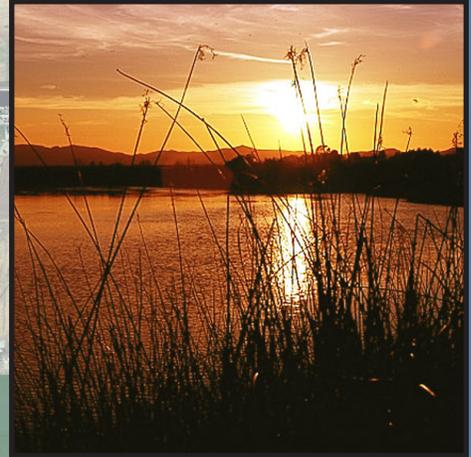


**Contra Costa Water District  
Proposition 1E Grant Proposal  
Attachment 8**

**Economic Analysis -  
Water Supply  
Costs and Benefits**



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**East Contra Costa County Region  
Contra Costa Water District  
Stormwater Flood Management Grant Proposal**

**ATTACHMENT 8 –  
ECONOMIC ANALYSIS  
WATER SUPPLY COSTS AND BENEFITS**

<u>Proposal</u>	<u>Page</u>
Contra Costa Canal Levee Elimination and Flood Protection Project .....	8-1

This attachment describes the water supply benefits and costs provided by the Contra Costa Canal Levee Elimination and Flood Protection Project. In accordance with the PSP, the following details are provided the proposed Project:

- ✓ Narrative description of the projects’ economic costs
- ✓ Cost details for the entire project
- ✓ Narrative description of the project’s expected water supply benefits including
  - Estimates of without-project conditions
  - Estimates of with-project conditions
  - Description of methods used to estimate without and with-project conditions
  - Distribution of the local, regional, and statewide benefits
  - Identification of beneficiaries
  - When benefits will be received
  - Uncertainty of benefits
  - Description of any adverse effects
- ✓ Narrative discussion that describes, qualifies and supports values entered in the tables
- ✓ Quantified estimates of physical and economic benefits
- ✓ Documentation to support information presented in the project
- ✓ For projects that contain a suite a projects, the relationship of each project to the overall project costs and benefits.

The following sections present a quantitative and qualitative analysis of project costs and water supply benefits. Tables 14 through 18 have been completed, and are included at the end of this section.

**Overview**

Contra Costa Water District’s (CCWD) Canal Levee Elimination and Flood Protection Project (Project) is needed to reduce the flood risk currently posed by the Contra Costa Canal (the Canal). At least seven square miles are currently at risk of flooding if the Canal levees fail, including housing developments,

roads, working farms and a tidal marsh restoration project. The full Project will replace four miles of the unlined portion of the Canal with a pipeline and eliminate eight miles of aging embankments. Phase 5 of the Project is the portion of the full Project evaluated in this grant; Phase 5 includes installing a flood isolation structure near the mouth of the Canal (Rock Slough Intake), installing 4,000 feet of pipeline and eliminating approximately 8,000 feet of levees. Phase 5 will enable the District to remotely isolate the Canal from the San Joaquin-Sacramento River Delta in the event of a levee breach. Other benefits of the Project include improving source water quality by preventing intrusion of saline groundwater, improving public safety by eliminating the drowning risk of the open water Canal, and improving CCWD’s water supply reliability.

It is important to note that Phase 5, which is being proposed for funding and evaluated in this Attachment, reflects a key portion of the full Project (including the installation of a flow isolation structure), but not the entire 21,000 feet of anticipated pipeline installation to replace all of the existing Canal. To evaluate benefits, we estimated (as feasible) the value of the benefits of the full Project (because the benefits accrue from the full Project being completed), and then attributed a portion of those aggregate benefits to the specific portion of the Project that would be developed under Phase 5. At \$20 M, Phase 5 reflects 20.8 percent of the full \$96 M Project budget; therefore we assigned 20.8 percent of the overall water supply, water quality, and other Project benefits to this specific portion of the Project. Because Phase 5 includes installation of the flow isolation structure, all avoided flood damages from the full Project will be achieved through implementation of this component.

A summary of all benefits and costs of the Project are provided in Table 8-1. Project costs and water supply benefits are discussed in the remainder of this attachment. Flood damage reduction benefits are described in Attachment 7, and water quality and other benefits are described in Attachment 9. In several instances, the water supply and water quality benefits are highly inter-woven, and could have been placed in either of the Attachments; however we have been careful to avoid double counting. Several of the most important benefits could not be reliably quantified or monetized.

**Table 8-1. Benefit-Cost Analysis Overview**

	<b>Present Value</b>
<u>Costs</u> – Total Capital and O&M	\$16,847,000
<u>Monetizable Benefits</u>	
Flood Damage Reduction (Attachment 7)	\$44,576,000
Water Supply Benefits	
Avoided releases from SWP and CVP reservoirs	\$7,419,000
Water for additional CCWD reservoir storage	\$4,205,000
Water Quality and Other Benefits (Attachment 9)	\$18,824,000
Total Monetized Benefits	\$75,024,000
<u>Qualitative Benefit or Cost</u>	<b>Qualitative indicator*</b>
Water Supply Benefits	

**Table 8-1. Benefit-Cost Analysis Overview**

	Present Value
Improved Operational Flexibility for Contra Costa Water District	++
Water Quality and Other Benefits (Attachment 9)	+

O&M = Operations and Maintenance

\* Direction and magnitude of effect on net benefits:

+ = Likely to increase net benefits relative to quantified estimates.

++ = Likely to increase net benefits significantly.

– = Likely to decrease benefits.

– – = Likely to decrease net benefits significantly.

U = Uncertain, could be + or –.

### **Economic Costs**

Capital costs for Phase 5 of the Project amount to \$20,000,000 (2009 USD), to be expended between 2011 and 2013. Once the pipeline is in place and operational (beginning in 2014), \$2,000 per year is anticipated to be required for routine maintenance. Over the 100-year anticipated lifetime of the pipeline, the present value costs amount to \$16.8 million, as shown in Table 14 at the conclusion of this section.

### **Description of Without-Project Conditions**

Without this Project, CCWD will continue to rely on a long stretch of open, unlined Canal in order to convey water to its intake at Pumping Plant 1 (PP1), also referred to as the Rock Slough Intake. Water quality at the intake would continue to be degraded due to seepage into the Canal from groundwater. Higher salinity groundwater seeping into the Canal has been identified as the primary source of water quality degradation to PP1. Residential area runoff from the increasingly developed adjacent areas could also pose new challenges to water quality in the Canal.

The Department of Water Resources’ (DWR’s) Dutch Slough Tidal Marsh Restoration Project will inundate adjacent properties, which will exacerbate the existing seepage problem. Consequently, this and other ecologically important restoration projects near the Canal cannot be implemented until the open Canal is replaced with a pipeline. In addition, without the Project, the Canal would continue to pose a flooding and public safety threat to the increasingly residential adjacent land area. The levees that contain the Canal were not designed for flood protection, yet they are currently used for this purpose.

