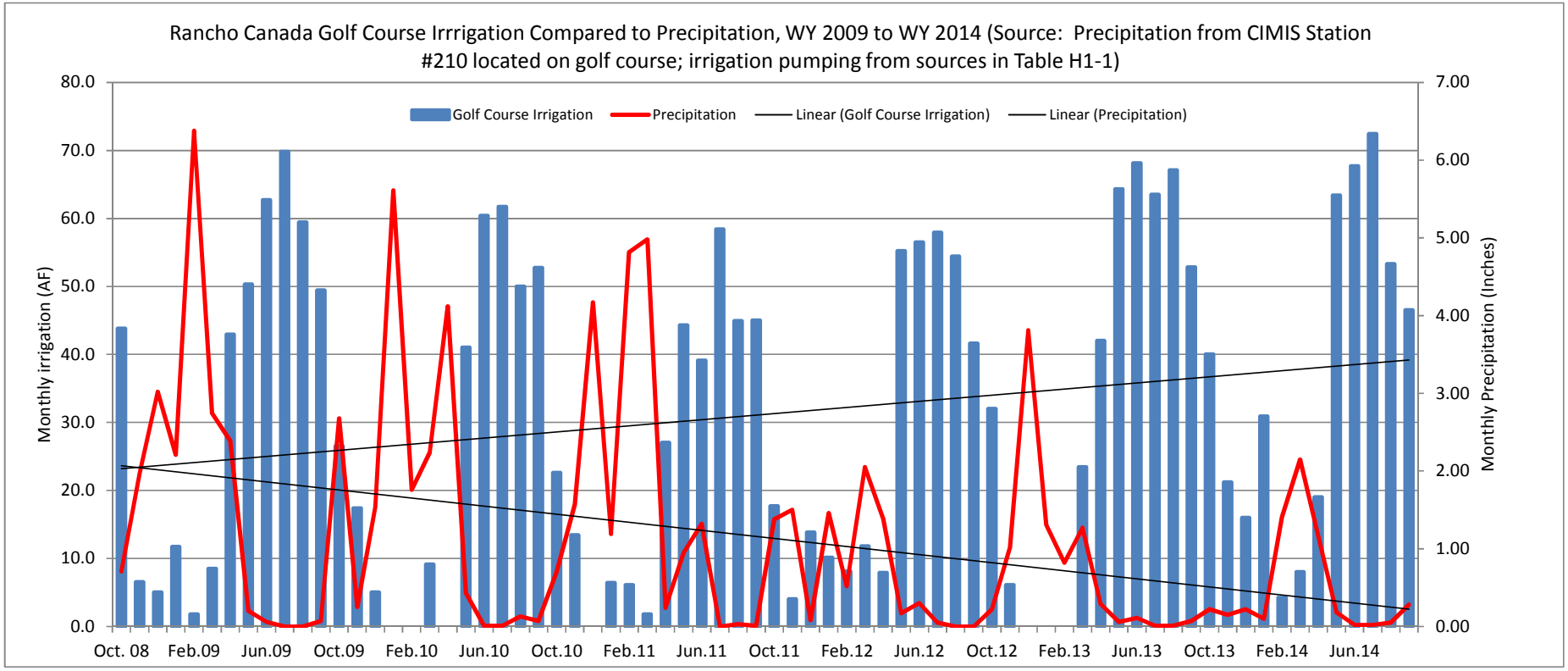
Note: The Applicant's proposed dedication for instream beneficial uses is not considered a consumptive use of water and is not used in the calculations above. On average, the 130-unit alternative would result in 46 AFY less consumptive water use than under defined baseline conditions. This anount would be available for dedication for instream purposes.

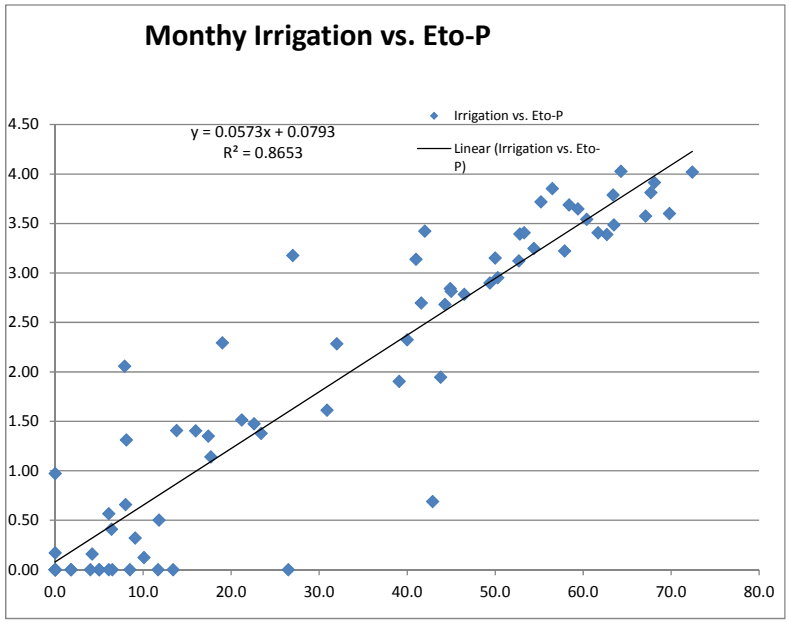
Table H.1-9: Existing Rancho Canada Golf Course Use, Irrigation, Precipitation, and Reference Evapotranspiration 2009 - 2014															
Year	**Irrigation - AFY**	**Type**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Total**
2009	411.8	WY2009	43.8	6.5	5.0	11.7	1.8	8.5	42.9	50.3	62.7	69.8	59.4	49.4	411.8
2010	324.1	WY2010	26.5	17.4	5.0	0.0	0.0	9.1	0.0	41.0	60.4	61.7	50.0	52.7	323.8
2011	309.1	WY2011	22.6	13.4	0.0	6.4	6.1	1.8	27.0	44.3	39.1	58.4	44.9	45.0	309.0
2012	340.6	WY2012	17.7	4.0	13.8	10.1	8.1	11.8	7.9	55.2	56.5	57.9	54.4	41.6	339.0
2013	419.3	WY2013	32.0	6.1	0.0	0.0	0.0	23.4	42.0	64.3	68.1	63.5	67.1	52.8	419.3
2014	442.3	WY2014	40.0	21.2	16.0	30.9	4.2	8.0	19.0	63.4	67.7	72.4	53.3	46.5	442.6
Avg. 2009 - 2014	**374.5**		**30.4**	**11.4**	**6.6**	**9.9**	**3.4**	**10.4**	**23.1**	**53.1**	**59.1**	**64.0**	**54.9**	**48.0**	374.2
Source: See Table H>1-1															
Year	**Precip, - Inches**	**Type**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Total**
2009	19.0	WY2009	0.0	2.0	3.0	2.2	6.4	2.7	2.4	0.2	0.1	0.0	0.0	0.1	19.0
2010	18.9	WY2010	2.7	0.3	1.5	5.6	1.8	2.2	4.1	0.4	0.0	0.0	0.1	0.1	18.9
2011	20.0	WY2011	0.7	1.6	4.2	1.2	4.8	5.0	0.2	1.0	1.3	0.0	0.0	0.0	20.0
2012	8.9	WY2012	1.4	1.5	0.1	1.5	0.5	2.1	1.4	0.2	0.3	0.1	0.0	0.0	8.9
2013	9.0	WY2013	0.2	1.0	3.8	1.3	0.8	1.3	0.3	0.1	0.1	0.0	0.0	0.1	9.0
2014	6.0	WY2014	0.2	0.2	0.2	0.1	1.4	2.2	1.2	0.2	0.0	0.0	0.1	0.3	6.0
Avg. 2009 - 2014	**13.6**		**0.9**	**1.1**	**2.1**	**2.0**	**2.6**	**2.6**	**1.6**	**0.3**	**0.3**	**0.0**	**0.0**	**0.1**	13.6
Source: CIMIS															

