

Case Studies- East Bay MUD

Building WSMP 2040 Portfolios

Portfolio Number	Portfolio Themes	Portfolio Description	Rationing				Conservation				Recycling			Supplemental Supply								Portfolio Yield (MGD) [Conservation + Recycling + Supplemental Supply]	Average Annual Need for Water (MGD) Under the Chosen Rationing Level								
			0%	10%	15%	25%	Natural Savings + 10 (B)	Current Program Equivalent (C)	Current Program Equivalent + 2 (D)	Maximum Voluntary Program (E) ³	Recycling Level 1	Recycling Level 2	Recycling Level 3	Groundwater Banking/Exchange (Sacramento Basin) ²	Northern California Water Transfers	BaySide Phase 2 Groundwater Project	Buckhorn Canyon Reservoir	LEAD at C&H Sugar	Regional Desalination	IRCUP/San Joaquin Banking ⁴	Enlarge Lower Bear Reservoir			Enlarge Pardee Reservoir							
			NFW ¹ 107 MGD	NFW ¹ 87 MGD	NFW ¹ 78 MGD	NFW ¹ 57 MGD	29 MGD	37 MGD	39 MGD	41 MGD	0 MGD	5 MGD	11 MGD	4.2 MGD	4.5-44.6 MGD	9 MGD	42 MGD	1.5 MGD	20 MGD	17.4 MGD	2.2 MGD			51.2 MGD							
1	Low Customer Impact	Balance of low rationing, low cost, high water quality.	●				29							20							2.2	51.2	107.4	107							
2	Flexibility for Future Extended Drought or Climate Change	Keep rationing/conservation & transfers available as short-term response.	●				29											20			2.2	51.2	107.4	107							
3	Upcountry Surface Storage Emphasis	Portfolio 2 with increased rationing & conservation & no recycling or desal.	●					37			0												51.2	88.2	87						
4	Groundwater Storage	Portfolio 3, but replace surface storage with groundwater, & increase conservation, recycling, & transfers.	●						39				4.2	15	9				17.4						89.6	87					
5	Regional Partnerships	All partnership projects & conservation.	●					37					4.2	4.5				20	17.4	2.2					90.3	87					
6	Emergency Reliability - A	West of delta surface storage.		●					37							42										84.0	77				
7	Emergency Reliability - B	West of delta production - desal, recycle, conservation.		●						39					11												79.0	77			
8	Diversified	Balanced levels of conservation & recycling, non-Mokelumne sources - transfers, desal, BaySide.		●					37																		81.0	77			
9	Conservation & Recycling Emphasis	High conservation & recycling with LEAD. Transfers & BaySide to satisfy need for water.		●							41																	77.5	77		
10	Low Carbon Footprint	Pardee plus conservation.		●					37																			93.2	77		
11	Low Capital Cost / Low Structural	25% rationing, conservation, & transfers.			●			29																					59.0	57	
12	Coleman Alternative 1		●						37																				89.7	87	
13	Katz Alternative 1				●					39																				67.0	67
14	Katz Alternative 2				●				37																					57.0	57

Notes: ¹ Average Annual Need for Water (NFW) Over 3-Year Drought Planning Sequence.
² Groundwater Banking/Exchange (Sacramento Basin) component must be coupled with a transfer water component.
³ If Conservation Level E is chosen for a portfolio, rationing is capped at 15%.
⁴ IRCUP includes San Joaquin Basin Groundwater Banking/Exchange.
 *** CEQA No Action assumes current programs continue through 2020: Recycling = 14MGD, Conservation : 35 MGD, Supplemental Supply = 50 MGD + 5 MGD.

