WILDERMUTH ENVIRONMENTAL, INC.

September 26, 2018

Mr. Peter Kavounas
Chino Basin Watermaster
9641 San Bernardino Road
Rancho Cucamonga, CA 91730

Subject: ***Annual Streamflow Monitoring Report for Water Rights Permit 21225, Fiscal 2017/18***

Dear Mr. Kavounas:

Wildermuth Environmental, Inc. (WEI) hereby submits the Annual Streamflow Monitoring Report for Fiscal 2017/18. This is the tenth annual report prepared pursuant to Term 20 of the Chino Basin Watermaster's (Watermaster) Water Rights Permit 21225. Per the terms of the March 20, 2007 Stipulation, Watermaster and the California Department of Fish and Wildlife (DFW) agreed that Watermaster would prepare estimates of monthly changes in discharge in each tributary of the Santa Ana River from which stormwater is diverted, prepare annual reports describing the data and methods used to prepare those estimates, and submit the annual reports to the DFW by October 1st of each year.[1] Each annual report covers the 12-month period of July 1st through June 30th.

This letter report describes the data and methodology used to assess stormwater diversion impacts and summarizes the diversion impact analysis for each tributary system for the fiscal 2017/18 reporting period.

As in past years, the stormwater and dry-weather discharges diverted for recharge within the Chino Basin during the reporting period were small relative to total discharge: about 6.0 percent of the total estimated discharge was diverted for recharge. About 86 percent of the diversions occurred between January 1st and March 31st, during short-duration stormwater events.

Watermaster's diversions for recharge reduce stormwater and dry-weather discharge, improve water quality in the Santa Ana River and its Chino Basin tributaries, and reduce channel erosion in these drainages, thereby offsetting some of the increase in stormwater and dry-weather discharge resulting from the urbanization of the watershed.

DATA COLLECTION AND METHODOLOGY

There are four main tributary systems to the Santa Ana River from which Watermaster and the Inland Empire Utilities Agency (IEUA)[2] divert stormwater and dry-weather discharges for groundwater recharge: San Antonio/Chino Creek (hereafter referred to as Chino Creek), Cucamonga Creek, Day Creek, and

[1] In September 2010, Watermaster requested and the DFW approved an extension of the report due date from September 1st to October 1st of each year.
[2] IEUA operates the diversion and recharge facilities on behalf of Watermaster, pursuant to Watermaster's permit.

Etiwanda/San Sevaine Creek (hereafter referred to as San Sevaine Creek). Figure 1 shows these creeks, their drainage areas, and other significant hydrologic features. Chino Creek and Cucamonga Creek discharge directly to the Prado Dam Reservoir. And, Day Creek and San Sevaine Creek discharge to the Santa Ana River upstream of the Prado Dam Reservoir. The impact of Watermaster's stormwater and dry-weather diversions is estimated relative to the reduction in discharge on each tributary system and the reduction in discharge from each tributary system to the Prado Dam Reservoir. For Chino Creek and Cucamonga Creek, these are one and the same.

Two of the four tributary systems, Chino and Cucamonga Creeks, are equipped with U.S. Geological Survey (USGS) stream gages, and average daily discharge data are available for these stations. Daily USGS data, daily stormwater and dry-weather discharge diversion data from the IEUA, and daily discharge data collected from other known point discharges (e.g. recycled and imported water discharges) are used to estimate the discharge of Chino and Cucamonga Creeks as they enter the Prado Dam Reservoir. These data are also used to reconstruct hydrographs for the tributaries as they would have been without stormwater and dry-weather discharge diversions.

Day Creek and San Sevaine Creek are not equipped with USGS gaging stations. The hydrographs for these two systems were estimated using WEI's Waste Load Allocation Model (WLAM). The WLAM uses recharge basin and stream channel characteristics, daily precipitation, boundary inflows, and land use characteristics to estimate stormwater runoff, and subsequently routes stormwater as well as non-tributary inflows through the Santa Ana River Watershed. The WLAM was developed for and has been used by the Santa Ana Regional Water Quality Control Board (Regional Board) to evaluate the discharge and water quality impacts of existing and planned recycled water and stormwater discharges to the surface and groundwater resources of the watershed.[3] Watermaster and the City of Riverside used the WLAM to complete the only watershed-wide (system-wide) review of all appropriative water rights applications on the Santa Ana River in the 2006 State Water Resources Control Board hearing process. Watermaster most recently updated the WLAM in 2012 as part of the Chino Basin Groundwater Model recalibration and development of the *2013 Amendment to the 2010 Recharge Master Plan Update*.[4] The WLAM was updated to reflect, among other changes, an improved understanding of recharge basin operations and the rerouting of water in the Etiwanda Channel from Day Creek to San Sevaine Creek. The updated version of the WLAM was used for this analysis, and the land use reflects 2012 conditions—the latest available data.

Daily discharge tables for key hydrologic components and for the aggregate of all hydrologic components are included in the enclosed appendices.

DIVERSION IMPACT ANALYSIS

During fiscal 2017/2018, Watermaster diverted a total of 4,831 acre-feet (acre-ft) of stormwater and dry-weather discharge to recharge basins on the Chino, Cucamonga, Day, and San Sevaine tributary systems. Table 1 summarizes, by tributary, the monthly diversions for recharge at each spreading basin, as provided by the IEUA. Impact analyses of these diversions are provided below.

[3] Wildermuth Environmental, Inc. (2009). *2008 Santa Ana River Wasteload Allocation Model Report.* Prepared for the Basin Monitoring Program Task Force. May 2009.

[4] Wildermuth Environmental, Inc. (2013). *2013 Amendment to the 2010 Recharge Master Plan Update*. Prepared for the Chino Basin Watermaster and Inland Empire Utilities Agency. September 2013.

Chino Creek

The objective of this analysis is to illustrate the impact of Watermaster's diversions on perennial flows in Chino Creek. Figure 1 shows the locations of significant points of activity on the Chino Creek tributary system, including Watermaster's points of diversion to recharge basins, USGS gaging stations, the Orange County Water District's (OCWD) OC-59 imported water turnout,[5] and the IEUA's recycled water discharge points. The impact of Watermaster's diversions on discharge to the Prado Dam Reservoir is assessed at the point where recycled water from the IEUA RP-1 (Prado) recycling plant discharges to Chino Creek (see *Points of Discharge Estimation* feature in Figure 1).[6] Because discharge to the Chino Creek tributary system from OCWD OC-59 occurs irregularly, it is not considered a part of the natural system and is not included in the reconstructed hydrograph of Chino Creek. This methodology is consistent with the Santa Ana River Watermaster's methodology of computing the annual volume-weighted TDS concentration of the Santa Ana River at the Prado Dam Reservoir.[7] During fiscal 2017/2018, 21,038 acre-ft of imported water was discharged to Chino Creek through OC-59, of which 21,026 acre-ft was diverted to recharge basins along the Chino Creek tributary system. The remaining 12 acre-ft continued to the Prado Dam Reservoir and the Santa Ana River for diversion to recharge basins in Orange County.

The estimated average daily discharge entering the Prado Dam Reservoir from Chino Creek is calculated from the average daily discharge measured at USGS gage 11073360 (Appendix A1) less any imported water discharges from OC-59 that were not diverted into recharge basins (Appendix A2 minus Appendix A3) plus the average daily discharge from each of the IEUA's recycled water discharge points (Carbon Canyon, RP1-Prado, and RP5) (Appendix A4). These discharges are summarized as monthly totals in rows one through four of Table 2a and are shown in detail as daily totals in Appendices A1 through A4. The resulting daily discharge time history, summarized in row five of Table 2a and shown in detail in Appendix A5, approximates actual daily discharge in Chino Creek after Watermaster's diversions and without OCWD OC-59 discharges. Note that this estimation does not account for additional stormwater inputs generated by the Chino Creek drainage area that enter the creek downstream of USGS gage 11073360. These unaccounted for downstream flows are generated by an area that covers approximately 24 square miles and represents about 26 percent of the total Chino Creek drainage area. Thus, the relative impact of Watermaster's diversions is overstated.

The time history of stormwater and dry-weather discharge diversions is summarized in row six of Table 2a and shown in detail in Appendix A6. When added together, the daily discharge time histories from Appendices A5 and A6 yield what would have been the approximate daily discharge time history in Chino Creek had Watermaster not diverted stormwater and dry-weather flows for recharge. This reconstructed discharge time history is summarized in row seven of Table 2a and shown in detail in Appendix A7. The percent reduction in discharge entering the Prado Dam Reservoir due to Watermaster diversions relative to the estimated discharge without diversions is summarized in row eight of Table 2a.

[5] The Metropolitan Water District of Southern California can supply the OCWD with State Water Project water through the OC-59 connection, which discharges water to San Antonio Creek, and subsequently to Chino Creek, through the Prado Basin, and into Orange County via the Santa Ana River. The IEUA, through an agreement with the OCWD, can divert water discharged at the OC-59 connection to the recharge facilities along the Chino Creek tributary system.

[6] Note that the IEUA RP-1 recycling plant has two discharge locations: one to Chino Creek (RP-1 Prado) and one to Cucamonga Creek (RP-1 Cucamonga).

[7] See for example, *FORTY-SEVENTH ANNUAL REPORT OF THE SANTA ANA RIVER WATERMASTER FOR WATER YEAR OCTOBER 1, 2016 - SEPTEMBER 30, 2017*. Prepared in April 2018 by the Santa Ana River Watermaster for the ORANGE COUNTY WATER DISTRICT v. CITY OF CHINO, et al. CASE NO. 117628 - COUNTY OF ORANGE.

The total discharge that entered the Prado Dam Reservoir from Chino Creek during fiscal 2017/2018 was estimated to be about 10,280 acre-ft, ranging from a low of about 254 acre-ft/month (August) to a high of about 1,991 acre-ft/month (January). Total diversions of stormwater and dry-weather flows from Chino Creek were about 547 acre-ft. The estimated total discharge that would have entered the Prado Dam Reservoir without stormwater and dry-weather diversions is about 10,826 acre-ft; thus, about 5.0 percent of the total estimated discharge in Chino Creek was diverted for recharge in fiscal 2017/2018. 94 percent of the diversions on Chino Creek occurred during January through March and were coincident with the larger storm events of the year.

Figure 2a shows the estimated monthly discharge to the Prado Dam Reservoir, with and without diversions, as a stacked bar chart (acre-ft) and average daily discharge, with and without diversions, as an xy plot (cubic feet per second [cfs]). This figure illustrates that the relative magnitude of the stormwater and dry-weather diversions for recharge, shown as the light blue bar (monthly diversions), is small compared to the total estimated discharge entering the Prado Dam Reservoir. Figure 2a also shows that the majority of recharge results from a few short-duration stormwater events (i.e. when the yellow line [average daily discharge with diversions] is significantly below the red line [average daily discharge without diversions] during the large upward peaks in the graph where stream flow is magnified by stormwater runoff).

Cucamonga Creek

Figure 1 shows the locations of significant points of activity on the Cucamonga Creek tributary system, including Watermaster's points of diversion to recharge basins, USGS gaging stations, and the IEUA's recycled water discharge points. The impact of Watermaster's diversions on discharge to the Santa Ana River at the Prado Dam Reservoir is assessed at the point where the concrete-lined channel of Cucamonga Creek ends (see *Points of Discharge Estimation* feature in Figure 1). The estimated average daily discharge entering the Prado Dam Reservoir from Cucamonga Creek is approximated as the average daily discharge measured at USGS gage 11073495. The estimated discharge time history is summarized as a monthly total in row one of Table 2b and is shown in detail as daily values in Appendix B1. Note that this estimation does not account for additional stormwater inputs, generated by the Cucamonga Creek drainage area, that enter the creek downstream of USGS gage 11073495. The unaccounted for downstream flows are generated by an area that covers approximately 13 square miles and represents about 15 percent of the total Cucamonga Creek drainage area. Thus, the relative impact of Watermaster's diversions is overstated.

The time history of stormwater and dry-weather discharge diversions is summarized in row two of Table 2b and shown in detail in Appendix B2. When added together, the daily discharge time histories from Appendices B1 and B2 yield what would have been the approximate daily discharge time history in Cucamonga Creek had Watermaster not diverted stormwater and dry-weather flows for recharge. This reconstructed discharge time history is summarized in row three of Table 2b and shown in detail in Appendix B3. The percent reduction in discharge entering the Prado Dam Reservoir relative to the estimated discharge without Watermaster diversions is summarized in row four of Table 2b.

The total discharge that entered the Prado Dam Reservoir from Cucamonga Creek during fiscal 2017/2018 was estimated to be about 14,536 acre-ft, ranging from a low of about 137 acre-ft/month (July) to a high of about 3,841 acre-ft/month (January). Total diversions from Cucamonga Creek were about 2,297 acre-ft. The estimated total discharge that would have entered Prado Dam Reservoir without stormwater and dry-weather diversions is about 16,834 acre-ft; thus, about 14 percent of the total discharge in Cucamonga

Creek was diverted for recharge in fiscal 2017/2018. 75 percent of the diversions on Cucamonga Creek occurred during January through March and were coincident with the larger storm events of the year.

Figure 2b shows total monthly discharge to the Prado Dam Reservoir, with and without diversions, as a stacked bar chart (acre-ft) and average daily discharge, with and without diversions, as an xy plot (cfs). This figure illustrates that the relative magnitude of the stormwater diversions for recharge is small compared to the total estimated discharge entering the Prado Dam Reservoir. Figure 2b also shows that the majority of recharge results from a few short-duration stormwater events.

Day Creek

Figure 1 shows the locations of significant points of activity on the Day Creek tributary system, including Watermaster's points of diversion to recharge basins and the confluence of Day Creek and the Santa Ana River (see the *Points of Discharge Estimation* feature on Figure 1). Day Creek's average daily discharge to the Santa Ana River was estimated using the WLAM. The estimated daily discharge represents discharge to the Santa Ana River without stormwater diversions for recharge. The discharge time history estimated by the WLAM is summarized as monthly totals in row one of Table 2c and is shown in detail as daily values in Appendix C1. Because the WLAM does not simulate dry-weather flows, the estimated daily discharge underestimates actual flows on Day Creek and, thus, overestimates the impact of diversions on discharge to the Santa Ana River. To correct for this underestimation, dry-weather diversions are added together with the WLAM-estimated discharge to create a reconstructed hydrograph of Day Creek.

