DRAFT Table 8-1a
Project Data for MZ3/MZ4/MZ5 Sustainability Projects

Project	Benefiting Management Zone	Summary of Key Project Features	New Supply (acre-ft/yr)	Capital Cost ($)	Annualized Capital Cost ($)	Annual O&M Cost ($)	Other Annual Cost ($/acre-ft)	Supplemental Water Acquisition Cost ($)	Total Annual Cost ($)	Unit Cost ($/acre-ft)	Reliability of the Water Supply	Production Sustainability Score[3]
Min General In-Lieu	3	Construct four wells and related conveyance to move non-MZ3 groundwater or imported water to JCSD	5,800	$ 5,440,000	$ 354,000	$ 524,000			$ 878,000	$ 151	High	2
Max General In-Lieu	3	Construct two wells and related conveyance to move non-MZ3 groundwater or imported water to JCSD	11,600	$ 10,640,000	$ 692,000	$ 1,048,000	$ -	$ -	$ 1,740,000	$ 150	High	2
OGRP Project[1]	3	Installation of one well and extend OGRP raw water conveyance	2,903	$ 4,222,500	$ 275,000	$ -	$ -	$ -	$ 275,000	$ 95	High	2
Ont-CDA MZ3 In-Lieu[2]	3	Ontario sale of 5,000 acre-ft/yr of their CDA water to JCSD using existing connections	5,000	$ -	$ -	$ -	$ 920	$ -	$ 4,600,000	$ 920	High	2

1. The total estimated costs for the well and pipeline were derived from Table 9 of the Ontario Groundwater Recovery Project engineering report (Carollo, 2013). The production rate was assumed to be 2,000 gpm (2,900 acre-ft/yr at an operating factor of 90%)

2. The Other Annual Cost for the CDA MZ3 In-Lieu project is the Fiscal Year 2013/14 gross cost/AF for Ontario before the MWD contribution. Source is Exhibit A of the June 6, 2013 CDA Special Board of Directors Meeting Agenda. Note that this cost does not reflect a credit for the avoided cost of pumping by JCSD.

3. The production sustainability score is a tool to characterize a project's contribution to production sustainability in areas with sustainability challenges. Per the evaluation criteria described in Section 7, the score will be as follows: 0 – does not contribute to production sustainability; 1 – contributes minimally to production sustainability (a necessary but not sufficient condition of sustainability); 2 – contributes significantly to production sustainability (a necessary and sufficient condition of sustainability).

DRAFT Table 8-1b
Screening of MZ3/MZ4/MZ5 Sustainability Projects

Project	New Supply (acre-ft/yr)	Unit Cost ($/acre-ft)	Capital Cost ($)	Reliability of the Water Supply	Water Quality Challenges	Ease of Implementation (numeric values refer to notes)
Min General In-Lieu[2]	5,800	$ 151	$ 5,440,000	High	None[1]	b
Max General In-Lieu[2]	11,600	$ 150	$ 10,640,000	High	None[1]	b
OGRP Project	2,903	$ 95	$ 4,222,500	High	None	c
Ont-CDA MZ3 In-Lieu	5,000	$ 920	$ -	High	None	a

[1] The water supplied will be wheeled through adjacent agency's water system where it is assumed that the water will already be potable. The new wells associated with this project will presumably be sited to avoid water quality challenges and may in fact provide water quality benefits to the source agency. That said future groundwater degradation could occur necessitating treatment.

[2] Assumes that water supply cost is offset by JCSD's avoided production and annual transfer of an equal amount of water from their own production rights

a) Requires an agreement between the City of Ontario and JCSD. Ontario position is that they will need to be compensated for their cost of the water.

b) Requires an agreement between the JCSD and others to construct, operate and pay for the improvements

c) Requires an agreement with non-Watermaster Parties that are adversarial to the project to cover VOC treatment costs and is dependent on grant funding.

DRAFT Table 8-1c
Ranked MZ3/MZ4/MZ5 Sustainability Projects[1]

Project	New Supply (acre-ft/yr)[1]	Unit Cost ($/acre-ft)	Capital Cost ($)
Recommended Projects			
OGRP Project	2,903	$ 95	$ 4,222,500
Max General In-Lieu	11,600	$ 150	$ 10,640,000
Min General In-Lieu	5,800	$ 151	$ 5,440,000
Ont-CDA MZ3 In-Lieu	5,000	$ 920	$ -
Total of Recommended Projects	?	?	?
Other Projects			

1. The amount and timing of in-lieu supply required to ensure sustainability is unknown but based on the sensitivity analysis discussed in Section 3 of this report, it is likely between a twenty-percent and fifty-percent reduction in JCSD production (about 5,000 to 10,000 acre-ft/yr).