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WSMP 2040: Portfolio Evaluation & Recommendations

Portfolio Number	Portfolio Theme	Operations, Engineering, Legal & Institutional				Economic		Public Health, Safety & Community		Environmental		Portfolio Number	Rationale/Notes
		• Minimize the vulnerability & risk of disruptions (i.e., reliability).	• Maximize the system's operational flexibility.	• Minimize institutional & legal complexities & barriers.	• Maximize partnerships & regional solutions.	• Minimize the financial cost to the District of meeting customer demands for given level of system reliability.	• Minimize customer water shortage costs.	• Minimize potential adverse impacts to the public health of District customers. • Maximize use of water from the best available source.	• Minimize long-term adverse community impacts. • Minimize adverse social effects. • Minimize conflicts with existing & planned facilities, utilities & transportation facilities.	• Minimize adverse impacts on the environment. • Minimize construction & operation effects on environmentally sensitive resources.	• Minimize short term & long term greenhouse gas emissions from construction. • Maximize energy efficiency associated with operations & maintenance. • Maximize contributions to AB 32 goals.		
1	Low Customer Impact	Failed Modeling Analysis										1	X
2	Flexibility for Future Extended Drought or Climate Change	Failed Modeling Analysis										2	X
3	Upcountry Surface Storage Emphasis		H				H	H+				3	Combine with P-10
4	Groundwater Storage		H	L	H	L	H			H		4	Includes both Sac & SJ Groundwater Banking/Exchange
5	Regional Partnerships	H		L	H	L	H	L			L	5	Most robust number of Components, including Desal
6	Emergency Reliability - A	H+	H+						L	L		6	Buckhorn storage - Highest Ops & Engineering scores
7	Emergency Reliability - B	H		L				L			L	7	Heavy reliance on Desalination ?
8	Diversified	H		L				L			L	8	Reliance on Desalination ?
9	Conservation & Recycling Emphasis		H		L	L						9	Conservation Level E - Cost Effectiveness?
10	Low Carbon Footprint		H					H+				10	P-3 with Rationing at 15% & Recycling Level 2
11	Low Capital Cost / Low Structural		L			H	L			H		11	Cost to customer of 25% Rationing is Prohibitive
12	Coleman Alternative 1	L	H	L	H		H			H		12	Heavy reliance on a Water Transfer of 27 MGD in dry years
13	Katz Alternative 1		L		L					H		13	20% Rationing can be tested in Portfolios 4 & 12
14	Katz Alternative 2	H	L		L	H	L			H		14	Cost to customer of 25% Rationing is Prohibitive

H = High Response to Evaluation Criteria; L = Low Response to Evaluation Criteria; X = Hold from Further Consideration; → = Carry Forward as Primary Portfolio for Further Refinement & Testing

Options Evaluation

2014 Task Force Matrix

COA Water Management Strategy Description	STRATEGY YIELD (AC-FT/YEAR)	WATER SUPPLY PROJECT EVALUATION CRITERIA																											
		Water Supply Benefit						Economic Impacts			Environmental Impacts			Social Impacts		Implementability			Risk of Alternative Supplies	Final									
		25%						20%			20%			10%		15%			10%	100%									
		Supply Volume	Drought Resilience	Improved Reliability and Utilization of Existing Supplies	Quality Compatibility with Existing Distribution Systems	Local Control (resilience)	Diversification	Unit Cost* (\$/Ac-Ft)	Treatment Need/Cost	Energy Intensity	Energy Generation	Impacts on Other Water Supplies	Instream Flow	Endangered/Threatened Species Impact	Wetlands	Water Quality	Imagine Austin Plan	Balances Economic and Environmental Impacts with Community Interests	Recreation	Required External Adoption	Land Acquisition	Timing of Implementation	Regulatory Approval	Political Opposition	Public Acceptance	Legal Uncertainties	Dependence on Climatic Conditions (Variability of Yield)	Hydrologic Storage - Potential Environmental Release	

Options Evaluation

2014 Task Force Matrix

Sub-Category	Criteria 1: Water Supply Benefit Scoring System				
	-2	-1	0	1	2
Supply Volume			Minimal	Moderate	Significant
Drought Resilience	Greatly reduced reliability during drought	Notable reduced reliability during drought	Neutral	Slightly reduced reliability during drought	100% reliability through drought
Improved Reliability and Utilization of Existing Supplies	WSP does not improve reliability and utilization of existing supplies	WSP extends existing supplies to serve more people	WSP extends existing supplies to serve more people	WSP extends existing supplies to serve more people and protects Highland Lakes supply	WSP extends existing supplies to serve more people and protects Highland Lakes supply
Quality Compatibility with					
Local Control (resilience)					
Diversification					