

Appendix B

**Alternatives Screening Report for the  
Freeport Regional Water Project**

Alternatives Screening Report  
for the  
Freeport Regional Water Project



Freeport Regional Water Authority  
Sacramento County Water Agency  
East Bay Municipal Utility District



U.S. Department of Interior, Bureau of Reclamation

July 2003

# Contents

	<b>Page</b>
Tables .....	iv
Figures .....	v
<b>Chapter 1</b>	
<b>Introduction .....</b>	<b>1-1</b>
Introduction .....	1-1
FRWA Member Agencies.....	1-1
Sacramento County Water Agency .....	1-1
East Bay Municipal Utility District .....	1-2
City of Sacramento .....	1-2
Purpose of the Alternatives Screening Report .....	1-2
Compliance with the California Environmental Quality Act and the National Environmental Policy Act.....	1-3
Clean Water Act Section 404 Requirements .....	1-4
Organization of This Report .....	1-5
<b>Chapter 2</b>	
<b>Project Purpose and Need .....</b>	<b>2-1</b>
Project Purpose.....	2-1
Need for the Project .....	2-1
Sacramento County Water Agency .....	2-1
East Bay Municipal Utility District .....	2-3
<b>Chapter 3</b>	
<b>Methodology Used in the Alternatives Analysis .....</b>	<b>3-1</b>
Introduction .....	3-1
Study Area .....	3-1
Alternatives Considered .....	3-1
Screening Criteria and Procedure .....	3-2
First-Stage Screening .....	3-3
Second-Stage Screening.....	3-3
Third-Stage Screening.....	3-3
<b>Chapter 4</b>	
<b>Assumptions Used in Developing Screening Criteria .....</b>	<b>4-1</b>
Introduction .....	4-1
Sacramento County Water Agency .....	4-1
Water Demands.....	4-1
Water Supply .....	4-2
Water Conservation .....	4-6
Recycled Water .....	4-7
Comparison of Future Water Supply and Demand.....	4-8
East Bay Municipal Utility District.....	4-8
Water Demands.....	4-8

	Water Supply .....	4-10
	Water Conservation .....	4-13
	Recycled Water .....	4-15
	Mokelumne Water Supply Reliability .....	4-17
<b>Chapter 5</b>	<b>Development of Screening Criteria .....</b>	<b>5-1</b>
	Introduction .....	5-1
	Screening Criteria .....	5-1
	Environmental and Biological Criterion .....	5-1
	Technical and Operational Criterion .....	5-2
	Jurisdictional Criteria .....	5-2
	Economic/Cost Criteria .....	5-3
	Water Quality Criteria .....	5-3
	Timing/Schedule Criterion .....	5-4
	Water Supply Reliability Criterion .....	5-4
<b>Chapter 6</b>	<b>Project Alternatives and First-Stage Evaluation</b>	
	<b>Results .....</b>	<b>6-1</b>
	Introduction .....	6-1
	SCWA Project Alternatives .....	6-2
	American River Diversion .....	6-2
	Sacramento River Diversion .....	6-4
	Groundwater Banking/Exchange—Sacramento Basin .....	6-5
	Full Surface Water Reliance .....	6-6
	Full Groundwater Reliance .....	6-7
	EBMUD Project Alternatives .....	6-7
	American River Diversion .....	6-7
	Sacramento River Diversion .....	6-9
	Groundwater Banking/Exchange—Sacramento Basin .....	6-9
	Delta Diversion .....	6-10
	Reservoir Storage .....	6-11
	Other Mokelumne River Sources .....	6-17
	Groundwater Banking/Exchange—San Joaquin Basin .....	6-18
	Bayside Groundwater Project .....	6-19
	Desalination .....	6-20
	Bay Area Water Quality and Supply Reliability Improvement Project .....	6-20
<b>Chapter 7</b>	<b>Second-Stage Evaluation Results .....</b>	<b>7-1</b>
	Introduction .....	7-1
	SCWA Alternatives .....	7-1
	American River Diversion .....	7-1
	Sacramento River Diversion .....	7-5
	Surface Water Diversion with Groundwater Banking/Exchange .....	7-9
	EBMUD Alternatives .....	7-11
	American River Diversions .....	7-11
	Sacramento River Diversions .....	7-15
	Surface Water Diversion with Groundwater Banking/Exchange .....	7-18
	Delta Diversion .....	7-20
	Seawater/Brackish Water Desalination .....	7-24

