ANTELOPE VALLEY SALT/NUTRIENT MANAGEMENT PLAN
STAKEHOLDER MEETING MINUTES

September 18, 2013
Location: Palmdale City Hall – Lilac Room
11:00 a.m. – 12:00 p.m.

Attendees: Tom Barnes (AVEK), Andre Biscaro (UC Coop Ext), Tim Chen (LACWD), Brian Dietrick (RMC Water), Aracely Jaramillo (LACWD), Bob Large (Lake Town Council), Yvonne Malikowski (Lake LA Park Association), Gordon Phair (City of Palmdale), Brenda Ponton (RMC Water), Jose Saez (LACSD Consultant), Brach Smith (Rosamond CSD)

RWQCB/DWR Updates

No updates – Agency reps did not attend this meeting.

Draft SNMP Comments

Comments on the draft SNMP (updated July 2013) were received from Brian Dietrick (RMC), Jose Saez and Monica Gasca (LADSD), Bob Large (Lake Town Council) and Jan Zimmerman (Lahontan Regional Board). A pdf copy of the Regional Board letter/comments is available by request. Comments are listed in the comment matrix provided at this meeting. The SNMP comments will be addressed and incorporated, as appropriate, in the revised SNMP.

a. *GAMA & USGS Data*: There is a discrepancy between GAMA and USGS datasets. The USGS data is a subset of GAMA, which also includes select water supply wells. But, there is data in the USGS dataset that is not included in the GAMA dataset. Refer to Attachments A and B below (Tables 3-1 and 3-2 respectively from draft SNMP). Attachment A lists USGS water quality data in the Gloster and West Antelope sub-basins. However, there is no GAMA data for those same sub-basins in Attachment B.

   The data inconsistency is due to the discrepancy in boundary delineation shown in GAMA and DWR Bulletin 118 for the Antelope Valley Groundwater Basin (6-44). The red circles on Attachments C (DWR sub-basin boundary) and D (from GAMA website) show the boundary difference. The boundary shown on Attachment D does not include the Gloster or Chaffee sub-basins. Baseline water quality in the revised SNMP will include the GAMA and USGS datasets combined.

   Eight of the eleven previously selected monitoring wells are not on GAMA. GAMA has select water supply wells on their website. Since GAMA will be used for future monitoring, new monitoring wells need to be selected. If not, the water utilities for each well will need to be contacted to gather water quality data. The monitoring wells were previously selected at critical locations near SNMP project

sites. The GAMA website will be used to select new monitoring locations at or near the same critical locations.

b. *Separate water quality objectives for each sub-basin*: The Regional Board wants variable/numerical water quality objectives (WQOs) for each sub-basin. The Board's intent is to preserve the water quality in each sub-basin.

   TDS has a 3 part drinking water standard: (1) a recommended SMCL of 500 mg/L, (2) an upper SMCL of 1000 mg/L, and (3) a short-term SMCL of 1500 mg/L.

   They suggested that sub-basins with good baseline water quality concentrations have lower WQOs and sub-basins with higher baseline concentrations to have higher level WQOs. For example, the baseline concentrations in the Lancaster and Neenach sub-basins are 323 mg/L and 501 mg/L, respectively. The TDS WQO in the Lancaster sub-basin would be 500 mg/L. The TDS WQO in the Neenach sub-basin would be 1000 mg/L.

   Chloride has a 2 part drinking water standard and an AGR beneficial use standard. For drinking water, chloride has a recommended SMCL of 250 mg/L and an upper SMCL of 500 mg/L. For AGR, chloride has a water quality threshold of 106 mg/L. The AGR standard is specifically for avocadoes and comes from a UN Report (Water Quality for Agriculture by R.S. Ayers). The report is a guideline only, the report Preface states that the "paper is intended to provide guidance… caution and a critical attitude should be taken when applying the guidelines to specific local conditions… the true suitability of a given water depends on the specific conditions…" The avocado restriction in the UN Report is 3 me/L (milliequivalent per liter), one significant figure only. This converts to 106 mg/L.

   The Antelope Valley Region does not have avocado crops. The crops in the Region are mostly alfalfa/hay production, some small grains, lettuce, carrots, and fruit trees (peaches). Broad categorizations of crop acreages are available in the IRWMP. Need to make the case that some crops (i.e. avocadoes) are unlikely in the future because of weather, conditions, etc. What crops will realistically be commercially grown in the Region?