Overall, this Project will provide significant benefits at the local, regional, and state level through improved water supply reliability, and regional improvements in water quality. By reducing seepage into the Canal, this Project will improve both water supply and water quality for CCWD, the State Water Project (SWP), and the Central Valley Project (CVP).

### **Description of Expected Water Supply Benefits (With-Project Conditions)**

This Project is expected to provide a wide array of water supply benefits, including:

- Reduced releases from SWP and CVP reservoirs

- Enhanced Water Supply Availability and Emergency Supply for CCWD
- Improved Operational Flexibility and Continued Ability to Serve all CCWD Customers

These benefits are discussed in further detail below.

#### Reduced Releases from SWP and CVP Reservoirs

There is a water quality standard station at Rock Slough, and the CVP & SWP are operated to meet that chloride concentration standard by releasing stored water from upstream as necessary. Replacing the unlined Canal with a pipeline will lead to reduced salinity at Rock Slough Intake. Improving the water quality at Rock Slough will mean less water must be released from upstream reservoirs to meet the standard. Thus, encasing the Canal will decrease the amount of water upstream reservoirs must release to meet the Rock Slough water quality standard. This would result in an increase in water available in SWP and CVP storage for dry years, and an increase in availability of water supplies both locally and statewide.

Currently, the degraded water quality in the Canal necessitates additional upstream releases of up to 100 AFY during wet years and an additional 7,800 AFY of upstream releases during critically dry years. Assuming that dry years happen as often as wet years, the Project would enable an average required release of 3,950 AFY to be avoided.

It is difficult to assign a value to the water released by SWP and CVP. Clearly, water preserved for use by urban and agricultural entities reliant on SWP and CVP waters has very high value in most circumstances, as evidenced by the rapidly escalating unit charge that water utilities pay for those waters in southern California (e.g., \$686 per AF, at announced 2011 rates, for untreated Tier 2 water acquired from the Metropolitan Water District of Southern California), or what utilities pay to reduce their dependence on these waters (e.g., \$700 to \$2000 per AF, or more, to developed reclaimed water or desalination supplies). These SWP and CVP water values are especially high in dry years, when most of the SWP and CVP releases would occur. To be conservative, we assume the waters released by SWP and CVP to meet water quality requirements at Rock Slough have an opportunity cost of approximately \$686 per AF, which corresponds to Metropolitan Water District's untreated Tier 2 rate.

Using the \$686 per AF value, the 3,950 AFY released, on average, amounts to an average annual avoided cost of \$2.7 M. Over the expected Project lifetime, the present value benefits of this avoided cost amounts to approximately \$35.7 M (see Table 15). Assigning 20.8 percent of this total value to the specific Project, this amounts to \$7.4 million in present value benefits.

#### Enhanced Emergency Reserves for CCWD

Replacing the unlined Canal with a pipeline will lead to improved water quality at the Rock Slough intake, which will decrease the amount of water released from Los Vaqueros Reservoir in order to meet CCWD's customer water quality delivery goals. On average, this effectively adds 580 AFY to water available in storage. In addition, reduced evaporation losses from the open Canal amount to an estimated 60 AFY saved per year. Combined, there is a "savings" of 640 AFY for CCWD.

The increase in water saved to storage becomes most important during an extended drought or other emergency (multiple levee failures in the Delta limiting) when water supply is limited statewide. Storage levels in Los Vaqueros Reservoir have been maintained above minimum 'emergency levels' since the completion of the reservoir in 1998.

The benefits of enhanced emergency supply may be monetized using the estimated price of emergency water. During 2009, when CCWD declared water conservation requirements in response to the ongoing drought, emergency water rates over allocated levels increased by a factor of 4, to approximately \$2,400 per AF. Utilizing this figure as an estimate of the value of enhanced emergency storage yields an annual benefit value of more than \$1.5 M (640 AF at \$2,400 per AF). As shown in Table 12, the present value benefits are \$20.2 M. Allocating 20.8 percent of these benefits to this specific portion of the Project, the present value benefits amount to approximately \$4.2 M.

**Improved Operational Flexibility and Continued Ability to Serve all CCWD Customers**

By enclosing the unlined Canal, the Project will help CCWD directly in its supply operations, allowing for longer intake shutdowns, deferring capital improvements, and improving reliability in a vulnerable part of the system. Also, with the Project, CCWD will have an increased emergency reserve supply, because less Los Vaqueros Reservoir would be required for blending during high salinity events, leaving more water in the reservoir as emergency supply.

Although it is physically possible for CCWD to meet most of its retail customers’ demands even if the Canal failed, failure would cause a serious disruption to their system and would have a lasting impact. Using the Canal to meet some or all of the customer demands allows CCWD to fill the reservoir with other pumps, and if the Canal failed, they would not be able to fill the reservoir because CCWD would have to use the other pumps to meet demands. If the Canal were out of service for over a year, delivered water quality would suffer, reservoir levels would be significantly reduced, and drought and emergency supplies would be diminished. If the Canal failed in the middle of a prolonged drought, the consequences could be serious but difficult to quantify given the number of unknowns.

**Summary of Qualitative Water Supply Benefits**

Qualitative benefits from the proposed Project include improved operational flexibility for CCWD. This benefit is summarized in Table 3.

**Table 3. Qualitative Benefits Summary – Water Supply Benefits**

Benefit	Qualitative Indicator
Water Supply Benefits	
Improved Operational Flexibility and Continued Ability to Serve all CCWD Customers	++

***Project Beneficiaries and Distribution of Benefits***

The Project benefits are distributed across a wide array of local, regional, and statewide beneficiaries, as summarized in Table 8-2.

**Table 8-2. Project Beneficiaries Summary**

Local	Regional	Statewide
CCWD and its customers Residents and other entities with property adjacent to the Canal	Contra Costa Water District wholesale customers	<i>Sacramento-San Joaquin Delta CVP and SWP users</i>

***Timing of Benefits***

Construction of the new pipeline will be completed in 2013 and the pipeline will come online in 2014. For this analysis, a 100-year useful project life is assumed, thus benefits and costs are calculated through 2113 (100 years after the Project comes online).

**Uncertainty of Costs and Benefits**

This analysis of costs and benefits is based on available data and some assumptions. As a result, there may be some omissions, uncertainties, and possible biases. In most cases, omissions lead to a downward bias in benefits: the Project is expected to be much more beneficial than the subset of benefits that can be monetized would indicate. Several of these issues are listed in Table 8-3.