DRAFT Table 8-2a
Project Data for Yield Enhancement Projects

Project ID	Project Combinations	Group[2]	Project	Man. Zone	Summary of Key Project Features	Potential Cost Share if Mutually Agreed?	Storm Water Recharge										Recycled Water Recharge							Imported Water Recharge							All Recharge				
							Baseflow Storm Water Recharge (acre-ft/yr)	New Storm Water Recharge (acre-ft/yr)	Constructed for Regulatory Compliance?	Project Complete?	Capital Cost ($)	Annualized Capital Cost ($)	Annual O&M Cost ($)	Total Annual Cost ($)	Storm Water Recharge Unit Cost[3]		New Recycled Water Recharge (acre-ft/yr)	Recycled Water Acquisition Cost[4]	Capital Cost ($)	Annualized Capital Cost ($)	Annual O&M Cost ($)	Total Annual Cost ($)	Recycled Water Recharge Unit Cost[5]		New Imported Water Recharge (acre-ft/yr)	Imported Water Acquisition Cost[6]	Capital Cost ($)	Annualized Capital Cost ($)	Annual O&M Cost ($)	Total Annual Cost ($)	Imported Water Recharge Unit Cost[7]		Total New Storm and Supplemental Water (acre-ft/yr)	Total Capital Cost ($)	Total Unit Cost of All New Recharge		
Proposed Projects in Table 6-1 that Were Analyzed in Detail																																			
1		i	Montclair Basins	1	Transfer water between Montclair Basins and deepen MC 4	N	1,188	71	N	N	$ 5,450,000	$ 354,500	$ 2,631	$ 357,131	$ 4,997		0	$ -	$ -	$ -	$ -	$ -	$ -		0	$ -	$ -	$ -	$ -	$ -	$ -		71	$ 5,450,000	$ 4,997		0
1a		i	Montclair Basins	1	Transfer water between Montclair Basins and deepen MC 4	N	1,188	71	N	N	$ 5,046,452	$ 328,300	$ 2,631	$ 330,931	$ 4,631		0	$ -	$ -	$ -	$ -	$ -	$ -		0	$ -	$ -	$ -	$ -	$ -	$ -		71	$ 5,046,452	$ 4,631		
2		i	Montclair Basins	1	New drop inlet structures to MC 2 and MC 3	N	1,188	248	N	N	$ 1,500,000	$ 97,600	$ 9,132	$ 106,732	$ 430		0	$ -	$ -	$ -	$ -	$ -	$ -		0	$ -	$ -	$ -	$ -	$ -	$ -		248	$ 1,500,000	$ 430		0
3		i	Montclair Basins	1	Automate inlet to MC 1 [8]	N	1,188	0	N	N	$ 50,000	$ 3,300	$ (6,000)	$ (2,700)	$ -		0	$ -	$ -	$ -	$ -	$ -	$ -		0	$ -	$ -	$ -	$ -	$ -	$ -		0	$ 50,000	$ -	y[20]	0
4		i	Montclair Basins	1	Construct low-level drains from Basin 1 to 2 and 2 to 3	N	1,188	0	N	N	$ 790,000	$ 51,400	$ -	$ 51,400	$ -		0	$ -	$ -	$ -	$ -	$ -	$ -		0	$ -	$ -	$ -	$ -	$ -	$ -		0	$ 790,000	$ -		0
5		i	North West Upland Basin	1	Increase drainage area and basin enlargement	N	29	93	N	N	$ 5,990,000	$ 389,700	$ 3,441	$ 393,141	$ 4,207		0	$ -	$ -	$ -	$ -	$ -	$ -		0	$ -	$ -	$ -	$ -	$ -	$ -		93	$ 5,990,000	$ 4,207		0
5a		i	North West Upland Basin	1	Increase drainage area and basin enlargement	N	29	93	N	N	$ 5,143,730	$ 334,600	$ 3,441	$ 338,041	$ 3,617		0	$ -	$ -	$ -	$ -	$ -	$ -		0	$ -	$ -	$ -	$ -	$ -	$ -		93	$ 5,143,730	$ 3,617		
6		i	Princeton Basin	2	Increase drainage area	N	48	20	N	N	$ 100,000	$ 6,500	$ 745	$ 7,245	$ 358		0	$ -	$ -	$ -	$ -	$ -	$ -		0	$ -	$ -	$ -	$ -	$ -	$ -		20	$ 100,000	$ 358		0
7		ii	San Sevaine Basins	2	Construct pump station, pump water from SS 5 to SS 3, and construct internal berm in SS 5 [9]	Y	1,177	642	N	N	$ 1,775,000	$ 115,500	$ 23,641	$ 139,141	$ 217		1,911	$ 372,645	$ 1,775,000	$ 115,500	$ 45,311	$ 533,456	$ 279		0	$ -	$ -	$ -	$ -	$ -	$ -		2,553	$ 3,550,000	$ 263		0
8		ii	San Sevaine Basins	2	Extend IEUA recycled water pipeline to SS 3 and construct internal berm in SS 5 [7]	Y	1,177	345	N	N	$ 1,305,000	$ 84,900	$ 12,719	$ 97,619	$ 283		1,911	$ 372,645	$ 1,305,000	$ 84,900	$ 45,311	$ 502,856	$ 263		0	$ -	$ -	$ -	$ -	$ -	$ -		2,256	$ 2,610,000	$ 266		0
9		i	San Sevaine Basins	2	Construct internal berms in SS 1 and SS 2 and install a gate between SS 1 and SS 2	N	1,177	0	N	N	$ 300,000	$ 19,500	$ -	$ 19,500	$ -		0	$ -	$ -	$ -	$ -	$ -	$ -		0	$ -	$ -	$ -	$ -	$ -	$ -		0	$ 300,000	$ -	y[20]	0
10		i	San Sevaine Basins	2	Increase CB13T capacity and power supply	N	1,177	0	N	N	$ -	$ -	$ -	$ -	$ -		0	$ -	$ -	$ -	$ -	$ -	$ -		1,235	$ 766,935	$ 1,980,000	$ 128,800	$ 29,283	$ 925,018	$ 749		1,235	$ 1,980,000	$ 749		0
11		i	Victoria Basin	2	Abandon the mid-level outlet and extend the lysimeters	Y	439	48	N	N	$ 75,000	$ 4,900	$ 1,751	$ 6,651	$ 140		120	$ 23,400	$ 75,000	$ 4,900	$ 2,845	$ 31,145	$ 260		0	$ -	$ -	$ -	$ -	$ -	$ -		168	$ 150,000	$ 226		0
12		ii	Lower Day Basin (2010 RMPU)	2	Inlet improvements, rebuilding embankment, elimination of mid-level outlet	N	395	789	N	N	$ 2,480,000	$ 161,300	$ 29,041	$ 190,341	$ 241		0	$ -	$ -	$ -	$ -	$ -	$ -		0	$ -	$ -	$ -	$ -	$ -	$ -		789	$ 2,480,000	$ 241		0
