

**ILLINOIS RIVER BASIN RESTORATION
COMPREHENSIVE PLAN
WITH INTEGRATED ENVIRONMENTAL ASSESSMENT**

APPENDIX E

COST ENGINEERING

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I. GENERAL

Table E-1 summarizes the project costs for the recommended alternative (Alternative 6) studied for the Illinois River Basin Restoration. This estimate is broken down into five main goals:

Goal 1	Sediment Delivery
Goal 2	Backwaters and Side Channel
Goal 3	Floodplain and Riparian
Goal 4	Connectivity
Goal 5	Water Levels

Each goal is divided into categories of construction and restoration procedures or measures. Under these measures are specific cost items with their associated estimated costs. The level of detail for this preliminary estimate is consistent with the level of design. Costs including appropriate contingencies are presented in accordance with ER 1110-2-1302, Civil Works Cost Engineering. This estimate was prepared without using any site-specific plans but instead was based on conceptual feasibility level cost estimates, and historical construction costs of projects similar in nature. Sources for estimated construction costs included projects from the U.S. Army Corps of Engineers districts within the Mississippi Valley Division, the U.S. Department of Agriculture - Natural Resources Conservation Service in Illinois, and multiple state and local agencies within the State of Illinois.

The number of individual measures or construction practices represents a reasonable distribution of measures to achieve program goals. Actual numbers of individual measures are likely to vary. Specific design features and associated costs will be defined in separate feasibility reports. The operation and maintenance costs were based primarily on professional judgment of recognized experts in their field. Costs for planning, engineering and design comprise 30 percent of construction costs, while contract supervision and administration costs comprise 9 percent of construction costs.

Table E-1 is a summary of construction costs through the 7-year implementation (Tier I).

Table E-1. Program First Costs Through Implementation of Tier I
(October 2003 Price Levels)

Lands and Damages	\$ 436,000
Fish and Wildlife Facilities	\$ 91,000,000
Planning, Engineering, and Design	\$ 27,331,000
Construction Management	\$ 8,190,000
Technologies & Innovative Approaches	\$ 24,140,000
System Management	\$ 2,750,000
Total Program Costs	\$153,847,000

The recommendation for the 7-year authorization, or Tier I, includes extending the current authorization through 2011 and increasing the total funding authorization to \$153.85 million. This funding level would provide approximately \$127.0 million for restoration projects; \$24.1 million for developing technologies and innovative approaches (includes \$12.5 million for system monitoring, \$8.7 million for site-specific monitoring, \$957,000 for a computerized inventory and analysis system, and \$2 million for special studies); and \$2.75 million for system management. Restoration efforts would be cost shared 65 percent Federal, or \$100 million, and 35 percent non-Federal, or \$53.85 million. The cost to operate and maintain project features constructed through Tier I are estimated to be \$125,000 annually. Tables E-4 and E-5 illustrate funding for Tier I. Table E-6 illustrates the estimated schedule for implementation of Tier I.

The recommendation for the 11-year authorization, or Tier II, includes extending the current authorization through 2015 and increasing the total funding authorization to \$384.6 million. This funding level would provide approximately \$321.9 million for restoration projects, \$56.9 million for developing technologies and innovative approaches (includes \$28.5 million for system monitoring, \$22.3 million for site-specific monitoring, \$2.2 million for a computerized inventory and analysis system, and \$4 million for special studies), and \$5.75 million for system management. Restoration efforts would be cost shared 65 percent Federal, \$250 million, and 35 percent non-Federal, \$134.6 million. The cost to operate and maintain project features constructed through Tier II are estimated to be \$201,000 annually. Tables E-4 and E-5 illustrate funding for Tier II.

Efforts associated with management include direct costs for Corps of Engineers project management as well as Illinois DNR staff time as in-kind services. These costs are estimated at roughly \$750,000 per year once the program is established.

The technologies and innovative approaches component includes a number of items called for in Section 519. The proposed system- and goal-level monitoring would be phased in over approximately 7 years to about \$4 million per year. The level of site-specific project monitoring would be based on roughly 7.5 percent of project construction costs. Due to the costs associated with establishing the technologies and innovative approaches component, it is estimated that roughly 16 percent of the initial construction authorization amount would be utilized for these efforts. However, if the program is continued and additional applications of the same measures are made, monitoring costs are anticipated to drop to approximately the 10 to 15 percent level over time. It is estimated that a computerized inventory and analysis system and special studies would be phased in to a level of approximately \$300,000 and \$500,000 per year respectively.