The time history of stormwater and dry-weather discharge diversions is summarized in row two of Table 2c and shown in detail in Appendix C2. The "diversion" values reported by the IEUA represent the recharge of stormwater and dry weather flow in basins. There are instances when the reported diversions are in excess of total WLAM estimated stormwater flow; in such cases, the excess diversions are assumed to be dry-weather flows. In other instances, when the volume of stormwater diverted for recharge is large, the recharge may continue to occur after storm flows in the creek have stopped (i.e. when the WLAM estimated flow is zero). Periods of recharge that are primarily attributed to stormwater are highlighted grey in Appendices C1, C2, and C3. During storm periods, dry-weather flows are not estimated and are assumed to be zero. All diversions that occur during non-storm periods are considered dry-weather flows. The time history of dry-weather flow diversions is summarized in row three of Table 2c and shown in detail in Appendix C3. Note that dry-weather flows that occur downstream of the recharge basins are not estimated. Thus, the relative impact of Watermaster's diversions is overstated.

When added together, the stormwater discharge estimated by the WLAM (row one of Table 2c) and the estimated dry-weather diversions (row three of Table 2c) yield the total estimated discharge from Day Creek to the Santa Ana River. This total discharge is summarized in row four of Table 2c. Subtracting the diversions (row two of Table 2c) from the total estimated discharges (row four of Table 2c) yields an estimated monthly discharge from Day Creek to the Santa Ana River after Watermaster diversions. This calculation is done on a monthly basis. Within each storm period (highlighted in grey in Appendices C1, C2, and C3), total diversions are subtracted from the total stormwater flows generated during the storm, including diversions that were recharged on dates after the actual stormwater flows were generated. The estimated monthly discharge is summarized in row five of Table 2c.

The percent reduction in discharge entering the Santa Ana River from Day Creek relative to the estimated discharge without Watermaster diversions is summarized in row six of Table 2c. Table 2c also summarizes the discharge measured at USGS gage 11066460 (row seven), the closest gage on the Santa Ana River upstream of its confluence with Day Creek (see Figure 1). The percent reduction in discharge to the Prado

Dam Reservoir from Day Creek, relative to discharge in the Santa Ana River at USGS gage 11066460, is summarized in row eight of Table 2c.

Total discharge to the Santa Ana River from Day Creek during fiscal 2017/2018 was estimated to be about 1,922 acre-ft, ranging from a low of zero acre-ft/month (summer months) to a high of about 1,243 acre-ft/month (January). Total diversions from Day Creek were about 158 acre-ft, of which about 19 acre-ft were dry-weather flows. The estimated discharge that would have entered the Santa Ana River without stormwater and dry-weather diversions is 2,080 acre-ft; thus, about 7.6 percent of the total discharge in Day Creek was diverted for recharge in fiscal 2017/2018. 97 percent of the diversions on Day Creek occurred during January through March and were coincident with the larger storm events of the year.

The percent reduction in discharge entering the Prado Dam Reservoir was about 0.4 percent.

Figure 2c shows total monthly discharge, with and without diversions, as a stacked bar chart (acre-ft) and average daily discharge, with and without diversions, as an xy plot (cfs). Stormwater runoff accounted for about 88 percent of Watermaster's diversions, which occurred during short-duration events, while the remainder of the diversions were dry-weather flows.

San Sevaine Creek

Figure 1 shows the locations of significant points of activity on the San Sevaine Creek tributary system, including Watermaster's points of diversion to recharge basins and the confluence of San Sevaine Creek and the Santa Ana River (see *Points of Discharge Estimation* feature on Figure 1). San Sevaine Creek's average daily discharge to the Santa Ana River was also estimated using the WLAM. The estimated daily discharge represents discharge to the Santa Ana River without stormwater diversions for recharge. The discharge time history estimated by the WLAM is summarized as monthly totals in row 1 of Table 2d and is shown in detail as daily values in Appendix D1. Because the WLAM does not simulate dry-weather flows, the estimated daily discharge underestimates actual flows on San Sevaine Creek and, thus, overestimates the impact of diversions on discharge to the Santa Ana River. To correct for this underestimation, dry-weather diversions are added together with the WLAM estimated discharge to create a reconstructed hydrograph of San Sevaine Creek.

The time history of stormwater and dry-weather discharge diversions is summarized in row 2 of Table 2d and shown in detail in Appendix D2. The "diversion" values reported by the IEUA represent the recharge of stormwater and dry weather flow in basins. There are instances when the reported diversions are in excess of total WLAM estimated stormwater flow; in such cases, the excess diversions are assumed to be dry-weather flows. In other instances, when the volume of stormwater diverted for recharge is large, the recharge may continue to occur after storm flows in the creek have stopped (i.e. when the WLAM estimated flow is zero). Periods of recharge that are primarily attributed to stormwater are highlighted grey in Appendices D1, D2, and D3. During storm periods, dry-weather flows are not estimated and are assumed to be 0. All diversions that occur during non-storm periods are considered dry-weather flows. The time history of dry-weather flow diversions is summarized in row 3 of Table 2d and shown in detail in Appendix D3. Note that dry-weather flows that occur downstream of the recharge basins are not estimated. Thus, the relative impact of Watermaster's diversions is overstated.

When added together, the stormwater discharge estimated by the WLAM (row 1 of Table 2d) and the estimated dry-weather diversions (row 3 of Table 2d) yield the total estimated discharge from San Sevaine Creek to the Santa Ana River. This total discharge is summarized in row 4 of Table 2d. Subtracting the diversions (row 2 of Table 2d) from the total estimated discharges (row 4 of Table 2d) yields an estimated

monthly discharge from San Sevaine Creek to the Santa Ana River after Watermaster diversions. This calculation is done on a monthly basis. Within each storm period (highlighted in grey in Appendices D1, D2, and D3), total diversions are subtracted from the total stormwater flows generated during the storm, including diversions that were recharged on dates after actual stormwater flows were generated. In some cases, a diversion taken at the beginning of one month was subtracted from stormwater flows generated in a previous month. The estimated monthly discharge is summarized in row 5 of Table 2d.

The percent reduction in discharge entering the Santa Ana River from San Sevaine Creek relative to the estimated discharge without Watermaster diversions is summarized in row 6 of Table 2d. Table 2d also summarizes the discharge measured at USGS gage 11066460 (row 7), the closest gage on the Santa Ana River upstream of its confluence with San Sevaine Creek (see Figure 1). The percent reduction in discharge to the Prado Dam Reservoir from San Sevaine Creek, relative to discharge in the Santa Ana River at USGS gage 11066460, is summarized in row 8 of Table 2d.

Total discharge to the Santa Ana River from San Sevaine Creek during fiscal 2017/2018 was estimated to be about 2,158 acre-ft, ranging from a low of 0 acre-ft/month (summer months) to a high of about 1,335 acre-ft/month (January). Total diversions from San Sevaine Creek were about 1,829 acre-ft, of which about 450 acre-ft were dry-weather flows. The estimated discharge that would have entered the Santa Ana River without stormwater and dry-weather diversions is 3,981 acre-ft; thus, about 46 percent of the total discharge in San Sevaine Creek was diverted for recharge in fiscal 2017/2018. The percent reduction in discharge entering the Prado Dam Reservoir was about 5.1 percent. 79 percent of the diversions on San Sevaine Creek occurred during January through March and were coincident with the larger storm events of the year.

Figure 2d shows total monthly discharge, with and without diversions, as a stacked bar chart (acre-ft) and average daily discharge, with and without diversions, as an xy plot (cfs). Stormwater runoff accounted for about 75 percent of Watermaster's diversions, which occurred during short-duration events, while the remainder of the diversions were dry-weather flows.

Should you have any questions regarding the information contained herein, please contact Emily McCord (949-600-7509 or emccord@weiwater.com) or Carolina Sanchez (949-600-7504 or csanchez@weiwater.com).

Respectfully,

Wildermuth Environmental, Inc.

Emily McCord
Staff Scientist

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MS, RCE 85598 (Exp. 9/30/2018)
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Encl. Tables 1, 2a through 2d; Figures 1 and 2a through 2d; and Appendices A through D

Table 1

Total Monthly Stormwater Recharge Fiscal Year 2017/18

(af)

Tributary System	Jul-17	Aug-17	Sep-17	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18	Total
Chino Creek													
College Heights	0	0	0	0	0	0	13	1	2	0	0	0	15
Upland	0	0	0	0	0	0	70	9	80	1	3	0	164
Montclair	0	0	0	6	1	0	130	22	115	1	14	0	289
Brooks Street	0	0	0	0	0	0	28	5	43	1	2	0	79
Tributary Total	**0**	**0**	**0**	**6**	**1**	**0**	**240**	**37**	**239**	**4**	**19**	**0**	**547**
Cucamonga Creek													
7th and 8th Street	105	20	3	51	3	3	121	85	142	12	7	6	558
Ely	37	126	0	48	0	0	255	91	266	19	0	0	840
Turner 1 and 2	3	3	2	3	3	1	37	19	208	6	6	2	292
Turner 3 and 4	10	21	16	1	4	2	116	75	107	4	35	14	403
Grove	0	12	0	0	0	0	92	19	81	0	0	0	204
Tributary Total	**155**	**181**	**21**	**103**	**10**	**5**	**621**	**288**	**804**	**40**	**47**	**22**	**2,297**
Day Creek													
Lower Day	0	4	0	0	0	0	23	7	124	0	0	0	158
Tributary Total	**0**	**4**	**0**	**0**	**0**	**0**	**23**	**7**	**124**	**0**	**0**	**0**	**158**
San Sevaine Creek													
San Sevaine	0	48	0	0	0	0	104	21	127	0	4	0	305
Jurupa	2	0	0	0	0	0	23	7	39	0	6	0	77
Hickory	0	0	10	10	15	8	85	16	59	10	0	2	214
Banana	0	2	2	2	0	2	115	11	60	0	0	0	195
RP-3	5	15	15	4	0	1	92	19	103	30	9	1	294
Declez	7	70	6	6	6	6	136	48	223	18	30	17	574
Etiwanda Debris Basin	0	9	0	0	0	0	18	0	32	0	0	0	59
Victoria	0	4	0	0	0	0	57	9	40	3	0	0	112
Tributary Total	**14**	**147**	**33**	**22**	**21**	**17**	**629**	**132**	**684**	**61**	**49**	**20**	**1,829**
Tributary System Total	**168**	**332**	**54**	**131**	**32**	**23**	**1,514**	**464**	**1,852**	**105**	**116**	**42**	**4,831**

[1] Recharge volumes represent diversions of both stormwater and dry-weather discharge; recharge volumes are rounded to the nearest whole number.

Table 2a

Impact of Stormwater Diversions on Total Monthly Discharge Entering the Prado Dam Reservoir from Chino Creek for FY 2017/18

(af)

Row	Discharge Components	Jul-17	Aug-17	Sep-17	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18	Total
(1)	Discharge in Chino Creek at USGS Gage 11073360[1]	14	21	19	15	12	18	740	108	407	18	34	21	**1,427**
(2)	Discharge to San Antonio Creek from OCWD OC-59	4,725	4,621	2,285	2,537	1,951	2,559	2,359	0	0	0	0	0	**21,038**
(3)	Diversions of OC-59 Imported Water to Recharge Basins	4,724	4,613	2,284	2,537	1,950	2,559	2,359	0	0	0	0	0	**21,026**
(4)	Recycled Water Discharge from IEUA's CCWRF, RP-5, and RP-1 (Prado)	421	239	392	677	789	856	1,252	897	1,364	1,006	604	366	**8,862**
(5) =(1)-[(2)-(3)]+(4)	Estimated Discharge Entering the Prado Dam Reservoir	434	254	410	691	800	873	1,991	1,006	1,771	1,024	638	387	**10,280**
(6)	Stormwater and Dry-Weather Discharge Diversions	0	0	0	6	1	0	240	37	239	4	19	0	**547**
(7) =(5)+(6)	Estimated Discharge That Would Have Entered the Prado Dam Reservoir *without* Stormwater and Dry-Weather Diversions	434	254	410	697	801	873	2,231	1,042	2,010	1,028	657	387	**10,826**
(8) =(6)/(7)	Percent Reduction in Discharge Entering the Prado Dam Reservoir Relative to the Estimated Discharge *without* Diversions	0.0%	0.0%	0.0%	0.9%	0.1%	0.0%	10.8%	3.5%	11.9%	0.4%	3.0%	0.0%	**5.0%**

[1] For October 2, 2017 to June 30, 2018, data are provisional; for July 1, 2017 to October 1, 2017, data have been approved by the USGS.

Table 2b

Impact of Stormwater Diversions on Total Monthly Discharge Entering the Prado Dam Reservoir from Cucamonga Creek for FY 2017/18

(af)

Row	Discharge Components	Jul-17	Aug-17	Sep-17	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18	Total
(1)	Discharge Entering the Prado Dam Reservoir after Stormwater and Dry-Weather Diversions (USGS Gage 11073495)[1]	137	330	335	646	1,101	1,396	3,841	1,889	3,066	406	941	448	**14,536**
(2)	Stormwater and Dry-Weather Discharge Diversions	155	181	21	103	10	5	621	288	804	40	47	22	**2,297**
(3) =(1)+(2)	Estimated Discharge That Would Have Entered the Prado Dam Reservoir *without* Stormwater and Dry-Weather Diversions	292	511	356	749	1,111	1,402	4,462	2,177	3,870	447	988	470	**16,834**
(4) =(2)/(3)	Percent Reduction in Discharge Entering the Prado Dam Reservoir Relative to the Estimated Discharge *without* Diversions	52.9%	35.4%	5.8%	13.7%	0.9%	0.4%	13.9%	13.2%	20.8%	9.1%	4.8%	4.7%	**13.6%**

[1] For June 4, 2018 to June 30, 2018, data are provisional; for July 1, 2017 to June 3, 2018, data have been approved by the USGS.

