



Chino Basin Recharge Master Plan Update

Workshop: Supplemental Water Alternatives



August 27, 2009

Goals for Today's Workshop

- Review current RMP progress
- Review workshop objectives
- Identify need for new supplemental water options
- Introduce capacity/reliability evaluation
- Review comprehensive list of supplemental water alternatives
- Present preliminary screening criteria and results
- Obtain consensus of methodology and results

B&V Is Focused on RMP Tasks 3 and 7

- Goal is to identify existing, planned & master planned facilities to recharge supplemental water
- Supplemental water includes:
 - Imported water (MWD & non-MWD)
 - Recycled water (IEUA)
- Task 3 – Planning criteria for wells, conveyance, storage and treatment facilities were presented at March workshop
- Task 7 – A menu of preliminary new supplemental recharge concepts has been brainstormed



Objective Is To Brief Stakeholders on Development of Preliminary Concepts

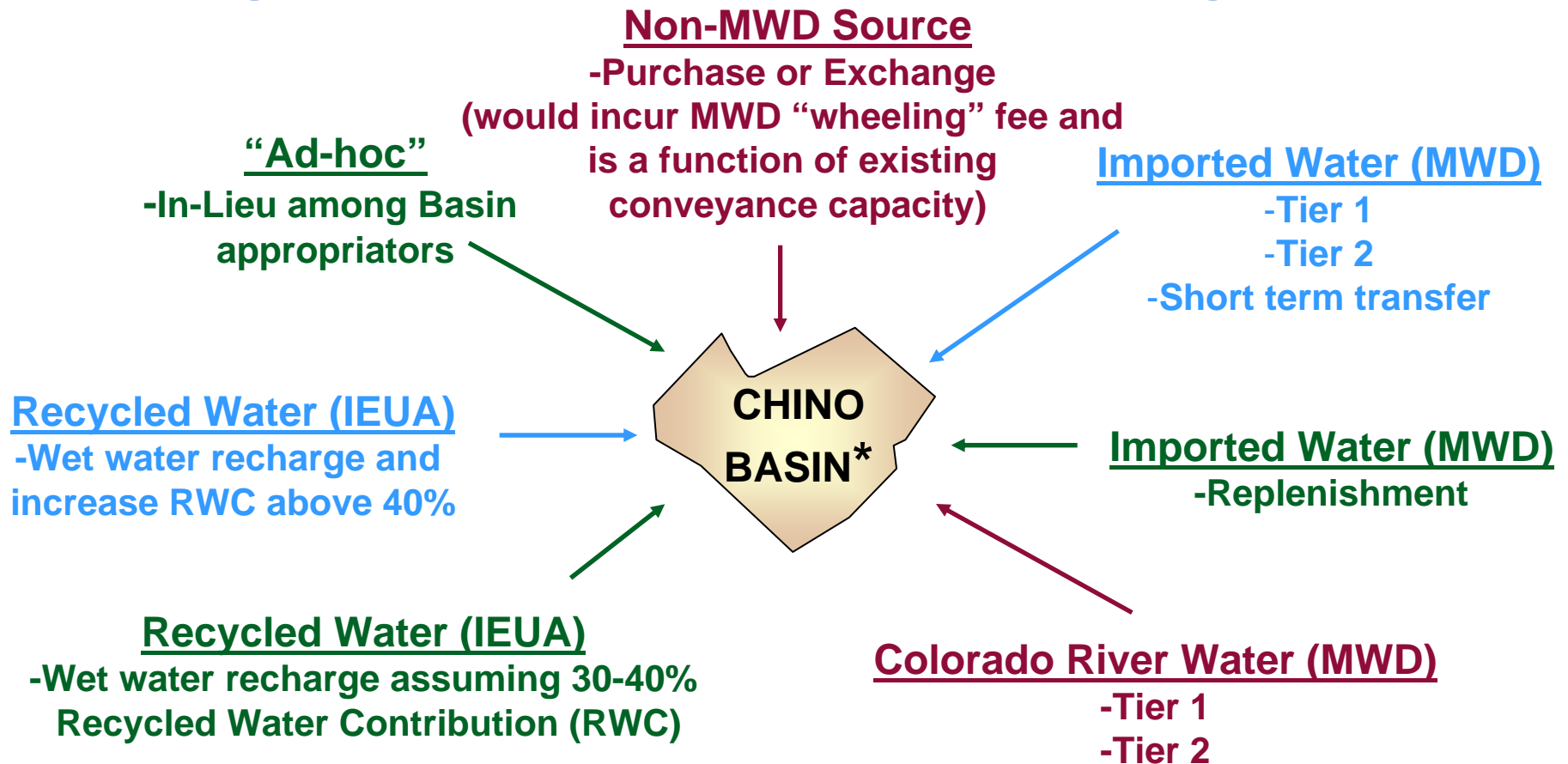
- Review concepts and benefits/limitations
- Conduct “interactive” pre-screening to select projects to carry forward through RMP
- Obtain consensus among Stakeholders
- Goal: Develop “toolbox” of cost-effective concepts for recharge management