The largest component of the recommended \$384.6 million authorization would focus on critical ecosystem restoration projects. The total amount directed toward restoration projects is estimated to be \$322 million. This amount includes costs associated with first cost of construction, real estate, and operation and maintenance. Of the \$322 million, \$245 million would be directed toward the first cost of construction, which includes contract administration, land credits, supervision and administration, and operation and maintenance manual and \$59 million toward the feasibility study, plans and specifications, and real estate costs. Based on the large study area, complexity of the ecosystem restoration, and the opportunities for increased cost effectiveness, adaptive management of up to 7.5 percent of the construction implementation costs were also included. The total cost to operate and maintain projects that would be constructed through implementation of Tier II (2015) is \$694,000.

The 50-year implementation cost is shown in table E-2. The restoration cost includes \$6,600 million in restoration projects as shown in Table E-3 as well as an estimated \$495 million in adaptive management.

Table E-2. Summary of Program Costs for 50-year Implementation
(in millions of dollars)

Restoration Projects	\$7,095
Technologies & Innovative Approaches	\$ 875
System Management	\$ 55
Total Implementation Cost	\$8,025

II. PRICE LEVEL

This estimate was prepared to October 2003 price levels. These costs are considered to be fair and reasonable to a well-equipped and capable contractor and include overhead and profit.

III. CONTINGENCY DISCUSSION

After review of project descriptions and discussions with engineering and construction personnel involved in the project, cost contingencies were developed which reflect the uncertainty associated with each cost item. These contingencies are based on qualified cost engineering judgment of the available design data, type of work involved, and uncertainties associated with the work and schedule. The overall contingency for the cost estimate is about 35 percent. The basis for the selection of the contingency factor is primarily due to the conceptual design of a project feature, unknown quantities, and unknown site conditions. Many of the project features can be constructed using conventional methods.

IV. RECOMMENDED PLAN

A descriptive explanation of the work features and basic assumptions for the recommended alternative are included in Section IV.A. of the main report. Detailed MCACES estimates will be prepared for site-specific projects during the preparation of site-specific designs.

A description of plan components for the recommended authorization is included in Section IV.D. of the main report.

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Table E-3. Summary of Construction Costs for 50-Year Implementation

Restoration Measures	Unit of Measure	USACE Const./ Unit Cost	Contingency	Amount with Contingency in 2003 Dollars	Quantity	Total Construction Cost	Planning, Engineering and Design (30%)	Supervision and Administration (9%)	Real Estate Cost per Unit	Total Real Estate	Total Cost	Annual O&M Cost in 2003 Dollars	Total O&M
Goal 1 Sediment Delivery													
1.1 Grade Control													
1.1.1 Riffle Structure													
<i>Major Tributary</i>	Each	\$110,000	35%	\$148,500	10	\$1,485,000	\$445,500	\$133,650	\$4,238	\$42,380	\$2,106,530	\$149	\$1,485
<i>Minor Tributary</i>	Each	\$22,000	35%	\$29,700	424	\$12,592,800	\$3,777,840	\$1,133,352	\$4,295	\$1,821,080	\$19,325,072	\$30	\$12,593
1.1.2 Grade Control Structure													
<i>Major Tributary</i>	Each	\$1,120,000	35%	\$1,512,000	3	\$4,536,000	\$1,360,800	\$408,240	\$4,238	\$12,714	\$6,317,754	\$500	\$1,500
<i>Minor Tributary</i>	Each	\$200,000	35%	\$270,000	46	\$12,420,000	\$3,726,000	\$1,117,800	\$4,295	\$197,570	\$17,461,370	\$200	\$9,200
1.2 Bank Stabilization													
1.2.1 Vegetation													
<i>Mainstem</i>	100 ft	\$11,000	35%	\$14,850	0	\$0	\$0	\$0	\$784	\$0	\$0	\$208	\$0
<i>Major Tributary</i>	100 ft	\$9,025	35%	\$12,184	4754	\$57,921,548	\$17,376,464	\$5,212,939	\$734	\$3,489,436	\$84,000,387	\$171	\$810,902
<i>Minor Tributary</i>	100 ft	\$7,100	35%	\$9,585	8457	\$81,060,345	\$24,318,104	\$7,295,431	\$684	\$5,784,588	\$118,458,468	\$134	\$1,134,845
1.2.2 Stone Armor													
<i>Mainstem</i>	100 ft	\$20,550	35%	\$27,743	0	\$0	\$0	\$0	\$784	\$0	\$0	\$25	\$0
<i>Major Tributary</i>	100 ft	\$16,900	35%	\$22,815	593	\$13,529,295	\$4,058,789	\$1,217,637	\$734	\$435,262	\$19,240,982	\$21	\$12,176
<i>Minor Tributary</i>	100 ft	\$13,200	35%	\$17,820	871	\$15,521,220	\$4,656,366	\$1,396,910	\$684	\$595,764	\$22,170,260	\$16	\$13,969
1.2.3 In-stream weirs/barbs/groins/spur													
<i>Mainstem</i>	Ea. (1/100 ft)	\$32,780	35%	\$44,253	0	\$0	\$0	\$0	\$584	\$0	\$0	\$80	\$0
<i>Major Tributary</i>	Ea. (1/100 ft)	\$9,350	35%	\$12,623	2957	\$37,324,733	\$11,197,420	\$3,359,226	\$559	\$1,652,963	\$53,534,341	\$23	\$67,185
<i>Minor Tributary</i>	Ea. (1/100 ft)	\$4,950	35%	\$6,683	4346	\$29,042,145	\$8,712,644	\$2,613,793	\$534	\$2,320,764	\$42,689,346	\$12	\$52,276
1.2.4 Longitudinal Stone Toe													
<i>Mainstem</i>	100 ft	\$10,275	35%	\$13,871	0	\$0	\$0	\$0	\$584	\$0	\$0	\$12	\$0
<i>Major Tributary</i>	100 ft	\$6,450	35%	\$8,910	2631	\$30,013,133	\$9,003,940	\$2,701,182	\$559	\$1,470,729	\$43,188,983	\$10	\$27,012
<i>Minor Tributary</i>	100 ft	\$6,600	35%	\$8,910	4707	\$41,939,370	\$12,581,811	\$3,774,543	\$534	\$2,513,538	\$60,809,262	\$8	\$37,745
1.3. Wetland/Retention Structure													
1.3.1 Small Basin (<1 acre)	Each	\$28,000	35%	\$37,800	5150	\$194,670,000	\$58,401,000	\$17,520,300	\$6,645	\$34,221,750	\$304,813,050	\$200	\$1,030,000
1.3.2 Medium (1-5 acres)	Each	\$90,000	35%	\$121,500	1082	\$131,463,000	\$39,438,900	\$11,831,670	\$26,130	\$28,272,660	\$211,006,230	\$500	\$541,000
1.3.3 Large (150 acres)	Each	\$3,300,000	35%	\$4,455,000	5	\$22,275,000	\$6,682,500	\$2,004,750	\$423,638	\$2,118,190	\$33,080,440	\$15,000	\$75,000
Sum by Goal						\$685,793,588	\$205,738,076	\$61,721,423		\$84,949,388	\$1,038,202,475		\$3,826,887