13		ii	Lower Day Basin	2	Install gate on mid-level outlet	N	395	75	N	N	$ 600,000	$ 39,000	$ 2,777	$ 41,777	$ 554		0	$ -	$ -	$ -	$ -	$ -	$ -		0	$ -	$ -	$ -	$ -	$ -	$ -		75	$ 600,000	$ 554		0
14		i	Turner Basin	2	Raise Turner 2 spillway [9]	N	1,226	66	N	N	$ 890,000	$ 57,900	$ 2,426	$ 60,326	$ 916		0	$ -	$ -	$ -	$ -	$ -	$ -		0	$ -	$ -	$ -	$ -	$ -	$ -		66	$ 890,000	$ 916		1
15		i	Ely Basin	2	Basin enlargement and increased drainage area	N	1,103	221	N	N	$ 11,620,000	$ 755,900	$ 8,122	$ 764,022	$ 3,464		0	$ -	$ -	$ -	$ -	$ -	$ -		0	$ -	$ -	$ -	$ -	$ -	$ -		221	$ 11,620,000	$ 3,464		0
15a		i	Ely Basin	2	Basin enlargement and increased drainage area	N	1,103	221	N	N	$ 5,034,315	$ 327,500	$ 8,122	$ 335,622	$ 1,522		0	$ -	$ -	$ -	$ -	$ -	$ -		0	$ -	$ -	$ -	$ -	$ -	$ -		221	$ 5,034,315	$ 1,522		
16		i	Ontario Browalie Project	2	New browalie	N	0	8	Y	Y	$ 650,000	$ 42,300	$ 277	$ 42,577	$ -		0	$ -	$ -	$ -	$ -	$ -	$ -		0	$ -	$ -	$ -	$ -	$ -	$ -		8	$ 650,000	$ -		0
17		i	Lower San Sevaine Basin (2010 RMPU)	2	New basin	Y	0	1,221	N	N	$ 22,720,000	$ 1,478,000	$ 44,947	$ 1,522,947	$ 1,248		500	$ 97,500	$ 22,720,000	$ 1,478,000	$ 11,855	$ 1,587,355	$ 3,175		0	$ -	$ -	$ -	$ -	$ -	$ -		1,721	$ 45,440,000	$ 1,808		0
17a		i	Lower San Sevaine Basin (2010 RMPU)	2	New basin	Y	0	1,221	N	N	$ 12,997,006	$ 845,500	$ 44,947	$ 890,447	$ 729		500	$ 97,500	$ 12,997,006	$ 845,500	$ 11,855	$ 954,855	$ 1,910		0	$ -	$ -	$ -	$ -	$ -	$ -		1,721	$ 25,994,012	$ 1,072		0
18		i	CSI Storm Water Basin	3	Deepen basin by 10 feet	N	72	81	N	N	$ 900,000	$ 58,500	$ 2,998	$ 61,498	$ 755		0	$ -	$ -	$ -	$ -	$ -	$ -		0	$ -	$ -	$ -	$ -	$ -	$ -		81	$ 900,000	$ 755		0
18a		i	CSI Storm Water Basin	3	Deepen basin by 10 feet	N	72	81	N	N	$ 439,703	$ 28,600	$ 2,998	$ 31,598	$ 388		0	$ -	$ -	$ -	$ -	$ -	$ -		0	$ -	$ -	$ -	$ -	$ -	$ -		81	$ 439,703	$ 388		0
19		iii	Wineville Basin (2010 RMPU)	3	Gate the low-elevation outlet, replace embankment with dam, and construct a pneumatic gate on the spillway [9]	Y	5	2,157	N	N	$ 3,140,000	$ 204,300	$ 79,438	$ 283,738	$ 132		630	$ 122,850	$ 3,140,000	$ 204,300	$ 14,938	$ 342,088	$ 543		0	$ -	$ -	$ -	$ -	$ -	$ -		2,787	$ 6,280,000	$ 225		2
19a		iii	Wineville Basin (2010 RMPU)	3	Gate the low-elevation outlet, replace embankment with dam, and construct a pneumatic gate on the spillway [9]	Y	5	2,157	N	N	$ 2,446,401	$ 159,100	$ 79,438	$ 238,538	$ 111		630	$ 122,850	$ 2,446,401	$ 159,100	$ 14,938	$ 296,888	$ 471		0	$ -	$ -	$ -	$ -	$ -	$ -		2,787	$ 4,892,802	$ 192		2
20		iii	Jurupa Basin	3	Inlet improvements and CB-13 turnout modifications	N	234	421	N	N	$ 1,900,000	$ 123,600	$ 15,516	$ 139,116	$ 330		0	$ -	$ -	$ -	$ -	$ -	$ -		0	$ -	$ -	$ -	$ -	$ -	$ -		421	$ 1,900,000	$ 330	y[21]	2
21		ii	RP3 Basin Improvements (2010 RMPU)	3	Inlet improvements and enlargement	N	628	406	N	N	$ 22,040,000	$ 1,433,700	$ 14,931	$ 1,448,631	$ 3,572		0	$ -	$ -	$ -	$ -	$ -	$ -		0	$ -	$ -	$ -	$ -	$ -	$ -		406	$ 22,040,000	$ 3,572		2
21a		ii	RP3 Basin Improvements (2010 RMPU)	3	Inlet improvements and enlargement	N	628	406	N	N	$ 12,515,000	$ 814,100	$ 14,931	$ 829,031	$ 2,044		0	$ -	$ -	$ -	$ -	$ -	$ -		0	$ -	$ -	$ -	$ -	$ -	$ -		406	$ 12,515,000	$ 2,044		
22		ii, iii	RP3 Basin Improvements (2013 RMPU)	3	Increase conservation storage [10]	N	628	137	N	N	$ 2,645,000	$ 172,100	$ 5,062	$ 177,162	$ 1,289		2,905	$ 566,475	$ 2,645,000	$ 172,100	$ 68,879	$ 807,454	$ 278		0	$ -	$ -	$ -	$ -	$ -	$ -		3,042	$ 5,290,000	$ 324		2
22a		ii, iii	RP3 Basin Improvements (2013 RMPU)	3	Increase conservation storage [10]	N	628	137	N	N	$ 1,856,820	$ 120,800	$ 5,062	$ 125,862	$ 916		2,905	$ 566,475	$ 1,856,820	$ 120,800	$ 68,879	$ 756,154	$ 260		0	$ -	$ -	$ -	$ -	$ -	$ -		3,042	$ 3,713,639	$ 290		2
23	Includes PID's 19,20,22	iv	2013 RMPU Proposed Wineville PS to Jurupa, Expanded Jurupa PS to RP3 Basin with 2013 Proposed RP3 Improvements	3	2010 RMPU Proposed Wineville Basin Improvements, Wineville 20 cfs PS to Jurupa, Improved Jurupa Basin Inlet, 40 cfs PS to RP3 Basin with Proposed 2013 RMPU RP3 Improvements	Y	867	3,166	N	N	$ 8,720,000	$ 567,200	$ 498,576	$ 1,065,776	$ 337		3,535	$ 689,325	$ 8,720,000	$ 567,200	$ 83,817	$ 1,340,342	$ 379		0	$ -	$ -	$ -	$ -	$ -	$ -		6,701	$ 17,440,000	$ 359		2
23a	Includes PID's 19,20,22	iv	2013 RMPU Proposed Wineville PS to Jurupa, Expanded Jurupa PS to RP3 Basin with 2013 Proposed RP3 Improvements	3	2010 RMPU Proposed Wineville Basin Improvements, Wineville 20 cfs PS to Jurupa, Improved Jurupa Basin Inlet, 40 cfs PS to RP3 Basin with Proposed 2013 RMPU RP3 Improvements	Y	867	3,166	N	N	$ 7,844,244	$ 510,300	$ 2,014,976	$ 2,525,276	$ 798		3,535	$ 689,325	$ 7,844,244	$ 510,300	$ 83,817	$ 1,283,442	$ 363		0	$ -	$ -	$ -	$ -	$ -	$ -		6,701	$ 15,688,488	$ 568		2