Table 2c
Impact of Stormwater Diversions on Total Monthly Discharge Entering the Santa Ana River from Day Creek for FY 2017/18
(af)

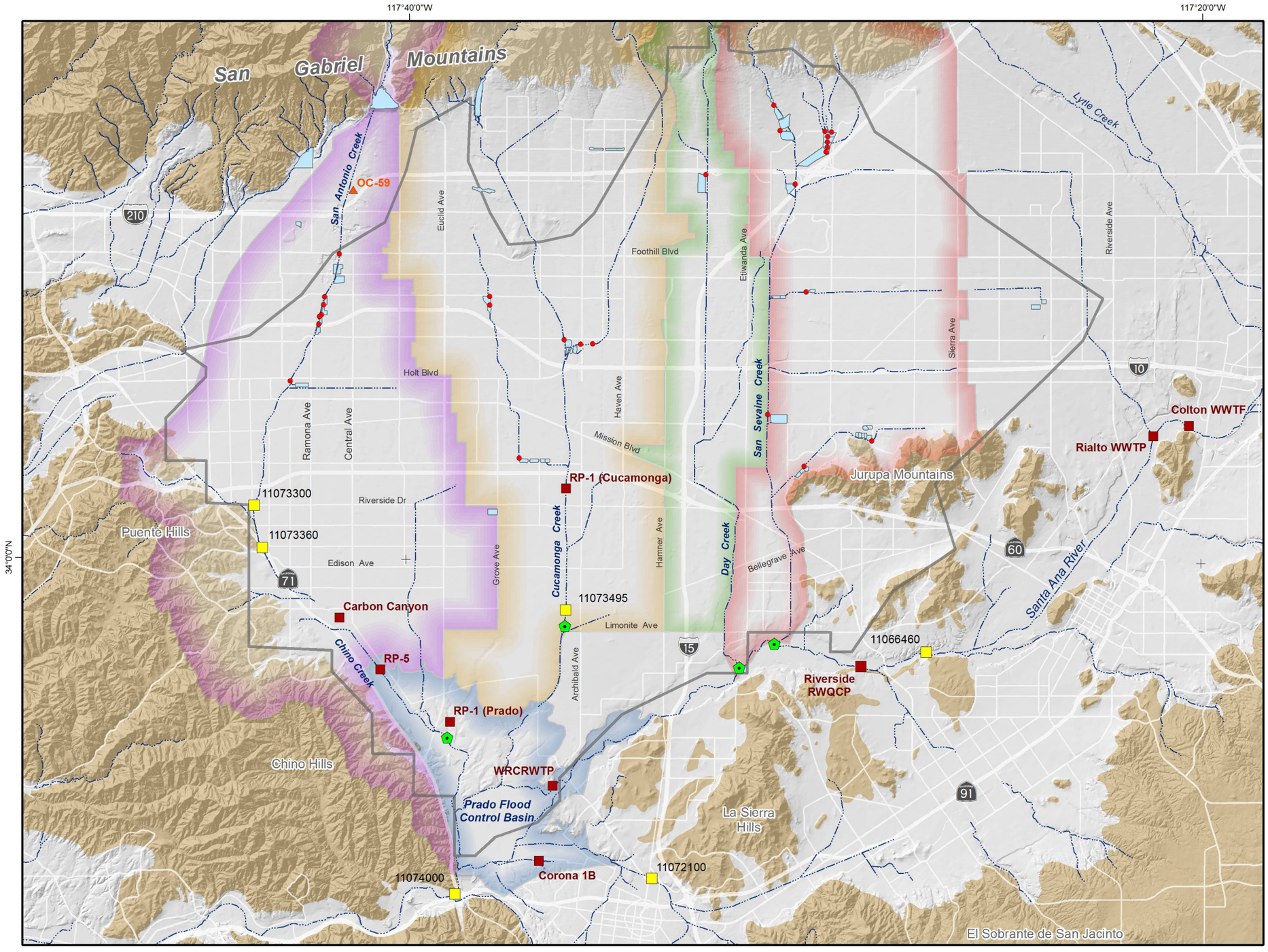
Row	Discharge Components	Jul-17	Aug-17	Sep-17	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18	Total
(1)	Discharge Entering the Santa Ana River *without* Stormwater and Dry-Weather Diversions *or* Dry-Weather Flows[1]	0	1	5	0	0	0	1,266	102	686	0	0	0	**2,061**
(2)	Stormwater and Dry-Weather Discharge Diversions[2]	0	4	0	0	0	0	23	7	124	0	0	0	**158**
(3)	Diversions Attributable to Dry-Weather Flows[3]	0	2	0	0	0	0	0	0	17	0	0	0	**19**
(4) =(1)+(3)	Total Discharge Entering the Santa Ana River *without* Stormwater and Dry-Weather Diversions[4]	0	4	5	0	0	0	1,266	102	703	0	0	0	**2,080**
(5) =(4)-(2)	Estimated Discharge Entering the Santa Ana River after Stormwater and Dry-Weather Diversions	0	0	5	0	0	0	1,243	95	579	0	0	0	**1,922**
(6) =(2)/(4)	Percent Reduction in Discharge Entering the Santa Ana River Relative to Discharge *without* Diversions	0%	100%	0%	0%	0%	0%	2%	7%	18%	0%	0%	0%	**7.6%**
(7)	Discharge in the Santa Ana River at USGS Gage 11066460[5]	1,922	2,173	2,154	1,850	2,164	2,319	8,452	2,592	5,112	2,560	2,360	1,872	**35,531**
(8) =(2)/(7)	Percent Reduction in Discharge Entering the Santa Ana River Relative to Discharge at 11066460[5]	0.0%	0.2%	0.0%	0.0%	0.0%	0.0%	0.3%	0.3%	2.4%	0.0%	0.0%	0.0%	**0.4%**

[1] Estimated using the WLAM.
[2] Calculated on a monthly basis.
[3] Calculated on a monthly basis. Note that the WLAM does not simulate dry-weather flows on the Day Creek tributary system. Thus, there are dates on which the measured diversions from Day Creek are greater than the WLAM's estimated discharge to the Santa Ana River without diversions. For these dates, the difference between the measured diversions and estimated discharge can be attributed to dry-weather discharge. Dry-weather diversions that occur while stormwater is being recharged (highlighted in grey in Appendices C1-C3) or downstream of the recharge basins are not included in these calculations.
[4] Calculated on a monthly basis.
[5] For April 10, 2018 to June 30, 2018, data are provisional; for July 1, 2017 to April 9, 2018, data have been approved by the USGS.

Table 2d
Impact of Stormwater Diversions on Total Monthly Discharge Entering the Santa Ana River from San Sevaine Creek for FY 2017/18
(af)

Row	Discharge Components	Jul-17	Aug-17	Sep-17	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18	Total
(1)	Discharge Entering the Santa Ana River *without* Stormwater and Dry-Weather Diversions *or* Dry-Weather Flows[1]	0	10	10	0	0	0	1,954	184	1,370	0	2	0	**3,531**
(2)	Stormwater and Dry-Weather Discharge Diversions[2]	14	147	33	22	21	17	629	132	684	61	49	20	**1,829**
(3)	Diversions Attributable to Dry-Weather Flows[3]	14	137	31	22	21	17	10	49	29	55	47	20	**450**
(4) =(1)+(3)	Total Discharge Entering the Santa Ana River *without* Stormwater and Dry-Weather Diversions[4]	14	147	40	22	21	17	1,964	233	1,399	55	49	20	**3,981**
(5) =(4)-(2)	Estimated Discharge Entering the Santa Ana River after Stormwater and Dry-Weather Diversions	0	0	7	0	0	0	1,335	101	715	0	0	0	**2,158**
(6) =(2)/(4)	Percent Reduction in Discharge Entering the Santa Ana River Relative to Discharge *without* Diversions	100%	100%	82%	100%	100%	100%	32%	57%	49%	111%	100%	100%	**46%**
(7)	Discharge in the Santa Ana River at USGS Gage 11066460[5]	1,922	2,173	2,154	1,850	2,164	2,319	8,452	2,592	5,112	2,560	2,360	1,872	**35,531**
(8) =(2)/(7)	Percent Reduction in Discharge Entering the Santa Ana River Relative to Discharge at 11066460[5]	0.7%	6.8%	1.5%	1.2%	1.0%	0.7%	7.4%	5.1%	13.4%	2.4%	2.1%	1.1%	**5.1%**

[1] Estimated using the WLAM.
[2] Calculated on a monthly basis.
[3] Calculated on a monthly basis. Note that the WLAM does not simulate dry-weather flows on the San Sevaine Creek tributary system. Thus, there are dates on which the measured diversions from San Sevaine Creek are greater than the WLAM's estimated discharge to the Santa Ana River without diversions. For these dates, the difference between the measured diversions and estimated discharge can be attributed to dry-weather discharge. Dry-weather diversions that occur while stormwater is being recharged (highlighted in grey in Appendices D1-D3) or downstream of the recharge basins are not included in these calculations.
[4] Calculated on a monthly basis.
[5] For April 10, 2018 to June 30, 2018, data are provisional; for July 1, 2017 to For April 9, 2018, data have been approved by the USGS.



Main Map Features

- Flood Control and Conservation Basins
- Rivers and Streams
- Active Points of Diversion
- Active USGS Gaging Stations
- Recycled Water Discharge Location
- Points of Discharge Estimation
- OCWD OC-59 State Water Project Turnout
- Chino Basin Legal Boundary

Drainage Areas

- Chino Creek System
- Cucamonga Creek System
- Day Creek System
- San Sevaine Creek System
- Prado Dam Reservoir

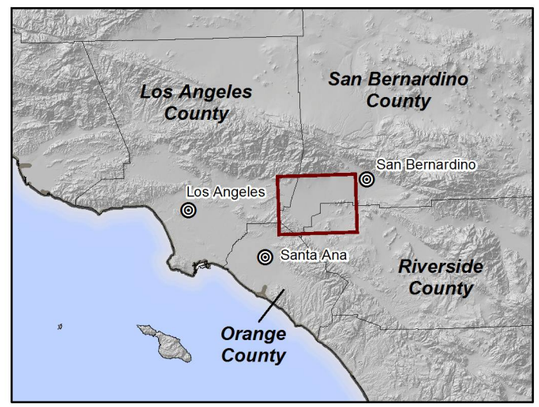
Geology

Water-Bearing Sediments

- Quaternary Alluvium

Consolidated Bedrock

- Undifferentiated Pre-Tertiary to Early Pleistocene Igneous, Metamorphic, and Sedimentary Rocks



Prepared by:

WEI
Wildermuth Environmental, Inc.

Author: EM
Date: 9/13/2018
Document Name: Figure 1

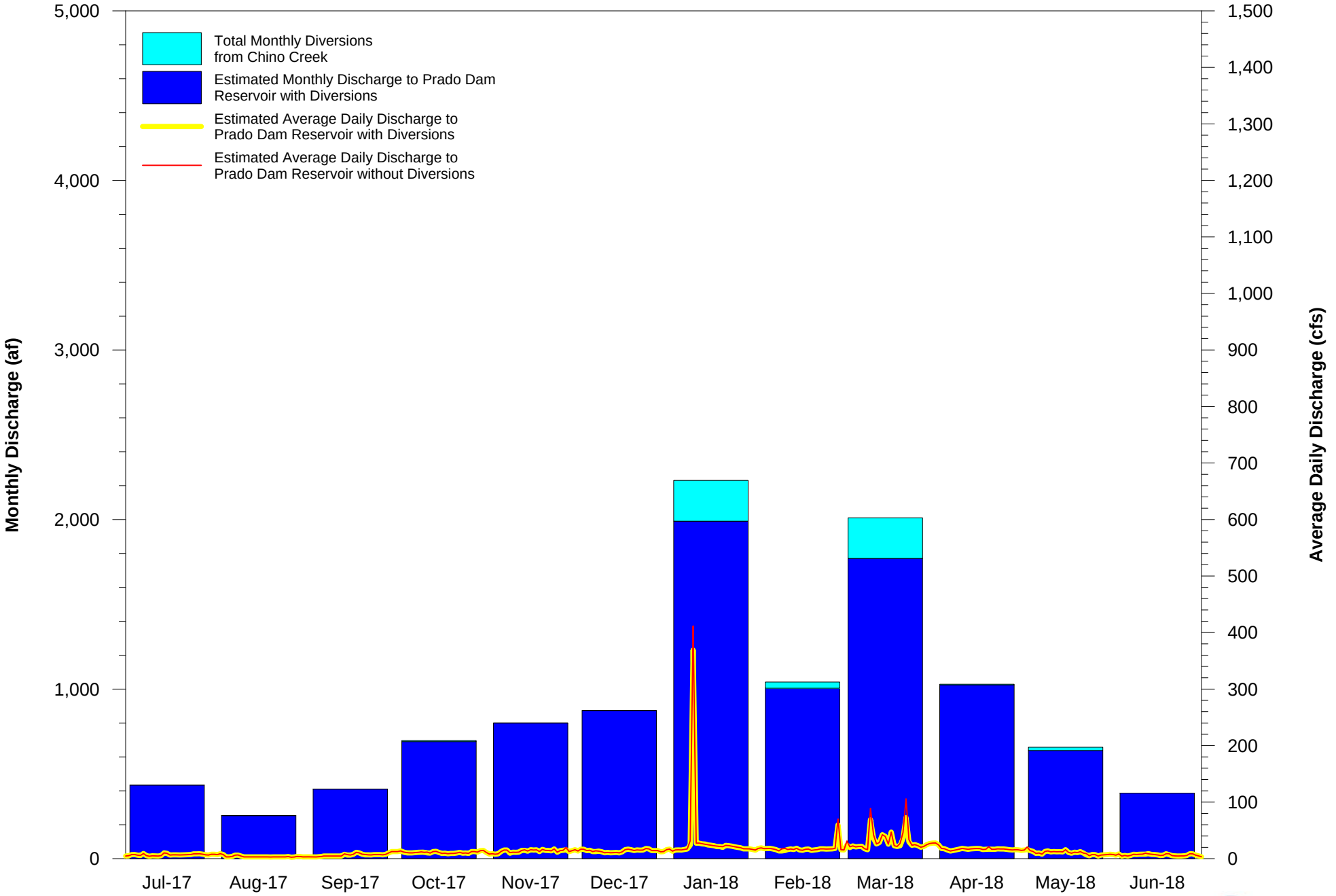
0 4 8 Miles
0 4 8 12 KM

Water Rights Compliance Reporting
Fiscal Year 2017/2018

Stormwater Recharge Points of Diversion
Water Rights Permit 21225

Figure 1

Figure 2a
Estimated Discharge from Chino Creek to Prado Dam Reservoir
With and without Stormwater and Dry-Weather Discharge Diversions