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Goal 2 Backwaters and Side Channel													
2.1 Backwater Restoration													
2.1.1 8-Foot Depths	Backwater	\$1,263,889	35%	\$1,706,250								\$0	
2.1.2 8 to 6 Foot Depths	Backwater	\$171,111	35%	\$231,000								\$0	
2.1.3 6 to 3 Foot Depths	Backwater	\$140,000	35%	\$189,000								\$0	
2.1.4 3 to 0 Foot Depths	Backwater	\$23,333	35%	\$31,500								\$0	
2.1.5 4-Foot Deep Holes	Backwater	\$3,265,046	35%	\$4,407,813								\$0	
2.1.6 8-Foot Deep Holes	Backwater	\$2,527,778	35%	\$3,412,500								\$0	
2.1.7 12-Foot Deep Holes	Backwater	\$2,381,944	35%	\$3,215,625								\$0	
Total Backwater Cost				\$13,193,688	60	\$791,621,250	\$237,486,375	\$71,245,913	\$1,213,187	\$72,791,228	\$1,173,144,765	\$0	\$0
2.2 Island Protection													
2.2.1 Off-Bank Revetment	Island Protection	\$361,387	35%	\$487,872								\$878	
2.2.2 Bankline Revetment	Island Protection	\$129,067	35%	\$174,240								\$157	
2.2.3 Timber Piles	Island Protection	\$119,680	35%	\$161,568								\$485	
Total Island Protection				\$823,680.00	15	\$12,355,200	\$3,706,560	\$1,111,968	\$9,497	\$142,454	\$17,316,182	\$1,520	\$22,795
2.3 Side Channel Restoration													
2.3.1 Stub Dikes	Side Channel	\$67,375	35%	\$90,956								\$164	
2.3.2 Dredging 6 ft	Side Channel	\$102,667	35%	\$138,600								\$0	
2.3.3 Dredging 3 ft to 6 ft	Side Channel	\$16,427	35%	\$22,176								\$0	
2.3.4 Dredging 0 to 3 ft	Side Channel	\$2,738	35%	\$3,696								\$0	
Total Side Channel Restoration				\$255,428.10	35	\$8,939,984	\$2,681,995	\$804,599	\$33,361	\$1,167,622	\$13,594,199	\$164	\$5,730
Sum by Goal						\$812,916,434	\$243,874,930	\$73,162,479		\$74,101,304	\$1,204,055,146		\$28,526