There Is a Need for New Supplemental Recharge in the Basin

- WEI modeling has shown that new sources and facilities are required to address the cumulative unmet replenishment obligation (CURO)
- Need to reduce CURO by:
 - (a) Enhancing the reliability of existing supplies,
 - (b) Finding new replenishment supplies,
 - (c) Reducing groundwater pumping

$$\text{Production} - \text{Production Rights (SY + New Yield + Re-Op + Recycled Water Recharge)} = \text{Replenishment Obligation (RO)}$$

Existing and New Supplemental Recharge Options



Legend

Current Supplemental Source

New Supplemental Source

New Source (Reduce Replenishment Obligation)

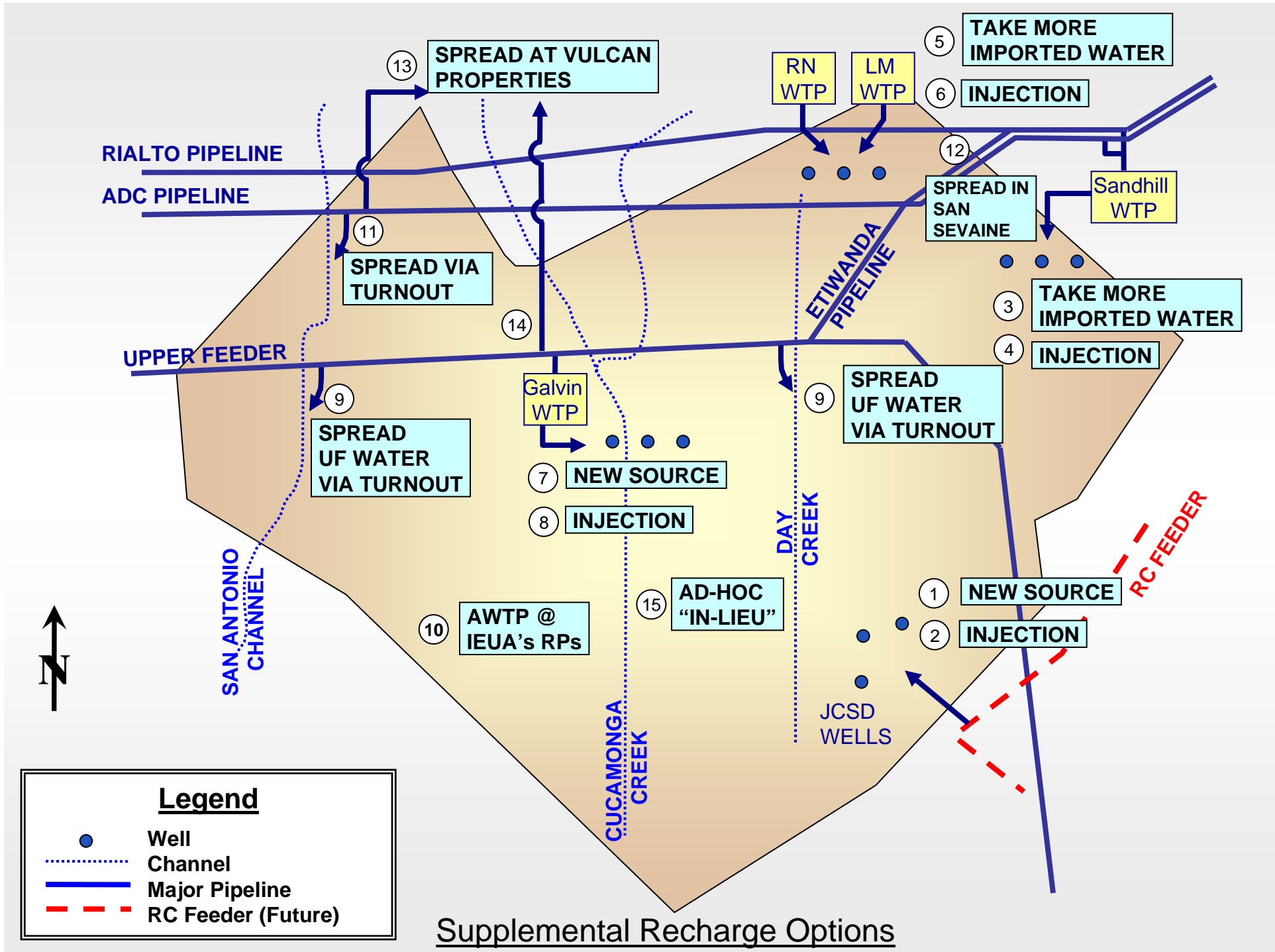
* Assumes conservation efforts are already accounted for in appropriator production estimates.

