

GREAT LAKES AND OHIO RIVER  
DIVISION

**GREAT LAKES AND OHIO RIVER DIVISION  
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# FLOOD AND COASTAL STORM DAMAGE REDUCTION

# INVESTIGATIONS

APPROPRIATION TITLE: Investigations, Fiscal Year 2010

Great Lakes and Ohio River Division

Study	Total Estimated Federal Cost	Allocation Prior to FY 2007	Allocation FY 2007	Allocation FY 2008	Allocation FY 2009	Tentative Allocation FY 2010	Additional to Complete After FY 2010
	\$	\$	\$	\$	\$	\$	\$
Des Plaines River, IL & WI (Phase II) Chicago District	6,000,000	3,220,000	750,000	362,000	478,000	500,000	TBD

The Des Plaines River (DPR) Basin originates in southwest Wisconsin and flows south into northeastern Illinois and has a drainage area of approximately 700 square miles. The DPR has a long history of flooding and land use change, which has caused significant economic and ecological losses throughout the basin. Economically, this study will provide benefits to a significant number of residential and commercial structures with an estimated market value of over \$100M in 73 municipalities. Record flooding in 1986 and 1987 caused an estimated \$100M in damage to 10,000 dwellings and 263 business and industrial sites and severely impacted the entire transportation network including air, rail and surface roads in this densely populated region Northwest of Chicago. There were seven fatalities during the 1986 and 1987 events. Floods severely impacted communication, transit, drinking water, emergency services and hospitals. Flooding in the Des Plaines River watershed can directly affect an estimated 1,733,000 people along with an estimated 4,810,000 people regionally impacted by the flooded transportation networks. Flood Risk Management measures would reduce the risk to life and health, and further prevent severe disruption to the air and land transportation networks including the world's busiest airport, O'Hare. Population density; residential and commercial development and flat topography still result in substantial risks to life and safety despite lower flood depths and velocities. Recent flood events in May 2004 and August 2007 caused significant flood damages resulting in disaster declarations for the area. The August 2007 flood event caused an estimated \$40M in damages.

Ecologically, this project could restore thousands of acres of the watershed. Agriculture, urban and suburban development within the watershed has created a landscape regime and drainage network that no longer provides the means for ecological and hydrological integrity to be sustained. This same change is the primary cause of increased flooding as well. Tens of thousands of natural landscape and wetland acres have been drained, altered or destroyed within the Upper Des Plaines watershed in Wisconsin and Illinois. To date, the study has evaluated 713 sites (115,373 acres) for implementing restoration measures that would improve riverine, wetland, riparian and watershed functions. The result of this analysis has illustrated that there are potentially 135 highly beneficial restoration projects (78,860 acres) that could be implemented that would have incidental flood damage reduction benefits. The next phase of this study will further refine this set to identify the most beneficial and cost effective alternative.

The Illinois Department of Natural Resources, Lake County Storm Management Commission, County of Kenosha, Cook County Highway Department and Metropolitan Water Reclamation District of Greater Chicago are sponsors for the project. The Feasibility Cost Sharing Agreement was executed in February 2002. The preliminary estimated cost of the feasibility phase is \$12,000,000 which is to be shared on a 50/50 percent basis by Federal and non-Federal interests. A summary of the cost sharing is as follows:

Total Estimated Study Cost	\$12,000,000
Feasibility Phase (Federal)	6,000,000
Feasibility Phase (Non-Federal)	6,000,000

FY 2009 funds will be used to continue the feasibility study. FY 2010 funds will also be used to continue the feasibility study. The completion date for the feasibility study is "To Be Determined".

7 May 2009

# CONSTRUCTION

APPROPRIATION TITLE: Construction – (Dam Safety Assurance)

PROJECT: Bluestone Lake, West Virginia (Dam Safety Assurance) (Continuing)

LOCATION: The dam is located in southern West Virginia, in Summers County, on the New River two miles south of Hinton, West Virginia. It is situated 2.5 miles downstream from the confluence of the New and Bluestone Rivers, and 0.8 miles upstream from the confluence of the New and Greenbrier Rivers.

DESCRIPTION: The dam modifications include stability improvements such as installation of post tensioning high strength steel anchors, and construction of mass concrete thrust blocks at the downstream face of the dam. The height of the dam will be raised by 8 feet and an additional monolith constructed at the east abutment to prevent overtopping of the existing dam and safely accommodate the probable maximum flood. A floodgate closure will be constructed across a state highway at the west abutment. The existing hydropower penstocks will be extended and retrofitted with gates to supplement the discharge capacity of the spillway and outlet works. All work is programmed.

AUTHORIZATION: Executive Order of the President 7183-A, September 12, 1935; Flood Control Acts of 1936 and 1938.

REMAINING BENEFIT-REMAINING COST RATIO: Not applicable

TOTAL BENEFIT-COST RATIO: Not applicable.

BASIS OF BENEFIT-COST RATIO: Not applicable.

SUMMARIZED FINANCIAL DATA:

Original Project

Actual Federal Cost	\$ 28,618,100
Actual Non-Federal Cost	0
Total Original Project Cost	\$ 28,618,100

Division: Great Lakes & Ohio River

District: Huntington

Bluestone Lake, WV  
(Dam Safety Assurance)

7 May 2009

LRD-5

SUMMARIZED FINANCIAL DATA: (continued)

Project Modification	STATUS (1 Jan 2009)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost	\$ 232,000,000	Project Modification	20 To Be Determined
Estimated Non-Federal Cost	0		
Total Estimated Modification Cost	\$ 232,000,000 <u>1/</u>		
Total Estimated Project Cost	\$ 260,618,000		

PHYSICAL DATA

Increase height of dam 8 feet; install anchors and thrust blocks; construct gate closure across State Route 20; modify penstocks to supplement discharge capacity; relocate electrical lines.

1/ Total Project Cost being reassessed in light of findings in the Issue Evaluation Study which identified critical risk and safety issues at the Project.

	ACCUM PCT OF EST
Allocations through FY 2008	\$ 79,223,000
Conference Amount for FY 2009	12,000,000
Allocation for FY 2009	12,000,000
Allocations through FY 2009	91,223,000 54
Allocation requested for FY 2010	86,700,000 TBD
Programmed Balance to Complete after FY 2010	TBD
Unprogrammed Balance to Complete after FY 2010	0

JUSTIFICATION: Project categorized as DSAC II project in the Corps' inventory based on the 2005 Portfolio Risk Assessment. The Dam Safety Assurance Program provides for modification of completed Corps dam projects which are potential safety hazards in light of present-day engineering standards. An Issue Evaluation Study (IES) done by Bureau of Reclamation and Corps personnel identified critical risk and safety issues at the project. The Project Delivery Team with international experts and experts from academia is addressing several issues related to scour and rock strengths. The Interim Risk Reduction Measures Plan will be updated accordingly. Congressional/state/local briefings were held in November 2008 and an emergency exercise was performed in December 2008 and January 2009, with state and local entities participating. All affected counties received local leadership briefings and public meetings were held in all counties. Based on a downstream hazard assessment, there is sufficient justification to modify the project to accommodate 100% of the Probable Maximum Flood. Failure would cause catastrophic flooding along the Greenbrier, New, Gauley, Kanawha, and Elk Rivers and at the heavily industrialized state capital of Charleston, West Virginia, putting 115,000 people at risk with property damages in excess of \$6.5 billion. Average annual benefits, all flood control, are \$76,258,000.

Division: Great Lakes & Ohio River

District: Huntington

Bluestone Lake, WV  
(Dam Safety Assurance)

7 May 2009

LRD-6



FISCAL YEAR 2009: The current amount is being applied as follows:

Continue Work Under Contract for Dam Modifications	\$ 8,546,000
Continue Planning, Engineering and Design	2,178,000
Continue Construction Management	1,084,000
Total	\$ 12,000,000

FISCAL YEAR 2010: The requested amount will be applied as follows:

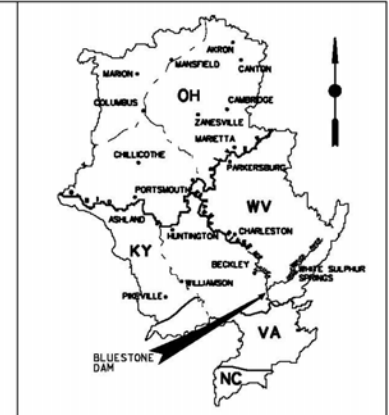
Continue installation of anchors in critical monoliths	\$ 41,000,000
Initiate installation of penstock scour protection	40,000,000
Continue Planning, Engineering and Design	4,000,000
Continue Construction Management	1,700,000
Total	\$ 86,700,000

NON-FEDERAL COST: None. The dam safety assurance modification is being performed at full Federal expense.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of \$ 232,000,000 is unchanged from the latest estimate presented to Congress (FY 2009). The project cost estimate is being reassessed, given the findings of the Issue Evaluation Study.

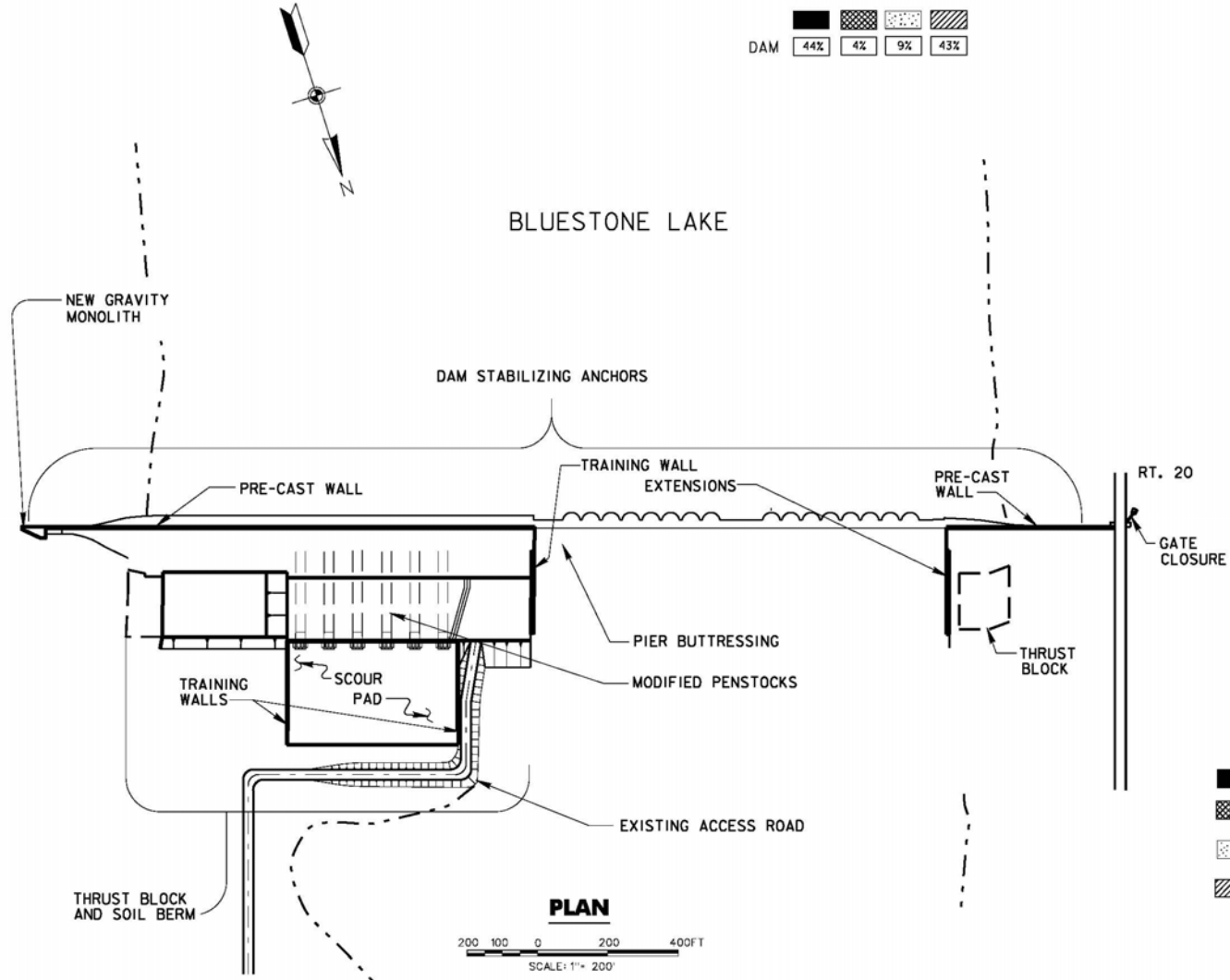
STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement was filed with EPA on August 31, 1998.

OTHER INFORMATION: The Bluestone Dam, West Virginia, Final Evaluation Report and Environmental Impact Statement were approved August 13, 1998. The scheduled completion date is the same as the latest presented to Congress (FY 2009), "To Be Determined."



VICINITY MAP

50 25 0 50 100FT  
SCALE: 1" = 50'



PLAN

200 100 0 200 400FT  
SCALE: 1" = 200'

**STATUS OF WORK**

- WORK COMPLETED
- WORK UNDERWAY WITH FUNDS AVAILABLE FOR F.Y. 2010
- WORK PROPOSED WITH FUNDS REQUESTED FOR F.Y. 2011
- WORK REQUIRED TO COMPLETE THE PROJECT AFTER F.Y. 2011

NEW RIVER  
**BLUESTONE DAM SAFETY ASSURANCE**  
 HUNTINGTON DISTRICT  
 GREAT LAKES AND OHIO RIVER DIVISION

7 MAY 2009

APPROPRIATION TITLE: Construction – Dam Safety Assurance, Major Rehabilitation

PROJECT: Center Hill Dam, Cumberland River Basin, Caney Fork River, DeKalb County, Tennessee (Continuing)

LOCATION: Center Hill Dam is located at Mile 26.6 on the Caney Fork River in DeKalb County, Tennessee, 55 miles east of Nashville, Tennessee.