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Goal 3 Floodplain and Riparian													
3.1 Floodplain and Riparian													
3.1.1 Timber Stand Improvement (1)	Acre	\$2,500	35%	\$3,375	19600	\$66,150,000	\$19,845,000	\$5,953,500	\$3,502	\$68,632,600	\$160,581,100	\$2	\$39,200
3.1.2 Mast Tree Planting (1)	Acre	\$1,400	35%	\$1,890	19600	\$37,044,000	\$11,113,200	\$3,333,960	\$3,502	\$68,632,600	\$120,123,760	\$65	\$1,274,000
3.1.3 Prairie Plantings (1)	Acre	\$1,000	35%	\$1,350	31500	\$42,525,000	\$12,757,500	\$3,827,250	\$3,603	\$113,481,000	\$172,590,750	\$5	\$157,500
3.1.4 Moist Soil Management Units (1)	Acre	\$6,000	35%	\$8,100	39650	\$321,165,000	\$96,349,500	\$28,904,850	\$3,837	\$152,126,900	\$598,546,250	\$20	\$793,000
3.1.5 Wetland Plantings (1)	Acre	\$2,650	35%	\$3,578	39650	\$141,847,875	\$42,554,363	\$12,766,309	\$3,837	\$152,126,900	\$349,295,446	\$7	\$277,550
3.1.6 Gated Levee	Each	\$2,000,000	35%	\$2,700,000	8	\$21,600,000	\$6,480,000	\$1,944,000	\$4,382	\$35,056	\$30,059,056	\$20	\$160
3.1.7 Repair Environmental Levees	Each	\$283,300	35%	\$382,455	8	\$3,059,640	\$917,892	\$275,368	\$4,382	\$35,056	\$4,287,956	\$0	\$0
3.2 In-stream Aquatic Restoration													
3.2.1 Riffle Structure													
<i>Major Tributary</i>	Each	\$110,000	35%	\$148,500	1400	\$207,900,000	\$62,370,000	\$18,711,000	\$4,238	\$5,933,200	\$294,914,200	\$149	\$207,900
<i>Minor Tributary</i>	Each	\$22,000	35%	\$29,700	6795	\$201,811,500	\$60,543,450	\$18,163,035	\$4,295	\$29,184,525	\$309,702,510	\$30	\$201,812
3.2.2 Channelization Remeander in Floodplains													
<i>Minor Tributary</i>	100 ft	\$45,000	35%	\$60,750	6600	\$400,950,000	\$120,285,000	\$36,085,500	\$11,963	\$78,955,800	\$636,276,300	\$365	\$2,405,700
Sum by Goal						\$1,444,053,015	\$433,215,905	\$129,964,771		\$669,143,637	\$2,676,377,328		\$5,356,822
Goal 4 Connectivity													
4.1 Dam Removal													
<i>Major Tributary</i>	Each	\$300,000	35%	\$405,000	1	\$405,000	\$121,500	\$36,450	\$3,000	\$3,000	\$565,950	\$0	\$0
<i>Minor Tributary</i>	Each	\$300,000	35%	\$405,000	1	\$405,000	\$121,500	\$36,450	\$2,700	\$2,700	\$565,650	\$0	\$0
4.2 Fish By-Pass Channel													
<i>Major Tributary</i>	Each	\$894,830	35%	\$1,208,021	7	\$8,456,144	\$2,536,843	\$761,053	\$26,429	\$185,003	\$11,939,042	\$2,416	\$16,912
<i>Minor Tributary</i>	Each	\$343,970	35%	\$464,360	1	\$464,360	\$139,308	\$41,792	\$13,600	\$13,600	\$659,060	\$929	\$929
4.3 Fish Ramp Structure													
<i>Major Tributary</i>	Each	\$1,688,132	35%	\$2,278,979	11	\$25,068,764	\$7,520,629	\$2,256,189	\$8,427	\$92,700	\$34,938,283	\$11,395	\$125,344
<i>Minor Tributary</i>	Each	\$107,658	35%	\$145,339	18	\$2,616,100	\$784,830	\$235,449	\$3,789	\$68,200	\$3,704,579	\$727	\$13,081
4.4 Denil Structure													
<i>Minor Tributary</i>	Each	\$788,906	35%	\$1,065,024	2	\$2,130,047	\$639,014	\$191,704	\$3,600	\$7,200	\$2,967,966	\$213	\$426
Sum by Goal						\$9,545,415	\$11,863,624	\$3,559,087		\$372,403	\$55,340,530		\$156,691