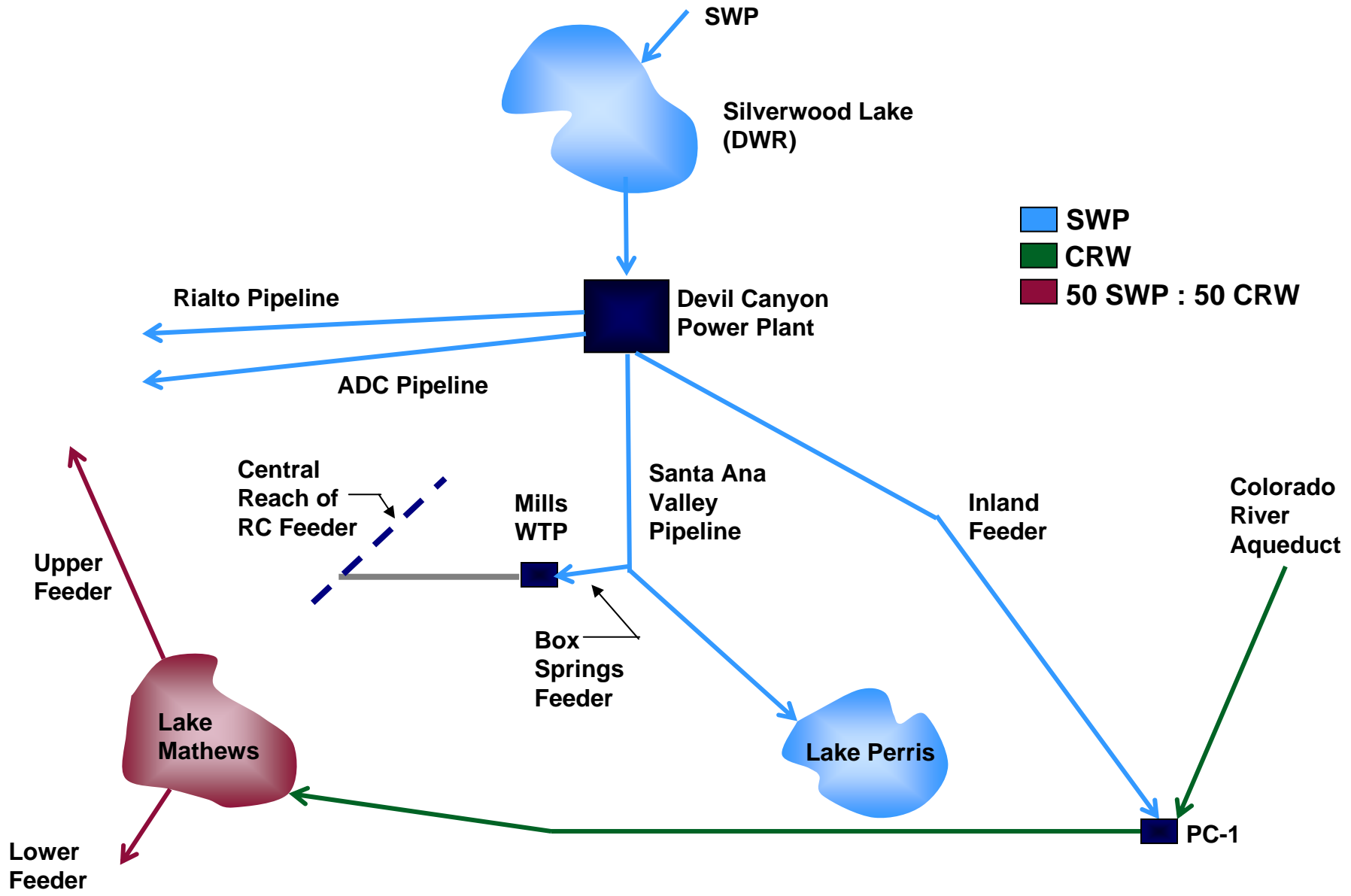
Source Reliability vs. Capacity Evaluation

- A tool is in development to generate alternative replenishment scenarios
- The tool accounts for existing source capacity and projected reliability
- Tool will output requirements for:
 - Recharge Basins
 - ASR Wells
 - Recycled Water

Year	AO (gpd)	excludes RW credit
2010	9,571	
2020	39,699	
2030	78,613	
2040	83,234	