09/12/2018
Chino_Creek_Figure2a.grf

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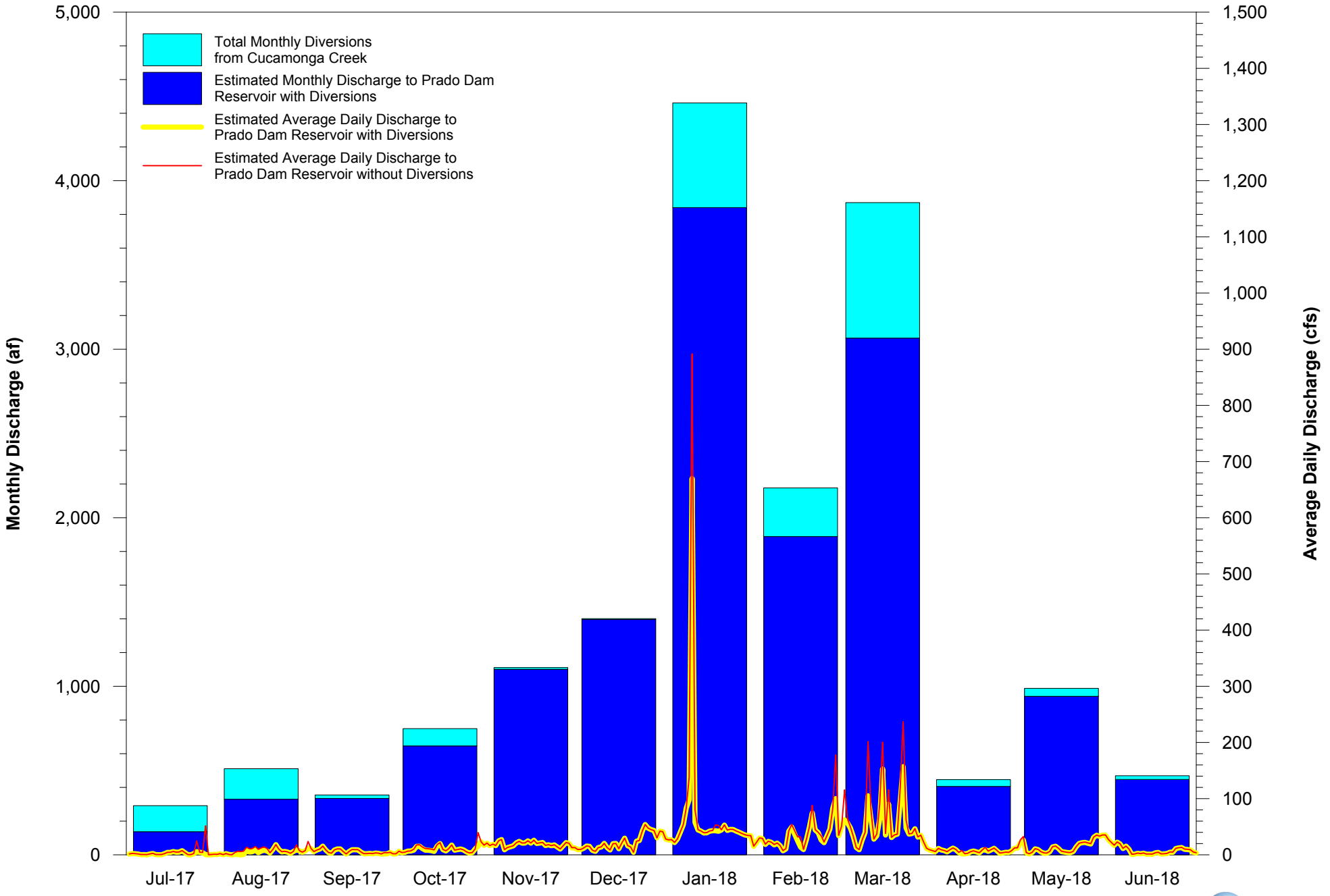
Figure 2b
Estimated Discharge from Cucamonga Creek to Prado Dam Reservoir
With and without Stormwater and Dry-Weather Discharge Diversions



09/12/2018
Cucamonga_Creek_Figure2b.grf

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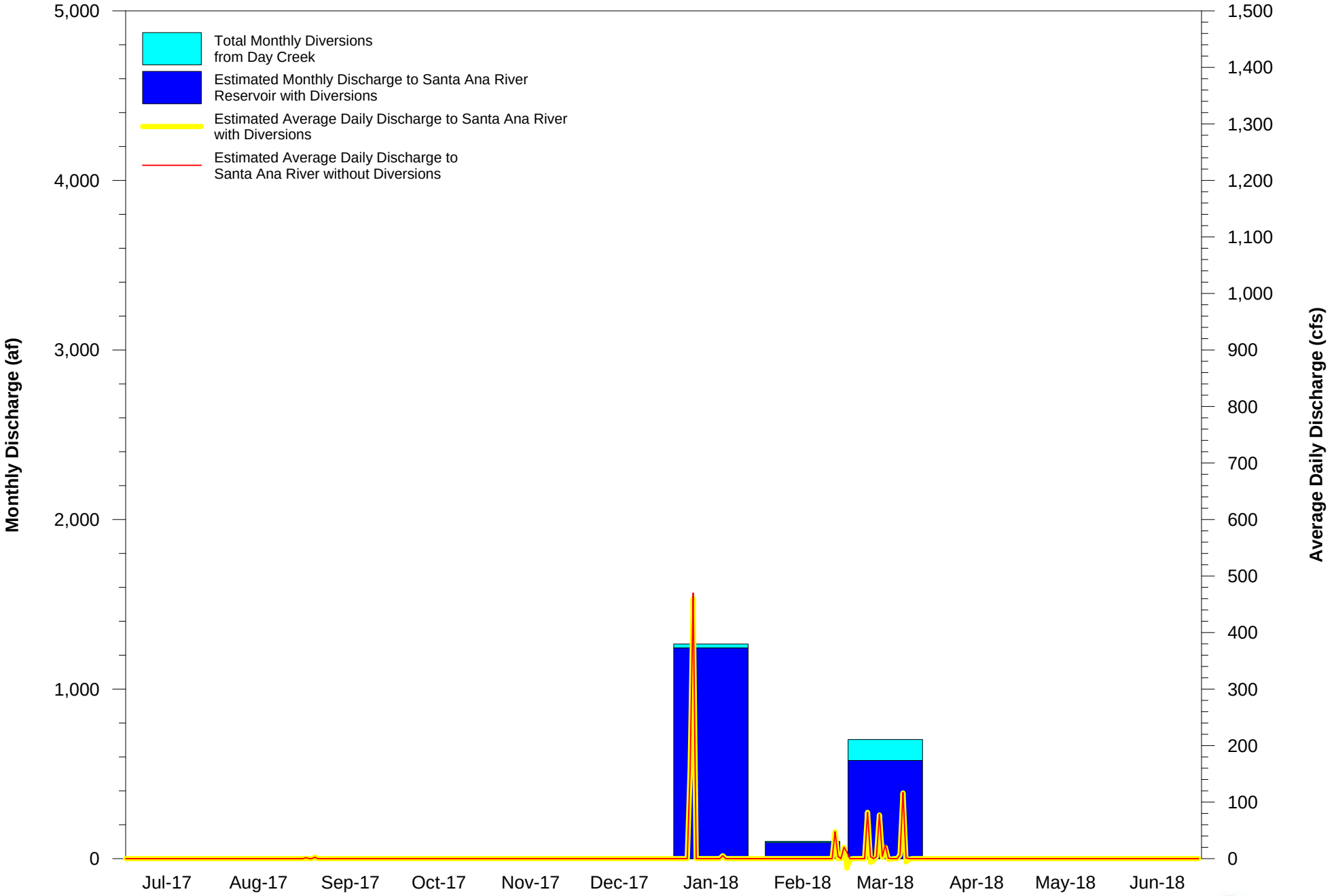
Figure 2c
Estimated Discharge from Day Creek to the Santa Ana River
With and without Stormwater and Dry-Weather Discharge Diversions



09/13/2018
Day_Creek_Figure2c.grf

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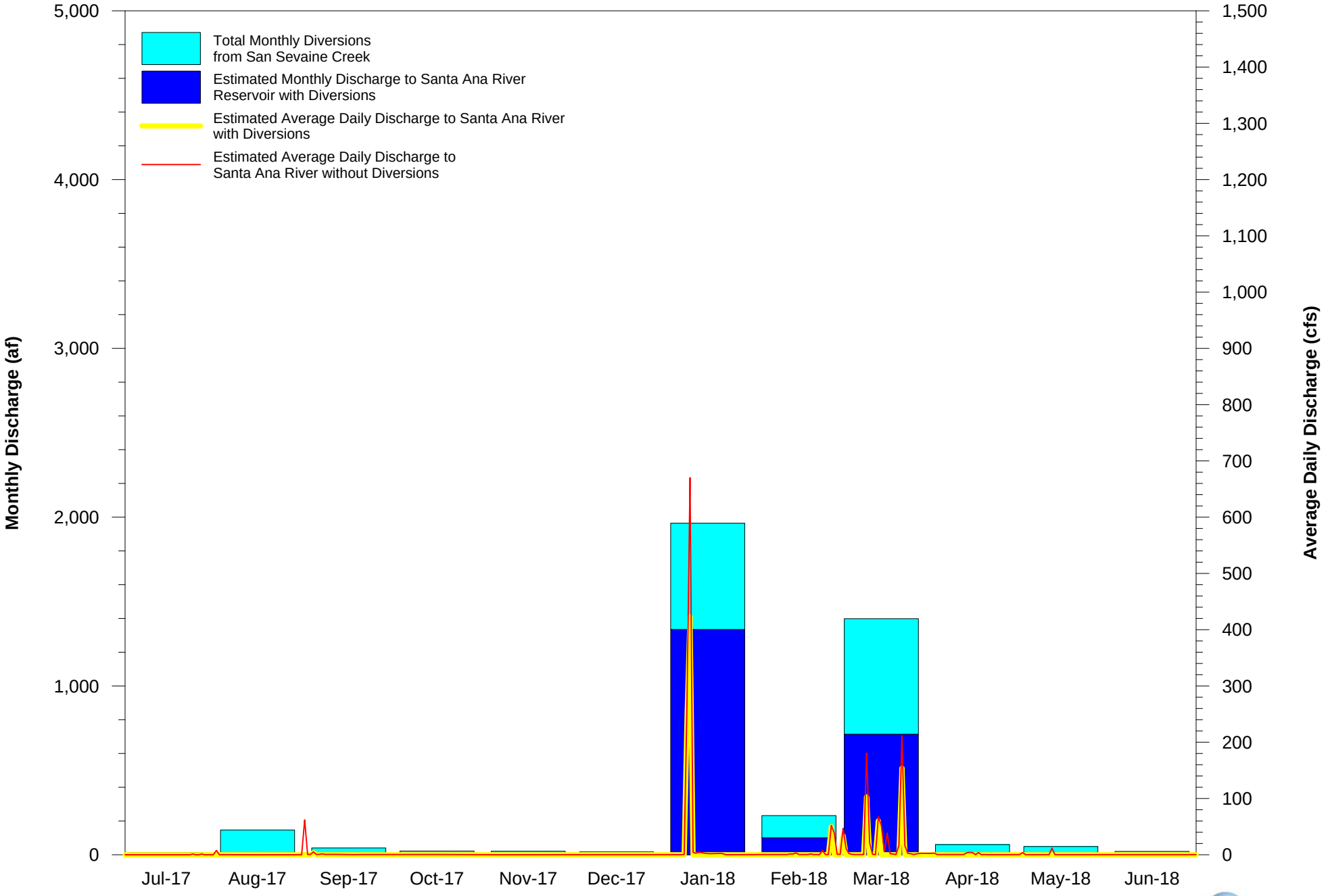
Figure 2d
Estimated Discharge from San Sevaine Creek to the Santa Ana River
With and without Stormwater and Dry-Weather Discharge Diversions



09/12/2018
San Sevaine_Creek_Figure2d.grf

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Appendix A1

Average Daily Discharge at USGS Gage 11073360 on Chino Creek

(cfs)

Day	Jul-17	Aug-17	Sep-17	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18
1	0.2	0.5	0.3	0.2	0.3	0.2	0.4	0.5	0.3	0.3	0.3	0.4
2	0.2	0.4	0.3	0.2	0.2	0.2	0.3	0.4	7.8	0.3	1.8	0.4
3	0.2	0.5	1.5	0.2	0.2	0.2	0.3	0.4	0.9	0.3	0.5	0.4
4	0.2	0.6	0.3	0.2	0.2	0.2	0.4	0.4	0.5	0.3	0.5	0.4
5	0.2	0.3	0.3	0.2	0.2	0.2	0.4	0.4	0.3	0.3	0.5	0.4
6	0.2	0.3	0.3	0.2	0.2	0.2	0.4	0.4	0.3	0.3	0.5	0.4
7	0.3	0.3	0.3	0.2	0.2	0.2	0.3	0.4	0.3	0.4	0.5	0.4
8	0.2	0.3	0.3	0.2	0.2	0.5	16.5	0.4	0.3	0.4	0.5	0.4
9	0.2	0.4	0.3	0.2	0.2	0.5	341.0	0.3	0.3	0.4	0.5	0.5
10	0.2	0.3	0.3	0.2	0.2	0.5	1.2	0.3	47.2	0.4	0.5	0.3
11	0.3	0.3	0.4	0.2	0.2	0.5	0.6	0.3	11.9	0.3	0.4	0.3
12	0.3	0.3	0.3	0.2	0.2	0.3	0.4	0.5	0.5	0.3	0.4	0.3
13	0.3	0.2	0.3	0.2	0.2	0.3	0.4	0.6	3.2	0.3	0.6	0.4
14	0.3	0.3	0.3	0.2	0.2	0.3	0.4	0.3	16.1	0.3	0.5	0.4
15	0.3	0.3	0.3	0.2	0.2	0.3	0.4	0.3	15.4	0.3	0.5	0.4
16	0.2	0.3	0.4	0.2	0.2	0.3	0.4	0.3	5.6	0.3	0.5	0.3
17	0.2	0.3	0.4	0.2	0.2	0.3	0.4	0.2	24.5	0.3	0.5	0.3
18	0.2	0.3	0.4	0.3	0.2	0.3	0.4	0.3	0.5	0.3	0.4	0.3
19	0.2	0.4	0.2	0.3	0.2	0.3	1.6	0.3	0.4	0.3	0.5	0.3
20	0.2	0.9	0.3	0.3	0.2	0.3	2.1	0.2	0.3	0.3	1.1	0.4
21	0.2	0.6	0.3	0.2	0.2	0.3	0.4	0.2	13.9	0.3	0.6	0.4
22	0.2	0.3	0.2	0.3	0.2	0.3	0.4	0.3	47.3	0.3	0.5	0.4
23	0.2	0.3	0.2	0.3	0.2	0.3	0.4	0.3	4.4	0.3	0.5	0.3
24	0.4	0.2	0.2	0.3	0.2	0.3	0.4	0.2	0.6	0.3	0.6	0.3
25	0.2	0.2	0.2	0.3	0.2	0.3	0.4	0.3	0.6	0.3	0.5	0.4
26	0.2	0.2	0.2	0.3	0.2	0.4	0.5	3.2	0.4	0.3	0.4	0.4
27	0.2	0.2	0.3	0.3	0.2	0.3	0.4	42.5	0.3	0.3	0.5	0.3
28	0.2	0.3	0.3	0.2	0.2	0.3	0.5	0.4	0.3	0.3	0.5	0.3
29	0.2	0.3	0.3	0.3	0.2	0.3	0.5	--	0.3	0.3	0.5	0.3
30	0.2	0.3	0.2	0.3	0.2	0.3	0.4	--	0.3	0.4	0.6	0.3
31	0.2	0.3	--	0.2	--	0.4	0.4	--	0.3	--	0.5	--
Total (cfs)	7.2	10.4	9.7	7.4	5.8	9.1	372.8	54.6	205.0	9.3	16.9	10.8
Minimum	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.3	0.3	0.3	0.3
Maximum	0.4	0.9	1.5	0.3	0.3	0.5	341.0	42.5	47.3	0.4	1.8	0.5
Average	0.2	0.3	0.3	0.2	0.2	0.3	12.0	2.0	6.6	0.3	0.5	0.4
Total (af)	14.3	20.6	19.3	14.6	11.6	18.1	739.6	108.4	406.7	18.5	33.6	21.5

[1] For October 2, 2017 to June 30, 2018, data are provisional; for July 1, 2017 to October 1, 2017, data have been approved by the USGS.