   Need to carefully consider the WQOs for TDS and chloride. Once the Regional Board approves the WQO, it will be impossible or very difficult to change/modify those numbers. The West Coast Basin and Central Basin SNMP group have an attorney participate in the stakeholder process. This is something that can be considered if needed.

c. *Monitoring triggers*: Monitoring triggers were discussed at the previous Stakeholder meeting and in the Regional Board letter. The triggers can lead to additional water quality monitoring, modified treatment, etc. The assimilative capacity was calculated for each sub-basin. The assimilative capacities will be impacted if different WQOs are established.

   There were different interpretations of the 10% and 20% restrictions outlined in

the Recycled Water Policy. This will need to be discussed with the Regional Board to clarify.

d. *Salt balance update*: A simple excel-based model is used to calculate the salt balance for the AV groundwater basin. The Regional Board's draft SNMP comment states that "the simple mixing model should be supplemented with more refined models over time". The Board anticipates discrete models will be necessary in the urbanized areas of Palmdale and Lancaster, and in sub-basins where assimilative capacity is threatened. Also, at the previous stakeholder meeting in July, there was a discussion to account for individual well users and septic systems in the model.

   Jose Saez was previously assigned the task of enhancing the model to address Regional Board and past stakeholder comments. Jose coordinated with Brian Dietrick to ensure the assumptions made were consistent with the IRWMP. He identified areas of the model that could be expanded for the purpose of giving future flexibility to the model. For example, the current model conservatively assumes 100% of the salts and 0% of the water from the return flows reach the groundwater basin. Typically there is water loss (i.e. evapotranspiration), but some of that water, along with the salts, will reach the groundwater basin. The leaching fraction is initially estimated at 20-30% for AGR and MUN outdoor use and 5% for recycled water users. There were concerns brought up about both estimates. The estimates are dependent on many factors (irrigation method, soil type, plant type, etc.) and will be adjusted to be consistent with the IRWMP.

   The model assumes the basin will be operated at the safe yield, or no change in storage. The assumption is the return flow and natural recharge is equal to the well extraction volume. The model can be easily modified in the future to gain or lose basin storage. There is a place holder for septic systems in the model. The number of septic systems in the AV basin is unknown. The percentage of septic systems on ground water or on public water supply is not known. The County Health Department may have records to estimate the numbers. Per Bob Large, there are 3,800 small pumper sites.

   The projected 25 year TDS load on the groundwater basin was the same for the original model and the modified model.

New Projects

Include Little Rock Creek project and make sure all the AVEK projects are included. The updated Project ID form will need to be completed for each project. The form includes the source of water and projected use, see Attachment E.

Upcoming Activities

The next SNMP stakeholder meeting is scheduled for October 16 at the Palmdale Water District.

ATTACHMENT A

Table 3-1: 2001-2010 Mean Constituent Concentration Levels within the Antelope Groundwater Basin (Using USGS Data)

Sub-basin	Total Dissolved Solids (mg/L)	Nitrate + Nitrite (mg-N/L)	Nitrite (mg-N/L)	Chloride (mg/L)	Arsenic (µg/L)	Total Chromium (µg/L)	Fluoride (mg/L)	Boron (µg/L)
Buttes	372	1.58	< 0.008	20	[2][a]	--	1.97	328
Chaffee	--	--	--	--	--	--	--	--
Gloster	404	--	< 0.008	11.7	28.9	--	0.45	176
Finger Buttes	--	--	--	--	--	--	--	--
Lancaster	320	1.25	< 0.008	32.5	12	6.5	0.61	195
Neenach	[230][b]	[2.25][b]	[< 0.010][b]	[9.78][b]	[< 1][b]	--	[0.15][b]	[32][b]
North Muroc	[603][c]	--	--	--	[39][c]	--	[1][c]	[800][c]
Oak Creek	--	--	--	--	--	--	--	--
Pearland	216	0.83	--	9.3	0.358-0.83[d]	--	0.16	36
Peerless	--	--	--	--	--	--	--	--
West Antelope	403	4.605	< 0.008	22.4	9.4	--	0.41	822
Willow Springs	391	3.82	< 0.008	33.6	20.6	--	0.26	162
AV Groundwater Basin	**321**	**1.34**	**< 0.008**	**31**	**12.8**	**6.5**	**0.61**	**194**

(a) Results of a sample taken in 2000.
(b) Results of samples taken in 1992-1998.
(c) Results of a sample taken in 1990.
(d) Range from considering non-detections as zero to from considering non-detections as half the detection level.

