

ATTACHMENT 1 COST SUMMARY

275 TAF RESERVOIR WITH 670 CFS TOTAL DELTA INTAKE CAPACITY

		Size	Quantity	Unit	Unit Cost	Cost
DAM AND APPURTENANCES						
	Los Vaqueros Dam	275 TAF	1	LS	117,000,000	\$117,000,000
	Dam Outlet Pipeline	132 in	3,000	LF	1,420	\$4,260,000
	Balancing Reservoir		4,000,000	gal	0.66	\$2,640,000
	Flow Control Station		1	LS	1,766,000	\$1,766,000
	Power Transmission Lines		10	mile	276,000	\$2,760,000
	Relocations		1	LS	11,000,000	\$11,000,000
DELTA INTAKE AND CONVEYANCE FACILITIES - Delta to Transfer Facility						
Intake	Victoria Canal - AIP (assume existing)	250 cfs				
	Old River - Existing Intake	250 cfs				
	Victoria Canal - New Intake	0 cfs	1	LS	0	\$0
	Old River - Expand Existing	170 cfs	1	LS	5,887,000	\$5,887,000
	Total Delta Intake Capacity	670 cfs				
Delta-Transfer Pipelines	New Delta-Transfer Pipeline Capacity	350 cfs				
	1 Pipeline - 350cfs	96 in	34,700	LF	1,060	\$36,782,000
TRANSFER PUMPING AND CONVEYANCE - Transfer Facility to Reservoir						
Transfer Pumping	New Transfer Pump Station	470 cfs	1	LS	36,324,000	\$36,324,000
	New Transfer PS - Head (max H)	353 ft				
	New Transfer Substation		1	LS	1,778,000	\$1,778,000
	Repl. Pumps at Existing Transfer PS	200 cfs	1	LS	5,743,000	\$5,743,000
	Expanded Balancing Reservoir		8,000,000	gal	0.66	\$5,280,000
Transfer-LV Pipeline(s)	New Transfer - LV Capacity	670 cfs				
	1 Pipeline - 670 cfs	132 in	19,600	LF	1,420	\$27,832,000
DELIVERY FACILITIES - Reservoir to SBA (Dyer)						
LV Delivery Intertie	Size & Location	175 cfs		Dyer		
	LV-SBA (Dyer) Pipeline	66 in	43,800	LF	630	\$27,594,000
LV Delivery Intertie	LV-SBA (Dyer) Pump Station	175 cfs	1	LS	20,241,000	\$20,241,000
	LV-SBA PS - Head (max H)	445 ft				
	LV-SBA PS - Substation		1	LS	948,000	\$948,000
TOTAL FIELD COST						\$307,835,000
	Unlisteds	Appraisal Level	15%			\$46,176,000
	Contingencies	Appraisal Level	25%			\$88,503,000
TOTAL FIRST COST						\$442,514,000
	Indirect Costs - Engineering, Design, Inspection, Admin, Legal				25%	\$110,629,000
					Subtotal	\$553,143,000
	Interest During Construction (IDC)	Yearly Exp	Mid Yr	Prev Yr Exp	All Prev Interest	Interest-Bearing Amt
	Duration: 3 years					Compound IDC
	Year 1	184	92	0	0	92
	Year 2	184	92	184	5	281
	Year 3	184	92	369	19	480
					Subtotal IDC (millions)	\$44
TOTAL IMPLEMENTATION COST						(2006 price levels) \$596,889,000

Note: All costs at 2006 price levels.

**ANNUAL OPERATION, MAINTENANCE, AND REPLACEMENT COSTS FOR
275 TAF RESERVOIR WITH 670 CFS TOTAL DELTA PUMPING CAPACITY**

ANNUAL OPERATION, MAINTENANCE, REPAIR, AND REPLACEMENTS (OMR&R)					
		Subtotal Facility Costs			
Operation & Maintenance	Dam & Appurtenances	\$175,932,400	0.1%	\$211,200	
	Delta Intake(s)	\$8,241,800	1.0%	\$82,500	
	Pipelines	\$129,091,200	0.5%	\$645,500	
	Pump Stations	\$79,191,000	1.0%	\$792,000	
	Substations & Transmission	\$7,680,400	0.8%	\$61,500	
			Subtotal	\$1,792,700	
Power			Net increase over without-project conditions	\$1,518,000	
Replacements	Pumps, Substations (every 40 years)	\$86,871,400	35%	\$30,405,000	
			Annualized	\$235,400	
		Total Annual OMR&R		\$3,546,100	
		Capital Value of OMR&R		\$70,353,000	

Note: All costs at 2006 price levels.