Appendix A2

Average Daily Discharge at OC-59 on San Antonio Creek

(cfs)

Day	Jul-17	Aug-17	Sep-17	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18
1	75.1	71.7	43.9	77.5	0.0	42.0	41.1	0.0	0.0	0.0	0.0	0.0
2	75.6	56.1	28.9	75.8	0.0	42.4	40.9	0.0	0.0	0.0	0.0	0.0
3	75.4	67.1	28.8	73.4	0.0	42.6	42.3	0.0	0.0	0.0	0.0	0.0
4	74.5	67.9	28.6	73.3	0.0	41.9	39.4	0.0	0.0	0.0	0.0	0.0
5	74.6	68.9	27.7	75.1	0.0	41.7	36.9	0.0	0.0	0.0	0.0	0.0
6	75.4	69.5	27.4	76.1	16.5	40.5	37.1	0.0	0.0	0.0	0.0	0.0
7	75.3	69.3	28.6	76.6	32.1	41.4	37.6	0.0	0.0	0.0	0.0	0.0
8	73.9	71.3	28.6	76.3	39.7	42.9	13.7	0.0	0.0	0.0	0.0	0.0
9	72.2	72.9	28.9	76.0	39.6	42.1	0.0	0.0	0.0	0.0	0.0	0.0
10	76.5	77.2	28.6	76.8	40.3	42.6	13.0	0.0	0.0	0.0	0.0	0.0
11	72.0	76.0	30.9	78.0	40.2	40.2	35.2	0.0	0.0	0.0	0.0	0.0
12	74.8	77.8	31.7	77.5	41.0	39.9	35.0	0.0	0.0	0.0	0.0	0.0
13	76.9	69.3	28.8	77.3	40.5	38.9	35.2	0.0	0.0	0.0	0.0	0.0
14	76.1	73.5	7.7	74.7	40.3	40.0	35.1	0.0	0.0	0.0	0.0	0.0
15	75.6	73.8	0.0	73.4	40.5	39.5	33.8	0.0	0.0	0.0	0.0	0.0
16	76.6	76.6	0.0	61.9	41.2	39.6	33.3	0.0	0.0	0.0	0.0	0.0
17	76.1	76.8	0.0	41.1	40.3	42.1	38.6	0.0	0.0	0.0	0.0	0.0
18	76.8	77.2	0.0	38.1	40.7	41.8	43.7	0.0	0.0	0.0	0.0	0.0
19	78.1	78.9	20.4	0.0	40.5	42.5	43.6	0.0	0.0	0.0	0.0	0.0
20	76.8	81.2	36.2	0.0	40.2	42.7	43.6	0.0	0.0	0.0	0.0	0.0
21	78.7	80.3	51.6	0.0	39.9	42.7	44.0	0.0	0.0	0.0	0.0	0.0
22	77.9	81.4	68.6	0.0	40.2	42.6	44.2	0.0	0.0	0.0	0.0	0.0
23	78.5	79.6	70.3	0.0	40.3	42.7	46.7	0.0	0.0	0.0	0.0	0.0
24	78.2	78.2	70.8	0.0	40.2	42.5	44.9	0.0	0.0	0.0	0.0	0.0
25	77.4	79.5	69.0	0.0	40.6	42.4	44.8	0.0	0.0	0.0	0.0	0.0
26	78.2	81.9	67.7	0.0	40.7	42.3	43.0	0.0	0.0	0.0	0.0	0.0
27	78.2	78.9	69.1	0.0	41.7	42.7	49.4	0.0	0.0	0.0	0.0	0.0
28	77.2	78.5	78.0	0.0	42.4	42.6	49.4	0.0	0.0	0.0	0.0	0.0
29	81.1	79.0	76.4	0.0	42.0	40.8	49.4	--	0.0	0.0	0.0	0.0
30	84.5	80.7	74.0	0.0	41.9	40.5	57.0	--	0.0	0.0	0.0	0.0
31	83.4	78.5	--	0.0	--	41.0	37.4	--	0.0	--	0.0	--
Total (cfs)	2,381.8	2,329.3	1,151.5	1,278.9	983.4	1,290.1	1,189.1	0.0	0.0	0.0	0.0	0.0
Minimum	72.0	56.1	0.0	0.0	0.0	38.9	0.0	0.0	0.0	0.0	0.0	0.0
Maximum	84.5	81.9	78.0	78.0	42.4	42.9	57.0	0.0	0.0	0.0	0.0	0.0
Average	76.8	75.1	38.4	41.3	32.8	41.6	38.4	0.0	0.0	0.0	0.0	0.0
Total (af)	4,725.5	4,621.4	2,284.5	2,537.3	1,951.0	2,559.5	2,359.1	0.0	0.0	0.0	0.0	0.0

Appendix A3

Daily Diversions of OC-59 Water to Recharge Basins from the Chino Creek Tributary System

(cfs)

Day	Jul-17	Aug-17	Sep-17	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18
1	75.1	71.7	43.9	77.5	0.0	42.0	41.1	0.0	0.0	0.0	0.0	0.0
2	75.6	56.1	28.9	75.8	0.0	42.4	40.9	0.0	0.0	0.0	0.0	0.0
3	75.4	67.1	28.8	73.4	0.0	42.5	42.3	0.0	0.0	0.0	0.0	0.0
4	74.5	67.9	28.6	73.3	0.0	41.9	39.4	0.0	0.0	0.0	0.0	0.0
5	74.6	68.9	27.7	75.0	0.0	41.7	36.9	0.0	0.0	0.0	0.0	0.0
6	75.4	69.4	27.4	76.1	16.5	40.5	37.1	0.0	0.0	0.0	0.0	0.0
7	75.3	69.3	28.6	76.6	32.1	41.3	37.5	0.0	0.0	0.0	0.0	0.0
8	73.8	71.3	28.6	76.3	39.7	42.9	13.7	0.0	0.0	0.0	0.0	0.0
9	72.2	72.9	28.9	76.0	39.6	42.1	0.0	0.0	0.0	0.0	0.0	0.0
10	76.5	77.2	28.6	76.8	40.3	42.6	13.0	0.0	0.0	0.0	0.0	0.0
11	72.0	76.0	30.9	77.9	40.2	40.2	35.2	0.0	0.0	0.0	0.0	0.0
12	74.8	77.7	31.7	77.5	41.0	39.9	35.0	0.0	0.0	0.0	0.0	0.0
13	76.9	69.3	28.8	77.3	40.5	38.9	35.2	0.0	0.0	0.0	0.0	0.0
14	76.0	73.4	7.7	74.6	40.3	40.0	35.1	0.0	0.0	0.0	0.0	0.0
15	75.6	73.7	0.0	73.4	40.5	39.5	33.8	0.0	0.0	0.0	0.0	0.0
16	76.6	76.6	0.0	61.9	41.2	39.6	33.3	0.0	0.0	0.0	0.0	0.0
17	76.1	76.8	0.0	41.1	40.3	42.1	38.6	0.0	0.0	0.0	0.0	0.0
18	76.8	77.2	0.0	38.1	40.7	41.8	43.7	0.0	0.0	0.0	0.0	0.0
19	78.1	78.3	20.4	0.0	40.4	42.4	43.6	0.0	0.0	0.0	0.0	0.0
20	76.7	79.3	36.2	0.0	40.1	42.7	43.6	0.0	0.0	0.0	0.0	0.0
21	78.7	79.3	51.6	0.0	39.9	42.7	44.0	0.0	0.0	0.0	0.0	0.0
22	77.9	81.4	68.6	0.0	40.1	42.6	44.2	0.0	0.0	0.0	0.0	0.0
23	78.5	79.6	70.2	0.0	40.3	42.7	46.7	0.0	0.0	0.0	0.0	0.0
24	78.2	78.2	70.8	0.0	40.2	42.4	44.9	0.0	0.0	0.0	0.0	0.0
25	77.4	79.4	69.0	0.0	40.6	42.4	44.8	0.0	0.0	0.0	0.0	0.0
26	78.2	81.9	67.7	0.0	40.7	42.3	43.0	0.0	0.0	0.0	0.0	0.0
27	78.1	78.9	69.1	0.0	41.7	42.7	49.3	0.0	0.0	0.0	0.0	0.0
28	77.2	78.5	78.0	0.0	42.4	42.5	49.3	0.0	0.0	0.0	0.0	0.0
29	81.1	78.9	76.4	0.0	42.0	40.8	49.3	--	0.0	0.0	0.0	0.0
30	84.5	80.7	74.0	0.0	41.9	40.5	57.0	--	0.0	0.0	0.0	0.0
31	83.4	78.5	--	0.0	--	41.0	37.4	--	0.0	--	0.0	--
Total (cfs)	2,381.2	2,325.3	1,151.2	1,278.5	983.1	1,289.7	1,188.8	0.0	0.0	0.0	0.0	0.0
Minimum	72.0	56.1	0.0	0.0	0.0	38.9	0.0	0.0	0.0	0.0	0.0	0.0
Maximum	84.5	81.9	78.0	77.9	42.4	42.9	57.0	0.0	0.0	0.0	0.0	0.0
Average	76.8	75.0	38.4	41.2	32.8	41.6	38.3	0.0	0.0	0.0	0.0	0.0
Total (af)	4,724.2	4,613.5	2,283.9	2,536.6	1,950.5	2,558.8	2,358.5	0.0	0.0	0.0	0.0	0.0

[1] On days when the non-replenishment discharge recorded was greater than the measured recharge, the total diversion volume was manually changed to 0.

Appendix A4

Average Daily Discharge of All IEUA Recycled Water Effluent Discharges to Chino Creek

(cfs)

Day	Jul-17	Aug-17	Sep-17	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18
1	4.8	7.1	3.1	12.7	7.9	13.5	16.9	18.7	15.2	27.5	15.0	5.7
2	5.3	8.8	3.1	13.8	8.5	16.9	13.1	17.3	16.6	24.3	14.4	8.0
3	7.1	7.4	3.1	11.8	7.7	16.6	15.3	17.6	18.9	17.8	13.8	4.0
4	7.4	3.1	3.2	10.2	8.4	14.4	15.5	17.8	22.1	17.3	12.2	5.3
5	6.2	3.1	3.7	10.4	12.5	14.9	15.3	16.9	20.6	15.2	8.8	4.3
6	5.7	4.0	4.6	10.2	15.3	12.7	16.2	15.6	21.3	13.3	9.6	5.4
7	9.1	6.2	4.6	10.8	15.3	12.7	17.2	13.3	21.5	14.2	7.6	7.4
8	5.4	6.2	4.6	11.3	9.7	13.3	21.0	13.3	17.3	15.3	12.2	7.0
9	4.3	4.6	4.8	11.4	11.4	12.4	28.2	14.2	15.5	16.6	13.3	7.3
10	5.1	3.1	4.8	11.3	11.3	10.5	27.4	15.9	22.0	17.8	11.6	7.6
11	5.0	3.1	4.8	10.4	11.6	11.0	27.4	16.9	24.1	17.0	12.1	7.7
12	4.8	3.1	4.8	9.9	14.7	10.5	26.3	15.8	25.5	16.4	11.8	8.7
13	5.6	3.1	7.7	12.5	14.7	10.7	25.8	17.8	25.7	17.2	11.8	7.3
14	10.2	3.1	6.5	13.0	13.3	11.0	24.3	15.2	26.3	17.5	11.4	7.1
15	9.3	3.2	6.0	11.0	15.9	10.2	23.8	14.7	24.0	17.6	15.3	6.5
16	6.3	3.1	7.3	9.3	15.3	12.2	22.9	16.2	20.1	17.5	10.5	5.3
17	6.8	3.2	10.8	9.7	15.6	16.1	21.5	16.7	22.6	15.9	9.3	5.7
18	6.8	3.1	9.9	8.8	12.5	16.9	21.5	14.5	22.4	16.2	11.0	8.5
19	6.8	2.9	8.0	9.0	16.4	15.8	20.1	15.2	21.2	16.6	10.4	6.8
20	6.7	3.1	6.8	9.1	14.7	14.5	23.5	15.8	22.7	16.4	11.3	5.1
21	6.7	3.1	6.8	9.9	14.5	15.5	23.1	17.2	21.8	16.4	9.3	4.5
22	7.4	3.1	6.7	11.0	13.9	15.0	22.1	17.0	25.2	17.0	6.3	4.3
23	7.4	3.1	7.1	9.4	17.2	15.3	21.0	16.7	25.2	16.9	4.8	4.6
24	8.5	3.2	7.1	9.9	11.4	17.9	20.1	17.0	23.2	16.9	6.8	4.6
25	8.5	3.7	7.3	9.0	14.4	17.3	19.3	17.2	24.3	16.2	6.8	5.3
26	8.7	2.6	6.8	12.4	14.9	14.4	17.5	15.0	22.9	15.5	4.2	8.4
27	7.9	2.9	7.7	12.4	15.6	14.2	17.5	17.2	20.0	15.2	6.0	8.2
28	6.8	3.9	10.2	11.4	12.7	14.4	17.3	15.5	21.3	15.6	6.3	5.9
29	6.3	3.7	12.7	13.9	14.1	12.2	16.4	--	24.4	15.3	6.7	4.6
30	7.7	3.1	12.5	14.4	15.9	12.5	15.2	--	26.5	14.4	7.3	3.1
31	7.7	3.1	--	10.8	--	16.1	18.1	--	27.2	--	6.8	--
Total (cfs)	212.4	120.4	197.4	341.1	397.6	431.5	630.9	452.2	687.6	507.0	304.6	184.2
Minimum	4.3	2.6	3.1	8.8	7.7	10.2	13.1	13.3	15.2	13.3	4.2	3.1
Maximum	10.2	8.8	12.7	14.4	17.2	17.9	28.2	18.7	27.2	27.5	15.3	8.7
Average	6.9	3.9	6.6	11.0	13.3	13.9	20.4	16.1	22.2	16.9	9.8	6.1
Total (af)	421.4	238.8	391.6	676.8	788.8	856.0	1,251.6	897.1	1,364.3	1,005.8	604.3	365.5