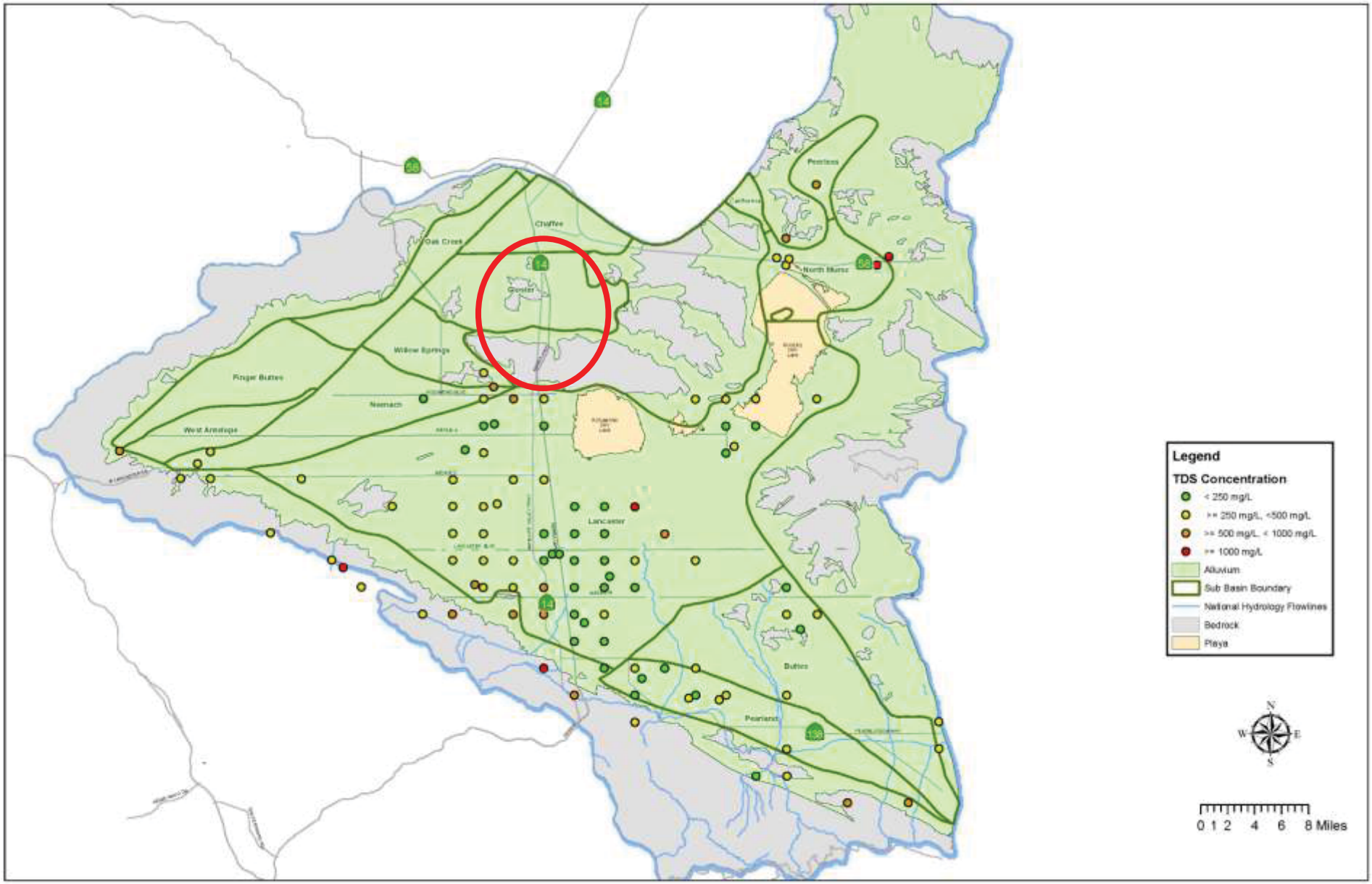
ATTACHMENT B

Table 3-2: 2001-2010 Mean Constituent Concentration Levels within the Antelope Groundwater Basin (Using GAMA Data)