Notes related to preliminary cost estimate for alternative evaluated in this report:

1. Cost estimates were developed from appraisal-level engineering and designs. Further analysis is needed to refine facility designs, locations, and sizes.
2. Unit costs are based on the cost to construct existing Los Vaqueros Project facilities, which were completed in 1997. Unit costs were previously developed at 2002 price levels in the *Project Cost Estimate Methodology Technical Memorandum* (CALFED, 2004a), and were updated to 2006 price levels for the purpose of this initial economic evaluation using the Engineering New Record Construction Cost Index (CCI) for the San Francisco region.
3. Factors for unlisted items and contingencies were applied consistent with Reclamation design guidance for estimates prepared at the appraisal level.
4. Costs for lands, easements, and mitigation were not directly calculated, but are believed to be well represented within unlisted items and contingencies.
5. Interest during construction (IDC) was calculated for a 3-year construction period, based on preliminary construction scheduling for a 275 TAF reservoir.
6. Factors used to estimate operation, maintenance, and replacement costs are based on actual costs to operate and maintain the existing Los Vaqueros Project, per CCWD.
7. Net power cost was estimated as the difference in power cost between the with- and without-project conditions at affected Delta pumping stations (Old River, Alternative Intake Project, Rock Slough, SWP South Bay Pumping Plant, and SWP Banks Pumping Plant).
8. Total annual operation and maintenance, power, and replacement cost reflects discounting over the 100-year period of analysis using the Federal discount rate of 5-1/8 percent.

ITEMIZED COST FOR 275 TAF DAM

No.	Activity	Quantity	Unit	Unit Cost	Cost
1 General Requirements and Mobilization					
1.1	Construction Administration	24	mo	\$ 155,000	\$ 3,720,000
1.2	Survey, Field Engineering, & Quality Control	24	mo	\$ 100,000	\$ 2,400,000
1.3	Submittals		LS		\$ 3,340,000
1.4	Temporary Facilities & Mobilization		LS		\$ 3,520,000
Subtotal					\$ 13,000,000
2 Site Preparation					
2.1	Demolition		LS		\$ 240,000
2.2	Abandon Existing Outlet Tunnel		LS		\$ 730,000
2.3	Strip/Clear & Borrow Areas		LS		\$ 380,000
2.4	Creek Diversion & Water Management		LS		\$ 970,000
2.5	Pioneer Haul Roads		LS		\$ 3,660,000
2.6	Erosion and Sediment Control		LS		\$ 260,000
Subtotal					\$ 6,000,000
3 Dam Foundation					
3.1	Excavation: Valley Floor	900,000	cyd	\$ 5.67	\$ 5,103,000
3.2	Excavation: Abutments	160,000	cyd	\$ 3.00	\$ 480,000
3.3	Prepare Foundation	30,000	syd	\$ 15.00	\$ 450,000
3.5	2-Row Grout Curtain	40,000	sft	\$ 20.00	\$ 800,000
Subtotal					\$ 7,000,000
4 Embankment					
4.2	Gate Shaft	86,000	cyd	\$ 125.00	\$ 10,750,000
4.3	Core	200,000	cyd	\$ 6.40	\$ 1,280,000
4.4	Claystone Shell	3,900,000	cyd	\$ 7.25	\$ 28,275,000
4.5	Filter and Drain	130,000	cyd	\$ 58.00	\$ 7,540,000
4.6	Bedding	55,000	cyd	\$ 65.00	\$ 3,575,000
4.7	Riprap (reuse)	60,000	cyd	\$ 24.00	\$ 1,440,000
4.8	Riprap (import)	85,000	cyd	\$ 74.00	\$ 6,290,000
4.9	Instrumentation and Data Management		LS		\$ 300,000
Subtotal					\$ 59,000,000
5 Hydraulic Structures					
5.1	Inlet Tunnel & Shaft (1,000 cfs)	2,400	ft	\$ 5,500	\$ 13,200,000
5.2	Inlet & Gate Shaft Structure & Mechanical		LS		\$ 1,670,000
5.3	Delta-LV and Transfer Pipelines (2 x 800 ft)	1,600	ft	\$ 1,000	\$ 1,600,000
5.4	Outlet Tunnel (850 cfs)	1,750	LS	\$ 4,600	\$ 8,050,000
5.5	Sloping Multiport Intake and Mechanical		LS		\$ 4,700,000
5.6	Outlet Structure & Mechanical		LS		\$ 1,550,000
5.7	Spillway		LS		\$ 1,000,000
Subtotal					\$ 32,000,000
TOTAL					\$ 117,000,000

KEY: cfs = cubic feet per second
cyd = cubic yard

ft = feet
LS = lump sum

mo = month
sft = square feet

Notes: All costs at 2006 price levels.