24		i	Vulcan Pit	3	Construct new inflow and outflow structures [11]	Y	0	857	N	N	$ 15,790,000	$ 1,027,200	$ 31,548	$ 1,058,748	$ 1,236		840	$ 163,800	$ 15,790,000	$ 1,027,200	$ 19,917	$ 1,210,917	$ 1,442		0	$ -	$ -	$ -	$ -	$ -	$ -		1,697	$ 31,580,000	$ 1,338		1
25		i	Sierra	3	Deepen basin by 10 feet	N	12	64	N	N	$ 1,000,000	$ 65,100	$ 2,351	$ 67,451	$ 1,056		0	$ -	$ -	$ -	$ -	$ -	$ -		0	$ -	$ -	$ -	$ -	$ -	$ -		64	$ 1,000,000	$ 1,056		1
25a		i	Sierra	3	Deepen basin by 10 feet	N	12	64	N	N	$ 489,259	$ 31,800	$ 2,351	$ 34,151	$ 535		0	$ -	$ -	$ -	$ -	$ -	$ -		0	$ -	$ -	$ -	$ -	$ -	$ -		64	$ 489,259	$ 535		1
26		i	Sultana Avenue	3	Deepen basin by 10 feet	N	89	7	N	N	$ 1,020,000	$ 66,400	$ 258	$ 66,658	$ 9,499		0	$ -	$ -	$ -	$ -	$ -	$ -		0	$ -	$ -	$ -	$ -	$ -	$ -		7	$ 1,020,000	$ 9,499		1
26a		i	Sultana Avenue	3	Deepen basin by 10 feet	N	89	7	N	N	$ 497,638	$ 32,400	$ 258	$ 32,658	$ 4,654		0	$ -	$ -	$ -	$ -	$ -	$ -		0	$ -	$ -	$ -	$ -	$ -	$ -		7	$ 497,638	$ 4,654		1
27		i	Declez Basin	3	Reconstruct existing embankment and install a gate on the low level outlet [12]	N	674	241	N	N	$ 4,070,000	$ 264,800	$ 8,877	$ 273,677	$ 1,135		0	$ -	$ -	$ -	$ -	$ -	$ -		0	$ -	$ -	$ -	$ -	$ -	$ -		241	$ 4,070,000	$ 1,135		2
Operations and Maintenance [18]																																			
28		ii	Banana Basin (annual cleaning)	3	Increase frequency of basin maintenance (Increased infiltration rate to 0.6 ft/day)	Y	317	11	N	N			$ 3,183	$ 3,183	$ 294		130	$ 25,350	$ -	$ -	$ 38,159	$ 63,509	$ 489		0	$ -	$ -	$ -	$ -	$ -	$ -		141		$ 474		0
29		ii	Banana Basin (semiannual cleanings)	3	Increase frequency of basin maintenance (Increased infiltration rate to 0.72 ft/day)	Y	317	31	N	N			$ 15,192	$ 15,192	$ 495		155	$ 30,225	$ -	$ -	$ 76,744	$ 106,969	$ 690		0	$ -	$ -	$ -	$ -	$ -	$ -		186		$ 658		0
30		ii	Declez Basin (annual cleaning)	3	Increase basin maintenance frequency (Increased infiltration rate to 0.66 ft/day)	Y	674	16	N	N			$ 6,537	$ 6,537	$ 409		178	$ 34,710	$ -	$ -	$ 72,735	$ 107,445	$ 604		0	$ -	$ -	$ -	$ -	$ -	$ -		194		$ 588		0
31		ii	Declez Basin (semiannual cleanings)	3	Increase basin maintenance frequency (Increased infiltration rate to 0.78 ft/day)	Y	674	47	N	N			$ 32,923	$ 32,923	$ 701		210	$ 40,950	$ -	$ -	$ 147,109	$ 188,059	$ 896		0	$ -	$ -	$ -	$ -	$ -	$ -		257		$ 860		0
32		ii	Ely Basin (annual cleaning)	2	Increase maintenance frequency (Increased infiltration rate to 0.27 ft/day)	Y	1,103	44	N	N			$ 29,450	$ 29,450	$ 668		217	$ 42,315	$ -	$ -	$ 144,868	$ 187,183	$ 863		0	$ -	$ -	$ -	$ -	$ -	$ -		261		$ 830		0
33		ii	Ely Basin (semiannual cleanings)	2	Increase maintenance frequency (Increased infiltration rate to 0.33 ft/day)	Y	1,103	128	N	N			$ 127,949	$ 127,949	$ 997		258	$ 50,310	$ -	$ -	$ 257,342	$ 307,652	$ 1,192		0	$ -	$ -	$ -	$ -	$ -	$ -		386		$ 1,128		0
34		ii	Hickory Basin (annual cleaning)	2	Increase frequency of basin maintenance (Increased infiltration rate to 0.44 ft/day)	Y	353	7	N	N			$ 3,812	$ 3,812	$ 518		148	$ 28,860	$ -	$ -	$ 76,622	$ 105,482	$ 713		0	$ -	$ -	$ -	$ -	$ -	$ -		155		$ 703		0
35		ii	Hickory Basin (semiannual cleanings)	2	Increase frequency of basin maintenance (Increased infiltration rate to 0.52 ft/day)	Y	353	20	N	N			$ 17,640	$ 17,640	$ 877		175	$ 34,125	$ -	$ -	$ 153,435	$ 187,560	$ 1,072		0	$ -	$ -	$ -	$ -	$ -	$ -		195		$ 1,052		0
Proposed Projects in Table 6-1 that Were Not Analyzed																																			
36			Turner Expansion	2	Basin improvements to the basins east of Archibald Ave and new basins adjacent to Turner 4 [13]																																
37			Upland Basin	1	Construct low level drain [14]																																
38			College Heights	1	Construct internal berms to reduce seepage to the Upland basin [15]																																
39			Lower Cucamonga Basin	2	Basin enlargement for distribution [17]																																
40			Management Zones 2 and 3 Capture, Pump and Recharge	2,3	Capture water in MZ-2 and 3 basins low in the system and pump to basins higher in the system [17]																																
41			Jurupa Basin	3	Inlet improvements and basin enlargement [17]																																
42			RP3 Basins	3	Inlet improvements [19]																																
43			Alder Basin	3	Deepen basin [17]																																