DESCRIPTION: Center Hill Dam has been in service for 58 years (1951-2008) providing flood control, hydropower, recreation, water supply and water quality benefits. The Dam has a maximum height of 250 feet and consists of a 1,382 foot long concrete section, a 778 foot long rolled earth embankment and a 125 foot high by 770 foot long earthen saddle dam in the right rim. The dam impounds 2,092,000 acre-feet at its maximum flood control pool elevation. Since construction, seepage problems through the karst limestone dam foundation have cost millions of dollars in monitoring, subsurface investigation and grouting. Over recent years, seepage has increased. Foundation conditions are deteriorating because of erosion along open and clay-filled joints and solution features in the rock within the rims and dam foundation. Erosion jeopardizes the two earthen embankments, the abutments and the integrity of the rims. The Major Rehabilitation Evaluation Report dated 30 May 2006 evaluated several alternatives to improve the long term reliability of the dam. The recommended alternative, which is also the National Economic Development alternative, includes 4 separable features: 1) a grout curtain into the main embankment foundation, left groin and left rim, approximately 4,000 feet long; 2) a grout curtain into the right abutment, right rim and saddle dam, approximately 2,400 feet long and 3) a concrete barrier wall into the foundation of the main dam and saddle dam embankments, and 4) rehabilitation of the Station Service Power House hydropower unit to improve reliability and enhance environmental performance. This work on the 2-MW unit is needed to mitigate the downstream flow loss resulting from the remedial work. The Major Rehabilitation Evaluation Report was approved July 14, 2006.

AUTHORIZATION: Flood Control Act of 1938 and the River and Harbor Act of 1946

REMAINING BENEFIT-REMAINING COST RATIO: 2.6 at 7.0 percent.

TOTAL BENEFIT-COST RATIO: 2.6 at 7.0 percent.

INITIAL BENEFIT-COST RATIO: 3.4 at 5 1/8 percent (FY 2006).

BASIS OF BENEFIT-COST RATIO: Benefits are from the latest available evaluation, dated July 2006, at January 2006 price levels.

SUMMARIZED FINANCIAL DATA		STATUS (1 Jan 2009)	PCT CMPL	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost	\$ 268,700,000			
Programmed Construction	\$ 268,700,000	Entire Project	14	TBD
Total Estimated Project Cost	\$ 268,700,000			

PHYSICAL DATA

Cutoff Wall 1,600 feet long, Grout Curtain 6,400 feet long

Division: Great Lakes and Ohio River

District: Nashville

Center Hill Dam Safety Major Rehab, TN

7 May 2009

LRD-9

SUMMARIZED FINANCIAL DATA (Continued)

		ACCUM PCT OF EST FED COST
Allocations to 30 September 2006	600,000 <sup>1/</sup>	
Allocation for FY 2007	6,500,000 <sup>1/</sup>	
Allocation for FY 2008	31,488,000	
Conference Allowance for FY 2009	51,102,000	
Allocation for FY 2009	51,102,000	
Allocations through FY 2009	89,690,000	34
Allocation Requested for FY 2010	56,000,000	56
Programmed Balance to Complete after FY 2010	TBD	
Unprogrammed Balance to Complete after FY 2010	0	

<sup>1/</sup> Funded from Dam Safety and Seepage/Stability Correction Program.

JUSTIFICATION: Continued, uncontrolled seepage creates the potential for dam failure or partial loss of the reservoir. Karst foundation seepage is difficult to accurately predict, however, in the event of failure, downstream damages would likely exceed a billion dollars. There is a probable loss of life associated with dam failure.

FISCAL YEAR 2009: The current amount is being applied as follows:

Continue Dam Embankment & Left Rim Grouting Contract	\$ 40,802,000
Initiate Contract for Grouting Concrete Dam, Right Rim, & Saddle Dam	1,000,000
Complete Station Service Generator Rehabilitation	1,000,000
Planning, Engineering and Design	4,800,000
Construction Management	3,500,000
Total	\$ 51,102,000

FISCAL YEAR 2010: The requested amount will be applied as follows:

Continue Dam Embankment & Left Rim Grouting Contract	\$ 15,900,000
Continue Contract for Grouting Concrete Dam, Right Rim, & Saddle Dam	29,300,000
Planning, Engineering and Design	6,600,000
Construction Management	4,200,000
Total	\$ 56,000,000

Division: Great Lakes and Ohio River

District: Nashville

Center Hill Dam Safety Major Rehab, TN

7 May 2009

STATUS OF LOCAL COOPERATION: This Major Rehabilitation project is designed as a reliability-based improvement. There are no anticipated efficiency benefits. The project will require full initial federal funding. There are two classes of users that may be required to share in the final cost of this project, the water supply and hydropower customers. Three water supply users currently have signed agreements with Nashville District. The users are the Cities of Cookeville and Smithville plus Riverwatch Resort. Hydropower from the project is marketed through the Southeastern Power Administration (SEPA). SEPA will repay their share of the costs by periodic direct payment to the U.S. Treasury after construction.

COMPARISON OF FEDERAL COST ESTIMATES: The current cost estimate of \$268,700,000 is an increase of \$5,700,000 from the latest estimate (\$263,000,000) presented to Congress (FY2009). The change includes the following items.

Item	Amount
Price Level Updating and Inflation	5,700,000
Total	5,700,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT COMPLIANCE: An environmental analysis (EA) was completed early in the study process and a finding of no significant impact (FONSI) was signed July 2005. An EA Supplement was completed to address additional alternatives and the FONSI was signed in May 2006. A second supplemental EA was completed in December 2007 to address specific grouting methods proposed by potential construction contractors. An EIS evaluating lower lake level alternatives during construction was completed in November 2007 and a Record of Decision (ROD) was signed in February 2008.

OTHER INFORMATION: Probable loss of life with dam failure is 357, with a range from 184 to 533. The 2005 Corps-wide Screening Portfolio Risk Assessment for Dam Safety ranked Center Hill Dam in Class I category for Corps dams nationwide. ASA(CW) concurred with the report recommendations on August 14, 2006. Design for construction began in FY 2007 utilizing Dam Safety and Seepage/Stability Correction Program funds. The first major construction contract was awarded in February 2008.



APPROPRIATION TITLE: Construction - Local Protection (Flood Control)

PROJECT: Des Plaines River, IL (Continuing)

LOCATION: The project area is located in Lake and Cook Counties in northeastern Illinois and has a drainage area of approximately 500 square miles.

DESCRIPTION: The project consists of six elements: two levee units, expansion of two existing reservoirs, raising of one existing dam to increase storage, construction of one new lateral storage area, and environmental mitigation. Both levee units are a combination of floodwalls, levees, and closure structures; and both provide residents with a 100-year level of protection in addition to significant transportation benefits.

AUTHORIZATION: Water Resources Development Act of 1999 (P. L.106-53).

REMAINING BENEFIT-REMAINING COST RATIO: 3.2 to 1 at 7 percent (Entire project)  
1.9 to 1 at 7 percent (Big Bend Lake)  
9.6 to 1 at 7 percent (Levee 37)

TOTAL BENEFIT-COST RATIO: 1.2 to 1 at 7 percent. (Entire project)  
1.3 to 1 at 7 percent (Levee 37)  
1.4 to 1 at 7 percent (Big Bend Lake)

INITIAL BENEFIT-COST RATIO: 1.6 to 1 at 6 5/8 percent (Entire project)  
3.0 to 1 at 6 5/8 percent (Levee 37)  
1.5 to 1 at 6 5/8 percent (Big Bend Lake)

BASIS OF BENEFIT-COST RATIO: Benefits are from the latest approved feasibility report, dated June 1999 at October 1998 price levels.

SUMMARIZED FINANCIAL DATA		STATUS (1 Jan 2009)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost	\$51,700,000	Entire Project	25	To be determined
Estimated Non-Federal Cost	27,800,000			
Cash Contributions	3,974,000			
Other Costs	23,826,000			
Total Estimated Project Cost	\$79,500,000			
		PHYSICAL DATA		
		Levees and Floodwalls		2 Miles
		Reservoirs		1,063 Acre Feet
		Dam		500 Acre Feet
		Storage Areas		412 Acre Feet

Division: Great Lakes and Ohio River

District: Chicago

Des Plaines River, IL

7 May 2009

LRD-13

SUMMARIZED FINANCIAL DATA (CONTINUED)		ACCUM. PCT. OF EST. FED. COST
Allocations to 30 September 2006	\$ 6,520,000	
Allocations for FY 2007	6,000,000	
Allocation for FY 2008	6,001,000	
Conference Amount for FY 2009	6,000,000	
Allocation for FY 2009	7,500,000	
Allocations through FY 2009	26,021,000	50
Allocation Requested for FY 2010	3,300,000	57
Programmed Balance to Complete After FY 2010	TBD	
Unprogrammed Balance to Complete after FY 2010	0	

JUSTIFICATION: The Des Plaines River has a long history of frequent floods causing significant economic losses in the Chicago metropolitan area. 1986/1987 flooding of the Des Plaines River resulted in an estimated \$100 million in damages to this densely populated area of 10,000 dwellings and 300 commercial/industrial sites. Flooding also resulted in closure of Interstate 90/94 and severely disrupted the entire Chicago metropolitan area transportation network, including closure of one of the busiest airports, O'Hare International Airport, the first time ever for a non-winter event, for over 24 hours. O'Hare was surrounded by floodwaters, and egress was possible only by foot down Interstate 90 for stranded passengers. Over 15,000 residents were evacuated from the flooded area. There were 7 fatalities associated with the 1986/1987 flood events on the Des Plaines River including 6 deaths related to basement flooding which included electrocution and 1 death due to drowning during evacuation. Portions of the watershed are among the most rapidly developing in the Chicago metro area. Near record flooding occurred again in 2007, resulting in damage to structures, road closures and 1 recent fatality. Population density; residential and commercial development; and flat topography still result in substantial risks to life and safety despite lower flood depths and velocities as well as significant damages to 73 municipalities in the watershed. Flooding affects residential, commercial and industrial structures, and the large, dense transportation network in this area of over 800,000 residents. There are also effects to communication, emergency egress, safe drinking water supply and hospitals. The Governor of Illinois declared Lake and Cook Counties area of Des Plaines watershed a disaster area during May 2004 and August 2007 flood events. August 2007 flooding caused annual damages and economic impacts of \$40M in the uncompleted portion of the project area. Flooding caused evacuation of residents and numerous road closings for over a week. On Friday, October 3, 2008, The President declared the Chicago area a disaster area, enabling people hurt by the disastrous flooding following near-record rainfall beginning Sept. 13 to seek federal help in recovery. This project will reduce significant residential, commercial, industrial, and transportation damages by reducing river stages and duration of flooding.

This project, in addition to preventing damages to property, is effective in reducing a high risk to life for the populations in the project area. That risk must be considered in evaluating the project justification in addition to economic analyses. Risk is created by both hydrologic factors (flood depth, velocity, and short warning time) and cultural factors (size of population and available routes of egress from the flood plain.) Risks affects communication, emergency egress, drinking water & hospitals and large population.



Average annual flood damage benefits are estimated at \$9,200,000 for the entire Des Plaines River, IL project.

FISCAL YEAR 2009: The current amount is being applied as follows:

Continue construction of Levee 37	\$ 6,300,000
Engineering and Design	700,000
Construction Management	500,000
Total	\$ 7,500,000

FISCAL YEAR 2010: The requested amount will be applied as follows:

Continue construction of Levee 37	\$ 2,800,000
Engineering and Design	200,000
Construction Management	300,000
Total	\$ 3,300,000

NON-FEDERAL COST: In accordance with the cost sharing and financing requirements contained in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payment During Construction and Reimbursements	Annual Operation, Maintenance, Repair Rehabilitation, and Replacement Costs
Provide lands, easements, rights of way, and borrow and excavated or dredged material disposal areas.	\$7,944,000	
Modify or relocate utilities, roads, bridges (except railroad bridges), and other facilities, where necessary for the construction of the project, which may be reduced for credit allowed based on prior work (Section 104 of the Water Resource Development Act of 1986) after reductions for such credit have been made in the required cash payments.	15,882,000	
Pay 5 percent of the costs allocated to flood control to bring the total non-Federal share of flood control costs to 35 percent and bear all costs of operation, maintenance, repair, rehabilitation and replacement of flood control facilities.	3,974,000	\$273,200
Total Non-Federal Costs	\$27,800,000	\$273,200

The non-Federal sponsor has agreed to make all required payments concurrently with project construction.

Division: Great Lakes and Ohio River

District: Chicago

Des Plaines River, IL

7 May 2009

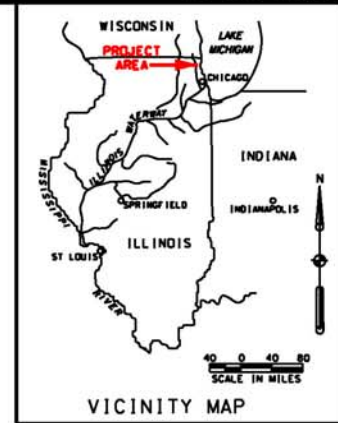
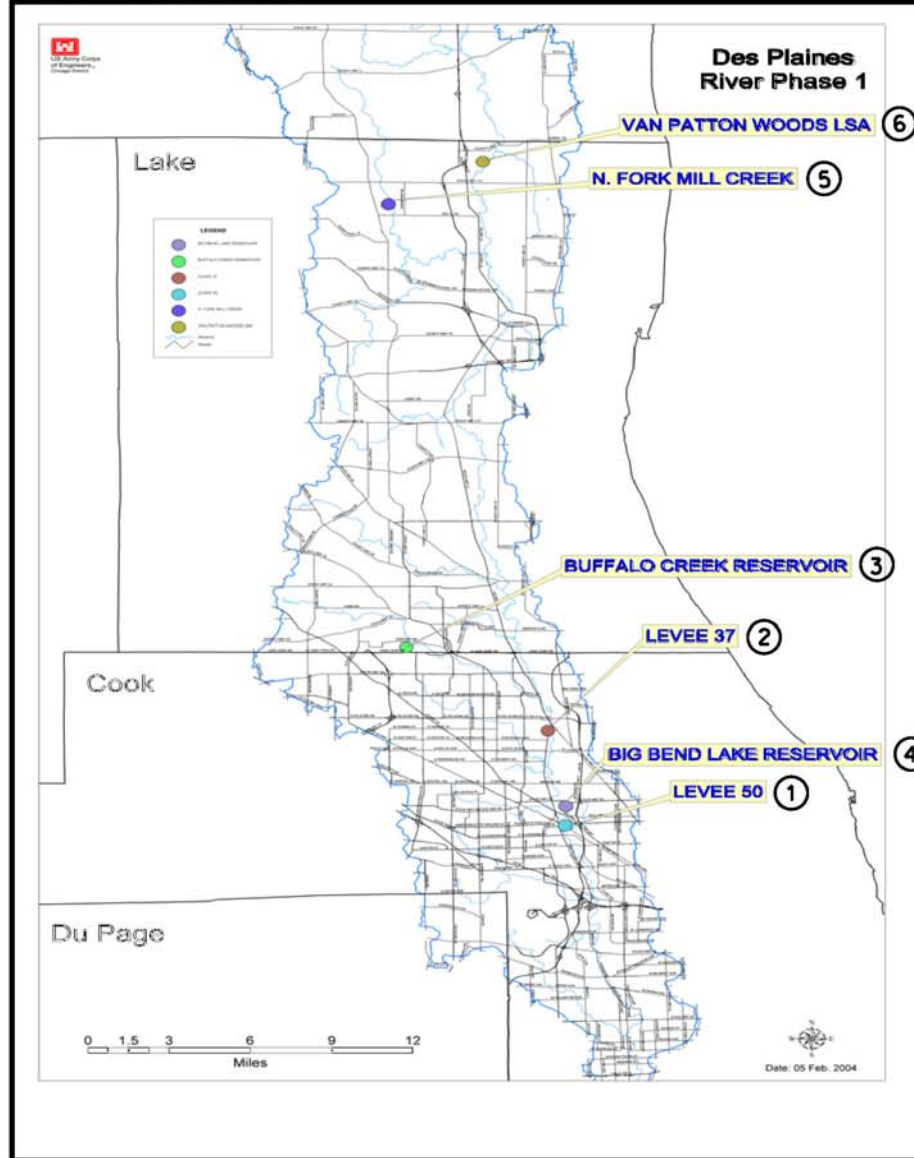
LRD-15

STATUS OF LOCAL COOPERATION: The State of Illinois is the local sponsor for the project. The Project Cooperation Agreement (PCA) was executed on 12 Oct 2007. The local sponsor has received ASA(CW)'s approval for Section 104 credit in the amount of \$14,711,000.