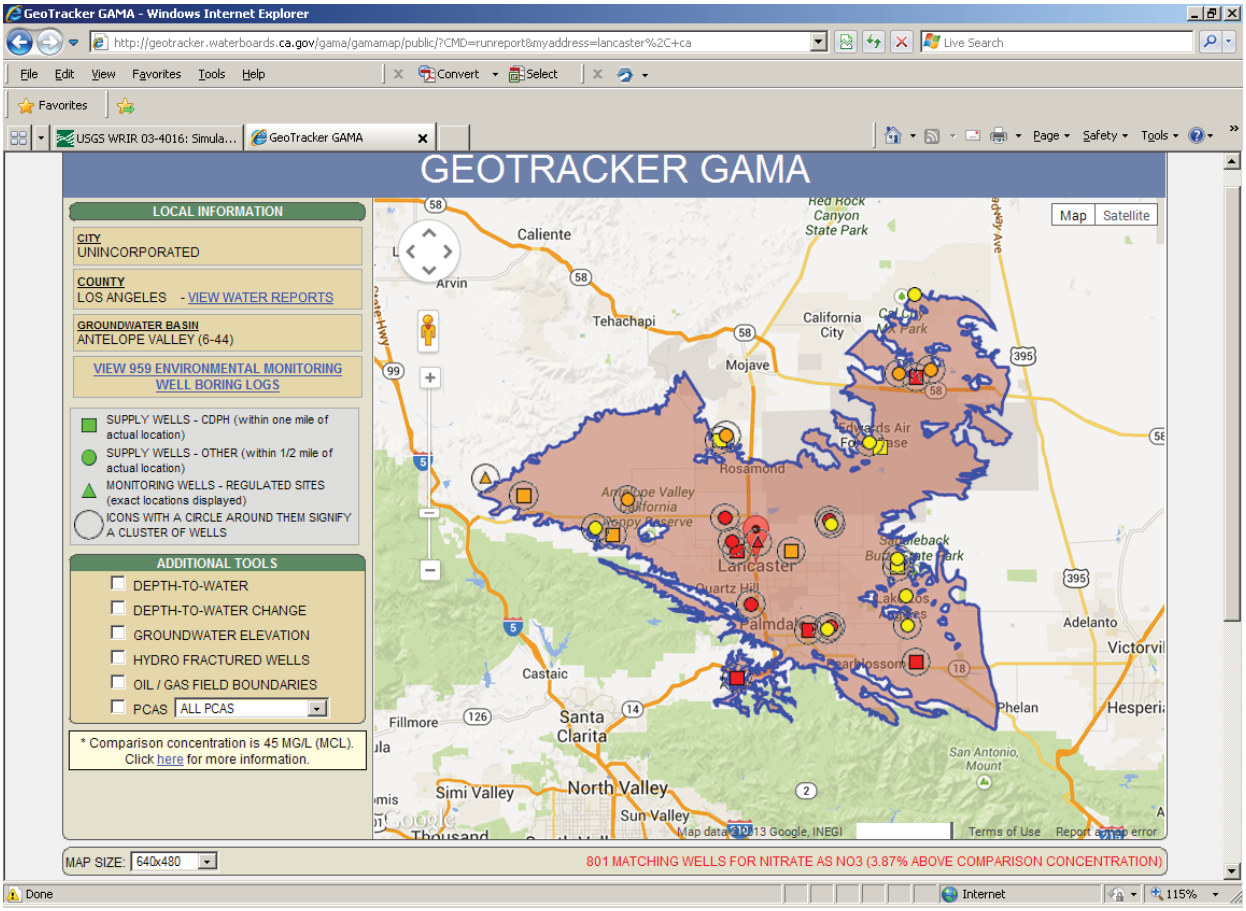
Sub-basin	Total Dissolved Solids (mg/L)	Nitrate as NO_3 (mg/L)	Nitrite as N (mg/L)	Chloride (mg/L)	Arsenic (µg/L)	Total Chromium (µg/L)	Fluoride (mg/L)	Boron (mg/L)
Buttes	279	6.00	0.0054	19.08	1.23	8.77	0.27	0.05
Chaffee	-	-	-	-	-	-	-	-
Gloster	-	-	-	-	-	-	-	-
Finger Buttes	-	-	-	-	-	-	-	-
Lancaster	323	7.15	0.0367	37.87	7.45	6.10	6.29	0.12
Neenach	501	10.43	0.0258	62.13	11.77	7.64	0.55	0.19
North Muroc	733	8.12	0.1890	154.94	90.88	10.17	342.76	0.69
Oak Creek	-	-	-	-	-	-	-	-
Pearland	264	17.16	0.1245	19.27	0.74	1.99	0.19	0.07
Peerless	547	12.06	0.00	68.83	27.46	4.17	1.48	2.80
West Antelope	-	-	-	-	-	-	-	-
Willow Springs	279	8.60	0.0189	18.08	14.95	4.00	0.20	0.00