**Table 8-3. Omissions, Biases, and Uncertainties, and Their Effect on the Project**

<b>Benefit or Cost Category</b>	<b>Likely Impact on Net Benefits*</b>	<i>Comment</i>
Reduced releases of SWP and CVP waters from upstream reservoirs in order to meet water quality compliance limits at Rock Slough	U	The monetized estimate of the potential value of reduced releases of SWP and CVP water are uncertain in terms of the quantities released and monetary value assigned per AF. However, the value of the water that can be stored and used by is probably very high, especially in dry years when the largest releases are avoided with the Project.
Value of increasing the volume of water that can be stored in Los Vaqueros Reservoir, and of avoided evaporation losses	U	The water savings are difficult to value, because the value depends on the circumstances under which the water might be needed, or how the needed water would be replaced absent the Project. This analysis utilizes emergency water costs to assign a value to this increased emergency storage.
Project costs	U	The calculation of the present value of costs is a function of the timing of capital outlays and a number of other factors and conditions. Changes in these variables will change the estimate of costs.

\*Direction and magnitude of effect on net benefits:

+ = Likely to increase net benefits relative to quantified estimates.

++ = Likely to increase net benefits significantly.

- = Likely to decrease benefits.

-- = Likely to decrease net benefits significantly.

U = Uncertain, could be + or -.

**Potential Adverse Effects**

Adverse effects associated with this Project are expected to be limited to temporary construction impacts.

**Documents Supporting Cost and Benefit Analysis**

The following documents were used to develop the cost and benefit analyses described in this section:

- CCWD, 2007. Future Water Supply Study recommendations (DRAFT).

- US EPA, 2008. BenMAP, the Environmental Benefits Mapping and Analysis Program. Office of Air Planning and Standards. Available: <http://www.epa.gov/air/benmap/download.html>.
- US EPA, 2003. National Primary Drinking Water Regulations: Stage 2 Disinfectants and Disinfection Byproducts Rule; Proposed Rule. 40 CFR Parts 141,142, and 143, August 18.
- Personal communication with Marie Valmores and Maureen Martin, Contra Costa Water District (3/16/2011, 3/24/2011, 3/29/2011)
- Personal communication with Mark Seedall, Contra Costa Water District (3/29/2011)

### **Economic Analysis Tables**

Tables 14 through 18 have been completed, and are provided below. As shown in **Table 14**, the present value of Project costs is \$16.8 M.

**Table 15** presents the anticipated physically-quantifiable benefits that will accrue from of the full Project. Physically quantifiable water supply benefits have an approximate present value of \$55,885,000, 20.8 percent of which can be attributed to this component of the Project, for a total of \$11,624,000 in present value benefits for this portion of the Project. **Table 16** has been excluded because benefits have been calculated based on physically quantifiable benefits as opposed to avoided water supply projects, and **Table 17** has been excluded because all anticipated water supply benefits have been quantified. As shown in **Table 18**, the total present value of quantifiable water supply benefits is estimated as \$55,885,000 (\$11,624,000 of which can be attributed to this phase of the Project).

**Table 14: Annual Costs  
Contra Costa Canal Levee Elimination and Flood Protection Project**

YEAR	Initial Costs	Operations and Maintenance Costs <sup>(1)</sup>						Discounting Calculations	
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)
	Grand Total Cost	Admin.	Ops.	Maint.	Replace.	Other	Total Costs (a) +...+ (f)	Discount Factor	Discounted Costs (g) x (h)
2009							\$0	1.00	\$0
2010							\$0	0.94	\$0
2011	\$265,000						\$265,000	0.89	\$235,849
2012	\$6,746,650						\$6,746,650	0.84	\$5,664,617
2013	\$12,988,350						\$12,988,350	0.79	\$10,287,990
2014				\$50,000			\$50,000	0.75	\$37,363
2015				\$50,000			\$50,000	0.70	\$35,248
2016				\$50,000			\$50,000	0.67	\$33,253
2017				\$50,000			\$50,000	0.63	\$31,371
2018				\$50,000			\$50,000	0.59	\$29,595
2019				\$50,000			\$50,000	0.56	\$27,920
2020				\$50,000			\$50,000	0.53	\$26,339
2021				\$50,000			\$50,000	0.50	\$24,848
2022				\$50,000			\$50,000	0.47	\$23,442
2023				\$50,000			\$50,000	0.44	\$22,115
2024				\$50,000			\$50,000	0.42	\$20,863
2025				\$50,000			\$50,000	0.39	\$19,682
2026				\$50,000			\$50,000	0.37	\$18,568
2027				\$50,000			\$50,000	0.35	\$17,517
2028				\$50,000			\$50,000	0.33	\$16,526
2029				\$50,000			\$50,000	0.31	\$15,590
2030				\$50,000			\$50,000	0.29	\$14,708
2031				\$50,000			\$50,000	0.28	\$13,875
2032				\$50,000			\$50,000	0.26	\$13,090
2033				\$50,000			\$50,000	0.25	\$12,349
2034				\$50,000			\$50,000	0.23	\$11,650
2035				\$50,000			\$50,000	0.22	\$10,991
2036				\$50,000			\$50,000	0.21	\$10,368
2037				\$50,000			\$50,000	0.20	\$9,782
2038				\$50,000			\$50,000	0.18	\$9,228
2039				\$50,000			\$50,000	0.17	\$8,706
2040				\$50,000			\$50,000	0.16	\$8,213
2041				\$50,000			\$50,000	0.15	\$7,748
2042				\$50,000			\$50,000	0.15	\$7,309
2043				\$50,000			\$50,000	0.14	\$6,896

**Table 14: Annual Costs  
Contra Costa Canal Levee Elimination and Flood Protection Project**

YEAR	Initial Costs	Operations and Maintenance Costs <sup>(1)</sup>						Discounting Calculations	
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)
	Grand Total Cost	Admin.	Ops.	Maint.	Replace.	Other	Total Costs (a) +...+ (f)	Discount Factor	Discounted Costs (g) x (h)
2044				\$50,000			\$50,000	0.13	\$6,505
2045				\$50,000			\$50,000	0.12	\$6,137
2046				\$50,000			\$50,000	0.12	\$5,790
2047				\$50,000			\$50,000	0.11	\$5,462
2048				\$50,000			\$50,000	0.10	\$5,153
2049				\$50,000			\$50,000	0.10	\$4,861
2050				\$50,000			\$50,000	0.09	\$4,586
2051				\$50,000			\$50,000	0.09	\$4,326
2052				\$50,000			\$50,000	0.08	\$4,081
2053				\$50,000			\$50,000	0.08	\$3,850
2054				\$50,000			\$50,000	0.07	\$3,633
2055				\$50,000			\$50,000	0.07	\$3,427
2056				\$50,000			\$50,000	0.06	\$3,233
2057				\$50,000			\$50,000	0.06	\$3,050
2058				\$50,000			\$50,000	0.06	\$2,877
2059				\$50,000			\$50,000	0.05	\$2,714
2060				\$50,000			\$50,000	0.05	\$2,561
2061				\$50,000			\$50,000	0.048	\$2,416
2062				\$50,000			\$50,000	0.046	\$2,279
2063				\$50,000			\$50,000	0.043	\$2,150
2064				\$50,000			\$50,000	0.041	\$2,028
2065				\$50,000			\$50,000	0.038	\$1,914
2066				\$50,000			\$50,000	0.036	\$1,805
2067				\$50,000			\$50,000	0.034	\$1,703
2068				\$50,000			\$50,000	0.032	\$1,607
2069				\$50,000			\$50,000	0.030	\$1,516
2070				\$50,000			\$50,000	0.029	\$1,430
2071				\$50,000			\$50,000	0.027	\$1,349
2072				\$50,000			\$50,000	0.025	\$1,273
2073				\$50,000			\$50,000	0.024	\$1,201
2074				\$50,000			\$50,000	0.023	\$1,133
2075				\$50,000			\$50,000	0.021	\$1,069
2076				\$50,000			\$50,000	0.020	\$1,008
2077				\$50,000			\$50,000	0.019	\$951
2078				\$50,000			\$50,000	0.018	\$897
2079				\$50,000			\$50,000	0.017	\$846