Appendix A5
Estimated Average Daily Discharge from Chino Creek to Prado Dam Reservoir
after Watermaster Diversions and Removal of OCWD OC-59 Discharge
(cfs)

Day	Jul-17	Aug-17	Sep-17	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18
1	5.0	7.6	3.3	12.9	8.1	13.6	17.3	19.2	15.5	27.8	15.3	6.2
2	5.4	9.2	3.3	14.0	8.7	17.0	13.4	17.8	24.3	24.6	16.2	8.4
3	7.3	7.9	4.6	12.0	8.0	16.7	15.6	18.0	19.7	18.1	14.3	4.4
4	7.6	3.7	3.6	10.4	8.5	14.5	15.8	18.2	22.6	17.6	12.7	5.6
5	6.4	3.4	4.0	10.6	12.7	15.0	15.7	17.3	20.9	15.5	9.3	4.7
6	5.9	4.3	4.9	10.4	15.5	12.9	16.6	16.0	21.6	13.6	10.1	5.8
7	9.4	6.5	4.9	11.0	15.5	12.9	17.5	13.7	21.8	14.6	8.1	7.8
8	5.6	6.5	4.9	11.5	9.9	13.8	37.5	13.7	17.6	15.7	12.7	7.4
9	4.5	5.0	5.0	11.6	11.6	12.9	369.2	14.6	15.8	16.9	13.8	7.8
10	5.3	3.4	5.1	11.5	11.5	11.0	28.6	16.3	69.2	18.1	12.1	7.9
11	5.2	3.4	5.2	10.6	11.8	11.5	28.0	17.2	36.0	17.4	12.5	8.1
12	5.0	3.3	5.1	10.1	14.9	10.8	26.7	16.3	26.0	16.7	12.2	9.0
13	5.8	3.3	8.0	12.8	14.9	11.0	26.2	18.4	28.8	17.5	12.3	7.6
14	10.5	3.3	6.7	13.2	13.5	11.3	24.7	15.5	42.4	17.8	12.0	7.5
15	9.6	3.5	6.4	11.2	16.1	10.5	24.2	15.0	39.4	17.9	15.8	6.9
16	6.5	3.3	7.7	9.5	15.5	12.5	23.3	16.5	25.7	17.8	11.0	5.6
17	7.0	3.5	11.3	10.0	15.8	16.3	21.9	16.9	47.1	16.2	9.8	6.0
18	7.0	3.3	10.3	9.1	12.7	17.1	21.9	14.8	22.9	16.5	11.4	8.8
19	7.0	2.9	8.3	9.2	16.6	16.1	21.7	15.5	21.6	16.8	10.8	7.1
20	6.9	3.1	7.1	9.4	14.9	14.8	25.6	16.0	23.1	16.7	12.4	5.5
21	6.9	3.1	7.1	10.1	14.7	15.7	23.4	17.4	35.7	16.7	9.9	4.8
22	7.6	3.3	6.9	11.2	14.1	15.3	22.5	17.3	72.5	17.3	6.8	4.7
23	7.6	3.3	7.3	9.7	17.4	15.6	21.4	17.0	29.6	17.2	5.3	5.0
24	8.8	3.5	7.3	10.2	11.6	18.2	20.5	17.2	23.8	17.2	7.4	5.0
25	8.7	3.9	7.5	9.2	14.6	17.7	19.8	17.5	24.8	16.5	7.3	5.6
26	8.9	2.8	7.0	12.6	15.0	14.7	17.9	18.2	23.3	15.8	4.6	8.7
27	8.1	3.1	8.0	12.6	15.8	14.5	17.9	59.7	20.3	15.5	6.5	8.5
28	7.0	4.1	10.4	11.7	12.9	14.7	17.8	15.8	21.6	15.9	6.8	6.2
29	6.6	4.0	12.9	14.2	14.2	12.5	16.9	--	24.7	15.6	7.1	5.0
30	7.9	3.4	12.8	14.7	16.1	12.8	15.6	--	26.8	14.7	7.9	3.4
31	7.9	3.3	--	11.1	--	16.4	18.5	--	27.5	--	7.3	--
Total (cfs)	219.0	128.2	206.8	348.1	403.2	440.2	1,003.3	506.8	892.6	516.3	321.5	195.1
Minimum	4.5	2.8	3.3	9.1	8.0	10.5	13.4	13.7	15.5	13.6	4.6	3.4
Maximum	10.5	9.2	12.9	14.7	17.4	18.2	369.2	59.7	72.5	27.8	16.2	9.0
Average	7.1	4.1	6.9	11.2	13.4	14.2	32.4	18.1	28.8	17.2	10.4	6.5
Total (af)	434.5	254.4	410.4	690.7	799.9	873.4	1,990.6	1,005.5	1,770.9	1,024.3	637.9	387.0

Appendix A6

Daily Diversions of Stormwater and Dry-Weather Discharges to Recharge Basins from the Chino Creek Tributary System

(cfs)

Day	Jul-17 [1]	Aug-17	Sep-17	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18
1	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.5	0.0
2	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	11.5	0.0	1.6	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.5	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0	10.6	0.0	0.0	0.0	0.0	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0	106.9	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0	2.6	0.0	22.9	0.0	0.0	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.3	0.0	0.0	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	0.0	0.0	0.0
14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	3.9	0.0	0.0	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17.0	0.0	0.0	0.0
16	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0
17	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.6	0.0	0.0	0.0
18	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
19	0.0	0.0	0.0	0.3	0.0	0.0	0.3	0.0	0.0	2.0	0.0	0.0
20	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	1.5	0.0	0.0	0.0
21	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	8.4	0.0	0.0	0.0
22	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.3	31.8	0.0	1.2	0.0
23	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.1	5.7	0.0	3.0	0.0
24	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
25	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
26	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0
27	0.0	0.0	0.0	0.3	0.0	0.0	0.0	17.5	0.0	0.0	0.0	0.0
28	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
29	0.0	0.0	0.0	0.3	0.0	0.0	0.0	--	0.0	0.0	0.0	0.0
30	0.0	0.0	0.0	0.3	0.0	0.0	0.0	--	0.0	0.0	0.0	0.0
31	0.0	0.0	--	0.3	--	0.0	0.0	--	0.0	--	0.0	--
Total (cfs)	0.0	0.0	0.0	3.0	0.5	0.0	121.2	18.5	120.6	2.0	9.8	0.0
Minimum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Maximum	0.0	0.0	0.0	0.3	0.3	0.0	106.9	17.5	31.8	2.0	3.0	0.0
Average	0.0	0.0	0.0	0.1	0.0	0.0	3.9	0.7	3.9	0.1	0.3	0.0
Total (af)	0.0	0.0	0.0	6.0	1.0	0.0	240.4	36.6	239.3	4.0	19.4	0.0

[1] On days when the non-replenishment discharge recorded was greater than the measured recharge, the total diversion volume was manually changed to 0.

Appendix A7
Estimated Average Daily Discharge from Chino Creek to Prado Dam Reservoir
without Watermaster Diversion
(cfs)

Day	Jul-17	Aug-17	Sep-17	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18
1	5.0	7.6	3.3	12.9	8.4	13.6	17.3	19.2	15.5	27.8	15.7	6.2
2	5.4	9.2	3.3	14.0	9.0	17.0	13.5	17.8	35.8	24.6	17.8	8.4
3	7.3	7.9	4.6	12.0	8.0	16.7	15.7	18.0	25.2	18.1	14.3	4.4
4	7.6	3.7	3.6	10.4	8.5	14.5	15.9	18.2	23.0	17.6	12.7	5.6
5	6.4	3.4	4.0	10.6	12.7	15.0	15.7	17.3	20.9	15.5	9.3	4.7
6	5.9	4.3	4.9	10.4	15.5	12.9	16.6	16.0	21.6	13.6	10.1	5.8
7	9.4	6.5	4.9	11.0	15.5	12.9	17.5	13.7	21.8	14.6	8.1	7.8
8	5.6	6.5	4.9	11.5	9.9	13.8	48.1	13.7	17.6	15.7	12.7	7.4
9	4.5	5.0	5.0	11.6	11.6	12.9	476.1	14.6	15.8	16.9	13.8	7.8
10	5.3	3.4	5.1	11.5	11.5	11.0	31.1	16.3	92.1	18.1	12.1	7.9
11	5.2	3.4	5.2	10.6	11.8	11.5	28.0	17.2	42.3	17.4	12.5	8.1
12	5.0	3.3	5.1	10.1	14.9	10.8	26.7	16.3	26.0	16.7	12.7	9.0
13	5.8	3.3	8.0	12.8	14.9	11.0	26.2	18.4	30.5	17.5	12.3	7.6
14	10.5	3.3	6.7	13.2	13.5	11.3	24.7	15.8	46.3	17.8	12.0	7.5
15	9.6	3.5	6.4	11.2	16.1	10.5	24.2	15.0	56.4	17.9	15.8	6.9
16	6.5	3.3	7.7	9.5	15.5	12.5	23.3	16.5	26.2	17.8	11.0	5.6
17	7.0	3.5	11.3	10.0	15.8	16.3	21.9	16.9	50.7	16.2	9.8	6.0
18	7.0	3.3	10.3	9.1	12.7	17.1	21.9	14.8	22.9	16.5	11.4	8.8
19	7.0	2.9	8.3	9.5	16.6	16.1	22.0	15.5	21.6	18.8	10.8	7.1
20	6.9	3.1	7.1	9.6	14.9	14.8	25.6	16.0	24.6	16.7	12.4	5.5
21	6.9	3.1	7.1	10.4	14.7	15.7	23.4	17.4	44.1	16.7	9.9	4.8
22	7.6	3.3	6.9	11.5	14.1	15.3	22.5	17.6	104.3	17.3	8.0	4.7
23	7.6	3.3	7.3	9.9	17.4	15.6	21.4	17.1	35.4	17.2	8.3	5.0
24	8.8	3.5	7.3	10.4	11.6	18.2	20.5	17.2	23.8	17.2	10.4	5.0
25	8.7	3.9	7.5	9.5	14.6	17.7	19.8	17.5	24.8	16.5	7.3	5.6
26	8.9	2.8	7.0	12.9	15.0	14.7	18.0	18.5	23.3	15.8	4.6	8.7
27	8.1	3.1	8.0	12.9	15.8	14.5	17.9	77.2	20.3	15.5	6.5	8.5
28	7.0	4.1	10.4	11.7	12.9	14.7	17.8	15.8	21.6	15.9	6.8	6.2
29	6.6	4.0	12.9	14.4	14.2	12.5	16.9	--	24.7	15.6	7.1	5.0
30	7.9	3.4	12.8	14.9	16.1	12.8	15.6	--	26.8	14.7	7.9	3.4
31	7.9	3.3	--	11.3	--	16.4	18.6	--	27.5	--	7.3	--
Total (cfs)	219.0	128.2	206.8	351.2	403.7	440.2	1,124.5	525.3	1,013.2	518.3	331.3	195.1
Minimum	4.5	2.8	3.3	9.1	8.0	10.5	13.5	13.7	15.5	13.6	4.6	3.4
Maximum	10.5	9.2	12.9	14.9	17.4	18.2	476.1	77.2	104.3	27.8	17.8	9.0
Average	7.1	4.1	6.9	11.3	13.5	14.2	36.3	18.8	32.7	17.3	10.7	6.5
Total (af)	434.5	254.4	410.4	696.7	800.9	873.4	2,231.0	1,042.2	2,010.3	1,028.2	657.3	387.0

Appendix B1

Estimated Average Daily Discharge from Cucamonga Creek to Prado Dam Reservoir after Watermaster Diversions

(Average Daily Discharge at USGS Gage 11073495)

(cfs)