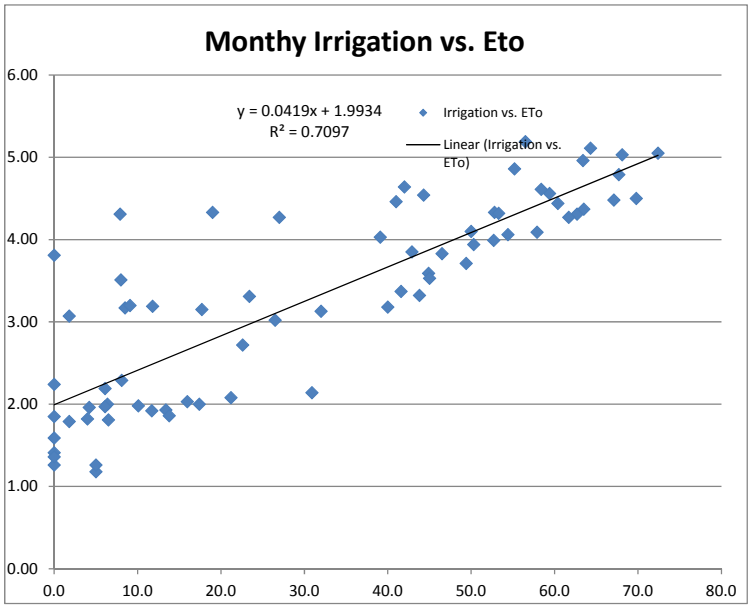
Year	**Reference ET (Eto)**	**Type**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Total**
2009	34.7	WY2009	0.0	1.8	1.2	1.9	1.8	3.2	3.9	3.9	4.3	4.5	4.6	3.7	34.7
2010	37.6	WY2010	3.0	2.0	1.3	1.4	1.6	3.2	3.8	4.5	4.4	4.3	4.1	4.0	37.6
2011	37.7	WY2011	2.7	1.9	1.3	2.0	2.2	3.1	4.3	4.5	4.0	4.6	3.6	3.5	37.7
2012	40.2	WY2012	3.2	1.8	1.9	2.0	2.3	3.2	4.3	4.9	5.2	4.1	4.1	3.4	40.2
2013	41.8	WY2013	3.1	2.0	1.4	1.9	2.2	3.3	4.6	5.1	5.0	4.4	4.5	4.3	41.8
2014	42.2	WY2014	3.2	2.1	2.0	2.1	2.0	3.5	4.3	5.0	4.8	5.1	4.3	3.8	42.2
Avg. 2009 - 2014	**39.0**		**2.5**	**1.9**	**1.5**	**1.9**	**2.0**	**3.2**	**4.2**	**4.6**	**4.6**	**4.5**	**4.2**	**3.8**	39.0
Source: CIMIS															

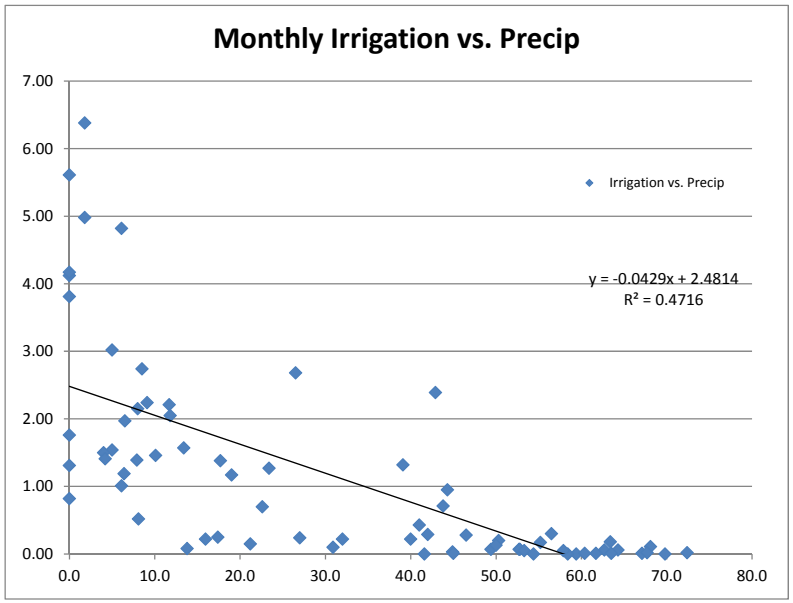
Rancho Canada Golf Course Irrigation Compared to Reference Evaporation, WY 2009 to WY 2014
(Source: Evapotransporation from CIMIS Station #210 located on golf course; irrigation pumping from sources in Table H1-1)




Rancho Canada Golf Course Irrrigation Compared to Precipitation, WY 2009 to WY 2014 (Source: Precipitation from CIMIS Station #210 located on golf course; irrigation pumping from sources in Table H1-1)
Golf Course Irrigation
Precipitation
Linear (Golf Course Irrigation)
Linear (Precipitation)
Monthly irrigation (AF)
Monthly Precipitation (Inches)
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0
7.00
6.00
5.00
4.00
3.00
2.00
1.00
0.00
Oct. 08
Feb.09
Jun.09
Oct.09
Feb.10
Jun.10
Oct.10
Feb.11
Jun.11
Oct.11
Feb.12
Jun.12
Oct.12
Feb.13
Jun.13
Oct.13
Feb.14
Jun.14


Monthy Irrigation vs. Eto-P
y = 0.0573x + 0.0793
R² = 0.8653
Irrigation vs. Eto-P
Linear (Irrigation vs. Eto-P)
4.50
4.00
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.00
0.0
10.0
20.0
30.0
40.0
50.0
60.0
70.0
80.0


Monthy Irrigation vs. Eto
y = 0.0419x + 1.9934
R² = 0.7097
Irrigation vs. ETo
Linear (Irrigation vs. ETo)
6.00
5.00
4.00
3.00
2.00
1.00
0.00
0.0
10.0
20.0
30.0
40.0
50.0
60.0
70.0
80.0


Monthly Irrigation vs. Precip
Irrigation vs. Precip
y = -0.0429x + 2.4814
R² = 0.4716
7.00
6.00
5.00
4.00
3.00
2.00
1.00
0.00
0.0
10.0
20.0
30.0
40.0
50.0
60.0
70.0
80.0

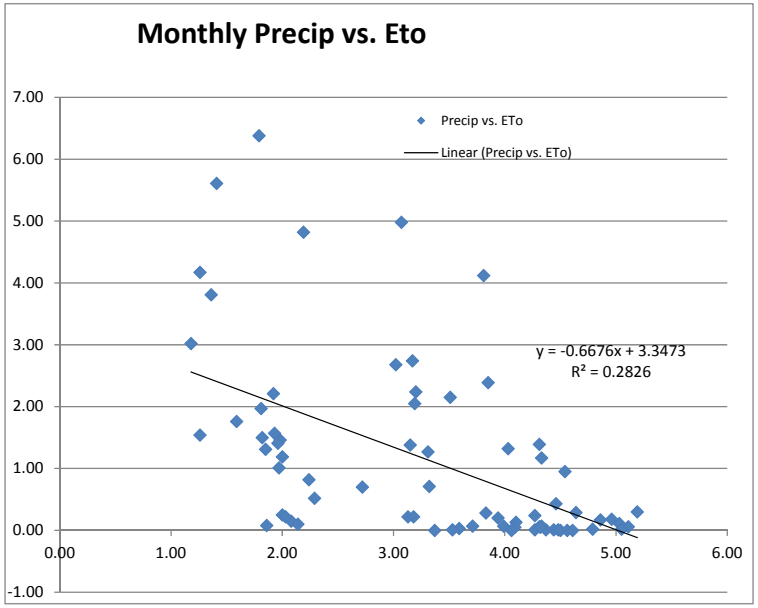

Monthly Precip vs. Eto
Precip vs. ETo
Linear (Precip vs. ETo)
y = -0.6676x + 3.3473
R² = 0.2826
7.00
6.00
5.00
4.00
3.00
2.00
1.00
0.00
-1.00
0.00
1.00
2.00
3.00
4.00
5.00
6.00

Table H1-10: Change in Seasonal Pumping Patterns								
Proposed Project	**Baseline(AF)**	**%**	**Project (AF)**	**%**	**Change (AF)**	**130-Unit Alt. (AF)**	**%**	**Change (AF)**
October	16.65	8.1%	8.33	8.3%	-8.3	9.47	7.7%	-7.2
November	6.26	3.1%	6.66	6.6%	0.4	8.04	6.6%	1.8
December	3.63	1.8%	6.23	6.2%	2.6	7.68	6.3%	4.1
January	5.39	2.6%	6.52	6.5%	1.1	7.92	6.5%	2.5
February	1.84	0.9%	5.94	5.9%	4.1	7.44	6.1%	5.6
March	5.71	2.8%	6.57	6.5%	0.9	7.97	6.5%	2.3
April	12.66	6.2%	7.69	7.6%	-5.0	8.92	7.3%	-3.7
May	29.05	14.2%	10.33	10.2%	-18.7	11.17	9.1%	-17.9
June	32.33	15.8%	10.86	10.8%	-21.5	11.62	9.5%	-20.7
July	34.99	17.1%	11.29	11.2%	-23.7	11.98	9.8%	-23.0
August	30.01	14.7%	10.49	10.4%	-19.5	11.30	9.2%	-18.7
September	26.26	12.8%	9.88	9.8%	-16.4	10.79	8.8%	-15.5
TOTAL	204.78	100.0%	100.79	100.0%	-104.0	122.21	100.0%	-82.6
Irrigation	204.78		42.33			36.02		
Other Use	0.00		67.77			86.19		

1. Baseline, Project and 130-unit pumping based on average year values.
2. Seasonality of irrigation based on golf course monthly irrigation records, WY 2009 - WY 2014.
3. Project and 130-unit Alternative irrigation use includes system losses relative to irrigation.