COMPARISON OF FEDERAL COST ESTIMATE: The Federal cost estimate of \$51,700,000 is an increase of \$4,700,000 over the previously estimated cost of \$47,000,000, last presented to Congress (FY 2009). This increase is due to price levels, inflation adjustments and post contract award adjustments.

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement (EIS) was filed with the United States Environmental Protection Agency on 15 July 1999. The Record of Decision was signed on 5 January 2000. A supplemental EIS was filed on 11 May 2006. The Record of Decision was signed on 16 June 2006.

OTHER INFORMATION: Funds to initiate PED were appropriated in FY 1998. Local sponsor initiated and completed construction of gates in FY99 and awarded a pump station contract in June 2003 that was completed in FY 2005. The local sponsor awarded a construction contract of the final phase of Levee 50 in FY 2006, which is scheduled for completion in June 2009. The scheduled completion date is the same as the latest presented to Congress (FY 2009), "To Be Determined".



SCHEDULES	Project No.
WORK COMPLETED AS OF 30 SEPTEMBER 2008	1
WORK PROPOSED WITH FUNDS AVAILABLE FOR FY 2009	2
WORK PROPOSED WITH FUNDS REQUESTED FOR FY 2010	2
WORK REQUIRED TO COMPLETE THE PROJECT AFTER FY 2010	2, 3, 4, 5, & 6

**NOTE:**  
 ① LEVEE 50 CONSTRUCTED BY NON-FEDERAL SPONSOR

**DES PLAINES RIVER ILLINOIS**

**CHICAGO DISTRICT GREAT LAKES AND OHIO RIVER DIVISION**

**7 MAY 2009**

APPROPRIATION TITLE: Construction – Dam Safety Assurance (Flood Control)

PROJECT: Dover Dam, Muskingum River Lakes, Ohio (New)

LOCATION: The Dover Dam is located on the Tuscarawas River, a tributary of the Muskingum River, in Tuscarawas County, Ohio. The dam is located 173.6 miles above the mouth of the Muskingum River.

DESCRIPTION: The Dover Dam is a concrete gravity dam. Construction was completed in November 1937. The Dover Dam is generally founded at elevation 850. The top of the spillway section is elevation 916 (66 feet tall) and the top of the non-overflow section is elevation 931 (81 feet tall). The width of the spillway section is 338 feet. The total width of the dam is 824 feet. The Dover Dam is a dry dam – the Dover Dam allows the Tuscarawas River to flow freely through the dam for a significant portion of time and only retains water when necessary for flood protection and flood damage reduction. Control of water is achieved by six, 5-foot wide by 10-foot tall sluices, and twelve, 7-foot wide by 7-foot tall sluices. The pool of record occurred in January 2005 and was elevation 907.4.

AUTHORIZATION: The project was authorized by the Public Works Administration on February 20, 1934.

REMAINING BENEFIT-REMAINING COST RATIO: Not applicable

TOTAL BENEFIT-COST RATIO: Not applicable.

INITIAL BENEFIT – COST RATIO: Not applicable.

BASIS OF BENEFIT-COST RATIO: Not applicable.

SUMMARIZED FINANCIAL DATA:

Original Project		STATUS: (1 Jan 2009)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Actual Federal Cost	\$26,590,000	Entire Project	5 %	TBD
Actual Non-Federal Cost	\$8,000,000			
Cash Contributions	8,000,000			
Other Costs	0			
Total Original Project Cost	\$34,590,000 1/			

1/ Represents total cost of 14-dam Muskingum Basin system. No cost allocations are available for individual elements.

Division: Great Lakes & Ohio River

District: Huntington

Dover Dam, Muskingum River Lakes, Ohio  
(Dam Safety Assurance)

7 May 2009

LRD-18

PHYSICAL DATA

Corrective measures to be undertaken are identified in the Design Documentation Report and are being outlined in the Plans and Specifications.

SUMMARIZED FINANCIAL DATA: (continued)

PROJECT MODIFICATION

Estimated Federal Cost		97,350,000
Programmed Construction	97,350,000	
Unprogrammed Construction	0	
Estimated Non-Federal Cost		3,450,000
Programmed Construction	3,450,000	
Cash Contributions	3,450,000	
Other Costs	0	
Estimated Non-Federal Cost		0
Unprogrammed Construction	0	
Cash Contributions	0	
Other Costs	0	
Total Estimated Programmed Construction Cost		100,800,000
Total Estimated Unprogrammed Construction Cost		0
Total Estimated Project Cost		100,800,000

ACCUM  
PCT OF EST  
FED COST

Allocations thru 30 September 2008	5,389,000	2/	
Allocation for FY 2009	4,600,000		
Allocations through FY 2009	9,989,000		
Allocation requested for FY 2010	18,500,000		28%
Programmed Balance to Complete after FY 2010	TBD		
Unprogrammed Balance to Complete after FY 2010	0		

2/ Does not include O&M allocations of \$257,900 for study costs.

Division: Great Lakes & Ohio River

District: Huntington

Dover Dam, Muskingum River Lakes, Ohio  
(Dam Safety Assurance)

7 May 2009

LRD-19

JUSTIFICATION: Dover Dam was classified in dam safety action class II in the screening portfolio risk analysis (SPRA). The Dover Dam is hydrologically deficient – it will not safely pass the spillway design flood. The imminent failure flood is below the spillway crest. The dam does not meet current stability criteria for sliding. If a failure were to occur, the estimated population at risk is 41,000 and the potential economic damages are \$658,000,000.

FISCAL YEAR 2009: The amount provided (CG Wedge Account) is being applied as follows:

Complete Design Documentation Report	\$ 500,000
Complete Plans and Specifications for Resident Engineer's Office	1,000,000
Initiate Plans and Specifications for Dam Safety Features	2,400,000
Initiate Construction of Resident Engineer's Office	700,000
Total	\$4,600,000

FISCAL YEAR 2010: The requested amount will be applied as follows:

Complete Plans and Specifications	100,000
Initiate Construction of Dam Safety Features	16,200,000
Engineering and Design During Construction	750,000
Supervision and Administration	1,450,000
Total	\$18,500,000

NON-FEDERAL COST: In accordance with Section 1203 of the Water Resources Development Act of 1986, as amended, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payments During Construction And Reimbursements	Annual OMRR&R Costs
Pay 3.45 percent of the costs of the dam safety assurance corrective measures that are allocated to project purposes (3.45 percent of total project costs).	\$ 3,450,000	\$ 0
Total Non-Federal Costs	\$ 3,450,000	\$ 0

The non-Federal sponsor has agreed to make all required payments concurrently with project construction.

Division: Great Lakes & Ohio River

District: Huntington

Dover Dam, Muskingum River Lakes, Ohio  
(Dam Safety Assurance)

7 May 2009

LRD-20

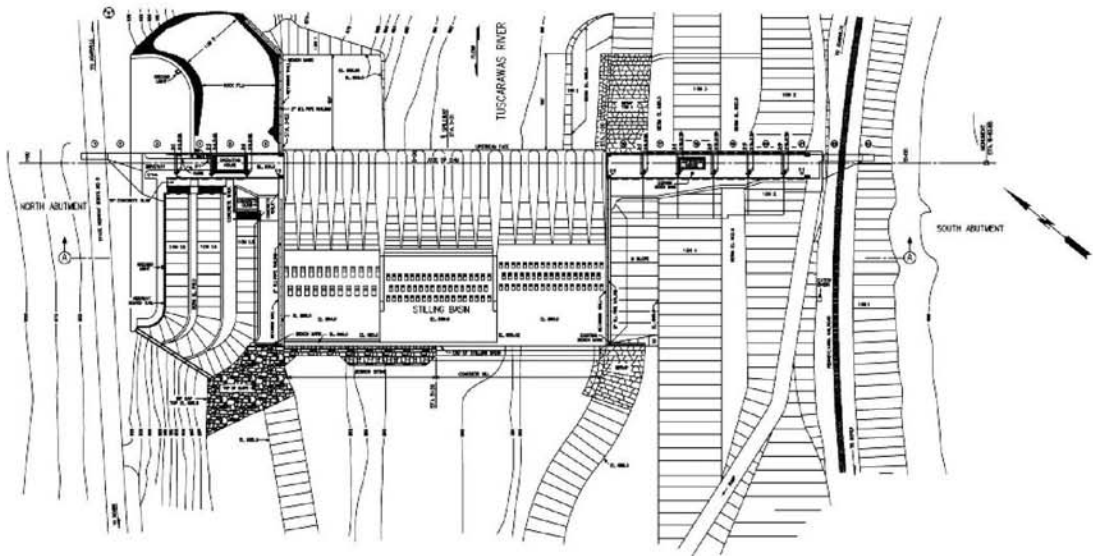
COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of \$97,350,000 is the initial estimate presented to Congress.

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The Environmental Impact Statement was prepared in conjunction with the Evaluation Report. The Evaluation Report was approved July 2007 and a concurrence memorandum from the ASA(CW) is dated 30 January 2008.





OTHER INFORMATION: Funds were added in the FY 2006 Energy and Water Development Appropriations Act (P.L. 109-103) for the completion of the Dam Safety Assurance Program.



VICINITY MAP  
 50 25 0 25 50 100 FT  
 SCALE: 1" = 50'



STATUS OF WORK

-  WORK COMPLETED
-  WORK UNDERWAY WITH FUNDS AVAILABLE FOR F.Y. 2010
-  WORK PROPOSED WITH FUNDS REQUESTED FOR F.Y. 2011
-  WORK REQUIRED TO COMPLETE THE PROJECT AFTER F.Y. 2011

7 MAY 2009

MUSKINGUM RIVER  
**DOVER DAM**  
 HUNTINGTON DISTRICT  
 GREAT LAKES AND OHIO RIVER DIVISION



APPROPRIATION TITLE: Construction - Local Protection (Flood Control)

PROJECT: Little Calumet River, Indiana (Continuing)

LOCATION: Little Calumet River Basin, Northwest Indiana, Lake County.

DESCRIPTION: The project consists of replacing 9.5 miles of existing spoil bank levees with 12.1 miles of new levees, floodwalls, and closure and appurtenant structures between the Illinois-Indiana State line and Cline Avenue in Gary, Indiana; constructing 9.7 miles of set-back levees and appurtenant drainage structures between Cline Avenue and I-65; installing a flow control structure at Hart Ditch; permanent evacuation of 37 structures in the Black Oak area of Gary, Indiana; constructing a betterment levee from Cline to Clark; modifying 7 miles of channel with 3 accompanying bridge modifications; modifying 1 highway bridge; constructing 16.8 miles of hiking/biking trails and accompanying recreation support facilities, and preserving 788 acres of aquatic wildlife habitat. A Post Authorization Change Report was approved in May 1999 extending the eastern limit of the project to include the Marshalltown area.

AUTHORIZATION: Water Resources Development Act of 1986. Appropriations for Energy and Water Development of 2006.

REMAINING BENEFIT-REMAINING COST RATIO: 8.8 to 1 at 7 percent.

TOTAL BENEFIT-COST RATIO: 1.6 to 1 at 7 percent.

INITIAL BENEFIT-COST RATIO: 2.1 to 1 at 8.875 percent

BASIS OF BENEFIT-COST RATIO: Benefits are from the latest available evaluation approved in October 1994 at 1993 price levels. A Post Authorization Change Report was approved in May 1999.