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Goal 5 Water Levels													
5.1 Dam Management													
5.1.1 Remote control dam	Lump Sum	\$3,000,000	35%	\$4,050,000	1	\$4,050,000	\$1,215,000	\$364,500	\$0	\$0	\$5,629,500	\$0	\$0
5.1.2 Revise Regulation Manuals (2)	Each	\$80,000	35%	\$108,000	7	\$756,000	\$0	\$0	\$0	\$0	\$756,000	\$0	\$0
5.1.3 Install and Maintain Gages (2)	Each	\$15,000	35%	\$20,250	10	\$202,500	\$0	\$0	\$0	\$0	\$202,500	\$12,500	\$125,000
5.1.4 Install New Tainter Gates	Each	\$13,900,000	35%	\$18,765,000	2	\$37,530,000	\$11,259,000	\$3,377,700	\$0	\$0	\$52,166,700	\$15,000	\$30,000
5.2 Storage													
5.2.1 Storage	Ac-ft	\$2,133	35%	\$2,880	160000	\$460,800,000	\$138,240,000	\$41,472,000	\$2,300	\$368,000,000	\$1,008,512,000	\$5	\$800,000
5.3 Infiltration													
5.3.1 Upland Structures and Filter Strips	Ac	\$5,556	35%	\$7,500	38400	\$288,000,000	\$86,400,000	\$25,920,000	\$3,400	\$130,560,000	\$530,880,000	\$7	\$259,200
5.4 Pool Drawdown													
5.4.1 Peoria Pool (2)	Lump Sum	\$7,800,000	35%	\$10,530,000	1	\$10,530,000	\$3,159,000	\$947,700	\$0	\$0	\$14,636,700	\$0	\$0
5.4.2 LaGrange Pool (2)	Lump Sum	\$12,200,000	35%	\$16,470,000	1	\$16,470,000	\$4,941,000	\$1,482,300	\$0	\$0	\$22,893,300	\$0	\$0
Sum by Goal						\$818,338,500	\$245,214,000	\$73,564,200		\$498,560,000	\$1,635,676,700		\$1,214,200
Grand Totals						\$3,800,646,951	\$1,139,906,535	\$341,971,961		\$1,327,126,732	\$6,609,652,178		\$10,583,126

(1) Unit costs shown are half those normally used for USACE construction projects of this type. Each of these measures assumed that construction or implementation would occur on half of the acreage shown and benefits would spread to the portion through volunteer establishment.

(2) No Planning, Engineering, and Design or Supervision and Administration costs are included because these activities involve mainly planning or would be negligible.

(3) Columns containing missing or zero (\$0) for total cost or total O&M were not used to formulate cost except for Goal 2, where sub-measures comprising a restoration measure are listed.

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Table E-4. Summary of Annual Component Costs for 7- and 11-Year Authorization