	Enlarged Reservoir Storage .....	7-26
	Summary of Second Stage Screening .....	7-33
	Alternatives to Be Analyzed in the EIR/EIS.....	7-34
	Evaluation of Surface Water Diversion with Groundwater Banking/Exchange Alternatives .....	7-35
<b>Chapter 8</b>	<b>Third-Stage Evaluation Results</b>	
<b>Chapter 9</b>	<b>Mitigation for Least Environmentally Damaging Practicable Alternative</b>	
<b>Chapter 10</b>	<b>Cited References</b>	
<b>Attachment 1</b>	<b>Current East Bay Municipal Utility District and Sacramento County Water Agency Water Quality Information</b>	
<b>Attachment 2</b>	<b>Major Issue Response Regarding San Joaquin County Conjunctive Storage from the 2000 EIR/EIS for the East Bay Municipal Utility District Supplemental Supply Project</b>	
<b>Attachment 3</b>	<b>Summary of Delta Water Quality Issues</b>	

# Tables

	<b>On Page</b>
4-1 Updated Expanded Zone 40 Water Demands.....	4-2
4-2 Total SCWA Existing and Anticipated Surface Water Supplies.....	4-3
4-3 Projected Demand.....	4-9
4-4 Terminal Reservoir Characteristics.....	4-12
4-5 Recycled Water Supply for Each Water Reuse Zone.....	4-16
4-6 Projected Quantity of Recycled Water Needed for Existing and Proposed Projects .....	4-17
4-7 Drought Management Program Guidelines .....	4-18
4-8 Supplemental Supply Needs .....	4-19
6-1 Alternatives Considered in First Stage Screening .....	6-3
6-2 Previously Analyzed Alternatives Excluded from Evaluation.....	Follows Page 6-2
7-1 Summary CALSIM Modeling Statistics for EBMUD Delta Diversion Alternative.....	7-23
7-2 Alternatives Eliminated During Second Stage Screening.....	7-34
7-3 Alternatives Not Eliminated during Second Stage Screening .....	7-34

# Figures

	<b>Follows Page</b>
1-1 Service Areas .....	1-1
3-1 Alternatives Screening Process.....	3-2
4-1 Pardee Reservoir on March 25, 1977 with 47,000 Acre-Feet in Storage.....	4-18

# Acronyms and Abbreviations

2000 Demand Study	Districtwide Update of Water Demand Projections
af	acre-feet
AFA/ac	acre-feet of water used annually per acre of land
Bixler	Bixler Emergency Pumping Plant
BMPs	best management practices
Board	EBMUD Board of Directors
CALFED ROD	CALFED Program Record of Decision
CCR	California Code of Regulations
CCWD	Contra Costa Water District
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
cfs	cubic feet per second
Corps	U.S. Army Corps of Engineers
CVP	Central Valley Project
DWR	California Department of Water Resources
East Bay	the region east of San Francisco Bay
EBMUD	East Bay Municipal Utility District
EIR/EIS	environmental impact report/environmental impact statement
EPA	U.S. Environmental Protection Agency
FERC	Federal Energy Regulatory Commission
FRWA	Freeport Regional Water Authority
LEDPA	least environmentally damaging practicable alternative
MGD	million gallons per day
MOU	Memorandum of Understanding
NEPA	National Environmental Policy Act
NRWRP	North Richmond Water Reclamation Plant
PG&E	Pacific Gas and Electric Company
Reclamation	Bureau of Reclamation
Regional Plant	Sacramento Regional Wastewater Treatment Plant
SCWA	Sacramento County Water Agency
SEBP	South East Bay Plain
SHPO	State Historic Preservation Officer
SMUD	Sacramento Municipal Utility District
SRWTP	City of Sacramento's water treatment plant
SRWWTP	Sacramento Regional Wastewater Treatment Plant
SWRCB	State Water Resources Control Board
TSS	total system storage
UWMP	Urban Water Management Plan
Water Forum	Sacramento Area Water Forum
WCMP	Water Conservation Master Plan
WSMP	Water Supply Management Program