1. The project group column was created to determine the total yield from different combinations of projects. The group was determined as follows: i- the project can be standalone; ii- the project is mutually exclusive; iii- the project can be standalone but is also included in a multi project scenario; iv- the project includes the "ii" group.
2. The results of this table provide an estimate of the cost per acre-ft of recharge. These estimates are reconnaissance level (level 5) estimates and additional technical work needs to be done to assure feasibility.
3. The IEUA recycled water recharge rate was assumed to be $195 an acre-ft per Table 2-9.
4. The MWD imported water recharge rate was assumed to be untreated Tier 1 Service at a price of $621 an acre-ft per Table 2-9.
5. The production sustainability score is a tool to characterize a project's contribution to production sustainability in areas with sustainability challenges. In simple terms the score will be as follows: 0 – does not contribute to production sustainability; 1 – contributes minimally to production sustainability (a necessary but not sufficient condition of sustainability); 2 – contributes significantly to production sustainability (a necessary and sufficient condition of sustainability).
6. The automation of the inlet gate and flume data to MC 1 results in a reduction of O&M.
7. With a 40% RWC limitation an additional 1,911 acre-ft/yr of recycled water can be recharged.
8. The Baseline for the Turner 2 Spillway Project and the Turner Expansion includes the recharge from Turner 1, 2, 3 and 4.
9. The results from the Wineville proof of concept project may render the project infeasible. Recycled water recharge was estimated to be 630 acre-ft/yr assuming an infiltration rate of 0.10 ft/day over 30 acres.
10. The RWC limitation at RP3 is 12,800 acre-ft/yr.
11. Recycled water recharge based upon an estimated 0.1 ft/day infiltration at 40-acres for 7-months of operations. Actual RWC is unknown, the recharge based upon an assumed RWC at 25% with the following flows: 840 AFY Storm Water, 1,800 AFY Underflow, and Diluent Water the same at Banana Basin. The project includes the price of
12. Recycled water recharge operations will not benefit from the increased operating level. Basin recharge footprint is constrained by surrounding geology and engineered berm. Basin is not RWC limited and will not benefit from increased SW capture or footprint.
13. Based on available information, it can be assumed that the basin infiltration can be increased 10 to 20% with annual cleaning, and 20 to 50 % with cleaning twice a year. Field data needs to be established to determine optimum cleaning frequency per basin.
14. The Turner Basin expansion project was not included because it is currently under construction.
15. The Upland Basin Project was removed by IEUA because the basin performs well and limited cleaning is needed.
16. The College Heights project does not affect stormwater recharge.
17. The projects did not pass the screening criteria and were not considered.
18. The recharged gained by the 2010 RMPU RP3 inlet improvement is comparable to the current recharge at RP3.
19. Reduces the amount of lost water due to basin inlet constraints and clogging.
20. Will increase the amount of time water can be recharged in SS-1 by solving the vector control issues.
21. Will allow the Jurupa Basin to accept an additional 15 cfs from the CB 18 in Hickory and Banana Basins were offline.
a) The project includes excavation costs and the capital cost shown assumes that the projects excavation costs would be reduced by 90%. The material excavated could be used for another construction site or can be leased to a mining operator.