**Table 14: Annual Costs  
Contra Costa Canal Levee Elimination and Flood Protection Project**

YEAR	Initial Costs	Operations and Maintenance Costs <sup>(1)</sup>						Discounting Calculations	
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)
	Grand Total Cost	Admin.	Ops.	Maint.	Replace.	Other	Total Costs (a) +...+ (f)	Discount Factor	Discounted Costs (g) x (h)
2080				\$50,000			\$50,000	0.016	\$798
2081				\$50,000			\$50,000	0.015	\$753
2082				\$50,000			\$50,000	0.014	\$711
2083				\$50,000			\$50,000	0.013	\$670
2084				\$50,000			\$50,000	0.013	\$632
2085				\$50,000			\$50,000	0.012	\$597
2086				\$50,000			\$50,000	0.011	\$563
2087				\$50,000			\$50,000	0.011	\$531
2088				\$50,000			\$50,000	0.010	\$501
2089				\$50,000			\$50,000	0.009	\$473
2090				\$50,000			\$50,000	0.009	\$446
2091				\$50,000			\$50,000	0.008	\$421
2092				\$50,000			\$50,000	0.008	\$397
2093				\$50,000			\$50,000	0.007	\$374
2094				\$50,000			\$50,000	0.007	\$353
2095				\$50,000			\$50,000	0.007	\$333
2096				\$50,000			\$50,000	0.006	\$314
2097				\$50,000			\$50,000	0.006	\$297
2098				\$50,000			\$50,000	0.006	\$280
2099				\$50,000			\$50,000	0.005	\$264
2100				\$50,000			\$50,000	0.005	\$249
2101				\$50,000			\$50,000	0.005	\$235
2102				\$50,000			\$50,000	0.004	\$222
2103				\$50,000			\$50,000	0.004	\$209
2104				\$50,000			\$50,000	0.004	\$197
2105				\$50,000			\$50,000	0.004	\$186
2106				\$50,000			\$50,000	0.004	\$176
2107				\$50,000			\$50,000	0.003	\$166
2108				\$50,000			\$50,000	0.003	\$156
2109				\$50,000			\$50,000	0.003	\$147
2110				\$50,000			\$50,000	0.003	\$139
2111				\$50,000			\$50,000	0.003	\$131
2112				\$50,000			\$50,000	0.002	\$124
2113				\$50,000			\$50,000	0.002	\$117
<b>Project Life</b>	100 Years							...	

**Table 14: Annual Costs  
Contra Costa Canal Levee Elimination and Flood Protection Project**

	Initial Costs	Operations and Maintenance Costs <sup>(1)</sup>						Discounting Calculations	
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)
YEAR	Grand Total Cost	Admin.	Ops.	Maint.	Replace.	Other	Total Costs (a) +...+ (f)	Discount Factor	Discounted Costs (g) x (h)
<b>Total Present Value of Discounted Costs (Sum of Column (i))</b>									<b>\$16,846,589</b>
<b>Transfer to Table 20, column (c), Exhibit F: Proposal Costs and Benefits Summaries</b>									

**Comments:**

Annual maintenance includes regular right-of-way maintenance, periodic cleaning, and maintenance of the flow control structure.  
All costs are in 2009 dollars.

**Table 15: Annual Water Supply Benefit  
Contra Costa Canal Levee Elimination and Flood Protection Project**

(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
Year	Type of Benefit	Measure of Benefit	Without Proj.	With Proj.	Change from Project (e) – (d)	Unit \$ Value	Annual \$ Value (f) x (g)	Disc. Factor	Discounted Benefits (h) x (i)
2009					0		\$0	1.00	\$0
2010					0		\$0	0.94	\$0
2011					0		\$0	0.89	\$0
2012					0		\$0	0.84	\$0
2013					0		\$0	0.79	\$0
2014	Enhanced Emergency Storage	AF	0	640	640	\$2,400	\$1,536,000	0.75	\$1,147,789
	SWP & CVP Storage	AF	0	3,950	3,950	\$686	\$2,709,700	0.75	\$2,024,845
2015	Enhanced Emergency Storage	AF	0	640	640	\$2,400	\$1,536,000	0.70	\$1,082,819
	SWP & CVP Storage	AF	0	3,950	3,950	\$686	\$2,709,700	0.70	\$1,910,232
2016	Enhanced Emergency Storage	AF	0	640	640	\$2,400	\$1,536,000	0.67	\$1,021,528
	SWP & CVP Storage	AF	0	3,950	3,950	\$686	\$2,709,700	0.67	\$1,802,105
2017	Enhanced Emergency Storage	AF	0	640	640	\$2,400	\$1,536,000	0.63	\$963,705
	SWP & CVP Storage	AF	0	3,950	3,950	\$686	\$2,709,700	0.63	\$1,700,099
2018	Enhanced Emergency Storage	AF	0	640	640	\$2,400	\$1,536,000	0.59	\$909,156
	SWP & CVP Storage	AF	0	3,950	3,950	\$686	\$2,709,700	0.59	\$1,603,867
2019	Enhanced Emergency Storage	AF	0	640	640	\$2,400	\$1,536,000	0.56	\$857,694
	SWP & CVP Storage	AF	0	3,950	3,950	\$686	\$2,709,700	0.56	\$1,513,082
2020	Enhanced Emergency Storage	AF	0	640	640	\$2,400	\$1,536,000	0.53	\$809,146
	SWP & CVP Storage	AF	0	3,950	3,950	\$686	\$2,709,700	0.53	\$1,427,436
2021	Enhanced	AF	0	640	640	\$2,400	\$1,536,000	0.50	\$763,345