SUMMARIZED FINANCIAL DATA		STATUS (1 Jan 2009)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost	\$184,000,000	Entire Project	80	To Be determined
Estimated Non-Federal Cost	61,000,000			
Cash Contributions	19,967,000			
Other Costs	41,033,000			
Total Estimated Project Cost	\$245,000,000			
			PHYSICAL DATA	
			Levees and Floodwalls	21.8 miles
			Pumping Plant Modifications	17
			Structures Removed	37
			Structures Flood proofed	53
			Channel Modification	7 miles
			Hiking Trails	16.8 miles
			ACCUM. PCT. OF EST. FED. COST	
Allocations to 30 September 2006	\$ 105,403,400			
Allocations for FY 2007	14,000,000			
Allocation for FY 2008	14,760,000			
Conference Allowance for FY 2009	24,000,000			
Allocation for FY 2009	24,000,000			
Allocations through FY 2009	158,163,400	86		
Allocation Requested for FY 2010	20,000,000	97		
Programmed Balance to Complete After FY 2010	TBD			
Unprogrammed Balance to Complete after FY 2010	0			

JUSTIFICATION: Overbank flood damages occur to 10,000 structures, primarily residential, along the Little Calumet River in Indiana within the communities of Hammond, Highland, Munster, Griffith and Gary. The total value of these structures exceeds \$775 million. Continued flood damages occur to commercial and public buildings, and the transportation network. The major East/West highway transportation link in the Chicago metropolitan area, Interstate 80/94, is susceptible to flooding from the Little Calumet River. Interstate 80/94 is heavily traveled, with average annual daily traffic of 160,000 vehicles, of which 40% are trucks. Annual benefits are estimated at \$18,550,000. Completion of the project will reduce damages from flood events up

Division: Great Lakes and Ohio River

District: Chicago

Little Calumet River, IN

7 May 2009

LRD-24

JUSTIFICATIONS (Continued): to the 200-year event. This project benefits 1.2 Million people and 10,000 dwellings. An estimated \$35 Million in flood damages were incurred and one life lost in the November 1990 flood. The communities of Hammond and Munster, IN were inundated. The President declared the area inundated by the November 1990 flood a National Disaster Area on December 6, 1990. The State of Indiana continues to rate the flood damage potential along the Little Calumet River as the most severe in the state. The project avoids the short-and long-term adverse impacts associated with the destruction or modification of wetlands by designating the existing wetland areas in the Gary reach for overbank flood storage, a vital requirement of the hydraulic operation and design of the project, and hence required project lands. Environmental attributes are being mitigated along the river corridor. Construction of the Hart Ditch Control structure is required to meet statutory requirements to minimize flow impacts (for all events up to the 100 year) to the State of Illinois communities, resultant from changes to the floodplain/floodway in Indiana as part of the Project. Additionally, the Control Structure minimizes impact to the flow volume attributable to the State of Illinois' Lake Michigan Diversion, which is regulated by Supreme Court Decree. Also critical is rehabilitation of existing pump stations to eliminate risks from interior flooding that could result since the existing system is insufficient to provide significant protection from interior runoff during major storm events along the West Reach of the project. An intense localized rainfall event occurred on September 13, 2006 that was centered over the communities of Highland and Griffith, Indiana resulting in widespread flooding and damage to approximately 1,500 homes. The precipitation event was estimated to be a 600 year event rainfall over these communities. An August 2007 flood breached an existing spoil bank levee resulting in significant flooding. I-80/94 was shut down for 3 days due to high river stages and intense rainfall. August 2007 flooding was a 25 year event causing damages and economic impacts of \$27.6M. There was also severe flooding in September 2008 causing significant damages. Lake County, Indiana qualifies as an area of persistent and chronic unemployment. A minority plan has been developed that identifies construction contracts which can be set aside for small business contractors and minority owned/Section 8A contractors in the project area. A 40 percent minority participation goal has been established for all future construction contracts for the Contractor's aggregate workforce in each trade.

This project, in addition to preventing damages to property, is effective in reducing a high risk to life for the populations in the project area. That risk must be considered in evaluating the project justification in addition to economic analyses. Risk is created by both hydrologic factors (flood depth, velocity, and short warning time) and cultural factors (size of population and available routes of egress from the flood plain.) Failure to construct this project will continue to leave the population at risk from a breach of existing spoilbank levee. A breach would almost immediately inundate densely populated areas, risking life & safety.

Average annual benefits are as follows:

Annual Benefits	Amount
Flood Damage Prevention	15,917,000
Recreation	411,000
Land Enhancement	2,222,000
Total	18,550,000

FISCAL YEAR 2009: The current amount is being applied as follows:

Continue construction of Pumps 2	12,200,000
Complete construction of V-2	4,200,000
Initiate construction Stage VII	4,600,000
Initiate construction Stage VIII	500,000
Engineering and Design	500,000
Construction Management	2,000,000
Total	\$ 24,000,000

FISCAL YEAR 2010: The requested amount will be applied as follows:

Continue construction of Pumps 2	\$ 4,000,000
Complete construction of Stage VII	8,000,000
Continue construction of Stage VIII	6,700,000
Engineering and Design	300,000
Construction Management	1,000,000
Total	\$ 20,000,000

NON-FEDERAL COST: In accordance with the cost sharing and financing requirements contained in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payment During Construction and Reimbursements	Annual Operation, Maintenance, Repair Rehabilitation, and Replacement Costs
Provide lands, easements, rights of way, and borrow and excavated or dredged material disposal areas.	23,010,000	
Modify or relocate utilities, roads, bridges (except railroad bridges), and other facilities, where necessary for the construction of the project, reduced for credit allowed based on prior work (Section 104 of the Water Resource Development Act of 1986; \$1,667,200) after reductions for such credit have been made in the required cash payments.	18,023,000	
Pay one-half separable costs allocated to recreation and bear all costs of operation, maintenance, repair, rehabilitation and replacement of recreation facilities;	2,482,000	

Division: Great Lakes and Ohio River

District: Chicago

Little Calumet River, IN

7 May 2009

LRD-26

	Payment During Construction and Reimbursements	Annual Operation, Maintenance, Repair Rehabilitation, and Replacement Costs
Requirements of Local Cooperation		
Pay approximately 5 percent of the costs allocated to flood control (other than non-structural measures) to bring the non-Federal share of flood control costs to 25 percent as determined under Section 103 (m) of the Water Resource Development Act of 1986, as amended; to reflect credit allowed for prior work (Section 104 of the Water Resource Development Act of 1986; \$1,667,200); and bear all costs of operation, maintenance, repair, rehabilitation and replacement of flood control facilities.	14,847,000	150,000
Pay 25 percent of the first cost allocated to non-structural flood control measures.	2,369,000	
Pay 25 percent of the costs allocated to fish and wildlife enhancement, and pay 25 percent of the costs of operation, maintenance, repair, rehabilitation and replacement of the fish and wildlife facilities.	269,000	
<b>Total Non-Federal Costs</b>	<b>\$61,000,000</b>	<b>\$ 150,000</b>

STATUS OF LOCAL COOPERATION: The Little Calumet River Basin Development Commission is the local sponsor for the project. The Local Cooperation Agreement (LCA) was executed on August 16, 1990. The LCA was supplemented twice to include the East Reach Remediation, 30 July 1999 and Burr Street Betterment, 26 April 2000. The current non-Federal cost estimate of \$61,000,000, which includes a cash contribution of \$19,967,000, is an increase of \$37,400,000 from the non-Federal cost estimate of \$23,600,000 noted in the Local Cooperation Agreement, which included a cash contribution of \$4,800,000. The non-Federal sponsor is financially capable and willing to contribute the non-Federal share. The local sponsor has received approval for Section 104 credits in the amount of \$1,667,200.

COMPARISON OF FEDERAL COST ESTIMATE: The current Federal cost estimate of \$184,000,000 is an increase of \$25,000,000 from the latest estimate (\$159,000,000) presented to Congress (FY 2009). This change includes the following items:

Item	Amount
Price Escalation on Construction Features	\$ 1,300,000
Post Contract Award and Other Estimating Adjustments	\$23,700,000
<b>Total</b>	<b>\$25,000,000</b>

Division: Great Lakes and Ohio River

District: Chicago

Little Calumet River, IN

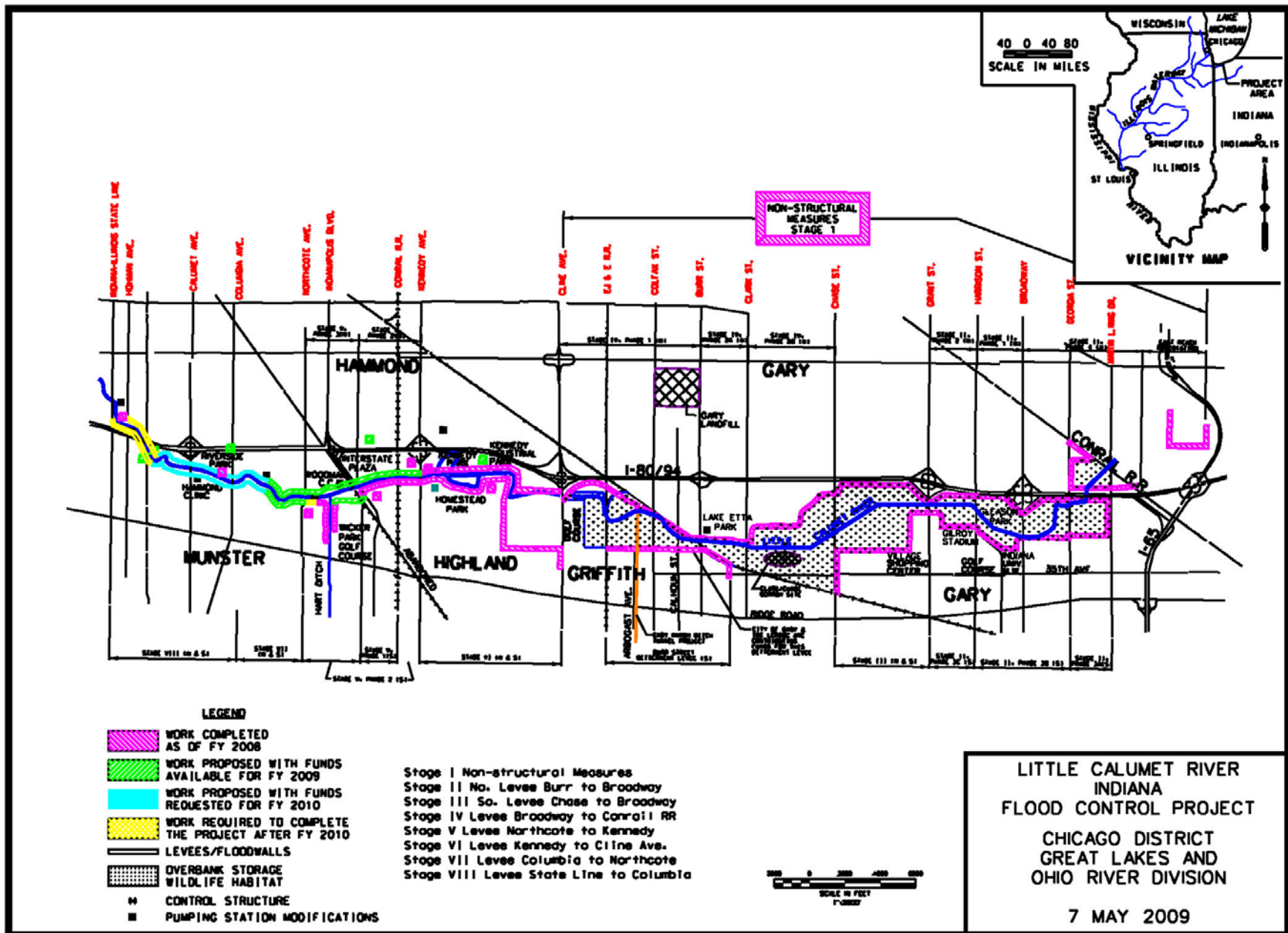
7 May 2009

LRD-27

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement (EIS) was filed with the United States Environmental Protection Agency on February 3, 1984. The Record of Decision was signed on July 13, 1990. Environmental Assessments (EA) were subsequently prepared addressing potential borrow and disposal sites which were not covered in the EIS and the three Findings of No Significant Impact were signed on May 9, 1990, July 11, 1991 and April 21, 1992. A supplemental Environmental Impact Statement was completed for the levee re-alignment, excavated ponding areas and new borrow sites. The Record of Decision was signed on June 23, 1995.

OTHER INFORMATION: Funds to initiate PED were appropriated in FY 1984 and funds to initiate construction were appropriated in FY 1990. Fish and wildlife mitigation costs for this project are estimated at \$5,220,000. A 902 PAC report was approved by HQUSACE on 5 December 2000. Section 127 of the FY 2006 Appropriation Bill raised project authorization cost to \$198,000,000.

The scheduled completion date is the same as the latest presented to Congress (FY 2009), "To Be determined".



APPROPRIATION TITLE: Construction - Local Protection (Flood Control)

PROJECT: McCook and Thornton Reservoirs, Illinois (Continuing)

LOCATION: The project area covers 341 square miles of the combined sewer area in Cook County in Chicago and 48 adjacent suburban communities.

DESCRIPTION: The authorized project consists of constructing two reservoirs from stone quarries located in McCook and Thornton, Cook County, Illinois with floodwater storage capacities of 21,400 acre-feet (7 billion gallons) and 14,600 acre-feet (4.8 billion gallons), respectively. The Thornton Reservoir project authorization was modified to evaluate inclusion of the storage associated with the National Resource Conservation Service's Thorn Creek Reservoir. The composite reservoir at Thornton, determined feasible in a 2003 Limited Re-evaluation Report, has a combined capacity of 24,200 acre-feet (7.8 billion gallons). Both McCook and Thornton will serve as the termini of the Metropolitan Water Reclamation District of Greater Chicago's Tunnel and Reservoir Plan (TARP) Phase I tunnels. TARP was developed by Federal, State, regional and local governments as a regional plan for reducing flood damages and improving water quality in area waterways. The two reservoirs will capture and store combined sewer flows from the tunnel systems for later treatment after the storm event. Currently, when the tunnels reach their capacity, the combined flow of storm water and raw sewage backs up through the sewer system into basements of homes and businesses and on to the roadways and is discharged directly into area waterways. When storm events are severe, the navigation locks on the Chicago River must be opened to release the combined sewer flow into Lake Michigan - the source of drinking water for millions. Reservoir features include pumps, a grout curtain and overburden cutoff wall, main and distribution tunnels, gates and valves, hydraulic structures, wall stabilization, and aeration and wash-down systems.

AUTHORIZATION: Water Resources Development Act of 1988, modified by the Water Resources Development Act of 1999. Water Resources Development Act of 2007, Section 5157.

REMAINING BENEFIT-REMAINING COST RATIO: 7.5 to 1 at 7 percent (McCook only)

TOTAL BENEFIT-COST RATIO: 2.8 to 1 at 7 percent (McCook only)

INITIAL BENEFIT-COST RATIO: 2.0 to 1 at 8 percent.

BASIS OF BENEFIT-COST RATIO: McCook Reservoir benefits are based on the latest available evaluation in the Final Special Reevaluation Report dated February 1999 at October 1997 price levels. Thornton Reservoir benefits are based on the economic evaluation completed for the Limited Reevaluation Report dated July 2003 at October 2001 price levels.