Day	Jul-17	Aug-17	Sep-17	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18
1	1.5	1.9	11.3	6.3	16.2	9.1	26.4	29.9	50.7	7.3	21.6	21.8
2	2.4	0.3	5.8	3.8	19.0	9.4	26.8	29.0	62.4	5.6	26.5	16.8
3	1.9	2.2	8.6	4.5	16.5	11.9	21.9	18.6	56.6	11.4	3.7	22.5
4	1.4	0.6	10.5	6.6	24.9	15.6	28.3	24.0	47.7	8.8	1.6	19.5
5	0.4	0.1	15.5	6.9	27.3	15.0	40.9	22.2	32.4	7.6	4.1	11.3
6	0.5	1.1	8.8	8.3	9.2	8.1	53.8	17.8	13.0	5.3	10.6	15.4
7	0.2	0.5	3.9	15.0	12.8	6.2	83.1	20.8	9.0	9.0	9.3	10.1
8	1.4	0.1	2.7	15.2	14.5	12.9	98.2	16.4	26.0	12.1	5.2	0.7
9	2.5	0.7	8.6	11.3	16.1	14.0	670.0	7.1	39.9	9.2	3.1	1.3
10	0.5	7.6	10.5	8.4	21.3	20.4	57.9	10.5	105.0	4.1	2.8	2.7
11	0.4	5.0	10.4	8.1	23.9	12.9	44.3	42.3	64.2	1.8	5.5	1.8
12	0.3	5.6	5.4	7.6	20.9	8.7	42.3	49.5	27.9	1.8	14.2	3.0
13	2.0	9.0	1.4	6.0	21.0	19.9	39.0	36.4	34.0	2.5	15.3	1.2
14	4.3	3.9	6.1	15.4	24.9	20.2	39.4	24.8	63.9	5.5	11.2	1.2
15	4.2	6.6	9.2	20.1	20.9	10.8	42.3	13.7	153.0	6.9	5.9	1.1
16	5.8	8.3	9.2	9.3	26.1	20.9	43.0	9.5	35.2	5.3	5.0	3.5
17	4.6	6.8	9.0	7.0	20.3	29.8	43.0	27.3	90.3	3.5	4.1	4.3
18	4.9	3.4	5.1	11.2	21.1	16.3	42.1	49.0	30.9	8.4	3.8	1.5
19	7.3	9.7	2.0	17.4	22.0	14.1	44.2	74.6	35.2	9.1	5.9	1.7
20	3.7	18.2	2.0	8.3	16.6	4.5	53.0	44.4	36.8	6.2	14.0	2.2
21	0.3	9.9	2.6	9.4	18.0	24.3	43.6	39.7	95.8	8.9	20.3	4.6
22	0.2	5.3	1.9	10.5	16.2	25.4	45.3	26.5	157.0	11.7	21.7	4.5
23	2.2	6.1	3.3	8.8	17.8	41.9	45.0	21.7	47.9	7.2	22.3	11.3
24	5.6	5.0	2.7	5.4	13.9	54.0	42.4	33.6	37.0	2.6	20.6	12.4
25	4.5	2.6	1.4	3.2	10.4	47.5	40.3	45.8	38.0	3.4	19.4	13.0
26	4.0	6.1	1.6	4.0	16.1	44.9	37.8	82.7	46.5	4.4	31.3	9.8
27	0.4	8.9	1.8	10.6	21.8	43.3	35.5	100.0	31.7	4.1	34.9	9.6
28	0.0	7.3	4.3	15.5	20.4	30.3	34.3	34.2	34.8	7.1	33.0	8.8
29	0.4	4.6	1.6	23.5	12.4	42.2	34.1	--	22.3	11.8	35.1	4.8
30	0.8	7.1	1.8	17.1	12.6	41.2	15.3	--	11.4	12.0	35.1	3.3
31	0.7	11.8	--	20.9	--	28.1	22.4	--	8.9	--	27.0	--
Total (cfs)	69.3	166.4	168.8	325.7	555.1	703.8	1,935.9	952.0	1,545.4	204.7	474.1	225.6
Minimum	0.0	0.1	1.4	3.2	9.2	4.5	15.3	7.1	8.9	1.8	1.6	0.7
Maximum	7.3	18.2	15.5	23.5	27.3	54.0	670.0	100.0	157.0	12.1	35.1	22.5
Average	2.2	5.4	5.6	10.5	18.5	22.7	62.4	34.0	49.9	6.8	15.3	7.5
Total (af)	137.4	330.1	335.0	646.2	1,101.2	1,396.3	3,840.8	1,888.8	3,066.2	406.1	940.7	447.7

[1] For June 4, 2018 to June 30, 2018, data are provisional; for July 1, 2017 to June 3, 2018, data have been approved by the USGS.

Appendix B2

Daily Diversions to Recharge Basins on the Cucamonga Creek Tributary System

(cfs)

Day	Jul-17	Aug-17	Sep-17	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18
1	0.3	0.3	0.1	0.3	0.2	0.4	0.2	0.3	0.5	0.3	5.2	0.4
2	0.3	0.2	0.1	0.3	0.2	0.4	0.3	0.3	53.3	0.3	6.1	0.4
3	0.3	0.1	0.1	0.2	0.2	0.4	0.3	0.3	7.7	0.3	0.5	0.4
4	0.3	0.2	0.1	0.1	0.2	0.2	0.3	0.3	1.9	0.3	0.5	0.3
5	0.3	0.3	0.1	0.1	0.2	0.1	0.3	0.4	0.4	0.3	0.5	0.3
6	0.3	3.0	0.2	1.6	0.2	0.1	0.3	0.5	0.3	0.3	0.5	0.3
7	0.3	5.8	0.2	2.7	0.2	0.1	0.3	0.5	0.3	0.3	0.5	0.3
8	0.3	5.8	0.2	2.7	0.2	0.1	40.4	0.5	0.3	0.3	0.5	0.4
9	0.3	5.9	0.2	2.7	0.2	0.1	221.9	0.5	0.3	0.3	0.5	0.4
10	0.3	5.9	0.2	2.7	0.2	0.1	22.5	0.5	96.8	0.4	0.5	0.4
11	0.3	5.9	0.3	2.7	0.2	0.1	0.3	0.5	16.8	5.9	0.5	0.4
12	0.3	5.9	0.3	2.7	0.2	0.1	0.3	4.6	0.3	0.3	0.5	0.4
13	0.3	5.9	0.3	2.7	0.2	0.1	0.3	6.3	3.1	0.3	0.5	0.4
14	0.3	5.9	0.3	2.7	0.2	0.1	0.3	7.2	26.4	0.3	0.5	0.4
15	0.3	5.9	0.3	1.8	0.2	0.1	0.3	18.3	47.6	0.3	0.5	0.4
16	0.3	5.9	0.3	0.1	0.2	0.1	0.3	0.5	3.0	0.3	0.4	0.4
17	0.3	4.7	0.3	0.1	0.2	0.1	10.3	0.5	25.7	0.3	0.4	0.4
18	0.3	0.3	0.3	0.1	0.2	0.1	10.3	0.5	0.3	0.3	0.4	0.4
19	0.3	0.3	0.3	0.1	0.2	0.1	0.3	13.5	0.3	4.5	0.4	0.4
20	0.3	0.3	0.3	0.1	0.2	0.1	0.3	0.5	0.1	0.5	0.4	0.4
21	0.3	0.3	0.3	0.1	0.2	0.1	0.3	0.5	23.9	0.5	0.4	0.4
22	0.3	0.3	0.3	0.1	0.2	0.1	0.3	7.7	80.1	0.5	0.4	0.4
23	0.3	0.3	0.3	0.1	0.2	0.1	0.3	1.2	14.2	0.5	0.4	0.4
24	19.3	0.3	0.3	0.1	0.2	0.1	0.3	0.5	0.3	0.5	0.7	0.4
25	0.3	0.3	0.3	0.1	0.2	0.1	0.3	0.5	0.3	0.5	0.4	0.4
26	0.3	0.3	2.5	0.1	0.2	0.1	0.3	0.6	0.3	0.5	0.4	0.4
27	51.3	8.7	2.0	0.1	0.2	0.1	0.3	78.0	0.3	0.5	0.4	0.4
28	0.3	0.3	0.3	24.3	0.2	0.1	0.3	0.5	0.3	0.5	0.4	0.4
29	0.3	0.3	0.3	0.1	0.4	0.1	0.3	--	0.3	0.5	0.4	0.4
30	0.3	0.3	0.3	0.1	0.4	0.1	0.3	--	0.3	0.5	0.4	0.4
31	0.3	12.1	--	0.1	--	0.1	0.3	--	0.3	--	0.4	--
Total (cfs)	77.9	91.2	10.4	51.8	5.0	2.7	313.0	145.3	405.3	20.4	23.9	11.0
Minimum	0.3	0.1	0.1	0.1	0.2	0.1	0.2	0.3	0.1	0.3	0.4	0.3
Maximum	51.3	12.1	2.5	24.3	0.4	0.4	221.9	78.0	96.8	5.9	6.1	0.4
Average	2.5	2.9	0.3	1.7	0.2	0.1	10.1	5.2	13.1	0.7	0.8	0.4
Total (af)	154.6	180.9	20.6	102.8	9.9	5.4	620.9	288.2	804.1	40.5	47.4	21.9

Appendix B3
Estimated Average Daily Discharge from Cucamonga Creek to Prado Dam Reservoir
without Watermaster Diversions
(cfs)

Day	Jul-17	Aug-17	Sep-17	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18
1	1.7	2.2	11.4	6.6	16.4	9.4	26.6	30.2	51.2	7.6	26.8	22.2
2	2.6	0.5	5.9	4.1	19.2	9.8	27.1	29.3	115.7	5.9	32.6	17.2
3	2.2	2.3	8.6	4.6	16.7	12.3	22.2	18.9	64.3	11.7	4.2	22.9
4	1.6	0.8	10.6	6.7	25.1	15.8	28.6	24.3	49.6	9.1	2.1	19.8
5	0.6	0.3	15.6	7.0	27.5	15.1	41.2	22.6	32.8	7.9	4.6	11.6
6	0.8	4.2	9.0	9.9	9.3	8.2	54.1	18.3	13.3	5.6	11.1	15.7
7	0.4	6.3	4.1	17.7	13.0	6.3	83.4	21.3	9.3	9.3	9.7	10.4
8	1.7	6.0	2.9	17.9	14.7	13.0	138.6	16.9	26.3	12.4	5.7	1.1
9	2.7	6.5	8.8	14.0	16.3	14.1	891.9	7.6	40.2	9.5	3.5	1.7
10	0.7	13.5	10.7	11.2	21.5	20.5	80.4	11.0	201.8	4.5	3.2	3.1
11	0.6	10.9	10.7	10.9	24.1	13.0	44.6	42.8	81.0	7.7	6.0	2.2
12	0.6	11.5	5.6	10.3	21.1	8.7	42.6	54.1	28.2	2.1	14.7	3.3
13	2.3	14.9	1.7	8.7	21.2	20.0	39.3	42.7	37.1	2.7	15.8	1.5
14	4.6	9.8	6.3	18.1	25.1	20.3	39.7	32.0	90.3	5.7	11.7	1.6
15	4.5	12.5	9.5	21.9	21.1	10.9	42.6	32.0	200.6	7.1	6.4	1.5
16	6.1	14.2	9.4	9.4	26.3	21.0	43.3	10.0	38.2	5.5	5.4	3.8
17	4.9	11.4	9.3	7.1	20.5	29.9	53.3	27.8	116.0	3.8	4.5	4.7
18	5.2	3.7	5.4	11.3	21.3	16.4	52.4	49.5	31.2	8.7	4.2	1.9
19	7.6	9.9	2.3	17.5	22.2	14.2	44.5	88.1	35.5	13.6	6.3	2.1
20	4.0	18.5	2.2	8.4	16.8	4.5	53.3	44.9	36.9	6.7	14.4	2.6
21	0.5	10.2	2.8	9.5	18.2	24.4	43.9	40.2	119.7	9.4	20.7	5.0
22	0.4	5.6	2.1	10.6	16.4	25.5	45.6	34.2	237.1	12.2	22.1	4.8
23	2.5	6.3	3.5	8.9	18.0	42.0	45.3	22.9	62.1	7.7	22.7	11.7
24	24.9	5.2	2.9	5.5	14.1	54.1	42.7	34.1	37.3	3.1	21.3	12.8
25	4.8	2.8	1.6	3.3	10.6	47.6	40.6	46.3	38.3	3.9	19.8	13.4
26	4.3	6.3	4.2	4.1	16.3	45.0	38.1	83.3	46.8	4.9	31.7	10.2
27	51.7	17.6	3.8	10.7	22.0	43.4	35.8	178.0	32.0	4.6	35.3	10.0
28	0.3	7.6	4.6	39.8	20.6	30.4	34.6	34.7	35.1	7.6	33.4	9.2
29	0.7	4.9	1.9	23.6	12.8	42.3	34.4	--	22.6	12.3	35.5	5.1
30	1.1	7.3	2.0	17.2	13.0	41.3	15.6	--	11.7	12.5	35.5	3.7
31	0.9	23.9	--	21.0	--	28.2	22.7	--	9.2	--	27.4	--
Total (cfs)	147.2	257.6	179.2	377.5	560.0	706.5	2,248.9	1,097.3	1,950.8	225.1	498.0	236.7
Minimum	0.3	0.3	1.6	3.3	9.3	4.5	15.6	7.6	9.2	2.1	2.1	1.1
Maximum	51.7	23.9	15.6	39.8	27.5	54.1	891.9	178.0	237.1	13.6	35.5	22.9
Average	4.7	8.3	6.0	12.2	18.7	22.8	72.5	39.2	62.9	7.5	16.1	7.9
Total (af)	292.1	511.0	355.6	749.0	1,111.1	1,401.7	4,461.8	2,177.1	3,870.3	446.6	988.0	469.6

Appendix C1
WLAM Estimated Daily Discharge from Day Creek to the Santa Ana River
without Watermaster Diversions (Stormwater Flow only)
(cfs)

Day	Jul-17	Aug-17	Sep-17	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20.3	0.0	0.1	0.0
3	0.0	0.0	2.6	0.0	0.0	0.0	0.0	0.0	3.4	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0	162.9	0.0	0.0	0.0	0.0	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0	470.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	85.4	0.0	0.0	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.6	0.0	0.0	0.0
14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	82.7	0.0	0.0	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
16	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25.0	0.0	0.0	0.0
17	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
18	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
19	0.0	0.0	0.0	0.0	0.0	0.0	5.3	0.0	0.0	0.0	0.0	0.0
20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
21	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.8	0.0	0.0	0.0
22	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	118.5	0.0	0.0	0.0
23	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
24	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
26	0.0	0.0	0.0	0.0	0.0	0.0	0.0	50.7	0.0	0.0	0.0	0.0
27	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.0	0.0	0.0
28	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
29	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	0.0	0.0	0.0	0.0
30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	0.0	0.0	0.0	0.0
31	0.0	0.6	--	0.0	--	0.0	0.0	--	0.0	--	0.0	--
Total (cfs)	0.0	0.6	2.6	0.0	0.0	0.0	638.2	51.5	345.7	0.0	0.1	0.0
Minimum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Maximum	0.0	0.6	2.6	0.0	0.0	0.0	470.0	50.7	118.5	0.0	0.1	0.0
Average	0.0	0.0	0.1	0.0	0.0	0.0	20.6	1.8	11.2	0.0	0.0	0.0
Total (af)	0.0	1.2	5.2	0.0	0.0	0.0	1266.2	102.2	685.9	0.0	0.2	0.0

[1] On dates highlighted in grey, stormwater was recharged in diversion basins. Stormwater can continue to be recharged for several days after the storm has passed.