Illinois River Basin Restoration Comprehensive Plan														
Annual Component Costs (in 000's of Dollars)														
							TIER I				TIER II		TOTAL	
Component	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Years 1-11	% of Total	
Technologies and Innovative Approaches	\$0	\$75	\$856	\$4,234	\$5,703	\$6,550	\$6,723	\$8,183	\$7,713	\$8,220	\$8,686	\$56,943	15	
System Monitoring	\$0	\$0	\$0	\$2,500	\$3,000	\$3,000	\$4,000	\$4,000	\$4,000	\$4,000	\$4,000	\$28,500	7	
Site-Specific Monitoring	\$0	\$75	\$856	\$1,084	\$1,996	\$2,750	\$1,923	\$3,383	\$2,913	\$3,420	\$3,886	\$22,286	6	
Computerized Inventory and Analysis System	\$0	\$0	\$0	\$150	\$207	\$300	\$300	\$300	\$300	\$300	\$300	\$2,157	1	
Special Studies	\$0	\$0	\$0	\$500	\$500	\$500	\$500	\$500	\$500	\$500	\$500	\$4,000	1	
System Management	\$0	\$100	\$100	\$600	\$600	\$600	\$750	\$750	\$750	\$750	\$750	\$5,750	1	
Critical Restoration Projects	\$711	\$3,715	\$11,407	\$15,534	\$28,608	\$39,413	\$27,568	\$48,490	\$41,758	\$49,018	\$55,701	\$321,922	84	
Adaptive Management	\$0	\$0	\$0	\$1,084	\$1,996	\$2,750	\$1,923	\$3,383	\$2,913	\$3,420	\$3,886	\$21,355	6	
Sub Watershed (Minor Tributary)	\$73	\$990	\$2,608	\$4,034	\$16,070	\$27,741	\$8,026	\$18,865	\$18,269	\$28,748	\$46,525	\$171,948	45	
Major Tributary	\$433	\$433	\$747	\$784	\$4,112	\$2,362	\$3,224	\$3,945	\$559	\$2,207	\$4,377	\$23,183	6	
Floodplain Restoration (Main Stem)	\$16	\$22	\$1,751	\$3,444	\$1,743	\$118	\$118	\$235	\$735	\$3,408	\$6	\$11,595	3	
Pool Drawdown (LaGrange Pool)	\$0	\$0	\$0	\$0	\$435	\$435	\$946	\$8,570	\$9,347	\$779	\$0	\$20,511	5	
Backwater Restoration (Dredging)	\$189	\$2,080	\$6,047	\$5,644	\$3,835	\$2,346	\$9,671	\$9,881	\$9,674	\$9,898	\$415	\$59,680	16	
Side Channel Restoration/ Island Protection	\$0	\$191	\$254	\$545	\$418	\$3,660	\$3,660	\$3,611	\$261	\$557	\$493	\$13,650	4	
TOTAL	\$711	\$3,890	\$12,363	\$20,368	\$34,911	\$46,562	\$35,041	\$57,423	\$50,221	\$57,988	\$65,137	\$384,615	100	
Federal Share of Total	\$462	\$2,529	\$8,036	\$13,239	\$22,692	\$30,266	\$22,777	\$37,325	\$32,644	\$37,692	\$42,339	\$250,000	65	
Operations and Maintenance	\$0	\$0	\$0	\$0	\$1	\$27	\$65	\$125	\$126	\$149	\$201	\$694		

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Table E-5. Summary of Cumulative Component Costs for 7 and 11-Year Authorization

Illinois River Basin Restoration Comprehensive Plan													
Cumulative Component Costs (in 000's of Dollars)													
							TIER I					TIER II	
Component	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7		Year 8	Year 9	Year 10	Year 11	
Technologies and Innovative Approaches	\$0	\$75	\$931	\$5,164	\$10,867	\$17,417	\$24,140	15.7%	\$32,323	\$40,037	\$48,256	\$56,943	14.8%
System Monitoring	\$0	\$0	\$0	\$2,500	\$5,500	\$8,500	\$12,500	8.1%	\$16,500	\$20,500	\$24,500	\$28,500	7.4%
Site-Specific Monitoring	\$0	\$75	\$931	\$2,014	\$4,010	\$6,760	\$8,683	5.6%	\$12,066	\$14,980	\$18,399	\$22,286	5.8%
Computerized Inventory and Analysis System	\$0	\$0	\$0	\$150	\$357	\$657	\$957	0.6%	\$1,257	\$1,557	\$1,857	\$2,157	0.6%
Special Studies	\$0	\$0	\$0	\$500	\$1,000	\$1,500	\$2,000	1.3%	\$2,500	\$3,000	\$3,500	\$4,000	1.0%
System Management	\$0	\$100	\$200	\$800	\$1,400	\$2,000	\$2,750	1.8%	\$3,500	\$4,250	\$5,000	\$5,750	1.5%
Critical Restoration Projects	\$711	\$4,426	\$15,833	\$31,368	\$59,976	\$99,388	\$126,956	82.5%	\$175,446	\$217,204	\$266,221	\$321,922	83.7%
Sub Watershed (Minor Tributary)	\$73	\$1,062	\$3,670	\$7,704	\$23,774	\$51,515	\$59,540	38.7%	\$78,406	\$96,675	\$125,423	\$171,948	44.7%
Major Tributary	\$433	\$867	\$1,614	\$2,398	\$6,509	\$8,872	\$12,096	7.9%	\$16,040	\$16,599	\$18,806	\$23,183	6.0%
Floodplain Restoration (Main Stem)	\$16	\$37	\$1,788	\$5,232	\$6,975	\$7,093	\$7,211	4.7%	\$7,446	\$8,180	\$11,589	\$11,595	3.0%
Pool Drawdown (LaGrange Pool)	\$0	\$0	\$0	\$0	\$435	\$870	\$1,816	1.2%	\$10,386	\$19,732	\$20,511	\$20,511	5.3%
Backwater Restoration (Dredging)	\$189	\$2,269	\$8,316	\$13,960	\$17,795	\$20,141	\$29,812	19.4%	\$39,693	\$49,367	\$59,266	\$59,680	15.5%
Side Channel Restoration/ Island Protection	\$0	\$191	\$445	\$990	\$1,408	\$5,068	\$8,728	5.7%	\$12,339	\$12,600	\$13,157	\$13,650	3.5%
Adaptive Management	\$0	\$0	\$0	\$1,084	\$3,080	\$5,829	\$7,753	5.0%	\$11,136	\$14,049	\$17,469	\$21,355	5.6%
TOTAL	\$711	\$4,601	\$16,964	\$37,332	\$72,243	\$118,805	\$153,847	100.0%	\$211,269	\$261,490	\$319,478	\$384,615	100.0%
Federal Share of Total	\$462	\$2,991	\$11,026	\$24,266	\$46,958	\$77,223	\$100,000		\$137,325	\$169,969	\$207,661	\$250,000	
Operations and Maintenance	\$0	\$0	\$0	\$0	\$1	\$28	\$93		\$218	\$344	\$493	\$694	