Table H1-11: Rancho Canada Golf Course: Well Production by Well 1986 to 2014

Well	RC3 (17West or 17W)	RC5 (15 East or 15E)	RC1 (12 East)	RC2	RC4		
Section	SW1/4,SE1/4,S18,T16S,R1E	SW1/4,SW1/4,S17,T16S,R1E					
Location	West Course, 17th Hole	East Course, 15th Hole	East Course, 12th Hole	Driving Range	Unknown		
Parcel	015-162-039	157-181-004					
Current Property Owner	Lombardo Land Group I	Lombardo Land Group II	Trust for Public Land	Lombardo Land II?	Unknown		
Water Year	Pumping	Pumping	Pumping	Pumping	Pumping	Total	Data Source
1986	121.72	221.19	0	86.09	194.68	623.68	Lombardo 2006 (PCC method)
1987	145.57	222.92	0	156.12	159.3	683.91	Lombardo 2006 (PCC method)
1988	122.73	0	159.24	240.64	133.1	655.71	Lombardo 2006 (PCC method)
1989	153.50	0	97.6	168.8	92.2	512.10	Lombardo 2006 (PCC method)
1990	117.52	200.89	146.05	16	20.17	500.63	Lombardo 2006 (PCC method)
1991	213.72	46.92	38.2	59.51	0	358.35	Lombardo 2006
1992	243.95	2.14	0	178.94	0	425.03	Lombardo 2006
1993	250.53	0.58	0	189.4	0	440.51	Lombardo 2006
1994	265.55	2.33	0	198.01	0	465.89	Lombardo 2006
1995	185.03	11.52	0	141	0	337.55	Lombardo 2006
1996	244.98	0	0	212.2	0	457.18	Lombardo 2006
1997	227.24	112.09	0	160.43	0	499.76	Lombardo 2006
1998	190.42	128.47	0	27.72	0	346.61	Lombardo 2006
1999	98.98	0	0	210.43	0	309.41	Lombardo 2006
2000	178.49	187.71	0	123.12	0	489.32	Lombardo 2006
2001	215.30	199.72	0	15.82	0	430.84	Lombardo 2006
2002	199.26	265.7	0	57.04	0	522.00	Lombardo 2006
2003	236.89	199.09	0	15.94	0	451.92	Lombardo 2006
2004	200.40	251.43	0	0	0	451.83	Lombardo 2006
2005	162.76	130.69	0	85.94	0	379.39	Lombardo 2006
2006	199.81	169.03				368.84	MPWMD Water Production Reports and Statements of Water Diversion as presented in Zischke 2104a and Zischke 2014b.
2007	213.83	190.49				404.32	
2008	227.38	215.93				443.31	
2009	215.84	195.93				411.77	
2010	161.52	162.54				324.06	
2011	158.45	150.69				309.14	
2012	186.04	153.14				339.19	
2013	227.53	191.78				419.31	
2014	227.97	214.37				442.34	
Average 1986 - 2014	192.86	131.98	15.21	80.80	20.67	441.51	Includes PCC method data
Average 1991 - 2014	205.49	132.60	1.59	69.81	0.00	**409.49**	Only Includes Water Meter Data

Other wells described in noted references

"11E (inactive)"	NE1/4,SE1/4,S17,T16S,R1E	11th hole, east course?
RC?	SW1/4,SE1/4,S18,T16S,R1E	
Cal-AM Canada Well	NE1/4,SW1/4,S17,T16S,R1E	East Side GC
Cal-AM Well B	NE1/4,SW1/4,S18,T16S,R1E	West of GC, not on GC properties
Cal-AM San Carlos Well	NE1/4,SE1/4,S17,T16S,R1E	East of GC, not on GC properties

Table H1-12: Cal-AM System Production and Losses 2014 - 2015

Month	Cal-AM Production (AF)
Nov 14	751
Dec. 14	770
Jan.15	763
Feb. 15	793
Mar. 15	796
Apr. 15	841
May. 15	841
Jun.15	879
Jul. 15	958
Aug. 15	985
Sep. 15	919
Oct. 15	867
Nov. 15	666
Dec. 15	644
Source: MPWMD Monthly reports, 2015a, 2016	

	Losses (AF)
Nov. 14 - Oct. 15	446
Dec 14 - Nov 15	221
Jan 15 - Dec 15	247
Source: CAL-Am CDO Report, Q1, 2016	

	Production (AF)	Losses (AF)	Percent
Nov. 14 - Oct. 15	10,163	446	4%
Dec 14 - Nov 15	10,078	221	2%
Jan 15 - Dec 15	9,952	247	2%

Source: See above

Table H2-1a: Summary of Proposed Project Groundwater Recharge Analysis (Acre-Feet)

Groundwater Pumping					
	Factors	Baseline		Project	
Groundwater Pumping (1)		*204.78*		*100.79*	
Groundwater Recharge					
	Recharge (2)	Landcover (3)	Recharge (4)	Landcover (3)	Recharge (4)
Landcover	AFY Per Acre	Acre	AFY	Acres	AFY
Turf	1.07	56.70	60.59	5.90	6.30
Developed Area - Impervious	NA	0.00	0.00	22.59	29.83
Developed Area - Pervious (5)	NA	0.00	0.00	14.46	15.45
Detention Basin (6)	NA	0.00	0.00	1.10	NA
Woodland	1.18	0.00	0.00	22.04	25.92
Scrub	1.04	10.90	11.35	0.50	0.52
Pond	0.47	1.40	0.65	0.00	0.00
Wetland	0.47	0.30	0.14	1.20	0.00
Grassland	0.64	0.00	0.00	8.60	5.49
Subtotal		*69.30*	*72.73*	*76.39*	*83.52*
Net Groundwater Recharge					
Net Recharge			**-132.05**		**-17.27**
Change with Proposed Project					***114.77***

Notes:

1. Pumping amounts are total irrigation.
2. Recharge estimates for natural and landscape land covers from soil-water balance calculations for 1991 to 2014.
3. Land cover acreages from GIS analysis for biological resource evaluation. Adjustments made to avoid double-counting areas and to match baseline and project acreage overall.
4. Recharge estimated by multiplying recharge estimate per acre by land cover acreage, except for analysis of impervious areas for the Proposed Project which were estimated using a modified runoff-infiltration model used by Balance Hydrologics.
5. Pervious areas within the development footprint were treated as if they were turf.
6. Detention basin is tied to impervious space; to avoid double-counting, no infiltration of direct precipitation in this area was included.

Table H2-1b: Summary of Groundwater Recharge Analysis, 130-unit Alternative

	Factors	Baseline		130-Unit Alternative	
Groundwater Pumping					
Groundwater Pumping (1)		*204.78*		122.21	
Groundwater Recharge					
	Recharge (2)	Landcover (3)	Recharge (4)	Landcover (3)	Recharge (4)
Landcover	AFY Per Acre	Acre	AFY	Acres	AFY
Turf	1.07	56.90	60.80	7.70	8.23
Developed Area - Impervious	NA	3.40	17.10	17.10	22.64
Developed Area - Pervious (5)	NA	0.00	0.00	11.40	12.18
Detention Basin (6)	NA	0.00	0.00	0.84	NA
Woodland	1.18	7.10	8.35	22.04	25.92
Scrub	1.04	10.90	11.35	0.50	0.52
Pond	0.47	1.40	0.65	0.00	0.00
Wetland	0.47	0.30	0.14	1.20	0.56
Grassland	0.64	0.00	0.00	19.26	12.28
Subtotal		*80.00*	*98.40*	*80.04*	*82.33*
Net Groundwater Recharge					
Net Recharge			**-106.38**		**-39.88**
Change with 130-unit Alternative					***66.50***

Notes:

1. Pumping amounts are total irrigation.
2. Recharge estimates for natural and landscape land covers from soil-water balance calculations.
3. Land cover acreages from GIS analysis for biological resource evaluation. Adjustments made to avoid double-counting areas and to match baseline and project acreage overall.
4. Recharge estimated by multiplying recharge estimate per acre by land cover acreage, except for analysis of impervious areas for the Proposed Project which were estimated using a modified runoff-infiltration model used by Balance Hydrologics.
5. Pervious areas within the development footprint were treated as if they were turf.
6. Detention basin is tied to impervious space; to avoid double-counting, no infiltration of direct precipitation in this area was included.