Division: Great Lakes and Ohio River

District: Chicago

McCook and Thornton Reservoirs, IL

7 May 2009

LRD-30



SUMMARIZED FINANCIAL DATA		STATUS (1 Jan 2009)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost	\$ 570,000,000	McCook Reservoir	40	To Be determined
Estimated Non-Federal Cost	190,000,000	Thornton Reservoir	0	To Be determined
Cash Contributions	88,113,000	Entire Project	27	To Be determined
Other Costs	101,887,000			
Total Estimated Project Cost	\$ 760,000,000			

		ACCUM. PCT. OF EST. FED. COST	PHYSICAL DATA	
Allocations to 30 September 2006	130,735,000			
Allocations for FY 2007	46,400,000			
Allocation for FY 2008	29,490,000		McCook Reservoir	
Conference Amount for FY 2009	28,709,000		Storage Capacity	21,400 acre-feet
Allocations for FY 2009	28,709,000		Thornton Reservoir	
Allocations through FY 2009	235,334,000	41	Storage Capacity	24,200 acre-feet
Allocation Requested for FY 2010	25,000,000	46		
Programmed Balance to Complete After FY 2010	TBD			
Unprogrammed Balance to Complete after FY 2010	0			

JUSTIFICATION: The McCook and Thornton Reservoirs Project covers 341 square miles of the combined sewer area in Chicago and suburban communities. Within this region, nearly 1,200,000 structures suffer flooding attributable to combined storm sewer outfall submergence caused by the inadequate capacity of area waterways. The McCook Reservoir will provide additional storage capacity beyond that of its billion gallon capacity connecting tunnel system and will provide flood damage reduction benefits to Chicago and 37 suburban communities where 146,000 homes and businesses flood annually. The Thornton Reservoir will provide additional storage capacity beyond that of its half billion gallon capacity connecting tunnel system and will provide flood damage reduction to Chicago and 13 suburban communities where nearly 200,000 homes and businesses flood annually. The project will also improve water quality in area waterways, reduce untreated sewage backflow into Lake Michigan and reduce beach closures. The project benefits over 3 million people. The sponsor, the Metropolitan Water Reclamation District of Greater Chicago (MWRDGC), has been under pressure from the USEPA to have at least Stage 1 of the McCook Reservoir constructed by CY 2014 when their current NPDES (National Pollution Discharge Elimination System of the Clean Water Act) permit expires. Department of Justice requested

Division: Great Lakes and Ohio River

District: Chicago

McCook and Thornton Reservoirs, IL

7 May 2009

LRD-31

JUSTIFICATION (continued): MWRDGC to sign an Administrative Order with USEPA on a timeline to get McCook Reservoir constructed and operational. Delays in completion of the project, due to the inadequate pace of past Federal funding, could force Department of Justice to order enforced settlement to comply with the Clean Water Act. Risks to human health are high due to continued contaminated flooding. One of the intended purposes of this project is to prevent sewage backflow to Lake Michigan, impacting drinking water supply and damaging the aquatic ecosystem, including fish tainting, contaminant uptake and degradation of spawning areas. The elimination of backflows of raw sewage to Lake Michigan is a priority issue of the Great Lakes Governors and Mayors and is a priority issue of the Great Lakes Regional Collaboration established in response to Executive Order 13340 signed by President Bush in May 04.

Average annual benefits for McCook and Thornton Reservoirs are as follows:

Annual Benefits	Amount
Flood Damage Prevention	89,848,000
Water Quality	15,560,000
Water Supply	10,110,000
Recreation	1,088,000
<b>Total</b>	<b>\$ 116,606,000</b>

FISCAL YEAR 2009: The current amount is being applied as follows:

Continue construction of Main Tunnels and Gates	\$ 12,000,000
Complete construction of Stage 1 Grout Curtain	10,000,000
Engineering and Design – McCook Reservoir	3,700,000
Construction Management	3,009,000
<b>Total</b>	<b>\$ 28,709,000</b>

FISCAL YEAR 2010: The requested amount will be applied as follows:

Continue construction of Main Tunnels and Gates	\$ 22,000,000
Engineering and Design – McCook Reservoir	400,000
Construction Management	2,600,000
<b>Total</b>	<b>\$ 25,000,000</b>

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payment During Construction and Reimbursements	Maintenance, Repair, Rehabilitation, and Replacement Costs
<p>McCook Reservoir: Provide lands, easements, rights of way, and borrow and excavated or dredged material disposal areas.</p>	5,890,000	
<p>Modify or relocate utilities, roads, bridges (except railroad bridges), and other facilities, where necessary for the construction of the project.</p>	39,417,000	
<p>Pay 17 percent of the costs allocated to flood control to bring the total non-Federal share of flood control costs to 25 percent and bear all costs of operation, maintenance, repair, rehabilitation and replacement of flood control facilities.</p>	73,963,000	4,300,000
<p>Total McCook Reservoir</p>	\$119,270,000	4,300,000
<p>Thornton Reservoir: Provide lands, easements, rights of way, and borrow and excavated or dredged material disposal areas.</p>	27,682,000	
<p>Modify or relocate utilities, roads, bridges (except railroad bridges), and other facilities, where necessary, for the construction of the project, and less credits allowed for prior work per Section 501 of Water Resources Development Act of 1999.</p>	29,168,000	
<p>Pay approximately 5 percent of the costs allocated to flood control to bring the total non-Federal share of flood control costs to 25 percent and bear all costs of operation, maintenance, repair, rehabilitation and replacement of flood control facilities.</p>	14,150,000	2,800,000
<p>Total Thornton Reservoir</p>	\$ 71,000,000	\$2,800,000
<p>Total Non-Federal</p>	\$190,000,000	\$7,100,000

Division: Great Lakes and Ohio River

District: Chicago

McCook and Thornton Reservoirs, IL

7 May 2009

LRD-33

**STATUS OF LOCAL COOPERATION:** The Metropolitan Water Reclamation District of Greater Chicago (MWRDGC) is the local sponsor for the project. The Project Cooperation Agreement for McCook Reservoir was executed on 10 May 1999, and amended on 10 July 2003. Project Cooperation Agreement for Thornton Reservoir was executed on 18 September 2003. The non-Federal sponsor is expected to make all required payments concurrently with project construction. The current non-Federal cost estimate for the McCook Reservoir is \$119,000,000, which includes a cash contribution of \$ 73,963,000 and is a decrease of \$10,050,000 from the non-Federal cost estimate of \$129,050,000 noted in the Project Cooperation Agreement, which included a cash contribution of \$99,978,000. The current non-Federal cost estimate for the Thornton Reservoir is \$71,000,000, which includes a cash contribution of \$14,150,000 and is a decrease of \$2,000,000 from the non-Federal cost estimate of \$73,000,000 noted in the Project Cooperation Agreement, which included a cash contribution of \$14,600,000.

**COMPARISON OF FEDERAL COST ESTIMATE:** The current Federal cost estimate of \$570,000,000 is an increase of \$12,000,000 from the latest estimate (\$558,000,000) presented to Congress (FY 2009). This change is due to price levels and inflation adjustments and post contract award adjustments.

**STATUS OF ENVIRONMENTAL IMPACT STATEMENT:** Public and Agency review of final Environmental Impact Statement and the Special Reevaluation Report (EIS/SRR) for the McCook Reservoir project was completed in December 1998 and the Record of Decision (ROD) was signed on May 5, 1999. The Thornton Reservoir Environmental Assessment and Finding of No Significant Impact were signed in June 2001 and December 2001 respectively. The Thornton Reservoir Limited Reevaluation Report was completed in July 2003.

**OTHER INFORMATION:** Funds to initiate PED were appropriated in FY 1988. Funds to initiate construction were appropriated in FY 1994. WRDA 2007, Section 5157 authorizes reimbursement to the sponsor. The scheduled completion date is the same as the latest presented to Congress (FY 2009), "To Be Determined".

SEPARABLE ELEMENT: McCook Reservoir, Illinois

SUMMARIZED FINANCIAL DATA

Estimated Federal Cost		\$ 358,000,000
Non-Federal Cost		119,000,000
Cash Contributions	73,963,000	
Other Costs	45,037,000	
Total Estimated Project Cost		\$ 477,000,000

REMAINING BENEFIT-REMAINING COST RATIO: 7.5 to 1 at 7 percent

TOTAL BENEFIT-COST RATIO: 2.8 to 1 at 7 percent

SEPARABLE ELEMENT: Thornton Reservoir, Illinois









SUMMARIZED FINANCIAL DATA

Estimated Federal Cost		\$212,000,000
Non-Federal Cost		71,000,000
Cash Contributions	14,150,000	
Other Costs	56,850,000	
Total Estimated Project Cost		\$283,000,000





REMAINING BENEFIT-REMAINING COST RATIO: 1.8 to 1 at 7 percent

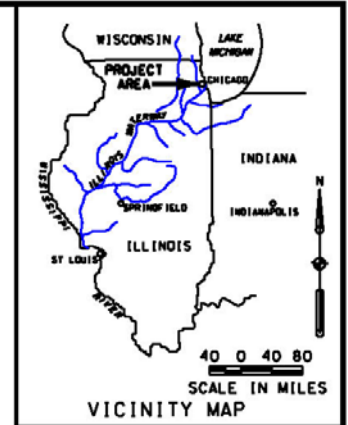
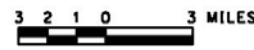
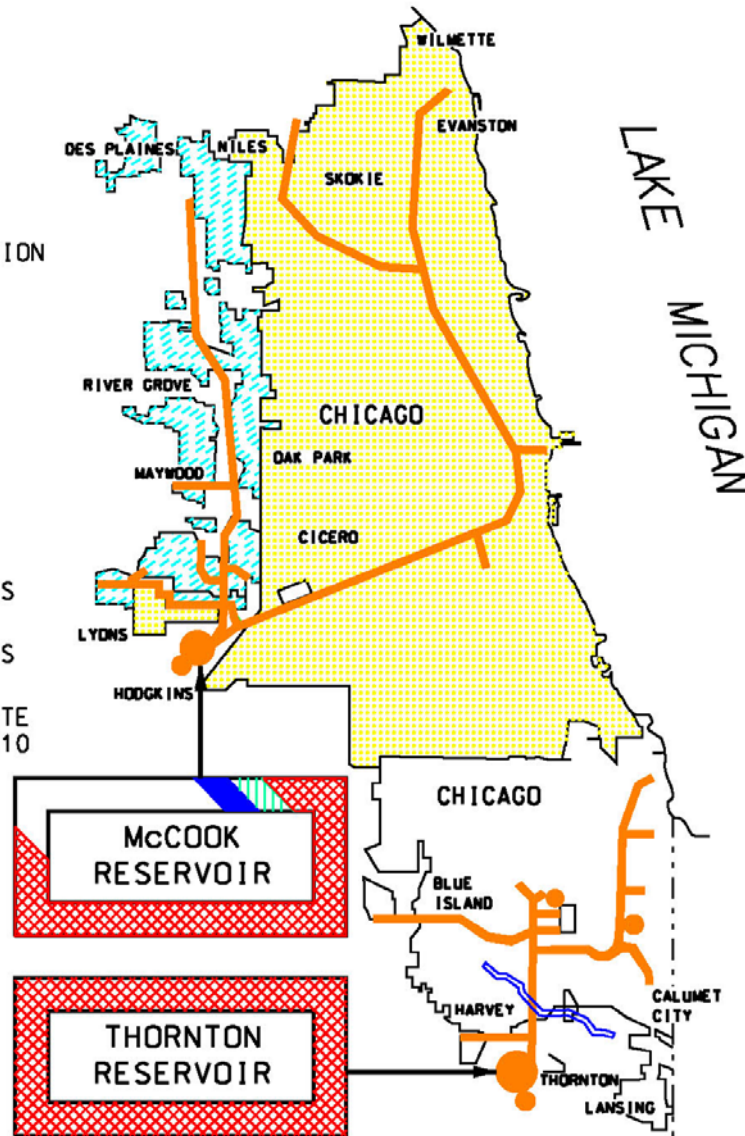
TOTAL BENEFIT-COST RATIO: 1.2 to 1 at 7 percent.

**SYMBOL LEGEND**

-  DES PLAINES SYSTEM
-  MAINSTREAM SYSTEM
-  CALUMET SYSTEM
-  COMPLETED TUNNELS
-  TUNNELS UNDER CONSTRUCTION
-  FUTURE TUNNELS
-  STORAGE RESERVOIR
-  PUMPING STATIONS

**LEGEND**

-  WORK COMPLETED AS OF 30 SEPTEMBER 2008
-  WORK PROPOSED WITH FUNDS AVAILABLE FOR FY 2009
-  WORK PROPOSED WITH FUNDS REQUESTED FOR FY 2010
-  WORK REQUIRED TO COMPLETE THE PROJECT AFTER FY 2010



CHICAGOLAND UNDERFLOW PLAN  
ILLINOIS  
McCOOK & THORNTON RESERVOIRS  
CHICAGO DISTRICT  
GREAT LAKES AND  
OHIO RIVER DIVISION  
7 MAY 2009

APPROPRIATION TITLE: Construction-Shoreline Protection

PROJECT: Presque Isle Peninsula, Pennsylvania (Permanent) (Continuing))

LOCATION: Presque Isle Peninsula is located in the city of Erie, Erie County, Pennsylvania, on the south shore of Lake Erie 78 miles southwest of Buffalo, New York and about 102 miles northeast of Cleveland, Ohio.

DESCRIPTION: The initial construction at Presque Isle State Park consisted of a system of 55 rubblemound breakwaters located offshore along the lakeward length of Presque Isle Peninsula and placement of approximately 560,000 tons of sand. Each breakwater is 150 feet long with a 350 foot gap between structures. The initial construction was completed in November 1992, but in order to maintain sand quantities, a periodic nourishment program for 50 years following the initial project construction is required.

AUTHORIZATION: Section 501(a) of the Water Resources Development Act of 1986, as amended (Public Law 99-662)

REMAINING BENEFIT-REMAINING COST RATIO: 12.33 to 1 at 7%

TOTAL BENEFIT-COST RATIO: 3.33 to 1 at 4.625%

INITIAL BENEFIT-COST RATIO: 2.53 to 1 at 8-7/8 percent (FY1986)

BASIS OF BENEFIT-COST RATIO: Benefits are based on a limited re-evaluation report dated April 1986.