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Table E-6. 11-Year Implementation Plan

Ecosystem Plan Components	No. of Projects	Cost	Resources							Year 1				Year 2				Year 3				Year 4				Year 5				Year 6				Year 7				Year 8				Year 9				Year 10				Year 11				Years 1-11			
			PM	ED	RE	OD	CD	CT	Cont	Land	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4							
Major Tributary		\$22,765								\$433				\$433				\$747				\$784				\$4,112				\$2,362				\$3,224				\$3,945				\$559				\$2,207				\$4,377				\$23,183			
Kankakee State Line		\$649																																																							
1. Complete Feasibility Study		\$250	\$53	\$165	\$18	\$8	\$8																																																		
2. Complete Plans and Specification for Project		\$32																																																							
3. Complete LERRDS		\$6																																																							
4. Contract Project Construction		\$391	\$2	\$12																																																					
5. Construct Project / Land Credit		\$1																																																							
6. Create Operations and Maintenance Manual		\$1																																																							
7. Conduct Annual O&M		\$1																																																							
Kankakee River		\$6,458																																																							
1. Complete Feasibility Study		\$650	\$228	\$325	\$59	\$23	\$16																																																		
2. Complete Plans and Specification for Project		\$200	\$42	\$132	\$14	\$6	\$6																																																		
3. Complete LERRDS		\$21																																																							
4. Contract Project Construction		\$6																																																							
5. Construct Project / Land Credit		\$5,567	\$21	\$168			\$378	\$4,200	\$800																																																
6. Create Operations and Maintenance Manual		\$14																																																							
7. Conduct Annual O&M		\$14																																																							
Fox River/ Hoffman Dam	1	\$7,829																																																							
1. Complete Feasibility Study		\$730	\$255	\$365	\$66	\$26	\$18																																																		
2. Complete Plans and Specification for Project		\$487	\$102	\$321	\$34	\$15	\$15																																																		
3. Complete LERRDS		\$25																																																							
4. Contract Project Construction		\$6																																																							
5. Construct Project / Land Credit		\$6,565	\$25	\$198			\$446	\$4,953	\$943																																																
6. Create Operations and Maintenance Manual		\$16																																																							
7. Conduct Annual O&M		\$16																																																							
Implementation Phase II	1	\$7,829																																																							
1. Complete Feasibility Study		\$730	\$255	\$365	\$66	\$26	\$18																																																		
2. Complete Plans and Specification for Project		\$487	\$102	\$321	\$34	\$15	\$15																																																		
3. Complete LERRDS		\$25																																																							
4. Contract Project Construction		\$6																																																							
5. Construct Project / Land Credit		\$6,565	\$25	\$198			\$446	\$4,953	\$943																																																
6. Create Operations and Maintenance Manual		\$16																																																							
7. Conduct Annual O&M		\$16																																																							
Floodplain Restoration (Main Stem)		\$11,595								\$16				\$22				\$1,751				\$3,444				\$1,743				\$118				\$118				\$235				\$735				\$3,408				\$6				\$11,595			
Pekin North		\$6,975																																																							
1. Complete Feasibility Study		\$30																																																							
2. Complete Plans and Specification for Project		\$23	\$4	\$14	\$1		\$1																																																		
3. Complete LERRDS		\$23																																																							
4. Contract Project Construction		\$23																																																							
5. Construct Project / Land Credit		\$6,888	\$23	\$76			\$254	\$4,800	\$1,735																																																
6. Create Operations and Maintenance Manual		\$21																																																							
7. Conduct Annual O&M		\$21																																																							
Implementation Phase I	1	\$4,620																																																							
1. Complete Feasibility Study		\$235	\$100	\$168	\$21		\$6																																																		
2. Complete Plans and Specification for Project		\$196	\$35	\$141	\$10		\$6																																																		
3. Complete LERRDS		\$10																																																							
4. Contract Project Construction		\$23																																																							
5. Construct Project / Land Credit		\$4,086	\$10	\$58			\$180	\$2,004	\$1,834																																																
6. Create Operations and Maintenance Manual		\$9																																																							
7. Conduct Annual O&M		\$9																																																							
Pool Drawdown (LaGrange Pool)		\$20,511								\$0				\$0				\$0				\$0				\$435				\$435				\$946				\$8,570				\$9,347				\$779				\$0				\$20,511			
Implementation Phase I	1	\$20,511																																																							
1. Complete Feasibility Study		\$1,087	\$337	\$674	\$65		\$11																																																		
2. Complete Plans and Specification for Project		\$725	\$130	\$544	\$36		\$14																																																		