Table H.2-2: Land Cover Estimates and Plant Factors Used for Recharge Analysis

Baseline Land Cover (Acres)	Project	130 unit Alt.
Turf/Landscaped	56.7	56.9
Developed/Disturbed	0.0	3.4
Non-Native Monterey Pine	0.1	0.1
Coast Live Oak Woodland	0.8	0.8
Coyote Brush Scrub	10.9	10.9
Wetland Vegetation	0.3	0.3
Golf Course Ponds	1.4	1.4
Riparian Forest and Woodland	6.2	6.2
Total	**76.4**	**80.0**
Turf/Landscaped	56.7	56.9
Developed/Disturbed	0.0	3.4
Woodland	7.1	7.1
Scrub	10.9	10.9
Ponds	1.4	1.4
Wetland Vegetation	0.3	0.3
Total	**76.4**	**80.0**

Land Cover (Acres)	Project	130 unit Alt.
Turf/Landscaped	5.9	7.7
Impervious in Developed Area	22.6	17.1
Pervious in Developed Area	14.5	11.4
Non-Native Monterey Pine	0.0	0.0
Coast Live Oak Woodland	0.8	0.8
Coyote Brush Scrub	0.5	0.5
Wetland Vegetation	1.2	1.2
Ponds	1.4	1.4
Riparian Forest and Woodland	21.2	21.2
Grassland	8.3	18.7
Total	**76.4**	**80.0**
Turf/Landscaped	5.9	7.7
Developed Area (Impervious)	22.6	17.1
Developed Area (Pervious)	14.5	11.4
Detention Basin	1.1	0.8
Woodland - Preserve	22.0	22.0
Scrub - Preserve	0.5	0.5
Wetlands - Preserve	1.2	1.2
Grassland - Preserve (or Common)	8.6	19.3
Total	**76.4**	**80.0**
	WUCOLS III Classification (1)	Plant Factor
Turfgrass (Cool season varietals)	High	0.8

Species for Non-Turf Areas	WUCOLS III Classification (1)	Plant Factor
Woodland Species: Coast Live Oak	Very Low	0.1
Scrub species: Coyote Brush Scrub	Low	0.2
Wetland Vegetation species: California Bulrush	NA(1)	1.25
Non-Native Grassland species: Annual ryegrass	Low	0.8
Notes		

(1) Plant Factor (K) used to adjust reference ET to Crop ET. Values except for wetlands from UCDE/DWR 2000 Water Use Classification of Landscape Species (WUCOLS).
(2) Plant Factor for wetlands from Shellhorn 1995.

Table H.2-3: Meteorologic Data for CIMIS Rancho Canada Golf Course Site

Carmel Precipitation 2009 - 2016 (inches)

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	WY
2009		1.97	3.02	2.21	6.38	2.74	2.39	0.20	0.06	0.00	0.00	0.07	
2010	2.68	0.25	1.54	5.61	1.76	2.24	4.12	0.43	0.01	0.01	0.13	0.07	18.85
2011	0.70	1.57	4.17	1.19	4.82	4.98	0.24	0.95	1.32	0.00	0.03	0.01	19.98
2012	1.38	1.50	0.08	1.46	0.52	2.05	1.39	0.17	0.30	0.05	0.00	0.00	8.90
2013	0.22	1.01	3.81	1.31	0.82	1.27	0.29	0.06	0.11	0.01	0.01	0.07	8.99
2014	0.22	0.15	0.22	0.10	1.41	2.15	1.17	0.18	0.02	0.02	0.05	0.28	5.97
2015	1.63	0.97	6.05	0.00	0.80	0.01	0.00	0.18	0.00	0.01	0.00	0.01	9.66
2016	0.02	5.67	3.80	7.65	1.55	5.78	0.77	0.33	0.01	0.01	0.02	0.00	25.61
Avg. 2009 - 2016	0.98	1.64	2.84	2.44	2.26	2.65	1.30	0.31	0.23	0.01	0.03	0.06	14.75

Note: Carmel Meteorological Station, on RC East GC, CIMIS Station #210 data (http://www.cimis.water.ca.gov/)

Carmel Evapotranspiration (Eto) 2009 - 2016 (inches)

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	WY
2009		1.81	1.18	1.92	1.79	3.17	3.85	3.94	4.31	4.50	4.56	3.71	
2010	3.02	2.00	1.26	1.41	1.59	3.20	3.81	4.46	4.44	4.27	4.10	3.99	37.55
2011	2.72	1.93	1.26	2.00	2.19	3.07	4.27	4.54	4.03	4.61	3.59	3.53	37.74
2012	3.15	1.82	1.86	1.98	2.29	3.19	4.31	4.86	5.19	4.09	4.06	3.37	40.17
2013	3.13	1.97	1.36	1.85	2.24	3.31	4.64	5.11	5.03	4.37	4.48	4.33	41.82
2014	3.18	2.08	2.03	2.14	1.96	3.51	4.33	4.96	4.79	5.05	4.32	3.83	42.18
2015	3.47	2.08	1.37	2.19	2.40	3.87	4.29	3.68	4.97	5.09	5.03	4.12	42.56
2016	3.25	2.08	1.48	1.33	2.94	3.45	4.14	4.31	5.30	5.00	3.83	3.80	40.91
Avg. 2009 - 2016	3.13	1.97	1.48	1.85	2.18	3.35	4.21	4.48	4.76	4.62	4.25	3.84	40.10

Note: Carmel Meteorological Station, on RC East GC, CIMIS Station #210 data (http://www.cimis.water.ca.gov/)

Table H.2-4: Measured and Modelled Precipitation and Reference Evapotranspiration for Rancho Canada Golf Course, 1991 - 2016

Reference ET (ETo) (inches)													
Year	jan	feb	mar	apr	may	jun	jul	aug	sep	oct	nov	dec	Annual
1990										3.00	2.06	1.86	6.92
1991	1.29	1.90	1.43	4.45	4.60	4.55	3.41	3.98	2.80	2.65	1.92	1.59	34.57
1992	1.81	2.07	3.03	5.10	4.30	4.16	4.56	4.19	3.52	2.56	2.00	1.47	38.76
1993	1.58	1.77	3.16	4.71	5.55	5.88	4.55	4.48	3.11	3.09	2.31	1.56	41.73
1994	1.81	1.86	3.56	4.22	4.70	5.57	3.21	4.00	2.98	2.93	1.65	1.23	37.72
1995	1.29	1.74	2.84	3.97	3.62	4.89	5.00	3.91	3.15	2.71	1.79	1.19	36.09
1996	1.49	1.76	3.47	4.79	5.12	5.49	4.64	4.26	3.35	3.16	1.75	1.38	40.65
1997	1.53	2.65	3.87	5.15	5.91	6.03	3.99	4.20	4.24	3.28	1.72	1.64	44.21
1998	1.29	1.38	2.99	4.49	5.11	4.54	3.86	4.07	3.01	3.05	1.77	1.72	37.29
1999	1.81	1.92	3.04	4.37	4.68	4.57	4.53	3.75	2.41	3.05	1.57	1.85	37.56
2000	0.95	1.66	3.39	4.70	5.15	4.44	4.02	3.77	3.86	2.37	2.02	1.97	38.29
2001	1.88	2.31	3.19	4.07	5.30	5.83	3.86	3.91	2.69	1.71	1.57	1.33	37.65
2002	1.69	2.46	3.79	3.91	5.07	4.86	4.32	3.53	3.56	2.67	2.09	1.36	39.33
2003	1.92	2.31	3.91	4.26	5.06	5.01	4.68	4.68	3.43	3.18	1.92	1.29	41.64
2004	1.37	1.77	3.64	4.67	5.83	5.55	3.70	3.80	3.63	1.78	2.03	1.78	39.53
2005	1.58	1.91	3.21	4.51	5.26	5.32	3.66	2.57	3.22	2.96	2.19	1.30	37.69
2006	1.71	2.43	3.05	3.11	4.80	4.53	4.94	3.31	2.86	3.19	1.71	1.61	37.26
2007	2.08	1.90	3.47	4.17	4.59	4.96	4.05	4.42	3.47	2.15	1.52	1.36	38.13
2008	1.29	1.91	3.36	4.98	4.83	4.97	4.60	3.72	3.68	3.32	1.82	1.18	39.66
2009	1.93	1.82	3.16	3.86	3.93	4.33	4.50	4.58	3.73	3.05	2.01	1.26	38.16
2010	1.39	1.61	3.18	3.81	4.46	4.46	4.26	4.11	3.99	2.68	1.94	1.26	37.15
2011	1.99	2.18	3.03	4.28	4.54	4.02	4.61	3.57	3.52	3.16	1.79	1.85	38.54
2012	1.99	2.30	3.19	4.31	4.87	5.18	4.10	4.06	3.37	3.11	1.98	1.34	39.80
2013	1.86	2.21	3.31	4.64	5.10	5.03	4.36	4.47	4.33	3.18	2.08	2.03	42.60
2014	2.14	1.95	3.51	4.36	4.95	4.80	5.02	4.31	3.82	3.47	2.06	1.36	41.75
2015	2.19	2.41	3.85	4.31	3.71	4.99	5.08	5.04	4.12	3.25	2.09	1.48	42.52
2016	1.30	2.93	3.43	4.14	4.32	5.27	5.01	3.82	3.80				34.02
Avg	**1.66**	**2.04**	**3.27**	**4.36**	**4.82**	**4.97**	**4.33**	**4.02**	**3.45**	**2.87**	**1.90**	**1.51**	39.20

Table H.2-4: Measured and Modelled Precipitation and Reference Evapotranspiration for Rancho Canada Golf Course, 1991 - 2016 (Continued)