SUMMARIZED FINANCIAL DATA:		Status (01 JAN 2009)	Pct Compl	Physical Completion Schedule
Estimated Federal Cost	\$ 56,000,000	Initial Construction	100	Nov 1992
Programmed Construction	\$ 56,000,000	Periodic Nourishment	32	
Unprogrammed Construction	0			
		Entire Project	32	TBD
Estimated Non-Federal Cost	\$ 56,000,000			
Programmed Construction	\$ 56,000,000			
Cash Contributions	14,000,000			
Other Costs	0			
Estimated Non- Federal Cost				
Facilities indicating mitigation, Unprogrammed Construction				
Cash Contributions	42,000,000			
Other Costs	0			
Total Estimated Programmed Construction Cost	\$ 56,000,000			
Total Estimated Unprogrammed Construction Cost	0			
Total Estimated Project Cost	\$ 112,000,000			

Initial Construction:  
The initial construction at Presque Isle State Park consisted of a system of 55 rubblemound breakwaters located offshore along the lakeward length of Presque Isle Peninsula and placement of approximately 560,000 tons of beach sand fill.

Division: Great Lakes and Ohio River

District: Buffalo

Presque Isle Peninsula, Pennsylvania

07 May 2009

LRD-38



SUMMARIZED FINANCIAL DATA: (Continued)

Allocations to 30 September 2006	6,614,036
Allocations for FY 2007	90,000
Allocations for FY 2008	672,000
Conference Allowance for FY 2009	933,000
Allocations for FY2009	933,000
<b>Allocations through FY 2009</b>	<b>8,309,036</b>
Allocation Requested for FY2010	1,000,000
Programmed Balance to Complete after FY 2010	TBD
Unprogrammed Balance to Complete after FY 2010	TBD

JUSTIFICATION: When the need for annual sand nourishment is not met, erosion of the shoreline occurs. Continued erosion will potentially lead to breaching of the Peninsula, increasing the wave climate in Presque Isle Bay, and impacting the navigation users of Erie Harbor. Damage to habitat critical to the breeding of the endangered Piping Plover and other species has already occurred. Damage to park infrastructure will occur next, leading to loss of roadways and a handicapped access area.

The annual benefits identified in the Design Memorandum updated to current price levels are as follows:

Annual Benefits	Amount
Decreased Maintenance Cost	\$ 167,000
Structural Damage Prevented	7,000
Land Loss Prevention	21,000
Decreased Dredging Costs	452,900
Decreased Nourishment Cost	3,959,300
<b>Total</b>	<b>\$ 4,607,000</b>

FISCAL YEAR 2009: The current amount of \$933,000 will be applied as follows:

Place sand (Annual Nourishment)	\$ 733,000
Aerial Photos and Site Monitoring	\$ 60,000
Planning, Engineering and Design	\$ 80,000
Construction Management	\$ 60,000
<b>Total</b>	<b>\$ 933,000</b>

Division: Great Lakes and Ohio River

District: Buffalo

Presque Isle Peninsula, Pennsylvania

07 May 2009

FISCAL YEAR 2010: The requested amount of \$1,000,000 will be applied as follows:

Place sand (Annual Nourishment)	\$ 800,000
Aerial Photos and Site Monitoring	\$ 60,000
Planning, Engineering and Design	\$ 80,000
Construction Management	\$ 60,000
<b>Total</b>	<b>\$ 1,000,000</b>

NON-FEDERAL COST: In accordance with the cost-sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below.

The non-Federal sponsor has agreed to make all required payments concurrently with project construction and 50% of its share of periodic nourishment costs within the life of the project.

Requirements of Local Cooperation:

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation, and Replacement Costs
Pay one-half of the separable costs allocated to recreation, including periodic nourishment, and bear all costs of operation, maintenance, repair, rehabilitation, and replacement of breakwater features.	\$ 56,000,000	\$ 106,400
<b>Total Non-Federal Costs</b>	<b>\$ 56,000,000</b>	<b>\$ 106,400</b>

The non-Federal sponsor has also agreed to make all required payments concurrently with project construction and, for general navigation, reimburse its share of construction costs within a period of 30 years following completion of construction.

Note: After approval by the ASA (CW), local credit based on ability to pay (Section 103 (m) of the Water Resources Development Act of 1986, as amended,) or general credit for prior work (section 104 of the Water Resources Development Act of 1986, as amended or section 215 of the Flood Control Act of 1968 may not be used to offset required 5 percent cash contributions.

Division: Great Lakes and Ohio River

District: Buffalo

Presque Isle Peninsula, Pennsylvania

07 May 2009

LRD-40

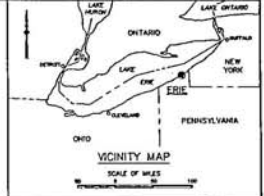
STATUS OF LOCAL COOPERATION: Pennsylvania Department of Conservation and Natural Resources (DCNR) serves as the non-Federal sponsor. A Local Cooperation Agreement (LCA) is in place with the non-Federal sponsor to match 50% of any Federal funds received for the project.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate is the same as the last cost estimate at \$112,000,000.

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The Final Environmental Impact Statement was filed with USEPA on 13 March 1981. The provisions of Section 404 of the Clean Water Act were met by the Public Notice issued on 9 October 1979, a Section 404(b)(1) Evaluation dated 21 December 1979, and a Section 401 Water Quality Certificate issued by the Commonwealth of Pennsylvania dated 8 August 1988. The Record of Decision which completed the NEPA process was signed by the Director of Civil Works on 2 November 1988.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in FY 1988 and funds to initiate construction were appropriated in FY 1989.

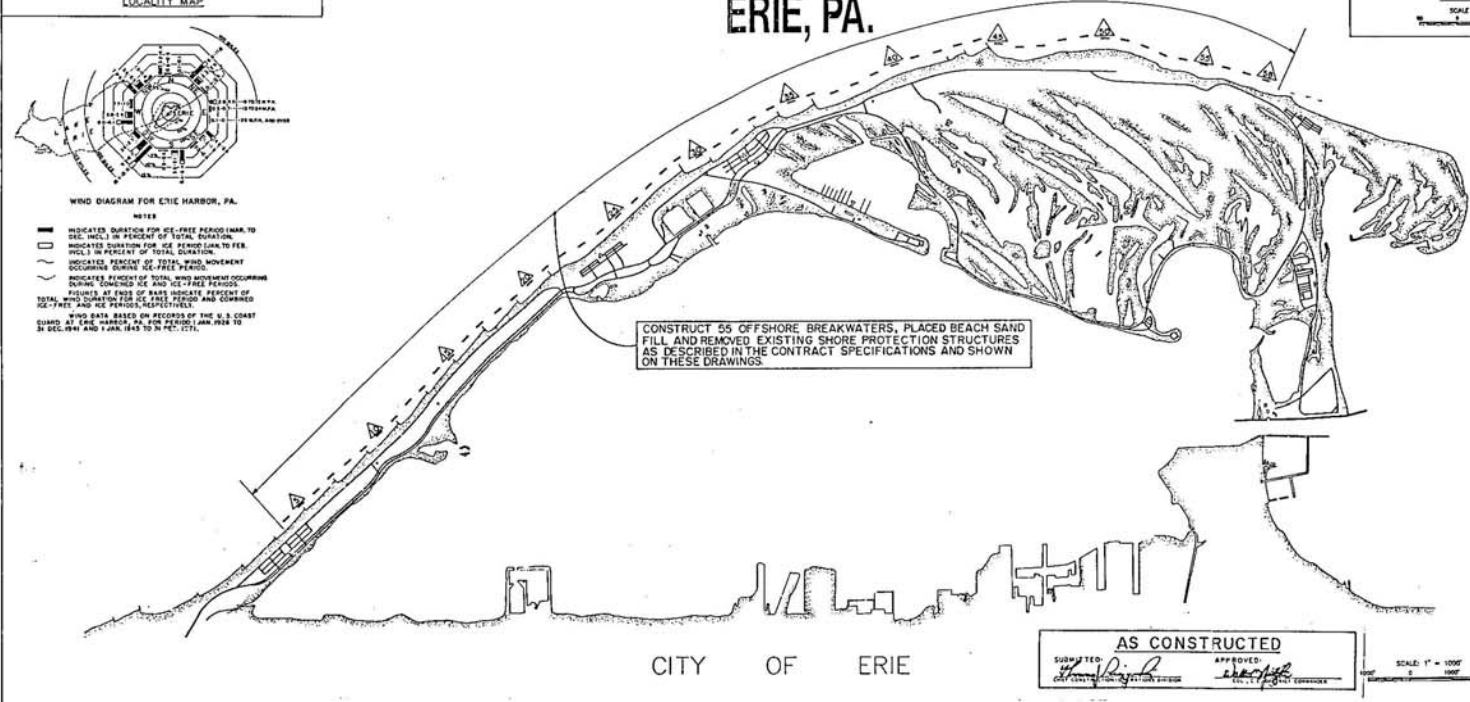
# SHORELINE EROSION CONTROL PROJECT PRESQUE ISLE PENINSULA ERIE, PA.



**WIND DIAGRAM FOR ERIE HARBOR, PA.**  
NOTES

- INDICATES DURATION FOR ICE-FREE PERIOD (A-B TO D-E) IN PERCENT OF TOTAL DURATION.
- INDICATES DURATION FOR ICE-BENEFICIAL PERIOD (A-B TO D-E) IN PERCENT OF TOTAL DURATION.
- INDICATES PERCENT OF TOTAL WIND MOVEMENT OCCURRING DURING ICE-FREE PERIODS.
- INDICATES PERCENT OF TOTAL WIND MOVEMENT OCCURRING DURING COMBINED ICE AND ICE-FREE PERIODS.
- INDICATES PERCENT OF WIND MOVEMENT OCCURRING DURING COMBINED ICE AND ICE-FREE PERIODS.
- INDICATES PERCENT OF WIND MOVEMENT OCCURRING DURING COMBINED ICE AND ICE-FREE PERIODS.

WIND DATA BASED ON RECORDS OF THE U.S. COAST AND GEOD. SURV. AT ERIE, PA. FOR PERIOD FROM 1941 TO 1947 AND 1949 TO 1951.



CITY OF ERIE

**AS CONSTRUCTED**  
 SUBMITTED: [Signature] APPROVED: [Signature]  
 CIVIL ENGINEER [Signature] CIVIL ENGINEER [Signature]

SCALE 1" = 1000'  
 0 1000 2000'

### INDEX TO DRAWINGS

DRAWING NO.	SHEET NO.	TITLE	DRAWING NO.	SHEET NO.	TITLE	DRAWING NO.	SHEET NO.	TITLE
88-PP-3/1	1	INDEX TO DRAWINGS	88-PP-3/16	16	PLAN VIEW OF PERMANENT PROJECT FEATURES - (STA 181+53 TO 196+82)	88-PP-3/31	31	BEACH FILL CROSS-SECTIONS - (STA 125+00 TO 145+00)
88-PP-3/2	2	TYPICAL BREAKWATERS - PLAN, SECTION AND LOCATIONS	88-PP-3/17	17	PLAN VIEW OF PERMANENT PROJECT FEATURES - (STA 196+82 TO 211+70)	88-PP-3/32	32	BEACH FILL CROSS-SECTIONS - (STA 150+00 TO 170+00)
88-PP-3/3	3	HORIZONTAL CONTROL POINTS AND BENCH MARKS	88-PP-3/18	18	PLAN VIEW OF PERMANENT PROJECT FEATURES - (STA 211+70 TO 225+10)	88-PP-3/33	33	BEACH FILL CROSS-SECTIONS - (STA 175+00 TO 195+00)
88-PP-3/4	4	PLAN VIEW OF PERMANENT PROJECT FEATURES - (STA 0+00 TO 4+73)	88-PP-3/19	19	PLAN VIEW OF PERMANENT PROJECT FEATURES - (STA 225+10 TO 253+48)	88-PP-3/34	34	BEACH FILL CROSS-SECTIONS - (STA 200+00 TO 220+00)
88-PP-3/5	5	PLAN VIEW OF PERMANENT PROJECT FEATURES - (STA 4+73 TO 10+70)	88-PP-3/20	20	PLAN VIEW OF PERMANENT PROJECT FEATURES - (STA 253+48 TO 267+33)	88-PP-3/35	35	PLAN OF SUBSURFACE EXPLORATIONS
88-PP-3/6	6	PLAN VIEW OF PERMANENT PROJECT FEATURES - (STA 10+70 TO 34+73)	88-PP-3/21	21	PLAN VIEW OF PERMANENT PROJECT FEATURES - (STA 267+33 TO 282+85)	88-PP-3/36	36	GENERAL GEOLOGIC PROFILE A-A
88-PP-3/7	7	PLAN VIEW OF PERMANENT PROJECT FEATURES - (STA 34+73 TO 49+57)	88-PP-3/22	22	PLAN VIEW OF PERMANENT PROJECT FEATURES - (STA 282+85 TO 296+55)	88-PP-3/37	37	DETAILED GEOLOGIC PROFILE A-A (STA 0+00 THROUGH 73+00)
88-PP-3/8	8	PLAN VIEW OF PERMANENT PROJECT FEATURES - (STA 49+57 TO 84+50)	88-PP-3/23	23	PLAN VIEW OF PERMANENT PROJECT FEATURES - (STA 296+55 TO 311+34)	88-PP-3/38	38	DETAILED GEOLOGIC PROFILE A-A (STA 73+00 THROUGH 200+00)
88-PP-3/9	9	PLAN VIEW OF PERMANENT PROJECT FEATURES - (STA 84+50 TO 79+40)	88-PP-3/24	24	PLAN VIEW OF PERMANENT PROJECT FEATURES - (STA 311+34 TO 323+73)	88-PP-3/39	39	DETAILED GEOLOGIC PROFILE A-A (STA 200+00 THROUGH 320+00)
88-PP-3/10	10	PLAN VIEW OF PERMANENT PROJECT FEATURES - (STA 79+40 TO 94+47)	88-PP-3/25	25	EXISTING SHORE PROTECTION STRUCTURES TO BE REMOVED	88-PP-3/40	40	GEOLOGIC SECTIONS B-B, C-C AND D-D
88-PP-3/11	11	PLAN VIEW OF PERMANENT PROJECT FEATURES - (STA 94+47 TO 109+50)	88-PP-3/26	26	BEACH FILL CROSS-SECTIONS - (STA 0+00 TO 20+00)	88-PP-1/1	1	REFERENCE DRAWING: PRESQUE ISLE STATE PARK - MONITORING STUDY SHEET 1 OF 5
88-PP-3/12	12	PLAN VIEW OF PERMANENT PROJECT FEATURES - (STA 109+50 TO 124+33)	88-PP-3/27	27	BEACH FILL CROSS-SECTIONS - (STA 20+00 TO 43+00)	88-PP-1/2	2	REFERENCE DRAWING: PRESQUE ISLE STATE PARK - MONITORING STUDY SHEET 2 OF 5
88-PP-3/13	13	PLAN VIEW OF PERMANENT PROJECT FEATURES - (STA 124+33 TO 140+17)	88-PP-3/28	28	BEACH FILL CROSS-SECTIONS - (STA 50+00 TO 70+00)	88-PP-1/3	3	REFERENCE DRAWING: PRESQUE ISLE STATE PARK - MONITORING STUDY SHEET 3 OF 5
88-PP-3/14	14	PLAN VIEW OF PERMANENT PROJECT FEATURES - (STA 140+17 TO 163+98)	88-PP-3/29	29	BEACH FILL CROSS-SECTIONS - (STA 75+00 TO 95+00)	88-PP-1/4	4	REFERENCE DRAWING: PRESQUE ISLE STATE PARK - MONITORING STUDY SHEET 4 OF 5
88-PP-3/15	15	PLAN VIEW OF PERMANENT PROJECT FEATURES - (STA 163+98 TO 181+53)	88-PP-3/30	30	BEACH FILL CROSS-SECTIONS - (STA 100+00 TO 120+00)	88-PP-1/5	5	REFERENCE DRAWING: PRESQUE ISLE STATE PARK - MONITORING STUDY SHEET 5 OF 5