Appendix C2

Daily Diversions to Recharge Basins on the Day Creek Tributary System

(cfs)

Day	Jul-17	Aug-17	Sep-17	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	28.8	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0	2.2	0.0	0.0	0.0	0.0	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0	9.5	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.0	0.0	0.0	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.5	0.0	0.0	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0	0.0	0.0
14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.9	0.0	0.0	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.1	0.0	0.0	0.0
16	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.0
17	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.0	0.0
18	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
19	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
21	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.0	0.0	0.0
22	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.0	0.0	0.0	0.0
23	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0	0.0	0.0
24	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
26	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
27	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.7	0.0	0.0	0.0	0.0
28	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
29	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	0.0	0.0	0.0	0.0
30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	0.0	0.0	0.0	0.0
31	0.0	1.8	--	0.0	--	0.0	0.0	--	0.0	--	0.0	--
Total (cfs)	0.0	1.8	0.0	0.0	0.0	0.0	11.7	3.7	62.4	0.0	0.0	0.0
Minimum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Maximum	0.0	1.8	0.0	0.0	0.0	0.0	9.5	3.7	28.8	0.0	0.0	0.0
Average	0.0	0.1	0.0	0.0	0.0	0.0	0.4	0.1	2.0	0.0	0.0	0.0
Total (af)	0.0	3.6	0.0	0.0	0.0	0.0	23.2	7.3	123.7	0.0	0.0	0.0

[1] On dates highlighted in grey, stormwater was recharged in diversion basins. Stormwater can continue to be recharged for several days after the storm has passed.

Appendix C3

Estimated Daily Dry-Weather Flows Captured by Diversion Basins

(cfs)

Day	Jul-17	Aug-17	Sep-17	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.5	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
16	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
17	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
18	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
19	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
21	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
22	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
23	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
24	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
26	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
27	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
28	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
29	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	0.0	0.0	0.0	0.0
30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	0.0	0.0	0.0	0.0
31	0.0	1.2	--	0.0	--	0.0	0.0	--	0.0	--	0.0	--
Total (cfs)	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0	8.5	0.0	0.0	0.0
Minimum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Maximum	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0	8.5	0.0	0.0	0.0
Average	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0
Total (af)	0.0	2.4	0.0	0.0	0.0	0.0	0.0	0.0	16.8	0.0	0.0	0.0

[1] On dates highlighted in grey, stormwater was recharged in diversion basins. Stormwater can continue to be recharged for several days after the storm has passed. On dates when stormwater diversions are measured after storm flow has stopped, dry-weather flows could not be estimated and are assumed to be zero. Within each storm period, however, any diversions in excess of total WLAM estimated stormflow are assumed to be dry-weather flows.

Appendix D1
WLAM Estimated Daily Discharge from San Sevaine Creek to the Santa Ana River without Watermaster Diversions (Stormwater Flow only)
(cfs)

Day	Jul-17	Aug-17	Sep-17	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	58.7	0.0	0.8	0.0
3	0.0	0.0	5.0	0.0	0.0	0.0	0.0	0.0	3.2	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0	281.6	0.0	0.0	0.0	0.0	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0	696.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0	2.8	0.0	202.5	0.0	0.0	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.0	0.0	0.0	0.0
14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	126.3	0.0	0.0	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0
16	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	42.2	0.0	0.0	0.0
17	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
18	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
19	0.0	0.0	0.0	0.0	0.0	0.0	4.3	0.0	0.0	0.0	0.0	0.0
20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
21	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.3	0.0	0.0	0.0
22	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	236.6	0.0	0.0	0.0
23	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0
24	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
26	0.0	0.0	0.0	0.0	0.0	0.0	0.0	81.5	0.0	0.0	0.0	0.0
27	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.2	0.0	0.0	0.0	0.0
28	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
29	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	0.0	0.0	0.0	0.0
30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	0.0	0.0	0.0	0.0
31	0.0	5.1	--	0.0	--	0.0	0.0	--	0.0	--	0.0	--
Total (cfs)	0.0	5.1	5.0	0.0	0.0	0.0	985.1	92.7	690.7	0.0	1.2	0.0
Minimum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Maximum	0.0	5.1	5.0	0.0	0.0	0.0	696.0	81.5	236.6	0.0	0.8	0.0
Average	0.0	0.2	0.2	0.0	0.0	0.0	31.8	3.3	22.3	0.0	0.0	0.0
Total (af)	0.0	10.1	9.9	0.0	0.0	0.0	1,954.4	183.9	1,370.3	0.0	2.4	0.0

[1] On dates highlighted in grey, stormwater was recharged in diversion basins. Stormwater can continue to be recharged for several days after the storm has passed.

Appendix D2

Daily Diversions to Recharge Basins on the San Sevaine Creek Tributary System

(cfs)

Day	Jul-17	Aug-17	Sep-17	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18
1	0.2	7.7	0.6	0.5	0.4	0.4	0.3	0.4	0.7	2.5	0.3	0.3
2	0.2	0.2	0.6	0.5	0.4	0.4	0.3	0.4	13.3	2.9	3.9	0.3
3	0.2	0.3	1.3	0.5	0.4	0.4	0.3	0.4	11.4	0.5	0.3	0.3
4	0.2	0.2	0.6	0.5	0.4	0.2	0.3	0.4	2.3	0.5	0.3	0.3
5	0.2	0.2	0.6	0.5	0.4	0.1	0.3	0.4	0.9	0.5	0.3	0.3
6	0.2	0.2	1.7	0.5	0.4	0.1	0.3	0.4	0.5	0.5	0.3	0.3
7	0.2	0.2	0.6	0.5	0.4	0.1	0.3	0.4	0.5	0.5	0.3	0.3
8	0.2	0.2	0.6	0.5	0.4	0.1	33.8	0.4	0.5	0.5	0.3	0.3
9	0.2	0.2	0.6	0.5	0.4	0.1	247.0	0.4	0.5	0.5	0.3	0.3
10	0.2	0.2	0.6	0.5	0.4	0.1	4.2	0.4	77.6	0.5	0.3	0.3
11	0.2	0.2	0.6	0.5	0.4	0.1	2.8	0.4	21.2	0.5	0.3	0.4
12	0.2	0.2	0.6	0.5	0.4	0.2	4.3	1.5	0.9	0.5	11.9	0.4
13	0.2	0.2	0.5	0.5	0.4	0.4	3.8	1.4	0.3	3.4	0.3	0.4
14	0.2	0.2	0.5	0.5	0.4	0.4	2.7	3.3	7.0	4.4	0.3	0.4
15	0.2	0.2	0.5	0.5	0.4	0.4	2.2	0.5	52.5	3.9	0.3	0.4
16	0.2	0.2	0.3	0.5	0.4	0.3	2.2	0.5	6.3	0.4	0.3	0.4
17	0.2	0.2	0.3	0.5	0.4	0.3	2.2	0.5	38.8	3.9	0.3	0.4
18	0.2	0.2	0.5	0.5	0.4	0.3	2.2	0.5	2.1	0.3	0.3	0.4
19	0.2	0.2	0.5	0.1	0.4	0.4	2.6	1.4	1.3	0.5	0.3	0.4
20	0.1	0.2	0.5	0.1	0.4	0.4	2.2	0.5	0.5	0.3	0.3	0.4
21	0.1	0.2	0.5	0.1	0.4	0.4	0.3	0.5	16.6	0.3	0.3	0.4
22	0.2	0.2	0.5	0.1	0.4	0.4	0.3	0.4	57.1	0.3	0.3	0.4
23	0.2	0.2	0.5	0.1	0.4	0.4	0.3	7.7	15.8	0.3	0.3	0.4
24	1.5	0.2	0.5	0.1	0.4	0.4	0.3	0.5	2.4	0.3	0.3	0.4
25	0.2	0.2	0.5	0.2	0.4	0.4	0.3	0.5	2.0	0.3	0.3	0.4
26	0.2	0.2	0.5	0.4	0.4	0.4	0.3	2.2	0.4	0.3	0.3	0.4
27	1.2	0.2	0.5	0.4	0.4	0.4	0.3	38.9	1.6	0.3	0.3	0.4
28	0.2	0.2	0.5	0.4	0.4	0.4	0.3	0.8	2.6	0.3	0.3	0.3
29	0.2	0.2	0.5	0.4	0.4	0.4	0.3	--	2.5	0.3	0.3	0.4
30	0.2	0.2	0.4	0.4	0.4	0.4	0.3	--	2.5	0.3	0.3	0.4
31	0.2	61.9	--	0.4	--	0.4	0.3	--	2.5	--	0.3	--
Total (cfs)	7.0	74.2	16.7	11.1	10.6	8.7	317.2	66.5	345.0	30.5	24.6	10.0
Minimum	0.1	0.2	0.3	0.1	0.4	0.1	0.3	0.4	0.3	0.3	0.3	0.3
Maximum	1.5	61.9	1.7	0.5	0.4	0.4	247.0	38.9	77.6	4.4	11.9	0.4
Average	0.2	2.4	0.6	0.4	0.4	0.3	10.2	2.4	11.1	1.0	0.8	0.3
Total (af)	13.8	147.1	33.2	21.9	21.0	17.3	629.3	131.9	684.5	60.5	48.8	19.9

[1] On dates highlighted in grey, stormwater was recharged in diversion basins. Stormwater can continue to be recharged for several days after the storm has passed.

Appendix D3

Estimated Daily Dry-Weather Flows Captured by Diversion Basins

(cfs)

Day	Jul-17	Aug-17	Sep-17	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18
1	0.2	7.7	0.6	0.5	0.4	0.4	0.3	0.4	0.0	2.5	0.0	0.3
2	0.2	0.2	0.6	0.5	0.4	0.4	0.3	0.4	0.0	0.0	3.1	0.3
3	0.2	0.3	0.0	0.5	0.4	0.4	0.3	0.4	0.0	0.5	0.3	0.3
4	0.2	0.2	0.6	0.5	0.4	0.2	0.3	0.4	0.0	0.5	0.3	0.3
5	0.2	0.2	0.6	0.5	0.4	0.1	0.3	0.4	0.0	0.5	0.3	0.3
6	0.2	0.2	1.7	0.5	0.4	0.1	0.3	0.4	0.5	0.5	0.3	0.3
7	0.2	0.2	0.6	0.5	0.4	0.1	0.0	0.4	0.5	0.5	0.3	0.3
8	0.2	0.2	0.6	0.5	0.4	0.1	0.0	0.4	0.5	0.5	0.3	0.3
9	0.2	0.2	0.6	0.5	0.4	0.1	0.0	0.4	0.5	0.5	0.3	0.3
10	0.2	0.2	0.6	0.5	0.4	0.1	0.0	0.4	0.0	0.5	0.3	0.3
11	0.2	0.2	0.6	0.5	0.4	0.1	0.0	0.4	0.0	0.5	0.3	0.4
12	0.2	0.2	0.6	0.5	0.4	0.2	0.0	1.5	0.0	0.5	11.9	0.4
13	0.2	0.2	0.5	0.5	0.4	0.4	0.0	1.4	0.0	3.4	0.3	0.4
14	0.2	0.2	0.5	0.5	0.4	0.4	0.0	3.3	0.0	4.4	0.3	0.4
15	0.2	0.2	0.5	0.5	0.4	0.4	0.0	0.5	0.0	3.9	0.3	0.4
16	0.2	0.2	0.3	0.5	0.4	0.3	0.0	0.5	0.0	0.4	0.3	0.4
17	0.2	0.2	0.3	0.5	0.4	0.3	0.0	0.5	0.0	3.9	0.3	0.4
18	0.2	0.2	0.5	0.5	0.4	0.3	0.0	0.5	0.0	0.3	0.3	0.4
19	0.2	0.2	0.5	0.1	0.4	0.4	0.0	1.4	0.0	0.5	0.3	0.4
20	0.1	0.2	0.5	0.1	0.4	0.4	0.6	0.5	0.5	0.3	0.3	0.4
21	0.1	0.2	0.5	0.1	0.4	0.4	0.3	0.5	0.0	0.3	0.3	0.4
22	0.2	0.2	0.5	0.1	0.4	0.4	0.3	0.4	0.0	0.3	0.3	0.4
23	0.2	0.2	0.5	0.1	0.4	0.4	0.3	7.7	0.0	0.3	0.3	0.4
24	1.5	0.2	0.5	0.1	0.4	0.4	0.3	0.5	0.0	0.3	0.3	0.4
25	0.2	0.2	0.5	0.2	0.4	0.4	0.3	0.5	0.0	0.3	0.3	0.4
26	0.2	0.2	0.5	0.4	0.4	0.4	0.3	0.0	0.4	0.3	0.3	0.4
27	1.2	0.2	0.5	0.4	0.4	0.4	0.3	0.0	1.6	0.3	0.3	0.4
28	0.2	0.2	0.5	0.4	0.4	0.4	0.3	0.0	2.6	0.3	0.3	0.3
29	0.2	0.2	0.5	0.4	0.4	0.4	0.3	--	2.5	0.3	0.3	0.4
30	0.2	0.2	0.4	0.4	0.4	0.4	0.3	--	2.5	0.3	0.3	0.4
31	0.2	56.8	--	0.4	--	0.4	0.3	--	2.5	--	0.3	--
Total (cfs)	7.0	69.1	15.4	11.1	10.6	8.7	5.1	24.5	14.4	27.6	23.5	10.0
Minimum	0.1	0.2	0.0	0.1	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.3
Maximum	1.5	56.8	1.7	0.5	0.4	0.4	0.6	7.7	2.6	4.4	11.9	0.4
Average	0.2	2.2	0.5	0.4	0.4	0.3	0.2	0.9	0.5	0.9	0.8	0.3
Total (af)	13.8	137.0	30.6	21.9	21.0	17.3	10.1	48.6	28.7	54.7	46.6	19.9

[1] On dates highlighted in grey, stormwater was recharged in diversion basins. Stormwater can continue to be recharged for several days after the storm has passed. On dates when stormwater diversions are measured after storm flow has stopped, dry-weather flows could not be estimated and are assumed to be zero. Within each storm period, however, any diversions in excess of total WLAM estimated stormflow are assumed to be dry-weather flows.