Precipitation (Inches)													
Precip	jan	feb	mar	apr	may	jun	jul	aug	sep	oct	nov	dec	Annual
1990										0.12	0.45	1.42	1.99
1991	0.60	1.94	6.45	0.41	0.21	0.03	0.04	0.22	0.02	1.10	0.12	3.00	14.14
1992	1.89	5.41	3.42	0.03	0.01	0.16	0.03	0.09	0.06	0.56	0.15	5.37	17.17
1993	8.29	6.49	2.66	0.79	0.71	0.72	0.03	0.03	0.01	0.13	1.51	1.89	23.27
1994	2.59	3.43	0.39	1.18	0.72	0.02	0.03	0.04	0.04	0.28	2.39	2.09	13.21
1995	9.11	0.63	6.23	1.92	0.50	1.20	0.02	0.03	0.00	0.03	0.19	2.01	21.85
1996	4.31	6.93	2.50	0.79	1.14	0.03	0.04	0.03	0.03	0.91	2.26	6.87	25.85
1997	7.51	0.18	0.15	0.34	0.10	0.07	0.03	0.20	0.03	0.50	6.42	3.06	18.59
1998	8.90	12.24	3.60	2.91	2.29	0.29	0.21	0.02	0.20	0.51	2.55	1.47	35.19
1999	3.06	3.48	3.78	1.75	0.05	0.27	0.03	0.07	0.17	0.16	1.41	0.14	14.39
2000	5.68	6.84	1.90	0.80	0.69	0.06	0.01	0.01	0.35	3.75	0.47	0.26	20.81
2001	4.38	3.39	2.09	1.89	0.00	0.04	0.02	0.09	0.11	0.17	2.53	5.38	20.09
2002	1.27	1.36	1.23	0.36	0.94	0.09	0.02	0.04	0.00	0.01	2.03	6.20	13.53
2003	1.32	1.99	0.98	2.35	0.82	0.04	0.00	0.07	0.00	0.24	1.48	5.84	15.12
2004	1.65	3.81	0.56	0.09	0.01	0.09	0.15	0.07	0.10	3.58	0.98	6.22	17.29
2005	4.51	4.22	3.93	1.72	0.70	0.31	0.03	0.01	0.00	0.17	1.28	4.41	21.28
2006	3.13	1.37	7.05	3.42	0.38	0.00	0.06	0.00	0.02	0.07	1.60	3.48	20.57
2007	1.15	3.26	0.69	1.04	0.26	0.07	0.08	0.03	0.40	0.86	0.51	1.40	9.73
2008	6.29	2.46	0.33	0.32	0.03	0.03	0.03	0.06	0.03	0.71	1.97	2.99	15.26
2009	2.22	6.37	2.74	2.40	0.20	0.06	0.00	0.00	0.07	2.68	0.24	1.53	18.51
2010	5.62	1.76	2.24	4.13	0.43	0.00	0.00	0.14	0.06	0.70	1.57	4.18	20.83
2011	1.17	4.82	4.97	0.23	0.95	1.32	0.00	0.02	0.01	1.38	1.48	0.08	16.43
2012	1.46	0.52	2.06	1.39	0.17	0.29	0.06	0.00	0.00	0.22	0.97	3.81	10.95
2013	1.31	0.81	1.28	0.29	0.07	0.10	0.01	0.00	0.07	0.22	0.14	0.22	4.52
2014	0.10	1.40	2.14	1.17	0.18	0.01	0.02	0.04	0.28	1.63	0.96	6.03	13.96
2015	0.00	0.79	0.00	0.00	0.17	0.00	0.01	0.00	0.00	0.01	5.65	3.78	10.41
2016	7.62	1.54	5.75	0.77	0.32	0.01	0.00	0.02	0.00				16.03
Avg	**3.66**	**3.36**	**2.66**	**1.25**	**0.46**	**0.20**	**0.04**	**0.05**	**0.08**	**0.80**	**1.59**	**3.20**	17.35

Table H.2-4: Measured and Modelled Precipitation and Reference Evapotranspiration for Rancho Canada Golf Course, 1991 - 2016 (Continued)

Source: Data for November 2008 to September 2016 from CIMIS weather station on site (Station #210) from CIMIS (http://www.cimis.water.ca.gov/). Data for 1991 to October 2008 developed by comparing on-site CIMIS data for late 2008 to 2016 to two other data sets: (1) precipitation was developed by comparing on-site data to late 2008 to 2016 data at the Monterey Weather Stations [Precipitation 1991 - Sept. 1994 and Oct. 2014 - Sept. 2016 from Hopkins Marine Station, Monterey Weather Station #5795; accessed via Web at http://www-marine.stanford.edu/HMSweb/climate.html; Precip Oct. 94- Sep.2014 from National Weather Service Climatological Station, Monterey, California 93940 (elevation 385'), accessed via web at: accessed via web at: http://met.nps.edu/~ldm/renard_wx/] to determine adjustment factor; this was then used to derive a precipitation data set for on-site conditions for 1991 - 2008; (2) evapotranspiration data developed by comparing late 2008 to 2016 on-site data to the Castroville Weather Station (data from CIMIS) to determine adjustment factor; this was then used to derive an evapotranspiration data set for 1991 - 2008.

Table H.2-5: Factors Used for Calculating Available Water Capacity								
Type			**Turf**	**Woodland**	**Scrub**	**Pond**	**Wetland**	**Grassland**
AWC calcs			Cool Season	Coast Live Oak	Coyote Brush	Used Wetland	California Bulrush	Used Turf
Rooting Zone		inches	6.0			6.0	6.0	6.0
AWFraction		Avg. based on site soi	0.15			0.35	0.35	0.1
AWC		Inches	0.9	6.0	1.6	2.1	2.1	0.9
AWC		mm	22.3	152.4	40.6	53.3	53.3	22.3
References:								
Root zone	Turf (Penn. State. No Date); Woodland (USDA 2007); Scrub (USDA 2008): Wetland and pond assumed to have shallow rooting depths; Grassland (Used turf factor)							
AW Fraction	Used USDA on-line soil survey data (NRCS no date) for available water fraction for turf soils for soils on-site, but adjusted for approximate percent of soil areal extent on site. Used Saxton & Rawls. 2006 estimate for rate for clay/silty clay for pond/wetland							
Soils	Coverage	AW Fraction	Total	Slope	Depth (H2)	Total	H1	Total
Mf	0.1	0.17	0.017	0 to 2 percent	99	9.9	12	1.2
PF	0.75	0.15	0.1125	0 to 2 percent	72	54	55	41.25
TbB	0.15	0.11	0.0165	0 to 5 percent	60	9	60	9
	BH, 2005	BH, 2005	**0.146**	Soil Survey	Soil Survey	**72.9**		**51.45**
SOIL-WATER BALANCE MODEL INFORMATION								
Source: http://www.ohio.edu/people/dyer/water_balance.html [See Dyer No Date, Dyer 2009 and Dyer 2015)								
Calculates Water Budget based on method of Thornthwaite & Mather								
Worksheet created by James Dyer, Ohio University								
Modified by ICF to use Total Water (App. Water + Precip.) instead of Precip. Only and Crop ET instead of Eto								
All other values computed automatically.								
Calculations begin for month where Storage (ST) is full								
Assumes decreasing availability of soil moisture (Mather 1974, curve C, WATBUG default)								

According to the USDA Soil Survey, all of the site soils have permeability rates (nominally 2 inches/hour or more) that are significantly higher than typical rainfall intensities that can be expected at the site (max hourly rainfall in on-site hourly data reviewed by 1.1 inches). Therefore, runoff from typical storm events can be expected to be very low where there is no impervious cover or areas of soil compaction. Thus, the surplus identifed in soil-water balance calculations for WY 91 to WY 14 was assumed to be recharge and not runoff for non-impervious areas. For impervious areas, a separate analysis was conducted to determine runoff and recharge; stormwater for these areas will be routed to an infilitration basin or basins designed to capture 85% of runoff.

Table H2-6 Summary of Modelled Evapotranspiration and Recharge by Year							
					Landcover Type	**Turf**	
WY	Precip. (In.)	ETo (In.)	Irrigation (In.)	Total Water (Precip. + Irr.)	Modelled Recharge (In.)	Modelled Evapotranspiration/Total Applied Water	Modelled Recharge/Total Applied Water
1991	11.91	35.33	21.95	33.86	7.50	78%	22%
1992	15.31	38.90	26.04	41.35	12.01	71%	29%
1993	25.82	40.80	26.98	52.81	20.96	60%	40%
1994	11.98	38.86	28.54	40.52	10.72	74%	26%
1995	24.38	36.20	20.68	45.06	16.53	63%	37%
1996	18.03	40.06	28.00	46.04	14.69	68%	32%
1997	18.66	43.85	30.61	49.27	19.24	61%	39%
1998	40.64	37.40	21.23	61.87	32.04	48%	52%
1999	17.22	37.64	18.95	36.17	7.84	78%	22%
2000	18.04	38.41	29.97	48.01	18.04	62%	38%
2001	16.49	39.39	26.39	42.88	12.27	71%	29%
2002	13.39	37.82	31.98	45.36	16.34	64%	36%
2003	15.80	41.37	27.68	43.48	11.06	75%	25%
2004	14.07	40.34	27.68	41.74	12.85	69%	31%
2005	26.20	36.82	23.24	49.44	20.35	59%	41%
2006	21.28	37.20	22.59	43.88	14.30	67%	33%
2007	12.12	39.62	24.77	36.88	6.65	82%	18%
2008	12.35	38.36	27.16	39.50	11.53	71%	29%
2009	19.73	38.16	25.23	44.96	14.43	68%	32%
2010	18.83	37.59	19.83	38.66	8.82	77%	23%
2011	19.94	37.62	18.93	38.87	9.69	75%	25%
2012	8.89	40.17	20.77	29.66	0.00	100%	0%
2013	8.94	41.74	25.68	34.62	9.69	75%	8%
2014	5.92	42.15	27.11	33.03	0.22	99%	1%
Avg.	17.33	38.99	25.08	42.41	12.82	72%	28%
Percentile Statistics							
25th	19.78	40.21	27.68	45.53	16.39	64%	36%
50th	16.85	38.63	25.86	42.31	12.14	71%	29%
75th	12.29	37.61	21.77	38.22	9.47	76%	23%
90th	9.83	36.93	29.54	49.39	6.91	81%	11%