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Table E-6. 11-Year Implementation Plan

Ecosystem Plan Components	No. of Projects	Cost	Resources							Year 1				Year 2				Year 3				Year 4				Year 5				Year 6				Year 7				Year 8				Year 9				Year 10				Year 11				Years 1-11			
			PM	ED	RE	OD	CD	CT	Cont	Land	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4																							
Side Channel Restoration / Island Protection	2	\$22,273								\$0				\$191				\$254				\$545				\$418				\$3,660				\$3,660				\$3,611				\$261				\$557				\$493				\$13,650			
Alton Pool	2	\$4,500																																																							
1. Complete Feasibility Study		\$159	\$56	\$79	\$11	\$11	\$2																																																		
2. Complete Plans and Specification for Project		\$106	\$22	\$68	\$7	\$7	\$1																																																		
3. Complete LERRDS		\$3			\$5																																																				
4. Contract Project Construction		\$3																																																							
5. Construct Project / Land Credit		\$4,223	\$5	\$43			\$97	\$6	\$4,034	\$43																																															
6. Create Operations and Maintenance Manual		\$2		\$2																																																					
7. Conduct Annual O&M		\$2		\$2																																																					
Starved Rock Pool	2	\$1,545																																																							
1. Complete Feasibility Study		\$159	\$56	\$79	\$11	\$11	\$2																																																		
2. Complete Plans and Specification for Project		\$106	\$22	\$68	\$7	\$7	\$1																																																		
3. Complete LERRDS		\$3			\$5																																																				
4. Contract Project Construction		\$3																																																							
5. Construct Project / Land Credit		\$1,268	\$5	\$43			\$97	\$6	\$1,079	\$43																																															
6. Create Operations and Maintenance Manual		\$2		\$2																																																					
7. Conduct Annual O&M		\$2		\$2																																																					
LaGrange Pool	4	\$2,545																																																							
1. Complete Feasibility Study		\$159	\$56	\$79	\$11	\$11	\$2																																																		
2. Complete Plans and Specification for Project		\$106	\$22	\$68	\$7	\$7	\$1																																																		
3. Complete LERRDS		\$3			\$5																																																				
4. Contract Project Construction		\$3																																																							
5. Construct Project / Land Credit		\$2,268	\$5	\$43			\$97	\$6	\$2,079	\$43																																															
6. Create Operations and Maintenance Manual		\$2		\$2																																																					
7. Conduct Annual O&M		\$2		\$2																																																					
PROJECT COST		\$431,362	\$17,703	\$42,596	\$5,719	\$1,854	\$24,064	\$240	\$265,395	\$73,792																																															
TOTAL COST		\$515,667	\$25,939	\$47,763	\$5,776	\$1,854	\$26,200	\$240	\$333,846	\$73,792																																															
CUMULATIVE COST																																																									
FEASIBILITY COST		\$35,195	\$12,271	\$17,738	\$3,110	\$1,228	\$848	\$0	\$0	\$0																																															
P&S COST		\$23,371	\$4,723	\$14,988	\$1,561	\$683	\$658	\$0	\$0	\$0																																															
LERRDS COST		\$1,218	\$0	\$0	\$1,218	\$0	\$0	\$0	\$0	\$0																																															
CONTRACT COST		\$18,945	\$82	\$659	\$0	\$0	\$1,482	\$252	\$16,470	\$0																																															
CONSTRUCTION / LAND CREDIT COST		\$385,577	\$1,154	\$9,199	\$0	\$0	\$20,746	\$0	\$245,221	\$73,883																																															
O&M MANUAL COST		\$238	\$0	\$238	\$0	\$0	\$0	\$0	\$0	\$0																																															
ANNUAL O&M COST		\$694	\$0	\$694	\$0	\$0	\$0	\$0	\$0	\$0																																															