**Table 15: Annual Water Supply Benefit  
Contra Costa Canal Levee Elimination and Flood Protection Project**

(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
Year	Type of Benefit	Measure of Benefit	With- out Proj.	With Proj.	Change from Project (e) – (d)	Unit \$ Value	Annual \$ Value (f) x (g)	Disc. Factor	Discounted Benefits (h) x (i)
	Emergency Storage								
	SWP & CVP Storage	AF	0	3,950	3,950	\$686	\$2,709,700	0.50	\$1,346,638
<b>2022</b>	Enhanced Emergency Storage	AF	0	640	640	\$2,400	\$1,536,000	0.47	\$720,137
	SWP & CVP Storage	AF	0	3,950	3,950	\$686	\$2,709,700	0.47	\$1,270,413
<b>2023</b>	Enhanced Emergency Storage	AF	0	640	640	\$2,400	\$1,536,000	0.44	\$679,374
	SWP & CVP Storage	AF	0	3,950	3,950	\$686	\$2,709,700	0.44	\$1,198,503
<b>2024</b>	Enhanced Emergency Storage	AF	0	640	640	\$2,400	\$1,536,000	0.42	\$640,919
	SWP & CVP Storage	AF	0	3,950	3,950	\$686	\$2,709,700	0.42	\$1,130,663
<b>2025</b>	Enhanced Emergency Storage	AF	0	640	640	\$2,400	\$1,536,000	0.39	\$604,641
	SWP & CVP Storage	AF	0	3,950	3,950	\$686	\$2,709,700	0.39	\$1,066,663
<b>2026</b>	Enhanced Emergency Storage	AF	0	640	640	\$2,400	\$1,536,000	0.37	\$570,416
	SWP & CVP Storage	AF	0	3,950	3,950	\$686	\$2,709,700	0.37	\$1,006,286
<b>2027</b>	Enhanced Emergency Storage	AF	0	640	640	\$2,400	\$1,536,000	0.35	\$538,128
	SWP & CVP Storage	AF	0	3,950	3,950	\$686	\$2,709,700	0.35	\$949,327
<b>2028</b>	Enhanced Emergency Storage	AF	0	640	640	\$2,400	\$1,536,000	0.33	\$507,668
	SWP & CVP Storage	AF	0	3,950	3,950	\$686	\$2,709,700	0.33	\$895,591
<b>2029</b>	Enhanced Emergency Storage	AF	0	640	640	\$2,400	\$1,536,000	0.31	\$478,932

**Table 15: Annual Water Supply Benefit  
Contra Costa Canal Levee Elimination and Flood Protection Project**

(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
Year	Type of Benefit	Measure of Benefit	With-out Proj.	With Proj.	Change from Project (e) – (d)	Unit \$ Value	Annual \$ Value (f) x (g)	Disc. Factor	Discounted Benefits (h) x (i)
	SWP & CVP Storage	AF	0	3,950	3,950	\$686	\$2,709,700	0.31	\$844,897
<b>2030</b>	Enhanced Emergency Storage	AF	0	640	640	\$2,400	\$1,536,000	0.29	\$451,823
	SWP & CVP Storage	AF	0	3,950	3,950	\$686	\$2,709,700	0.29	\$797,073
<b>2031</b>	Enhanced Emergency Storage	AF	0	640	640	\$2,400	\$1,536,000	0.28	\$426,248
	SWP & CVP Storage	AF	0	3,950	3,950	\$686	\$2,709,700	0.28	\$751,956
<b>2032</b>	Enhanced Emergency Storage	AF	0	640	640	\$2,400	\$1,536,000	0.26	\$402,121
	SWP & CVP Storage	AF	0	3,950	3,950	\$686	\$2,709,700	0.26	\$709,392
<b>2033</b>	Enhanced Emergency Storage	AF	0	640	640	\$2,400	\$1,536,000	0.25	\$379,359
	SWP & CVP Storage	AF	0	3,950	3,950	\$686	\$2,709,700	0.25	\$669,238
<b>2034</b>	Enhanced Emergency Storage	AF	0	640	640	\$2,400	\$1,536,000	0.23	\$357,886
	SWP & CVP Storage	AF	0	3,950	3,950	\$686	\$2,709,700	0.23	\$631,356
<b>2035</b>	Enhanced Emergency Storage	AF	0	640	640	\$2,400	\$1,536,000	0.22	\$337,628
	SWP & CVP Storage	AF	0	3,950	3,950	\$686	\$2,709,700	0.22	\$595,619
<b>2036</b>	Enhanced Emergency Storage	AF	0	640	640	\$2,400	\$1,536,000	0.21	\$318,517
	SWP & CVP Storage	AF	0	3,950	3,950	\$686	\$2,709,700	0.21	\$561,905
<b>2037</b>	Enhanced Emergency Storage	AF	0	640	640	\$2,400	\$1,536,000	0.20	\$300,488
	SWP & CVP Storage	AF	0	3,950	3,950	\$686	\$2,709,700	0.20	\$530,099

**Table 15: Annual Water Supply Benefit  
Contra Costa Canal Levee Elimination and Flood Protection Project**

(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
Year	Type of Benefit	Measure of Benefit	With- out Proj.	With Proj.	Change from Project (e) – (d)	Unit \$ Value	Annual \$ Value (f) x (g)	Disc. Factor	Discounted Benefits (h) x (i)
2038	Enhanced Emergency Storage	AF	0	640	640	\$2,400	\$1,536,000	0.18	\$283,479
	SWP & CVP Storage	AF	0	3,950	3,950	\$686	\$2,709,700	0.18	\$500,093
2039	Enhanced Emergency Storage	AF	0	640	640	\$2,400	\$1,536,000	0.17	\$267,433
	SWP & CVP Storage	AF	0	3,950	3,950	\$686	\$2,709,700	0.17	\$471,786
2040	Enhanced Emergency Storage	AF	0	640	640	\$2,400	\$1,536,000	0.16	\$252,295
	SWP & CVP Storage	AF	0	3,950	3,950	\$686	\$2,709,700	0.16	\$445,081
2041	Enhanced Emergency Storage	AF	0	640	640	\$2,400	\$1,536,000	0.15	\$238,015
	SWP & CVP Storage	AF	0	3,950	3,950	\$686	\$2,709,700	0.15	\$419,888
2042	Enhanced Emergency Storage	AF	0	640	640	\$2,400	\$1,536,000	0.15	\$224,542
	SWP & CVP Storage	AF	0	3,950	3,950	\$686	\$2,709,700	0.15	\$396,121
2043	Enhanced Emergency Storage	AF	0	640	640	\$2,400	\$1,536,000	0.14	\$211,832
	SWP & CVP Storage	AF	0	3,950	3,950	\$686	\$2,709,700	0.14	\$373,699
2044	Enhanced Emergency Storage	AF	0	640	640	\$2,400	\$1,536,000	0.13	\$199,842
	SWP & CVP Storage	AF	0	3,950	3,950	\$686	\$2,709,700	0.13	\$352,546
2045	Enhanced Emergency Storage	AF	0	640	640	\$2,400	\$1,536,000	0.12	\$188,530
	SWP & CVP Storage	AF	0	3,950	3,950	\$686	\$2,709,700	0.12	\$332,591
2046	Enhanced Emergency Storage	AF	0	640	640	\$2,400	\$1,536,000	0.12	\$177,858