Table H.2-7: Summary of Modelled Evapotranspiration and Recharge by Year **Woodland**

WY	Precip. (In.)	ETo (In.)	Eto-P	Recharge	Irrigation (AFY)	AE	Recharge
1991	11.91	35.33	23.42	8.58	358.35	28%	72%
1992	15.31	38.90	23.59	11.79	425.03	23%	77%
1993	25.82	40.80	14.97	21.85	440.51	15%	85%
1994	11.98	38.86	26.88	8.29	465.89	31%	69%
1995	24.38	36.20	11.82	20.87	337.55	14%	86%
1996	18.03	40.06	22.03	14.29	457.18	21%	79%
1997	18.66	43.85	25.19	14.72	499.76	21%	79%
1998	40.64	37.40	0.00	36.95	346.61	9%	91%
1999	17.22	37.64	20.42	13.60	309.41	21%	79%
2000	18.04	38.41	20.37	14.33	489.32	21%	79%
2001	16.49	39.39	22.91	12.82	430.84	22%	78%
2002	13.39	37.82	24.44	9.77	522.00	27%	73%
2003	15.80	41.37	25.57	11.94	451.92	24%	76%
2004	14.07	40.34	26.27	10.42	451.83	26%	74%
2005	26.20	36.82	10.61	22.62	379.39	14%	86%
2006	21.28	37.20	15.92	17.79	368.84	16%	84%
2007	12.12	39.62	27.50	8.35	404.32	31%	69%
2008	12.35	38.36	26.01	8.86	443.31	28%	72%
2009	19.73	38.16	18.43	16.15	411.80	18%	82%
2010	18.83	37.59	18.76	15.24	324.10	19%	81%
2011	19.94	37.62	17.68	16.28	309.14	18%	82%
2012	8.89	40.17	31.28	4.94	340.63	44%	56%
2013	8.94	41.74	32.80	16.28	419.30	18%	58%
2014	5.92	42.15	36.23	2.01	442.30	66%	34%
Avg.	17.33	38.99	21.80	14.12	409.56	24%	75%
Percentile							
0.25	19.78	40.21	26.08	16.28	355.42	18%	82%
0.5	16.85	38.63	23.16	13.95	422.17	21%	78%
0.75	12.29	37.61	18.24	9.55	451.85	27%	72%
0.9	9.83	36.93	30.15	8.31	482.29	31%	61%

Table H.2-8: Summary of Modelled Evapotranspiration and Recharge by Year **Scrub**

WY	Precip. (In.)	ETo (In.)	Eto-P	Recharge	Irrigation (AFY)	AE	Recharge
1991	11.91	35.33	23.42	7.66	358.35	36%	64%
1992	15.31	38.90	23.59	10.97	425.03	28%	72%
1993	25.82	40.80	14.97	19.82	440.51	23%	77%
1994	11.98	38.86	26.88	6.51	465.89	46%	54%
1995	24.38	36.20	11.82	18.52	337.55	24%	76%
1996	18.03	40.06	22.03	12.68	457.18	30%	70%
1997	18.66	43.85	25.19	14.42	499.76	23%	77%
1998	40.64	37.40	0.00	34.42	346.61	15%	85%
1999	17.22	37.64	20.42	11.75	309.41	32%	68%
2000	18.04	38.41	20.37	12.70	489.32	30%	70%
2001	16.49	39.39	22.91	11.20	430.84	32%	68%
2002	13.39	37.82	24.44	8.15	522.00	39%	61%
2003	15.80	41.37	25.57	10.21	451.92	35%	65%
2004	14.07	40.34	26.27	9.95	451.83	29%	71%
2005	26.20	36.82	10.61	20.45	379.39	22%	78%
2006	21.28	37.20	15.92	16.42	368.84	23%	77%
2007	12.12	39.62	27.50	6.75	404.32	44%	56%
2008	12.35	38.36	26.01	8.33	443.31	33%	67%
2009	19.73	38.16	18.43	14.52	411.80	26%	74%
2010	18.83	37.59	18.76	13.51	324.10	28%	72%
2011	19.94	37.62	17.68	13.60	309.14	32%	68%
2012	8.89	40.17	31.28	2.23	340.63	75%	25%
2013	8.94	41.74	32.80	13.60	419.30	32%	50%
2014	5.92	42.15	36.23	1.48	442.30	86%	25%
Avg.	17.33	38.99	21.80	12.49	409.56	34%	65%

0.25	19.78	40.21	26.08	14.45	355.42	26%	74%
0.5	16.85	38.63	23.16	12.22	422.17	31%	69%
0.75	12.29	37.61	18.24	8.29	451.85	35%	63%
0.9	9.83	36.93	30.15	6.59	482.29	45%	51%

Table H2-9: Summary of Modelled Evapotranspiration and Recharge by Year Wetland

WY	Precip. (In.)	ETo (In.)	Eto-P	Recharge	Irrigation (AFY)	AE	Recharge
1991	11.91	35.33	23.42	3.17	358.35	91%	9%
1992	15.31	38.90	23.59	3.11	425.03	92%	8%
1993	25.82	40.80	14.97	13.47	440.51	74%	26%
1994	11.98	38.86	26.88	1.04	465.89	97%	3%
1995	24.38	36.20	11.82	10.07	337.55	78%	22%
1996	18.03	40.06	22.03	7.09	457.18	85%	15%
1997	18.66	43.85	25.19	11.09	499.76	77%	23%
1998	40.64	37.40	0.00	23.21	346.61	62%	38%
1999	17.22	37.64	20.42	1.74	309.41	95%	5%
2000	18.04	38.41	20.37	8.41	489.32	82%	18%
2001	16.49	39.39	22.91	2.85	430.84	93%	7%
2002	13.39	37.82	24.44	4.72	522.00	90%	10%
2003	15.80	41.37	25.57	3.15	451.92	93%	7%
2004	14.07	40.34	26.27	5.19	451.83	88%	12%
2005	26.20	36.82	10.61	10.77	379.39	78%	22%
2006	21.28	37.20	15.92	6.41	368.84	85%	15%
2007	12.12	39.62	27.50	0.46	404.32	99%	1%
2008	12.35	38.36	26.01	4.08	443.31	90%	10%
2009	19.73	38.16	18.43	4.57	411.80	90%	10%
2010	18.83	37.59	18.76	2.32	324.10	94%	6%
2011	19.94	37.62	17.68	3.52	309.14	91%	9%
2012	8.89	40.17	31.28	0.00	340.63	102%	0%
2013	8.94	41.74	32.80	3.52	419.30	91%	0%
2014	5.92	42.15	36.23	0.00	442.30	103%	0%
Avg.	17.33	38.99	21.80	5.58	409.56	88%	11%
Percentile							
0.25	19.78	40.21	26.08	7.42	355.42	84%	16%
0.5	16.85	38.63	23.16	3.80	422.17	90%	10%
0.75	12.29	37.61	18.24	2.72	451.85	94%	6%
0.9	9.83	36.93	30.15	0.64	482.29	98%	0%

Table H2-10: Summary of Modelled Evapotranspiration and Recharge by Year **Pond**