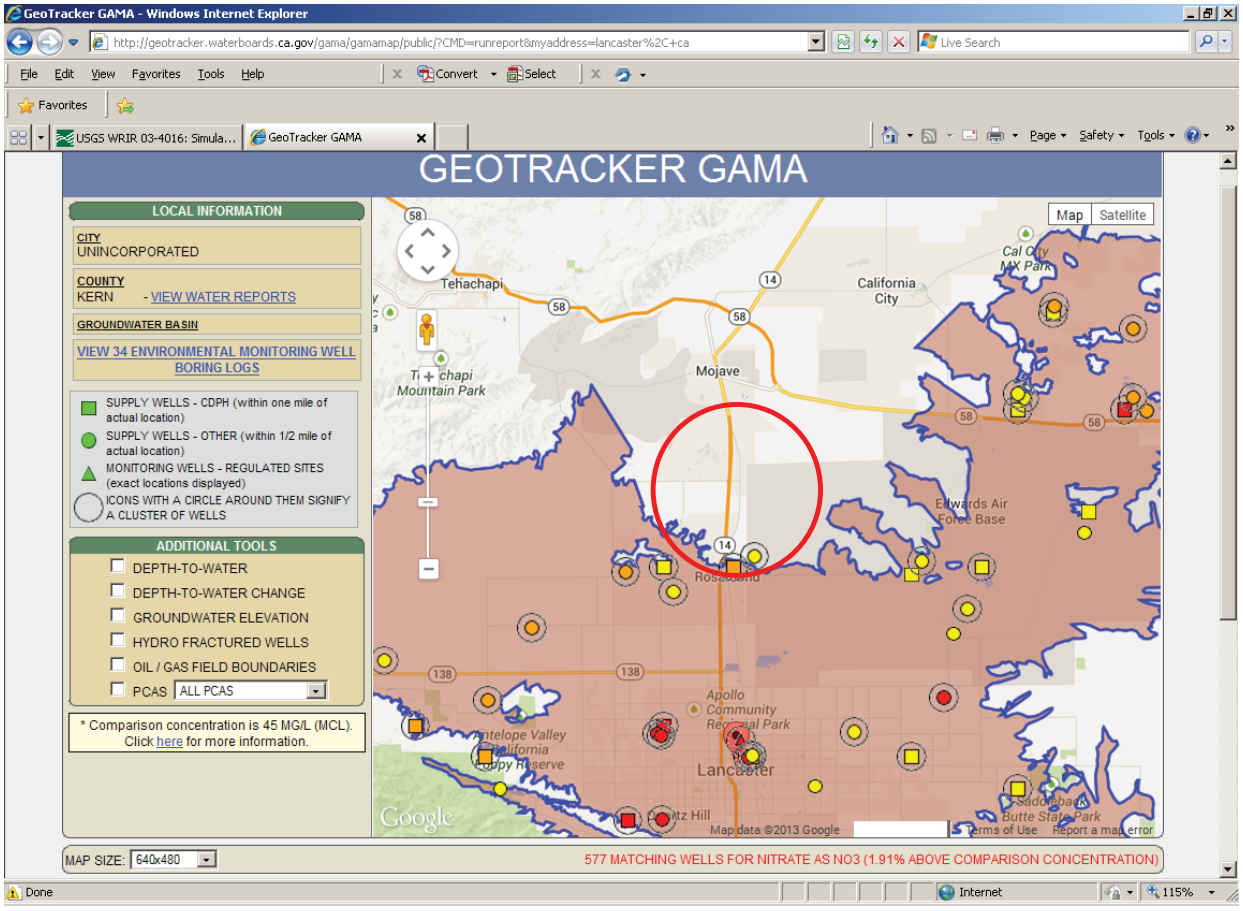
ATTACHMENT C

Figure 3-8: Antelope Valley Groundwater Basin 2001-2010 Mean Total Dissolved Solids Concentrations (GAMA)



ATTACHMENT D





Antelope Valley Salt and Nutrient Management Plan
Project Identification Form

Project Name: _____

Project Sponsor: _____

Project Contact Person: _____

Project Contact Phone: _____

Project Contact Email: _____

Project Location (include name of sub-basin): _____

_____

Project Description: _____

_____

_____

_____

_____

Water Volume Projections (fill in applicable rows)

	2010	2015	2020	2025	2030	2035
Recycled Water (acre-feet/year)						
Groundwater						
Stormwater						
Imported Water, raw						
Imported Water, treated						
Surface Water						

Anticipated Implementation Year: _____

Project Status (check status):

____ Concept

____ Planning

____ Design

____ Construction