DRAFT Table 8-2b
Screening of Yield Enhancement Projects (Assuming no IEUA Cost Share)

Project ID	Project	Management Zone	Capital Cost	New Yield	Unit Cost	Water Quality Challenges	Institutional Challenges
1	Montclair Basins	1	$ 5,450,000	71	$ 4,997		c
1a	Montclair Basins	1	$ 5,046,452	71	$ 4,631		c
2	Montclair Basins	1	$ 1,500,000	248	$ 431		c
3	Montclair Basins	1	$ 50,000	0	--		c
4	Montclair Basins	1	$ 790,000	0	--		c
5	North West Upland Basin	1	$ 5,990,000	93	$ 4,207		c
5a	North West Upland Basin	1	$ 5,143,730	93	$ 3,618		c
6	Princeton Basin	2	$ 100,000	20	$ 358		c
7	San Sevaine Basins	2	$ 3,550,000	642	$ 397		c, e
8	San Sevaine Basins	2	$ 2,610,000	345	$ 529		c, e
9	San Sevaine Basins	2	$ 300,000	0	--		c
10	San Sevaine Basins	2	$ 1,980,000	0	--		c
11	Victoria Basin	2	$ 150,000	48	$ 243		c, e
12	Lower Day Basin (2010 RMPU)	2	$ 2,480,000	789	$ 242		c
13	Lower Day Basin	2	$ 600,000	75	$ 554		c
14	Turner Basin	2	$ 890,000	66	$ 916		c
15	Ely Basin	2	$ 11,620,000	221	$ 3,464		
15a	Ely Basin	2	$ 5,034,315	221	$ 1,522		
16	Ontario Bioswale Project	2	$ 650,000	8	$ 5,652		
17	Lower San Sevaine Basin (2010 RMPU)	2	$ 45,440,000	1,221	$ 2,459		d, e
17a	Lower San Sevaine Basin (2010 RMPU)	2	$ 25,994,012	1,221	$ 1,422		d, e
18	CSI Storm Water Basin	3	$ 900,000	81	$ 756		
18a	CSI Storm Water Basin	3	$ 439,703	81	$ 388		
19	Wineville Basin (2010 RMPU)	3	$ 6,280,000	2,157	$ 226		
19a	Wineville Basin (2010 RMPU)	3	$ 4,892,802	2,157	$ 185		
20	Jurupa Basin	3	$ 1,900,000	421	$ 330		
21	RP3 Basin Improvements (2010 RMPU)	3	$ 22,040,000	406	$ 3,573		
21a	RP3 Basin Improvements (2010 RMPU)	3	$ 12,515,000	406	$ 2,045		
22	RP3 Basin Improvements (2013 RMPU)	3	$ 5,290,000	137	$ 2,540		
22a	RP3 Basin Improvements (2013 RMPU)	3	$ 3,713,639	137	$ 1,794		
23	2013 RMPU Proposed Wineville PS to Jurupa, Expanded Jurupa PS to RP3 Basin with 2013 Proposed RP3 Improvements	3	$ 17,440,000	3,166	$ 395		d,e
23a	2013 RMPU Proposed Wineville PS to Jurupa, Expanded Jurupa PS to RP3 Basin with 2013 Proposed RP3 Improvements	3	$ 15,688,488	3,166	$ 359		d, e
24	Vulcan Pit	3	$ 31,580,000	857	$ 2,435		d, e
25	Sierra	3	$ 1,000,000	64	$ 1,057		
25a	Sierra	3	$ 489,259	64	$ 535		
26	Sultana Avenue	3	$ 1,020,000	7	$ 9,499		
26a	Sultana Avenue	3	$ 497,638	7	$ 4,654		
27	Declez Basin	3	$ 4,070,000	241	$ 1,135		
28	Banana Basin (annual cleaning)	3		11	$ 294		
29	Banana Basin (semiannual cleanings)	3		31	$ 495		
30	Declez Basin (annual cleaning)	3		16	$ 409		
31	Declez Basin (semiannual cleanings)	3		47	$ 701		
32	Ely Basin (annual cleaning)	2		44	$ 668		
33	Ely Basin (semiannual cleanings)	2		128	$ 997		
34	Hickory Basin (annual cleaning)	2		7	$ 518		
35	Hickory Basin (semiannual cleanings)	2		20	$ 877		

a) The project includes excavation costs and the capital cost shown assumes that the projects excavation costs would be reduced by 90%. The material excavated could be used for another constructiion site or can be leased to a mining operator.

Key to Water Quality Challenges

b)

Key to Institutional Challenges

c) An agreement will be required with the property owner to construct and operate stormwater recharge facilities. Other agreements with resource agencies may also be required. The time required to negotiate and approve these agreements could range from one to two years.

d) This basin in not currently included in the Watermaster/IEUA recharge permit. Therefore the existing permit will need to be amended to include recycled water at this basin. The time required to prepare the Title 22 engineering and regulatory process is about two years.

e) The project includes a recycled water recharge component. IEUA has discretion as to whether to participate or not in this project.

DRAFT Table 8-2c
Ranked Yield Enhancement Projects (Assuming no IEUA cost share)

Project ID	Group[1]	Project	Yield	Unit Cost[2]	Capital Cost[3]
Recommended MZ3 Projects					
23a	iv	2013 RMPU Proposed Wineville PS to Jurupa, Expanded Jurupa PS to RP3 Basin with 2013 Proposed RP3 Improvements	3,166	$ 359	$ 15,688,488
18a	i	CSI Storm Water Basin	81	$ 388	$ 439,703
25a	i	Sierra	64	$ 535	$ 489,259
27	i	Declez Basin	241	$ 1,135	$ 4,070,000
24	i	Vulcan Pit	857	$ 2,435	$ 31,580,000
26a	i	Sultana Avenue	7	$ 4,654	$ 497,638
Total MZ3			4,416		$ 52,765,088
Recommended MZ2 Projects					
12	ii	Lower Day Basin (2010 RMPU)	789	$ 242	$ 2,480,000
11	i	Victoria Basin	48	$ 243	$ 150,000
7	ii	San Sevaine Basins	642	$ 397	$ 3,550,000
14	i	Turner Basin	66	$ 916	$ 890,000
17a	i	Lower San Sevaine Basin (2010 RMPU)	1,221	$ 1,422	$ 25,994,012
15a	i	Ely Basin	221	$ 1,522	$ 5,034,315
Total MZ2			2,985		$ 38,098,327
Recommended MZ1 Projects					
2	i	Montclair Basins	248	$ 431	$ 1,500,000
5a	i	North West Upland Basin	93	$ 3,618	$ 5,143,730
1a	i	Montclair Basins	71	$ 4,631	$ 5,046,452
Total MZ1			413	?	$ 11,690,182
Other Recommended Projects, Not MZ Specific					
28	ii	Banana Basin (annual cleaning)	11	$ 294	$ -
30	ii	Declez Basin (annual cleaning)	16	$ 409	$ -
29	ii	Banana Basin (semiannual cleanings)	31	$ 495	$ -
34	ii	Hickory Basin (annual cleaning)	7	$ 518	$ -
32	ii	Ely Basin (annual cleaning)	44	$ 668	$ -
31	ii	Declez Basin (semiannual cleanings)	47	$ 701	$ -
35	ii	Hickory Basin (semiannual cleanings)	20	$ 877	$ -
33	ii	Ely Basin (semiannual cleanings)	128	$ 997	$ -
Total Other Recommended			?	?	?
Total Recommended Projects			7,815	?	$ 102,553,596
Other Projects					
19a	iii	Wineville Basin (2010 RMPU)	2,157	$ 185	$ 4,892,802
20	iii	Jurupa Basin	421	$ 330	$ 1,900,000
22a	ii, iii	RP3 Basin Improvements (2013 RMPU)	137	$ 1,794	$ 3,713,639
21a	ii	RP3 Basin Improvements (2010 RMPU)	406	$ 2,045	$ 12,515,000
8	ii	San Sevaine Basins	345	$ 529	$ 2,610,000
13	ii	Lower Day Basin	75	$ 554	$ 600,000