WY	Precip. (In.)	ETo (In.)	Eto-P	Recharge	Irrigation (AFY)	AE	Recharge
1991	11.91	35.33	23.42	3.17	358.35	91%	9%
1992	15.31	38.90	23.59	3.11	425.03	92%	8%
1993	25.82	40.80	14.97	13.47	440.51	74%	26%
1994	11.98	38.86	26.88	1.04	465.89	97%	3%
1995	24.38	36.20	11.82	10.07	337.55	78%	22%
1996	18.03	40.06	22.03	7.09	457.18	85%	15%
1997	18.66	43.85	25.19	11.09	499.76	77%	23%
1998	40.64	37.40	0.00	23.21	346.61	62%	38%
1999	17.22	37.64	20.42	1.74	309.41	95%	5%
2000	18.04	38.41	20.37	8.41	489.32	82%	18%
2001	16.49	39.39	22.91	2.85	430.84	93%	7%
2002	13.39	37.82	24.44	4.72	522.00	90%	10%
2003	15.80	41.37	25.57	3.15	451.92	93%	7%
2004	14.07	40.34	26.27	5.19	451.83	88%	12%
2005	26.20	36.82	10.61	10.77	379.39	78%	22%
2006	21.28	37.20	15.92	6.41	368.84	85%	15%
2007	12.12	39.62	27.50	0.46	404.32	99%	1%
2008	12.35	38.36	26.01	4.08	443.31	90%	10%
2009	19.73	38.16	18.43	4.57	411.80	90%	10%
2010	18.83	37.59	18.76	2.32	324.10	94%	6%
2011	19.94	37.62	17.68	3.52	309.14	91%	9%
2012	8.89	40.17	31.28	0.00	340.63	102%	0%
2013	8.94	41.74	32.80	3.52	419.30	91%	0%
2014	5.92	42.15	36.23	0.00	442.30	103%	0%
Avg.	17.33	38.99	21.80	5.58	409.56	88%	11%
Percentiles							
0.25	19.78	40.21	26.08	7.42	355.42	84%	16%
0.5	16.85	38.63	23.16	3.80	422.17	90%	10%
0.75	12.29	37.61	18.24	2.72	451.85	94%	6%
0.9	9.83	36.93	30.15	0.64	482.29	98%	0%

Table H2-11: Summary of Modelled Evapotranspiration and Recharge by Year **Grassland**

WY	Precip. (In.)	ETo (In.)	Eto-P	Recharge	Irrigation (AFY)	AE	Recharge
1991	11.91	35.33	23.42	4.85	358.35	59%	41%
1992	15.31	38.90	23.59	6.05	425.03	61%	39%
1993	25.82	40.80	14.97	15.56	440.51	40%	60%
1994	11.98	38.86	26.88	2.86	465.89	76%	24%
1995	24.38	36.20	11.82	12.81	337.55	47%	53%
1996	18.03	40.06	22.03	8.83	457.18	51%	49%
1997	18.66	43.85	25.19	12.04	499.76	35%	65%
1998	40.64	37.40	0.00	26.12	346.61	36%	64%
1999	17.22	37.64	20.42	5.26	309.41	69%	31%
2000	18.04	38.41	20.37	9.59	489.32	47%	53%
2001	16.49	39.39	22.91	4.57	430.84	72%	28%
2002	13.39	37.82	24.44	4.72	522.00	65%	35%
2003	15.80	41.37	25.57	4.59	451.92	71%	29%
2004	14.07	40.34	26.27	6.88	451.83	51%	49%
2005	26.20	36.82	10.61	12.93	379.39	51%	49%
2006	21.28	37.20	15.92	9.37	368.84	56%	44%
2007	12.12	39.62	27.50	2.89	404.32	76%	24%
2008	12.35	38.36	26.01	5.63	443.31	54%	46%
2009	19.73	38.16	18.43	7.49	411.80	62%	38%
2010	18.83	37.59	18.76	5.50	324.10	71%	29%
2011	19.94	37.62	17.68	7.60	309.14	62%	38%
2012	8.89	40.17	31.28	0.00	340.63	100%	0%
2013	8.94	41.74	32.80	7.60	419.30	62%	21%
2014	5.92	42.15	36.23	0.00	442.30	100%	0%
Avg.	17.33	38.99	21.80	7.65	409.56	61%	38%
Percentiles							
0.25	19.78	40.21	26.08	9.42	355.42	51%	49%
0.5	16.85	38.63	23.16	6.46	422.17	61%	39%
0.75	12.29	37.61	18.24	4.68	451.85	71%	29%
0.9	9.83	36.93	30.15	2.87	482.29	76%	22%

Table H3-1: Summary of Recharge from Developed Impervious Areas through Infiltration basin

Project	Annual Precip (In)	Annual Recharge (AF)	Max Hourly Rainfall (In)	Notes
WY03	18.40	29.54	0.69	Avg
WY09	19.23	30.38	1.10	Avg
WY10	17.76	28.29	0.49	Avg
WY11	19.71	31.10	0.49	Avg
WY12	8.22	13.13	0.25	Very Dry
WY13	9.33	14.89	0.87	Very Dry
WY14	5.26	8.40	0.32	Very Dry
WY15	9.59	15.26	0.55	Very Dry
WY16	25.16	40.04	0.76	Wet
AVG 09-16	16.58	26.38	0.69	
Average	18.78	29.83	0.69	
Very Dry	8.10	12.92	0.50	
Wet	25.16	40.04	0.76	

130 Unit Alternative	Precip. (In.)	Recharge (AF)	Max Hourly (In.)	Notes
WY03	18.40	22.20	0.69	Avg
WY09	19.23	23.16	1.10	Avg
WY10	17.76	21.40	0.49	Avg
WY11	19.71	23.78	0.49	Avg
WY12	8.22	9.92	0.25	Very Dry
WY13	9.33	11.24	0.87	Very Dry
WY14	5.26	6.35	0.32	Very Dry
WY15	9.59	11.59	0.55	Very Dry
WY16	25.16	30.38	0.76	Wet
AVG 09-16	16.58	20.00	0.69	
Average	18.78	22.64	0.69	
Very Dry	8.10	9.77	0.50	
Wet	25.16	30.38	0.76	

Source: Recharge modelling by ICF using Balance Hydrologics model used for 2005 Preliminary Stormwater Management Plan (Balance Hydrologics 2005). ICF adjusted model in terms of current site acreage; adjusted to run for both Proposed Project and 130-unit Alternative, and conducted additional runs for WY 09 to WY 16. Precipitation for WY 03 from original Balance Hydrologics model. Precipitation for WY 09 to WY 16 from on-site CIMIS meteorological station. Basin size set to provide 85% infiltration of runoff per original assumption in Balance Hydrologics model. Each model run for entire Water Year (except WY03 which was run per original data extent of October to June only and WY09 which was run from 10/24/08 to 09/30/09 due to lack of data from CIMIS station prior to 10/24/08). Recharge model includes runoff from developed impervious areas and analyze conditions hourly to determine how much runoff actually infiltrates. First page of model output for WY10 shown on next page for Proposed Project and 130-unit Alt.

Appendix H.3: Infiltration analysis for Rancho Canada Village Project RDEIR: Proposed Project (First page of results only)

Based on daily rainfall estimated for site — Water Year 2010

Sub-watershed area (acres) = 37.7
Percent impervious = 60.0
Basin area (ft^2) = 49000
Soil infiltration rate (in/hr) = 2.00
Site mean rainfall (in/yr) = 17.76

Total Runoff (ac-ft) = 33.43
Total Infiltrated (ac-ft) = 28.29
Required Storage (ac-ft) = 5.14
Total Rainfall (in) = 17.76
Annual Runoff C = 0.60
Peak discharge (cfs) = 11.2
Max depth (ft) = 4.57

Sizing for infiltrating 85% of mean runoff

Max hourly		0.49	0.92	0.00	0.92	0.19	0.73
TOTAL		17.76	33.43	0.00	33.43	28.29	5.14