Resource	Reliability	Assume	Use2	Split	Total	Effective	Availability	Required	Recharge Method	Split (gpd)	Injection	WWSR	Split (gpd)	Injection	WWSR
Stormwater	13%				10,755	10,755	0	4,340	0%	0%	100%	0	0	0	14,340
SWP/CRW IW (Met)	30%	y			0	0	0	0	0%	0%	100%	0	0	0	0
Replenishment (untreated)	15%	y			0	0	0	0	0%	0%	100%	0	0	0	0
Tier 1	70%	y			16,647	20,781	0	31,780	0%	0%	100%	0	0	0	31,780
Tier 2	20%	n			16,647	16,647	0	22,196	100%	0%	0%	22,196	0	0	0
Short-Term Transfer	100%	n			24,970	24,970	0	24,970	0%	0%	100%	0	0	0	24,970
RW (EUA)	100%	n			0	0	0	0	0%	0%	0%	0	0	0	0
Avg RWC	40%							37,455							
Other IW (Non-Met)	70%	y			14,150	20,214	0	26,862	50%	50%	0%	13,476	13,476	0	0
Source 1	70%	y			0	0	0	0	25%	50%	25%	0	0	0	0
Source 2	70%	y			0	0	0	0	25%	50%	25%	0	0	0	0
Total	100%				83,168	96,367	0	100,166				Total = 35,672	13,476	71,018	
EUA Recycled Water												Existing = 0	0	100,818	
												Required = 35,672	13,476	0	





A Comprehensive Menu of Recharge Options Was Brainstormed To Meet Replenishment Obligation

- Project list includes 17 alternatives
- Several alternatives were also included in the Dry Year Yield Program Expansion
- Pre-screening exercise performed to obtain a more manageable list of concepts to carry forward in the RMP

Performing a Preliminary Screening Will Streamline the Concept Development Process

Screening Criteria	Weighting Factor
Capital Cost (relative to other options)	20%
O&M Cost (relative to other options)	20%
Location (balance extraction and recharge)	25%
Reliability (delivery) *	25%
DYY Integration (stacked "put")	10%
Total	100%

*Source reliability is a parallel evaluation

Alternatives Were Compared Qualitatively Using Preliminary Screening Criteria

- Alternatives were assigned a rating of -1, 0, or 1
 - Alts. receiving a rating of -1 have a disadvantage compared to others
 - Alts. receiving a rating of 0 are neutral compared to others
 - Alts. receiving a rating of 1 have an advantage compared to others

Initial Screening Indicates Concepts with the Most Benefits To Move Forward

Alt.		Capital Cost	O&M Cost	Location	Reliability	DYY Integration	Total Raw Score	Score w/ WF	Rank
1	JCSD: Purchase New Source via RC Feeder ("in-lieu")	1	1	1	0	-1	2	0.55	3
2	JCSD: Purchase New Source via RC Feeder (ASR)	0	0	1	0	-1	0	0.15	12
3	FWC: Purchase Addt'l Water at Sandhill ("in-lieu")	1	0	1	0	1	3	0.55	3
4	FWC: Purchase Addt'l Water at Sandhill (ASR)	0	0	1	0	1	2	0.35	8
5	CVWD: Purchase Addt'l Water at LM & RN WTPs ("in-lieu")	1	1	1	0	-1	2	0.55	3
6	CVWD: Purchase Addt'l Water at LM & RN WTPs (ASR)	0	0	1	0	0	1	0.25	9
7	Ontario: Rehabilitate Galvin WTP ("in-lieu")	-1	-1	1	1	1	1	0.2	10
8	Ontario: Rehabilitate Galvin WTP (ASR)	-1	-1	1	1	1	1	0.2	10
9	Ontario: Construct New Turnouts along Upper Feeder	0	1	0	1	1	3	0.55	3
10a	IEUA: AWTP at RP's to offset TDS from Spreading UF	-1	-1	1	-1	1	-1	-0.3	14
10b	IEUA: AWTP at RP's to increase RWC	-1	-1	1	-1	1	-1	-0.3	14
10c	IEUA: AWTP Satellite Plants to increase RWC	-1	-1	1	-1	1	-1	-0.3	14
11	ADC: New Turnouts to San Antonio Channel	1	1	0	0	1	3	0.5	7
12	ADC: New Turnouts to San Sevaine Basin No. 1	1	1	1	0	1	4	0.75	1
13	Vulcan: New Turnout and Booster Station from ADC	-1	-1	0	0	1	-1	-0.3	14
14	Vulcan: New Turnout and Booster Station From UF	-1	-1	0	1	1	0	-0.05	13
15	ALL: Ad-hoc "in-lieu" among all Appropriators	1	1	1	0	0	3	0.65	2

Next Steps

- Develop “toolbox”
 - Carry forward 8 to 10 highest ranked alternatives
 - Develop facility locations and capacities
 - Develop capital and O&M costs
- Conduct final ranking as part of Task 8
 - Integrate storm and supplemental projects