Note - color shading within each MZ indicates mutually exclusive projects.

1. The project group column was created to determine the total yield from different combinations of projects. The group was determined as follows: i- the project can be standalone; ii- the project is mutually exclusive; iii- the project can be standalone but is also included in a multi project scenario; iv- the project includes the "iii" group.

2. The next least cost supply is MWD untreated Tier 1 rate; for 2013 and 2014 is $593 an acre-ft. (http://www.mwdh2o.com/mwdh2o/pages/finance/finance_03.html)

3. The capital cost shown does not assume a 50/50 split of the capital cost per the Peace II Agreement Article VIII.

a- The project includes excavation costs and the capital cost shown assumes that the projects excavation costs would be reduced by 90%. The material excavated could be used for another constructiion site or can be leased to a mining operator.

DRAFT Table 8-2b
Screening of Yield Enhancement Projects (Assuming IEUA Cost Share)

Project ID	Project	Management Zone	Capital Cost	New Yield	Unit Cost	Water Quality Challenges	Institutional Challenges
1	Montclair Basins	1	$ 5,450,000	71	$ 4,997		c
1a	Montclair Basins	1	$ 5,046,452	71	$ 4,631		c
2	Montclair Basins	1	$ 1,500,000	248	$ 431		c
3	Montclair Basins	1	$ 50,000	0	--		c
4	Montclair Basins	1	$ 790,000	0	--		c
5	North West Upland Basin	1	$ 5,990,000	93	$ 4,207		c
5a	North West Upland Basin	1	$ 5,143,730	93	$ 3,618		c
6	Princeton Basin	2	$ 100,000	20	$ 358		c
7	San Sevaine Basins	2	$ 1,775,000	642	$ 217		c, e
8	San Sevaine Basins	2	$ 1,305,000	345	$ 283		c, e
9	San Sevaine Basins	2	$ 300,000	0	--		c
10	San Sevaine Basins	2	$ -	0	--		c
11	Victoria Basin	2	$ 75,000	48	$ 140		c, e
12	Lower Day Basin (2010 RMPU)	2	$ 2,480,000	789	$ 242		c
13	Lower Day Basin	2	$ 600,000	75	$ 554		c
14	Turner Basin	2	$ 890,000	66	$ 916		c
15	Ely Basin	2	$ 11,620,000	221	$ 3,464		
15a	Ely Basin	2	$ 5,034,315	221	$ 1,522		
16	Ontario Bioswale Project	2	$ 650,000	8	$ 5,652		
17	Lower San Sevaine Basin (2010 RMPU)	2	$ 22,720,000	1,221	$ 1,248		d, e
17a	Lower San Sevaine Basin (2010 RMPU)	2	$ 12,997,006	1,221	$ 730		d, e
18	CSI Storm Water Basin	3	$ 900,000	81	$ 756		
18a	CSI Storm Water Basin	3	$ 439,703	81	$ 388		
19	Wineville Basin (2010 RMPU)	3	$ 3,140,000	2,157	$ 132		
19a	Wineville Basin (2010 RMPU)	3	$ 2,446,401	2,157	$ 111		
20	Jurupa Basin	3	$ 1,900,000	421	$ 330		
21	RP3 Basin Improvements (2010 RMPU)	3	$ 22,040,000	406	$ 3,573		
21a	RP3 Basin Improvements (2010 RMPU)	3	$ 12,515,000	406	$ 2,045		
22	RP3 Basin Improvements (2013 RMPU)	3	$ 2,645,000	137	$ 1,289		
22a	RP3 Basin Improvements (2013 RMPU)	3	$ 1,856,820	137	$ 916		
23	2013 RMPU Proposed Wineville PS to Jurupa, Expanded Jurupa PS to RP3 Basin with 2013 Proposed RP3 Improvements	3	$ 8,720,000	3,166	$ 216		d,e
23a	2013 RMPU Proposed Wineville PS to Jurupa, Expanded Jurupa PS to RP3 Basin with 2013 Proposed RP3 Improvements	3	$ 7,844,244	3,166	$ 198		d, e
24	Vulcan Pit	3	$ 15,790,000	857	$ 1,236		d, e
25	Sierra	3	$ 1,000,000	64	$ 1,057		
25a	Sierra	3	$ 489,259	64	$ 535		
26	Sultana Avenue	3	$ 1,020,000	7	$ 9,499		
26a	Sultana Avenue	3	$ 497,638	7	$ 4,654		
27	Declez Basin	3	$ 4,070,000	241	$ 1,135		
28	Banana Basin (annual cleaning)	3		11	$ 294		
29	Banana Basin (semiannual cleanings)	3		31	$ 495		
30	Declez Basin (annual cleaning)	3		16	$ 409		
31	Declez Basin (semiannual cleanings)	3		47	$ 701		
32	Ely Basin (annual cleaning)	2		44	$ 668		
33	Ely Basin (semiannual cleanings)	2		128	$ 997		
34	Hickory Basin (annual cleaning)	2		7	$ 518		
35	Hickory Basin (semiannual cleanings)	2		20	$ 877		

a) The project includes excavation costs and the capital cost shown assumes that the projects excavation costs would be reduced by 90%. The material excavated could be used for another constructiion site or can be leased to a mining operator.