REVISION	DATE	BY	DESCRIPTION
1	11/2/90	[Signature]	REVISED DRAWING NUMBER

**INDEX TO DRAWINGS**

U.S. ARMY ENGINEER DISTRICT, BUFFALO  
 CORPS OF ENGINEERS  
 BUFFALO, NEW YORK 14203

PRESQUE ISLE PENINSULA  
 ERIE, PA.  
 SHORELINE EROSION CONTROL PROJECT

DATE: 11/2/90  
 DRAWING NUMBER: 88-PP-3/1  
 SHEET 1 OF 40

APPROPRIATION TITLE: Construction – Dam Safety Assurance, Major Rehabilitation

PROJECT: Wolf Creek Dam Safety Major Rehabilitation, Kentucky (Continuing)

LOCATION: Wolf Creek Dam is on the Cumberland River at mile 460.9 in south central Kentucky near Jamestown, Kentucky.

DESCRIPTION: Wolf Creek Dam impounds Lake Cumberland, which is the Corps largest storage capacity reservoir east of the Mississippi River. Seepage problems currently threaten the stability of the dam. The Major Rehabilitation Evaluation Report dated July 11, 2005 was prepared in accordance with EP 1130-2-500 and evaluates several alternatives to improve the long term reliability of the dam by using a reliability analysis based on an analytical model built upon historical instrumentation data. From this analysis, the recommended alternative, which is also the National Economic Development alternative, is a new concrete diaphragm wall constructed using the secant pile method and supplemented with grouting. This new wall will start immediately upstream of the right most concrete monoliths and run the length of the embankment into the right abutment. The final approval of the Major Rehabilitation Evaluation Report was made July 25, 2005.

AUTHORIZATION: The Wolf Creek project was authorized by the Flood Control Act approved June 28, 1938 (P. L. No. 761, 75th Congress, 3d session).

REMAINING BENEFIT-REMAINING COST RATIO: 6.4 at 7.0 percent.

TOTAL BENEFIT-COST RATIO: 6.4 at 7.0 percent.

INITIAL BENEFIT-COST RATIO: 7.1 at 5 3/8 percent (FY 2005).

BASIS OF BENEFIT COST RATIO: Benefits are from the latest available evaluation approved in July 2005 at FY05 price levels.

SUMMARIZED FINANCIAL DATA

		STATUS (1 Jan 2009)	PCT CMPL	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost		\$583,200,000		
Programmed Construction	\$583,200,000	Entire Project	16	TBD
Total Estimated Project Cost		\$583,200,000		

PHYSICAL DATA

Concrete Cutoff Wall and Foundation Grouting 4170' long x 350' max. depth

Division: Great Lakes and Ohio River

District: Nashville

Wolf Creek Dam Safety Major Rehabilitation, Kentucky

7 May 2009

SUMMARIZED FINANCIAL DATA (Continued)

		ACCUM PCT OF EST FED COST
Allocations to 30 September 2006	8,900,000 <sup>1/</sup>	
Allocation for FY 2007	44,000,000	
Allocation for FY 2008	53,234,000	
Conference Allowance for FY 2009	54,547,000	
Allocation for FY 2009	54,547,000	
Allocations through FY 2009	160,681,000	28
Allocation Requested for FY 2010	123,000,000	48
Programmed Balance to Complete after FY 2010	TBD	
Unprogrammed Balance to Complete after FY 2010	0	

<sup>1/</sup> Funded from Dam Safety and Seepage/Stability Correction Program.

JUSTIFICATION: Worsening, chronic seepage problems originating from 1940's foundation construction methods currently threaten the stability of Wolf Creek Dam. Review of foundation construction data indicate the problems are due to the karst geology of the site characterized by an extensive interconnected network of solution channels in the limestone foundation. If the 55-year old dam should fail, loss of life is expected to exceed one-hundred lives. Inundation damages in the Nashville area alone are expected to exceed two billion dollars.

FISCAL YEAR 2009: The current amount is being applied as follows:

Continue Cutoff Wall Contract	\$ 48,447,000
Planning, Engineering, and Design	3,500,000
Construction Management	2,600,000
Total	\$ 54,547,000

FISCAL YEAR 2010: The requested amount will be applied as follows:

Continue Cutoff Wall Contract	\$ 108,864,000
Planning, Engineering, and Design	5,890,000
Construction Management	8,246,000
Total	\$ 123,000,000

Division: Great Lakes and Ohio River

District: Nashville

Wolf Creek Dam Safety Major Rehabilitation, Kentucky

7 May 2009

LRD-44

STATUS OF LOCAL COOPERATION: The project is designed as a reliability-based improvement. There are no anticipated efficiency benefits. The project will require full initial federal funding. There are two classes of users that may be required to share in the final cost of this project, the water supply and hydropower customers. There are ten water supply users on Lake Cumberland, mostly small cities. There are no current water supply agreements. Any future water supply agreements will include their share of these project costs. The hydropower from Wolf Creek is marketed through the Southeastern Power Administration (SEPA). SEPA will repay their share of the costs by periodic direct payment to the U.S. Treasury.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of 583,200,000 is an increase of \$266,000,000 from the latest estimate (\$317,200,000) presented to Congress (FY 2009). The change includes the following items.

Item	Amount
Barrier Wall Contact Cost Increase	\$ 181,500,000
Foundation Grouting Contract Cost Increase	12,100,000
Price Level Updating and Inflation	72,400,000
Total	\$ 266,000,000

STATUS OF ENVIRONMENTAL ASSESSMENT: An Environmental Assessment and signed Finding of No Significant Impact (FONSI) were included in the Major Rehabilitation Report approved July 14, 2005 by the Great Lakes and Ohio River Division and July 25, 2005 by HQUSACE.

OTHER INFORMATION: ASA(CW) concurred with the report recommendations on August 17, 2005 and directed that the project be included as a continuing project in the FY 2007 Construction General Budget Request. The scheduled completion date is "To Be Determined."



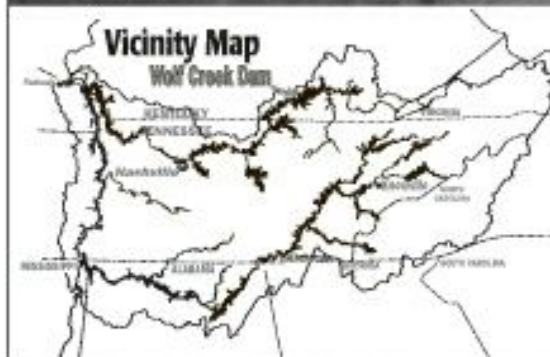
Great Lakes &  
Ohio River Division  
Nashville District

## Wolf Creek Seepage Major Rehabilitation

**1 - Halcombs  
Landing**

**2 - Foundation  
Grouting**

**3 - Cutoff Wall  
Construction**



### Legend - Status of Work by Major Construction Feature

- 1 & 2** Work to be completed as of 30 Sept 2008
- 3** Work proposed with funds received in FY 2009
- 3** Work proposed with funds requested for FY 2010
- 3** Work required to complete project after FY 2010



# NAVIGATION

# INVESTIGATIONS

APPROPRIATION TITLE: Investigations, Fiscal Year 2010

Division: Great Lakes and Ohio River

Study	Total Estimated Federal Cost \$	Allocation Prior to FY 2009 \$	Allocation FY 2009 \$	Tentative Allocation FY 2010 \$	Additional to Complete After FY 2010 \$
<b>SURVEYS – CONTINUING (Navigation)</b>					
Great Lakes Navigational System, Michigan, Illinois, Indiana, Minnesota, New York, Ohio, Pennsylvania, and Wisconsin	8,605,700	8,014,700	191,000	400,000	TBD

Detroit District

The Great Lakes/St. Lawrence Seaway navigation system is an international waterway that provides a minimum 25.5' safe draft for nearly 2,300 miles. The system extends from the Atlantic Ocean throughout the Great Lakes to Duluth, MN. The navigation system is operated and maintained by both the United States and Canadian Governments through the St. Lawrence Seaway Development Corporation (USDOT), the St. Lawrence Seaway Management Corporation (Transport Canada), and the U.S. Army Corps of Engineers. The system contributes significantly to the North American economy in both the United States and Canada. Section 456 of the Water Resources Development Act of 1999 directed the Corps to review the feasibility of improving commercial navigation on the Great Lakes navigation system, including locks, dams, harbors, ports, channels, and other related features, in consultation with the St. Lawrence Seaway Development Corporation (SLSDC). A Reconnaissance Report, in response to the 1999 WRDA study authorization, was approved in February 2003. Prior to initiation of any feasibility studies, additional information is needed, as a supplement to the reconnaissance report, for determination of the Federal interest. This effort will also include an assessment of baseline without-project conditions for the environment, engineering features and economic conditions, and examine concerns that have been raised as a result of public involvement and coordination. Should the recommendation be to proceed with further studies, this phase must also determine the scope of additional studies, including cost and duration, and develop a Project Management Plan. Since the system is a bi-national waterway, coordination with Canada occurred during the development of the Reconnaissance Report, and in May 2003, Transport Canada and the Department of Transportation entered into a Memorandum of Cooperation to support the Great Lakes St. Lawrence Seaway System. Further coordination between the Canadian and U.S. Governments has resulted in a draft Memorandum of Understanding between the USDOD, SLSDC and Transport Canada (TC). Canadian funding for their involvement in the study has been proceeding at a level commensurate with that of the USACE.

Bi-national Steering Committee/working groups have been established for the supplemental study efforts, including representatives from TC, USDOT, USACE, USFWS, Environment Canada, and both U.S. and Canadian Seaway Authorities. Engineering analyses and reliability modeling of the system have been completed, including infrastructure inspections. Future traffic forecasts have been developed, including a new cargo/new vessel market assessment. An environmental appendix discussing the role the system plays in the ecosystem has been completed. A bi-national report summarizing these efforts was released in Nov 2007. The Corps Supplemental Reconnaissance report will be finalized in FY2009

FY 2009 appropriated funds of \$191,000 are being used to address review comments on the Supplemental Reconnaissance Report, coordinate the recommendations and complete the final report.

FY 2010 funds of \$400,000 would be used for formalization of the scope and cost sharing requirements of any follow-on study efforts and to identify locations of potential feasibility studies and identification of project partners.

7 May 2009

# CONSTRUCTION

APPROPRIATION TITLE: Construction - Locks & Dams (Navigation)

PROJECT: Chickamauga Lock and Dam, Tennessee River, Tennessee (Continuing)

LOCATION: The project is located on the Tennessee River at Mile 471.0 about 7 miles upstream of Chattanooga, Tennessee.

DESCRIPTION: Chickamauga Lock has structural problems that result from ongoing alkali aggregate reaction (AAR) that cause the concrete to physically expand and this is threatening the structural integrity of the lock. Funding for construction initiation was provided in the FY 2004 Energy & Water Development Appropriations Bill, P.L. 108-357. GI funding began in FY 2002.

AUTHORIZATION: Section 114 of the FY 2003 Energy & Water Development Appropriations Bill, P.L. 108-7.

REMAINING BENEFIT-REMAINING COST RATIO: 6.0 at 7.0 percent.

TOTAL BENEFIT-COST RATIO: 6.0 at 7.0 percent.

INITIAL BENEFIT-COST RATIO: 2.0 at 6 3/8 percent

BASIS OF BENEFIT COST RATIO: Benefits are from the latest available evaluation approved in July 2008 at FY08 price levels.

SUMMARIZED FINANCIAL DATA

		STATUS (1 Jan 2009)	PCT CMPL	PHYSICAL COMPLETION SCHEDULE	
Estimated Federal Cost		\$374,500,000			
Construction General	\$187,250,000				
Inland Waterways Trust Fund	\$187,250,000				
Total Estimated Project Cost		\$374,500,000	Entire Project	35	TBD

PHYSICAL DATA

Lock Chamber (New) 110 ft. x 600 ft.