**Table 15: Annual Water Supply Benefit  
Contra Costa Canal Levee Elimination and Flood Protection Project**

(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
Year	Type of Benefit	Measure of Benefit	With- out Proj.	With Proj.	Change from Project (e) – (d)	Unit \$ Value	Annual \$ Value (f) x (g)	Disc. Factor	Discounted Benefits (h) x (i)
	SWP & CVP Storage	AF	0	3,950	3,950	\$686	\$2,709,700	0.12	\$313,765
<b>2047</b>	Enhanced Emergency Storage	AF	0	640	640	\$2,400	\$1,536,000	0.11	\$167,791
	SWP & CVP Storage	AF	0	3,950	3,950	\$686	\$2,709,700	0.11	\$296,005
<b>2048</b>	Enhanced Emergency Storage	AF	0	640	640	\$2,400	\$1,536,000	0.10	\$158,293
	SWP & CVP Storage	AF	0	3,950	3,950	\$686	\$2,709,700	0.10	\$279,250
<b>2049</b>	Enhanced Emergency Storage	AF	0	640	640	\$2,400	\$1,536,000	0.10	\$149,333
	SWP & CVP Storage	AF	0	3,950	3,950	\$686	\$2,709,700	0.10	\$263,443
<b>2050</b>	Enhanced Emergency Storage	AF	0	640	640	\$2,400	\$1,536,000	0.09	\$140,880
	SWP & CVP Storage	AF	0	3,950	3,950	\$686	\$2,709,700	0.09	\$248,531
<b>2051</b>	Enhanced Emergency Storage	AF	0	640	640	\$2,400	\$1,536,000	0.09	\$132,906
	SWP & CVP Storage	AF	0	3,950	3,950	\$686	\$2,709,700	0.09	\$234,463
<b>2052</b>	Enhanced Emergency Storage	AF	0	640	640	\$2,400	\$1,536,000	0.08	\$125,383
	SWP & CVP Storage	AF	0	3,950	3,950	\$686	\$2,709,700	0.08	\$221,192
<b>2053</b>	Enhanced Emergency Storage	AF	0	640	640	\$2,400	\$1,536,000	0.08	\$118,286
	SWP & CVP Storage	AF	0	3,950	3,950	\$686	\$2,709,700	0.08	\$208,672
<b>2054</b>	Enhanced Emergency Storage	AF	0	640	640	\$2,400	\$1,536,000	0.07	\$111,591
	SWP & CVP Storage	AF	0	3,950	3,950	\$686	\$2,709,700	0.07	\$196,860

**Table 15: Annual Water Supply Benefit  
Contra Costa Canal Levee Elimination and Flood Protection Project**

(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
Year	Type of Benefit	Measure of Benefit	With- out Proj.	With Proj.	Change from Project (e) – (d)	Unit \$ Value	Annual \$ Value (f) x (g)	Disc. Factor	Discounted Benefits (h) x (i)
2055	Enhanced Emergency Storage	AF	0	640	640	\$2,400	\$1,536,000	0.07	\$105,274
	SWP & CVP Storage	AF	0	3,950	3,950	\$686	\$2,709,700	0.07	\$185,717
2056	Enhanced Emergency Storage	AF	0	640	640	\$2,400	\$1,536,000	0.06	\$99,315
	SWP & CVP Storage	AF	0	3,950	3,950	\$686	\$2,709,700	0.06	\$175,205
2057	Enhanced Emergency Storage	AF	0	640	640	\$2,400	\$1,536,000	0.06	\$93,694
	SWP & CVP Storage	AF	0	3,950	3,950	\$686	\$2,709,700	0.06	\$165,287
2058	Enhanced Emergency Storage	AF	0	640	640	\$2,400	\$1,536,000	0.06	\$88,390
	SWP & CVP Storage	AF	0	3,950	3,950	\$686	\$2,709,700	0.06	\$155,931
2059	Enhanced Emergency Storage	AF	0	640	640	\$2,400	\$1,536,000	0.05	\$83,387
	SWP & CVP Storage	AF	0	3,950	3,950	\$686	\$2,709,700	0.05	\$147,105
2060	Enhanced Emergency Storage	AF	0	640	640	\$2,400	\$1,536,000	0.05	\$78,667
	SWP & CVP Storage	AF	0	3,950	3,950	\$686	\$2,709,700	0.05	\$138,778
2061	Enhanced Emergency Storage	AF	0	640	640	\$2,400	\$1,536,000	0.05	\$74,214
	SWP & CVP Storage	AF	0	3,950	3,950	\$686	\$2,709,700	0.05	\$130,923
2062	Enhanced Emergency Storage	AF	0	640	640	\$2,400	\$1,536,000	0.05	\$70,013
	SWP & CVP Storage	AF	0	3,950	3,950	\$686	\$2,709,700	0.05	\$123,512
2063	Enhanced Emergency Storage	AF	0	640	640	\$2,400	\$1,536,000	0.04	\$66,050

**Table 15: Annual Water Supply Benefit  
Contra Costa Canal Levee Elimination and Flood Protection Project**

(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
Year	Type of Benefit	Measure of Benefit	With- out Proj.	With Proj.	Change from Project (e) – (d)	Unit \$ Value	Annual \$ Value (f) x (g)	Disc. Factor	Discounted Benefits (h) x (i)
	SWP & CVP Storage	AF	0	3,950	3,950	\$686	\$2,709,700	0.04	\$116,521
<b>2064</b>	Enhanced Emergency Storage	AF	0	640	640	\$2,400	\$1,536,000	0.04	\$62,312
	SWP & CVP Storage	AF	0	3,950	3,950	\$686	\$2,709,700	0.04	\$109,926
<b>2065</b>	Enhanced Emergency Storage	AF	0	640	640	\$2,400	\$1,536,000	0.04	\$58,784
	SWP & CVP Storage	AF	0	3,950	3,950	\$686	\$2,709,700	0.04	\$103,703
<b>2066</b>	Enhanced Emergency Storage	AF	0	640	640	\$2,400	\$1,536,000	0.04	\$55,457
	SWP & CVP Storage	AF	0	3,950	3,950	\$686	\$2,709,700	0.04	\$97,833
<b>2067</b>	Enhanced Emergency Storage	AF	0	640	640	\$2,400	\$1,536,000	0.03	\$52,318
	SWP & CVP Storage	AF	0	3,950	3,950	\$686	\$2,709,700	0.03	\$92,296
<b>2068</b>	Enhanced Emergency Storage	AF	0	640	640	\$2,400	\$1,536,000	0.03	\$49,357
	SWP & CVP Storage	AF	0	3,950	3,950	\$686	\$2,709,700	0.03	\$87,071
<b>2069</b>	Enhanced Emergency Storage	AF	0	640	640	\$2,400	\$1,536,000	0.03	\$46,563
	SWP & CVP Storage	AF	0	3,950	3,950	\$686	\$2,709,700	0.03	\$82,143
<b>2070</b>	Enhanced Emergency Storage	AF	0	640	640	\$2,400	\$1,536,000	0.03	\$43,927
	SWP & CVP Storage	AF	0	3,950	3,950	\$686	\$2,709,700	0.03	\$77,493
<b>2071</b>	Enhanced Emergency Storage	AF	0	640	640	\$2,400	\$1,536,000	0.03	\$41,441
	SWP & CVP Storage	AF	0	3,950	3,950	\$686	\$2,709,700	0.03	\$73,107