Key to Water Quality Challenges

b)

Key to Institutional Challenges

c) An agreement will be required with the property owner to construct and operate stormwater recharge facilities. Other agreements with resource agencies may also be required. The time required to negotiate and approve these agreements could range from one to two years.

d) This basin in not currently included in the Watermaster/IEUA recharge permit. Therefore the existing permit will need to be amended to include recycled water at this basin. The time required to prepare the Title 22 engineering and regulatory process is about two years.

e) The capital cost shown herein has been reduced to half the construction cost with the other half allocated to recycled water recharge. IEUA has discretion as to whether to participate or not in this project.

DRAFT Table 8-2c
Ranked Yield Enhancement Projects (Assuming IEUA cost share)

Project ID	Group[1]	Project	Yield	Unit Cost[2]	Capital Cost[3]
Recommended MZ3 Projects					
23a	iv	2013 RMPU Proposed Wineville PS to Jurupa, Expanded Jurupa PS to RP3 Basin with 2013 Proposed RP3 Improvements	3,166	$ 198	$ 7,844,244
18a	i	CSI Storm Water Basin	81	$ 388	$ 439,703
25a	i	Sierra	64	$ 535	$ 489,259
27	i	Declez Basin	241	$ 1,135	$ 4,070,000
24	i	Vulcan Pit	857	$ 1,236	$ 15,790,000
26a	i	Sultana Avenue	7	$ 4,654	$ 497,638
Total MZ3			4,416		$ 29,130,844
Recommended MZ2 Projects					
11	i	Victoria Basin	48	$ 140	$ 75,000
7	ii	San Sevaine Basins	642	$ 217	$ 1,775,000
12	ii	Lower Day Basin (2010 RMPU)	789	$ 242	$ 2,480,000
17a	i	Lower San Sevaine Basin (2010 RMPU)	1,221	$ 730	$ 12,997,006
14	i	Turner Basin	66	$ 916	$ 890,000
15a	i	Ely Basin	221	$ 1,522	$ 5,034,315
Total MZ2			2,985		$ 23,251,321
Recommended MZ1 Projects					
2	i	Montclair Basins	248	$ 431	$ 1,500,000
5a	i	North West Upland Basin	93	$ 3,618	$ 5,143,730
1a	i	Montclair Basins	71	$ 4,631	$ 5,046,452
Total MZ1			413		$ 11,690,182
Other Recommended Projects, Not MZ Specific					
28	ii	Banana Basin (annual cleaning)	11	$ 294	$ -
30	ii	Declez Basin (annual cleaning)	16	$ 409	$ -
29	ii	Banana Basin (semiannual cleanings)	31	$ 495	$ -
34	ii	Hickory Basin (annual cleaning)	7	$ 518	$ -
32	ii	Ely Basin (annual cleaning)	44	$ 668	$ -
31	ii	Declez Basin (semiannual cleanings)	47	$ 701	$ -
35	ii	Hickory Basin (semiannual cleanings)	20	$ 877	$ -
33	ii	Ely Basin (semiannual cleanings)	128	$ 997	$ -
Total Other Recommended			?	?	?
Total Recommended Projects			7,815		$ 64,072,346
Other Projects					
19a	iii	Wineville Basin (2010 RMPU)	2,157	$ 111	$ 2,446,401
20	iii	Jurupa Basin	421	$ 330	$ 1,900,000
22a	ii, iii	RP3 Basin Improvements (2013 RMPU)	137	$ 916	$ 1,856,820
21a	ii	RP3 Basin Improvements (2010 RMPU)	406	$ 2,045	$ 12,515,000
8	ii	San Sevaine Basins	345	$ 283	$ 1,305,000
13	ii	Lower Day Basin	75	$ 554	$ 600,000

Note - color shading within each MZ indicates mutually exclusive projects.

1. The project group column was created to determine the total yield from different combinations of projects. The group was determined as follows: i- the project can be standalone; ii- the project is mutually exclusive; iii- the project can be standalone but is also included in a multi project scenario; iv- the project includes the "iii" group.

2. The next least cost supply is MWD untreated Tier 1 rate; for 2013 and 2014 is $593 an acre-ft. (http://www.mwdh2o.com/mwdh2o/pages/finance/finance_03.html)

3. The capital cost shown assumes the projects including the recharge of recycled water is mutually agreed and split 50/50 per the Peace II Agreement Article VIII.

a- The project includes excavation costs and the capital cost shown assumes that the projects excavation costs would be reduced by 90%. The material excavated could be usec for another constructiion site or can be leased to a mining operator.

Table __
Summary of Yield Enhancement Projects

Best Efforts Value ($/acre-ft)	With IEUA Cost Share		Without IEUA Cost Share	
	Capital Cost to Watermaster Parties ($)	New Yield (acre-ft/yr)	Capital Cost to Watermaster Parties ($)	New Yield (acre-ft/yr)
$ 600	$ 14,603,206	5,038	$ 24,297,450	5,038
$ 700	$ 14,603,206	5,038	$ 24,297,450	5,038
$ 800	$ 27,600,212	6,258	$ 24,297,450	5,038
$ 900	$ 27,600,212	6,258	$ 24,297,450	5,038
$ 1,000	$ 28,490,212	6,324	$ 25,187,450	5,103
$ 1,100	$ 28,490,212	6,324	$ 25,187,450	5,103
$ 1,200	$ 32,560,212	6,565	$ 29,257,450	5,345
$ 1,300	$ 48,350,212	7,422	$ 29,257,450	5,345
$ 1,400	$ 48,350,212	7,422	$ 29,257,450	5,345
$ 1,500	$ 48,350,212	7,422	$ 55,251,462	6,565
$ 1,600	$ 53,384,526	7,643	$ 60,285,776	6,786