Date	Hour	Site Rainfall (in)	East storm drain runoff (ac-ft) Imperv	Other	Total	Basin Perc (ac-ft)	Carryover (ac-ft)
10/1/2009	100	0	0.00	0.00	0.00	0.00	0.00
10/1/2009	200	0	0.00	0.00	0.00	0.00	0.00
10/1/2009	300	0	0.00	0.00	0.00	0.00	0.00
10/1/2009	400	0	0.00	0.00	0.00	0.00	0.00
10/1/2009	500	0	0.00	0.00	0.00	0.00	0.00
10/1/2009	600	0	0.00	0.00	0.00	0.00	0.00
10/1/2009	700	0	0.00	0.00	0.00	0.00	0.00
10/1/2009	800	0	0.00	0.00	0.00	0.00	0.00
10/1/2009	900	0	0.00	0.00	0.00	0.00	0.00
10/1/2009	1000	0	0.00	0.00	0.00	0.00	0.00
10/1/2009	1100	0	0.00	0.00	0.00	0.00	0.00
10/1/2009	1200	0	0.00	0.00	0.00	0.00	0.00
10/1/2009	1300	0	0.00	0.00	0.00	0.00	0.00
10/1/2009	1400	0	0.00	0.00	0.00	0.00	0.00
10/1/2009	1500	0	0.00	0.00	0.00	0.00	0.00
10/1/2009	1600	0	0.00	0.00	0.00	0.00	0.00
10/1/2009	1700	0	0.00	0.00	0.00	0.00	0.00
10/1/2009	1800	0	0.00	0.00	0.00	0.00	0.00
10/1/2009	1900	0	0.00	0.00	0.00	0.00	0.00
10/1/2009	2000	0	0.00	0.00	0.00	0.00	0.00
10/1/2009	2100	0	0.00	0.00	0.00	0.00	0.00
10/1/2009	2200	0	0.00	0.00	0.00	0.00	0.00
10/1/2009	2300	0	0.00	0.00	0.00	0.00	0.00
10/1/2009	2400	0	0.00	0.00	0.00	0.00	0.00
10/2/2009	100	0	0.00	0.00	0.00	0.00	0.00
10/2/2009	200	0	0.00	0.00	0.00	0.00	0.00
10/2/2009	300	0	0.00	0.00	0.00	0.00	0.00
10/2/2009	400	0	0.00	0.00	0.00	0.00	0.00
10/2/2009	500	0	0.00	0.00	0.00	0.00	0.00
10/2/2009	600	0	0.00	0.00	0.00	0.00	0.00
10/2/2009	700	0	0.00	0.00	0.00	0.00	0.00
10/2/2009	800	0	0.00	0.00	0.00	0.00	0.00
10/2/2009	900	0	0.00	0.00	0.00	0.00	0.00
10/2/2009	1000	0	0.00	0.00	0.00	0.00	0.00
10/2/2009	1100	0	0.00	0.00	0.00	0.00	0.00
10/2/2009	1200	0	0.00	0.00	0.00	0.00	0.00
10/2/2009	1300	0	0.00	0.00	0.00	0.00	0.00
10/2/2009	1400	0	0.00	0.00	0.00	0.00	0.00
10/2/2009	1500	0	0.00	0.00	0.00	0.00	0.00
10/2/2009	1600	0	0.00	0.00	0.00	0.00	0.00
10/2/2009	1700	0	0.00	0.00	0.00	0.00	0.00
10/2/2009	1800	0	0.00	0.00	0.00	0.00	0.00
10/2/2009	1900	0	0.00	0.00	0.00	0.00	0.00
10/2/2009	2000	0	0.00	0.00	0.00	0.00	0.00
10/2/2009	2100	0	0.00	0.00	0.00	0.00	0.00
10/2/2009	2200	0	0.00	0.00	0.00	0.00	0.00
10/2/2009	2300	0	0.00	0.00	0.00	0.00	0.00
10/2/2009	2400	0	0.00	0.00	0.00	0.00	0.00
10/3/2009	100	0	0.00	0.00	0.00	0.00	0.00
10/3/2009	200	0	0.00	0.00	0.00	0.00	0.00
10/3/2009	300	0	0.00	0.00	0.00	0.00	0.00
10/3/2009	400	0	0.00	0.00	0.00	0.00	0.00
10/3/2009	500	0	0.00	0.00	0.00	0.00	0.00
10/3/2009	600	0	0.00	0.00	0.00	0.00	0.00
10/3/2009	700	0	0.00	0.00	0.00	0.00	0.00
10/3/2009	800	0	0.00	0.00	0.00	0.00	0.00
10/3/2009	900	0	0.00	0.00	0.00	0.00	0.00
10/3/2009	1000	0	0.00	0.00	0.00	0.00	0.00
10/3/2009	1100	0	0.00	0.00	0.00	0.00	0.00
10/3/2009	1200	0	0.00	0.00	0.00	0.00	0.00
10/3/2009	1300	0	0.00	0.00	0.00	0.00	0.00
10/3/2009	1400	0	0.00	0.00	0.00	0.00	0.00
10/3/2009	1500	0	0.00	0.00	0.00	0.00	0.00
10/3/2009	1600	0	0.00	0.00	0.00	0.00	0.00

Appendix H.3: Infiltration analysis for Rancho Canada Village Project RDEIR: 130-unit Alternative (first page of results only)

Based on daily rainfall estimated for site — Water Year 2010

Total Runoff (ac-ft) = 25.31
Total Infiltrated (ac-ft) = 21.40
Required Storage (ac-ft) = 3.91
Total Rainfall (in) = 17.76
Annual Runoff C = 0.60
Peak discharge (cfs) = 8.4
Max depth (ft) = 4.60

Sub-watershed area (acres) = 28.5
Percent impervious = 60.0
Basin area (ft^2) = 37000
Soil infiltration rate (in/hr) = 2.00
Site mean rainfall (in/yr) = 17.76

Sizing for infiltrating 85% of mean runoff

Max hourly		0.49	0.70	0.00	0.70	0.14	0.56
TOTAL		17.76	25.31	0.00	25.31	21.40	3.91

Date	Hour	Site Rainfall (in)	East storm drain runoff (ac-ft) Imperv	Other	Total	Basin Perc (ac-ft)	Carryover (ac-ft)
10/1/2009	100	0	0.00	0.00	0.00	0.00	0.00
10/1/2009	200	0	0.00	0.00	0.00	0.00	0.00
10/1/2009	300	0	0.00	0.00	0.00	0.00	0.00
10/1/2009	400	0	0.00	0.00	0.00	0.00	0.00
10/1/2009	500	0	0.00	0.00	0.00	0.00	0.00
10/1/2009	600	0	0.00	0.00	0.00	0.00	0.00
10/1/2009	700	0	0.00	0.00	0.00	0.00	0.00
10/1/2009	800	0	0.00	0.00	0.00	0.00	0.00
10/1/2009	900	0	0.00	0.00	0.00	0.00	0.00
10/1/2009	1000	0	0.00	0.00	0.00	0.00	0.00
10/1/2009	1100	0	0.00	0.00	0.00	0.00	0.00
10/1/2009	1200	0	0.00	0.00	0.00	0.00	0.00
10/1/2009	1300	0	0.00	0.00	0.00	0.00	0.00
10/1/2009	1400	0	0.00	0.00	0.00	0.00	0.00
10/1/2009	1500	0	0.00	0.00	0.00	0.00	0.00
10/1/2009	1600	0	0.00	0.00	0.00	0.00	0.00
10/1/2009	1700	0	0.00	0.00	0.00	0.00	0.00
10/1/2009	1800	0	0.00	0.00	0.00	0.00	0.00
10/1/2009	1900	0	0.00	0.00	0.00	0.00	0.00
10/1/2009	2000	0	0.00	0.00	0.00	0.00	0.00
10/1/2009	2100	0	0.00	0.00	0.00	0.00	0.00
10/1/2009	2200	0	0.00	0.00	0.00	0.00	0.00
10/1/2009	2300	0	0.00	0.00	0.00	0.00	0.00
10/1/2009	2400	0	0.00	0.00	0.00	0.00	0.00
10/2/2009	100	0	0.00	0.00	0.00	0.00	0.00
10/2/2009	200	0	0.00	0.00	0.00	0.00	0.00
10/2/2009	300	0	0.00	0.00	0.00	0.00	0.00
10/2/2009	400	0	0.00	0.00	0.00	0.00	0.00
10/2/2009	500	0	0.00	0.00	0.00	0.00	0.00
10/2/2009	600	0	0.00	0.00	0.00	0.00	0.00
10/2/2009	700	0	0.00	0.00	0.00	0.00	0.00
10/2/2009	800	0	0.00	0.00	0.00	0.00	0.00
10/2/2009	900	0	0.00	0.00	0.00	0.00	0.00
10/2/2009	1000	0	0.00	0.00	0.00	0.00	0.00
10/2/2009	1100	0	0.00	0.00	0.00	0.00	0.00
10/2/2009	1200	0	0.00	0.00	0.00	0.00	0.00
10/2/2009	1300	0	0.00	0.00	0.00	0.00	0.00
10/2/2009	1400	0	0.00	0.00	0.00	0.00	0.00
10/2/2009	1500	0	0.00	0.00	0.00	0.00	0.00
10/2/2009	1600	0	0.00	0.00	0.00	0.00	0.00
10/2/2009	1700	0	0.00	0.00	0.00	0.00	0.00
10/2/2009	1800	0	0.00	0.00	0.00	0.00	0.00
10/2/2009	1900	0	0.00	0.00	0.00	0.00	0.00
10/2/2009	2000	0	0.00	0.00	0.00	0.00	0.00
10/2/2009	2100	0	0.00	0.00	0.00	0.00	0.00
10/2/2009	2200	0	0.00	0.00	0.00	0.00	0.00
10/2/2009	2300	0	0.00	0.00	0.00	0.00	0.00
10/2/2009	2400	0	0.00	0.00	0.00	0.00	0.00
10/3/2009	100	0	0.00	0.00	0.00	0.00	0.00
10/3/2009	200	0	0.00	0.00	0.00	0.00	0.00
10/3/2009	300	0	0.00	0.00	0.00	0.00	0.00
10/3/2009	400	0	0.00	0.00	0.00	0.00	0.00
10/3/2009	500	0	0.00	0.00	0.00	0.00	0.00
10/3/2009	600	0	0.00	0.00	0.00	0.00	0.00
10/3/2009	700	0	0.00	0.00	0.00	0.00	0.00
10/3/2009	800	0	0.00	0.00	0.00	0.00	0.00
10/3/2009	900	0	0.00	0.00	0.00	0.00	0.00
10/3/2009	1000	0	0.00	0.00	0.00	0.00	0.00
10/3/2009	1100	0	0.00	0.00	0.00	0.00	0.00
10/3/2009	1200	0	0.00	0.00	0.00	0.00	0.00
10/3/2009	1300	0	0.00	0.00	0.00	0.00	0.00
10/3/2009	1400	0	0.00	0.00	0.00	0.00	0.00
10/3/2009	1500	0	0.00	0.00	0.00	0.00	0.00
10/3/2009	1600	0	0.00	0.00	0.00	0.00	0.00