**Table 15: Annual Water Supply Benefit  
Contra Costa Canal Levee Elimination and Flood Protection Project**

(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
Year	Type of Benefit	Measure of Benefit	With- out Proj.	With Proj.	Change from Project (e) – (d)	Unit \$ Value	Annual \$ Value (f) x (g)	Disc. Factor	Discounted Benefits (h) x (i)
2072	Enhanced Emergency Storage	AF	0	640	640	\$2,400	\$1,536,000	0.03	\$39,095
	SWP & CVP Storage	AF	0	3,950	3,950	\$686	\$2,709,700	0.03	\$68,969
2073	Enhanced Emergency Storage	AF	0	640	640	\$2,400	\$1,536,000	0.02	\$36,882
	SWP & CVP Storage	AF	0	3,950	3,950	\$686	\$2,709,700	0.02	\$65,065
2074	Enhanced Emergency Storage	AF	0	640	640	\$2,400	\$1,536,000	0.02	\$34,794
	SWP & CVP Storage	AF	0	3,950	3,950	\$686	\$2,709,700	0.02	\$61,382
2075	Enhanced Emergency Storage	AF	0	640	640	\$2,400	\$1,536,000	0.02	\$32,825
	SWP & CVP Storage	AF	0	3,950	3,950	\$686	\$2,709,700	0.02	\$57,907
2076	Enhanced Emergency Storage	AF	0	640	640	\$2,400	\$1,536,000	0.02	\$30,967
	SWP & CVP Storage	AF	0	3,950	3,950	\$686	\$2,709,700	0.02	\$54,630
2077	Enhanced Emergency Storage	AF	0	640	640	\$2,400	\$1,536,000	0.02	\$29,214
	SWP & CVP Storage	AF	0	3,950	3,950	\$686	\$2,709,700	0.02	\$51,537
2078	Enhanced Emergency Storage	AF	0	640	640	\$2,400	\$1,536,000	0.02	\$27,560
	SWP & CVP Storage	AF	0	3,950	3,950	\$686	\$2,709,700	0.02	\$48,620
2079	Enhanced Emergency Storage	AF	0	640	640	\$2,400	\$1,536,000	0.02	\$26,000
	SWP & CVP Storage	AF	0	3,950	3,950	\$686	\$2,709,700	0.02	\$45,868
2080	Enhanced Emergency Storage	AF	0	640	640	\$2,400	\$1,536,000	0.02	\$24,529

**Table 15: Annual Water Supply Benefit  
Contra Costa Canal Levee Elimination and Flood Protection Project**

(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
Year	Type of Benefit	Measure of Benefit	With- out Proj.	With Proj.	Change from Project (e) – (d)	Unit \$ Value	Annual \$ Value (f) x (g)	Disc. Factor	Discounted Benefits (h) x (i)
	SWP & CVP Storage	AF	0	3,950	3,950	\$686	\$2,709,700	0.02	\$43,272
<b>2081</b>	Enhanced Emergency Storage	AF	0	640	640	\$2,400	\$1,536,000	0.02	\$23,140
	SWP & CVP Storage	AF	0	3,950	3,950	\$686	\$2,709,700	0.02	\$40,822
<b>2082</b>	Enhanced Emergency Storage	AF	0	640	640	\$2,400	\$1,536,000	0.01	\$21,830
	SWP & CVP Storage	AF	0	3,950	3,950	\$686	\$2,709,700	0.01	\$38,512
<b>2083</b>	Enhanced Emergency Storage	AF	0	640	640	\$2,400	\$1,536,000	0.01	\$20,595
	SWP & CVP Storage	AF	0	3,950	3,950	\$686	\$2,709,700	0.01	\$36,332
<b>2084</b>	Enhanced Emergency Storage	AF	0	640	640	\$2,400	\$1,536,000	0.01	\$19,429
	SWP & CVP Storage	AF	0	3,950	3,950	\$686	\$2,709,700	0.01	\$34,275
<b>2085</b>	Enhanced Emergency Storage	AF	0	640	640	\$2,400	\$1,536,000	0.01	\$18,329
	SWP & CVP Storage	AF	0	3,950	3,950	\$686	\$2,709,700	0.01	\$32,335
<b>2086</b>	Enhanced Emergency Storage	AF	0	640	640	\$2,400	\$1,536,000	0.01	\$17,292
	SWP & CVP Storage	AF	0	3,950	3,950	\$686	\$2,709,700	0.01	\$30,505
<b>2087</b>	Enhanced Emergency Storage	AF	0	640	640	\$2,400	\$1,536,000	0.01	\$16,313
	SWP & CVP Storage	AF	0	3,950	3,950	\$686	\$2,709,700	0.01	\$28,778
<b>2088</b>	Enhanced Emergency Storage	AF	0	640	640	\$2,400	\$1,536,000	0.01	\$15,390
	SWP & CVP Storage	AF	0	3,950	3,950	\$686	\$2,709,700	0.01	\$27,149

**Table 15: Annual Water Supply Benefit  
Contra Costa Canal Levee Elimination and Flood Protection Project**

(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
Year	Type of Benefit	Measure of Benefit	With- out Proj.	With Proj.	Change from Project (e) – (d)	Unit \$ Value	Annual \$ Value (f) x (g)	Disc. Factor	Discounted Benefits (h) x (i)
2089	Enhanced Emergency Storage	AF	0	640	640	\$2,400	\$1,536,000	0.01	\$14,519
	SWP & CVP Storage	AF	0	3,950	3,950	\$686	\$2,709,700	0.01	\$25,613
2090	Enhanced Emergency Storage	AF	0	640	640	\$2,400	\$1,536,000	0.01	\$13,697
	SWP & CVP Storage	AF	0	3,950	3,950	\$686	\$2,709,700	0.01	\$24,163
2091	Enhanced Emergency Storage	AF	0	640	640	\$2,400	\$1,536,000	0.01	\$12,921
	SWP & CVP Storage	AF	0	3,950	3,950	\$686	\$2,709,700	0.01	\$22,795
2092	Enhanced Emergency Storage	AF	0	640	640	\$2,400	\$1,536,000	0.01	\$12,190
	SWP & CVP Storage	AF	0	3,950	3,950	\$686	\$2,709,700	0.01	\$21,505
2093	Enhanced Emergency Storage	AF	0	640	640	\$2,400	\$1,536,000	0.01	\$11,500
	SWP & CVP Storage	AF	0	3,950	3,950	\$686	\$2,709,700	0.01	\$20,287
2094	Enhanced Emergency Storage	AF	0	640	640	\$2,400	\$1,536,000	0.01	\$10,849
	SWP & CVP Storage	AF	0	3,950	3,950	\$686	\$2,709,700	0.01	\$19,139
2095	Enhanced Emergency Storage	AF	0	640	640	\$2,400	\$1,536,000	0.01	\$10,235
	SWP & CVP Storage	AF	0	3,950	3,950	\$686	\$2,709,700	0.01	\$18,056
2096	Enhanced Emergency Storage	AF	0	640	640	\$2,400	\$1,536,000	0.01	\$9,656
	SWP & CVP Storage	AF	0	3,950	3,950	\$686	\$2,709,700	0.01	\$17,034
2097	Enhanced Emergency Storage	AF	0	640	640	\$2,400	\$1,536,000	0.01	\$9,109

**Table 15: Annual Water Supply Benefit  
Contra Costa Canal Levee Elimination and Flood Protection Project**

(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
Year	Type of Benefit	Measure of Benefit	With- out Proj.	With Proj.	Change from Project (e) – (d)	Unit \$ Value	Annual \$ Value (f) x (g)	Disc. Factor	Discounted Benefits (h) x (i)
	SWP & CVP Storage	AF	0	3,950	3,950	\$686	\$2,709,700	0.01	\$16,070
<b>2098</b>	Enhanced Emergency Storage	AF	0	640	640	\$2,400	\$1,536,000	0.01	\$8,593
	SWP & CVP Storage	AF	0	3,950	3,950	\$686	\$2,709,700	0.01	\$15,160
<b>2099</b>	Enhanced Emergency Storage	AF	0	640	640	\$2,400	\$1,536,000	0.01	\$8,107
	SWP & CVP Storage	AF	0	3,950	3,950	\$686	\$2,709,700	0.01	\$14,302
<b>2100</b>	Enhanced Emergency Storage	AF	0	640	640	\$2,400	\$1,536,000	0.00	\$7,648
	SWP & CVP Storage	AF	0	3,950	3,950	\$686	\$2,709,700	0.00	\$13,492
<b>2101</b>	Enhanced Emergency Storage	AF	0	640	640	\$2,400	\$1,536,000	0.00	\$7,215
	SWP & CVP Storage	AF	0	3,950	3,950	\$686	\$2,709,700	0.00	\$12,729
<b>2102</b>	Enhanced Emergency Storage	AF	0	640	640	\$2,400	\$1,536,000	0.00	\$6,807
	SWP & CVP Storage	AF	0	3,950	3,950	\$686	\$2,709,700	0.00	\$12,008
<b>2103</b>	Enhanced Emergency Storage	AF	0	640	640	\$2,400	\$1,536,000	0.00	\$6,422
	SWP & CVP Storage	AF	0	3,950	3,950	\$686	\$2,709,700	0.00	\$11,328
<b>2104</b>	Enhanced Emergency Storage	AF	0	640	640	\$2,400	\$1,536,000	0.00	\$6,058
	SWP & CVP Storage	AF	0	3,950	3,950	\$686	\$2,709,700	0.00	\$10,687
<b>2105</b>	Enhanced Emergency Storage	AF	0	640	640	\$2,400	\$1,536,000	0.00	\$5,715
	SWP & CVP Storage	AF	0	3,950	3,950	\$686	\$2,709,700	0.00	\$10,082

**Table 15: Annual Water Supply Benefit  
Contra Costa Canal Levee Elimination and Flood Protection Project**

(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
Year	Type of Benefit	Measure of Benefit	With- out Proj.	With Proj.	Change from Project (e) – (d)	Unit \$ Value	Annual \$ Value (f) x (g)	Disc. Factor	Discounted Benefits (h) x (i)
2106	Enhanced Emergency Storage	AF	0	640	640	\$2,400	\$1,536,000	0.00	\$5,392
	SWP & CVP Storage	AF	0	3,950	3,950	\$686	\$2,709,700	0.00	\$9,512
2107	Enhanced Emergency Storage	AF	0	640	640	\$2,400	\$1,536,000	0.00	\$5,086
	SWP & CVP Storage	AF	0	3,950	3,950	\$686	\$2,709,700	0.00	\$8,973
2108	Enhanced Emergency Storage	AF	0	640	640	\$2,400	\$1,536,000	0.00	\$4,799
	SWP & CVP Storage	AF	0	3,950	3,950	\$686	\$2,709,700	0.00	\$8,465
2109	Enhanced Emergency Storage	AF	0	640	640	\$2,400	\$1,536,000	0.00	\$4,527
	SWP & CVP Storage	AF	0	3,950	3,950	\$686	\$2,709,700	0.00	\$7,986
2110	Enhanced Emergency Storage	AF	0	640	640	\$2,400	\$1,536,000	0.00	\$4,271
	SWP & CVP Storage	AF	0	3,950	3,950	\$686	\$2,709,700	0.00	\$7,534
2111	Enhanced Emergency Storage	AF	0	640	640	\$2,400	\$1,536,000	0.00	\$4,029
	SWP & CVP Storage	AF	0	3,950	3,950	\$686	\$2,709,700	0.00	\$7,108
2112	Enhanced Emergency Storage	AF	0	640	640	\$2,400	\$1,536,000	0.00	\$3,801
	SWP & CVP Storage	AF	0	3,950	3,950	\$686	\$2,709,700	0.00	\$6,705
2113	Enhanced Emergency Storage	AF	0	640	640	\$2,400	\$1,536,000	0.00	\$3,586
	SWP & CVP Storage	AF	0	3,950	3,950	\$686	\$2,709,700	0.00	\$6,326
Proj. Life	100 Years								

**Table 15: Annual Water Supply Benefit  
Contra Costa Canal Levee Elimination and Flood Protection Project**

(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
Year	Type of Benefit	Measure of Benefit	With-out Proj.	With Proj.	Change from Project (e) – (d)	Unit \$ Value	Annual \$ Value (f) x (g)	Disc. Factor	Discounted Benefits (h) x (i)
<b>Total Present Value of Discounted Benefits Based on Unit Value (Sum of the values in Column (j) for all Benefits shown in table)</b>									<b>\$55,884,676</b>

**Comments:**

Present value is for the full Project. This Project is responsible for approximately 20/96 = 20.8 percent of full Project benefits, or \$11,624,013.  
All costs are in 2009 dollars.

**Table 16: Annual Costs of Avoided Projects  
Contra Costa Canal Levee Elimination and Flood Protection Project**

NOT APPLICABLE

**Table 17: Annual Other Water Supply Benefits  
Contra Costa Canal Levee Elimination and Flood Protection Project**

NOT APPLICABLE

**Table 18: Total Water Supply Benefits  
Contra Costa Canal Levee Elimination and Flood Protection Project**

Total Discounted Water Supply Benefits	Total Discounted Avoided Project Costs	Other Discounted Water Supply Benefits	Total Present Value of Discounted Benefits (a) + (c) or (b) + (c)
(a)	(b)	(c)	(d)
\$39,990,370	N/A	N/A	<b>\$39,990,370</b>
<b>Comments:</b>			
Present value is for the full Project. This Project is responsible for approximately 20/96 = 20.8 percent of full Project benefits, or \$8,317,997.			
All costs are in 2009 dollars.			