Division: Great Lakes and Ohio River

District: Nashville

Chickamauga Lock and Dam, Tennessee River, TN

7 May 2009

LRD-51

SUMMARIZED FINANCIAL DATA (Continued)

	CONSTRUCTION	INLAND WATERWAYS TRUST FUND	ACCUM. PCT. OF EST. FED. COST
Allocations to 30 September 2006	16,069,000	16,069,000	
Allocation for FY 2007	13,500,000	13,500,000	
Allocation for FY 2008	17,318,500	17,318,500	
Conference Allowance for FY 2009	21,000,000	21,000,000	
Allocation for FY 2009	21,000,000	21,000,000	
Allocations through FY 2009	67,887,500	67,887,500	36
Allocation Requested for FY 2010	500,000	500,000	37
Programmed Balance to Complete after FY 2010	TBD	TDB	
Unprogrammed Balance to Complete after FY 2010	0	0	

JUSTIFICATION: The existing 60-foot X 360-foot Chickamauga Lock, which was completed in 1940, experiences structural problems due to “concrete growth,” which is caused by an alkali-aggregate reaction (AAR). This reaction creates a gel that absorbs moisture, swells, and expands the concrete. When the concrete is restrained, the concrete growth increases internal stresses, which causes cracking and movement of the concrete monoliths. This movement causes equipment misalignment as well as structural instability. The lock has grown vertically almost 4 inches in some places and horizontally almost 8 inches. Since 1995 more than 300 post-tensioned anchors have been installed to hold cracked sections of the monoliths together. The lock is under constant surveillance and dive inspections are now conducted every three years. The concrete growth is continuing. Non-standard, major maintenance is increasing, raising both the cost to perform this maintenance and the associated time loss from scheduled lock outages. In the long-run, trying to continue maintaining and repairing the existing lock is not feasible. In the absence of a replacement lock, the Tennessee Valley Authority, which owns the lock, would at some point need to close the lock to protect the public downstream and its investment in other features of the project. Such a lock closure would shut off 318 miles of river above Chattanooga, including river access to Knoxville and Oak Ridge, TN. Closing off the upper river to navigation would impact the ability to ship asphalt for local highway construction and oversized components such as nuclear steam generators and components of the \$1.7 billion Spallation Neutron Source program by water. The 110-foot x 600-foot replacement lock will also reduce lock transit time and will be consistent with the size of the six locks downstream on the Tennessee River.

Division: Great Lakes and Ohio River

District: Nashville

Chickamauga Lock and Dam, Tennessee River, TN

7 May 2009

LRD-52

FISCAL YEAR 2009: The current amount is being applied as follows:

Continue Cofferdam Construction Contract	\$38,700,000
Planning, Engineering, and Design	1,400,000
Construction Management	1,900,000
Total	\$42,000,000

FISCAL YEAR 2010: The requested amount will be applied as follows:

Construction Management	\$1,000,000
Total	\$1,000,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, 50 percent of the total cost for the project will be derived from the Inland Waterways Trust Fund.

STATUS OF LOCAL COOPERATION: None required.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of \$374,500,000 is an increase of \$9,900,000 from the latest estimate (\$364,600,000) submitted to Congress (FY 2009). The change includes the following items:

Item	Amount
Price Level Updating and Inflation	\$ 9,900,000
Increase in Cofferdam Construction Estimate	3,000,000
Decrease in Real Estate and Relocations	(3,000,000)

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: A Final Supplemental Environmental Impact Statement was included in the Feasibility Report dated February 26, 2002. The Record of Decision was signed on July 20, 2004.

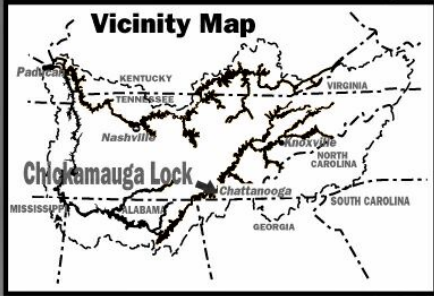
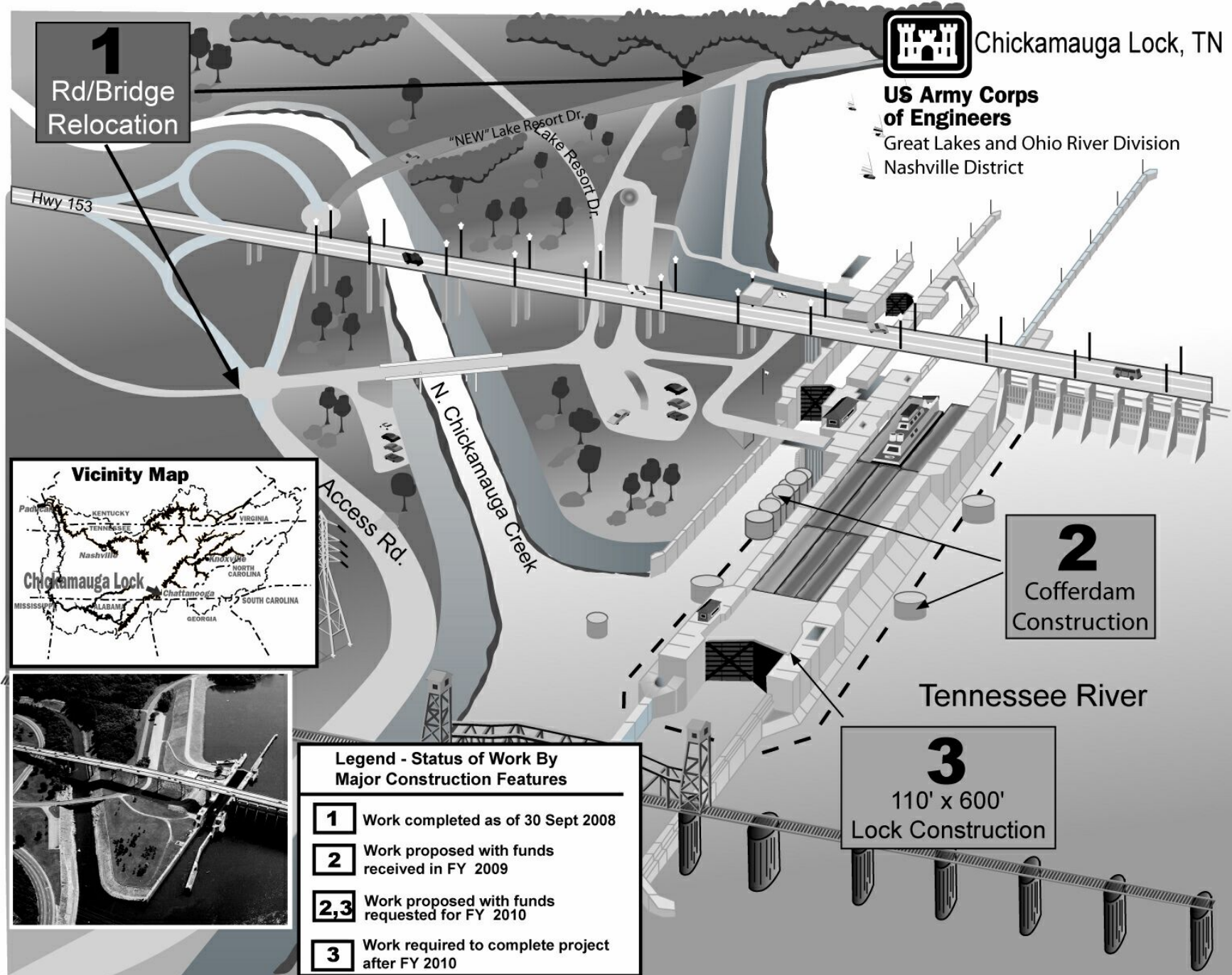
OTHER INFORMATION: None.



Chickamauga Lock, TN

**US Army Corps of Engineers**  
Great Lakes and Ohio River Division  
Nashville District

**1**  
Rd/Bridge  
Relocation



**Legend - Status of Work By Major Construction Features**

<b>1</b>	Work completed as of 30 Sept 2008
<b>2</b>	Work proposed with funds received in FY 2009
<b>2,3</b>	Work proposed with funds requested for FY 2010
<b>3</b>	Work required to complete project after FY 2010

**2**  
Cofferdam  
Construction

**3**  
110' x 600'  
Lock Construction



APPROPRIATION TITLE: Construction – Locks and Dams (Replacement) (Dam Safety Assurance) (Navigation)

PROJECT: Emsworth Locks and Dams, Ohio River, Pennsylvania (Static Instability Correction) (Continuing)

LOCATION: Emsworth Locks and Dams are located on the Ohio River immediately downstream of the City of Pittsburgh in Allegheny County, Pennsylvania. The project includes two dams, one on either side of an island (Neville). The main channel dam and locks are located at river mile 6.2 and the back channel dam is located at river mile 6.4. The project creates the navigation pool for the City of Pittsburgh. The pool includes the uppermost 6.2 miles of the Ohio River, the lower 11.2 miles of the Monongahela River, and the lower 6.7 miles of the Allegheny River.

DESCRIPTION: The structural components of the Emsworth Locks and Dams are the oldest of any project on the Ohio River, dating back to 1919-1922 when Emsworth was constructed. The proposed work is directed to deficiencies with the dam gates, dam operating equipment and machinery, and the scour protection downstream of the dams. Potential work at the Emsworth Locks is being evaluated separately and is not part of this project. The main channel dam consists of 8 - 100 ft vertical lift gates and a 34 ft. fixed crest weir. The back channel dam consists of 5 - 100 ft. vertical lift gates and a tainter-style gate commonly referred to as a "Sidney Gate". The proposed project includes replacement of the dam gates, gate hoisting machinery, electrical power and distribution system, and scour protection system. The project also includes work to the dam service bridge and localized areas of dam concrete deterioration.

AUTHORIZATION: Rivers and Harbors Act, dated July 1918.

REMAINING BENEFIT-REMAINING COST RATIO: 1.9 TO 1 at 7 percent

TOTAL BENEFIT-COST RATIO: 1.1 to 1 at 7 percent

INITIAL BENEFIT-COST RATIO: 2.8 TO 1 AT 5 5/8 percent (FY 2004)

BASIS OF BENEFIT-COST RATIO: "EMSWORTH LOCKS AND DAMS, OHIO RIVER, MAJOR REHABILITATION EVALUATION REPORT" dated March 2001 is the basis for the initial benefit-cost ratio. The price level was March 2001. The initial rate is the rate for FY04 when CG funds were first expended. The total benefit-cost ratio would be 1.1 to 1 at 7% based on the current approved cost estimate.

SUMMARIZED FINANCIAL DATA	ACCM PCT OF EST FED COST	STATUS (1 JAN 2009)	PCT Cmpl	PHYSICAL COMPLETION SCHEDULE
		Entire project	64.7%	2014
Estimated Federal Cost	160,000,000			
Programmed Construction	160,000,000			
Unprogrammed Construction	0			
Estimated Non-Federal Cost	0			
Programmed Construction	0			
Cash Contributions	0			
Other Costs	0			
Total Estimated Programmed Construction Cost	160,000,000			
Total Estimated Unprogrammed Construction Cost	0			
Total Estimated Project Cost	160,000,000			
		PHYSICAL DATA		
		13 Vertical Lift Gates		
		Emergency Bulkheads and Hoists		
		Vertical Lift Gate Machinery		
		Erosion Protection		
		Integral concrete repairs		
		Rehabilitation of Service Bridges		

	GENERAL APPNS	INLAND WATERWAYS TRUST FUNDS	ACCUM PCT OF EST FED COST	
Allocations thru 30 September 2006	18,355,000			
Allocation for 2007	17,000,000			
Allocation for 2008	3,478,500	38,833,500	48.5	/1
Conference Allowance for 2009	25,800,000			
Allocation for 2009	25,800,000		64.7	/2
Allocations through 2009	64,633,500	38,833,500	64.7	
Allocation Requested for 2010	0	25,000,000	80.3	
Programmed Balance to Complete after 2010	TBD	TBD		
Unprogrammed Balance to Complete after 2010	0	0		

/1 reflects a balancing of the General Appropriation and the Inland Waterways Trust Fund

/2 reflects FY 2009 CRA language stating that Major Rehabilitation projects are not to be cost shared with the Inland Waterways Trust Fund

JUSTIFICATION: Dams are presently in an exigent situation and categorized as Dam Safety Action Class 1 – urgent and compelling. There are 10 foot deep scour holes and 65 percent of the erosion protection was missing downstream of the dams. Failure of any of the thirteen lift gates would likely cause a portion of the stilling basin to fail and possibly undermine the dam. There is presently a 74 percent likelihood of failure of any of the dam gates. The systems are proven to be unreliable due to multiple failures within the past four years. Over 239 million tons of commodities are transported by barge annually on the Ohio River. The annual tonnage through Emsworth is approximately 24 million tons with the principle commodity being coal which is destined for electric generating plants and the

Division: Great Lakes & Ohio River

District: Pittsburgh

Emsworth Locks and Dams, Ohio River, Pennsylvania

7 May 2009

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nation's largest coke plant. The total benefits of traffic through Emsworth reflect a yearly savings of \$300 million over other modes of transportation. Gate failure during low flow conditions could lead to the loss of the Pittsburgh Pool halting navigation. Gate failure during high flow conditions may cause upstream flooding or stilling basin and dam failure ceasing navigation. If the Emsworth pool is lost, two major facilities dependent on river transportation are impacted – the US Steel Clairton Works, the largest coke plant in the US and the Bailey/Enlow Fork Complex owned by Consol Energy, the largest underground coal mine in the US. Disruption in coal supply and transportation would also impact steel plants and coal-fired electric power plants. The impact of the loss of Emsworth pool on the local economy and other communities would be substantial. Approximately 11,700 jobs are directly at risk due to loss of navigation and disruption to services and material. The loss in wages alone would range from \$1.5 to \$2.2 million per day. The project is cost-effective and in accordance with current Administration policy for navigation.

FISCAL YEAR 2009: \$3.8M will be used for EDC and S&A for the main channel gate rehab, main channel lift gate supply, back channel abutments stabilization, and service bridges design; \$19.0M will be utilized for the main channel dam gate and permanent scour protection contract; \$3.0M will be used for the back channel service bridge rehabilitation.

FISCAL YEAR 2010:

Description	Amount
EDC and S&A for the main channel gate rehab and permanent scour protection, main channel lift gate supply, and abutment stabilization.	4,000,000
Main channel dam gate and permanent scour protection contract	1,500,000
Back channel permanent scour protection contract	19,500,000
Total	25,000,000

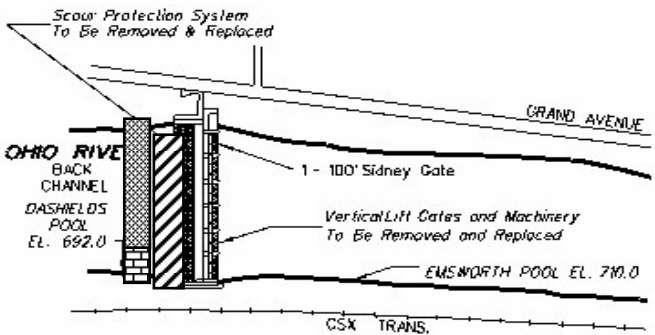
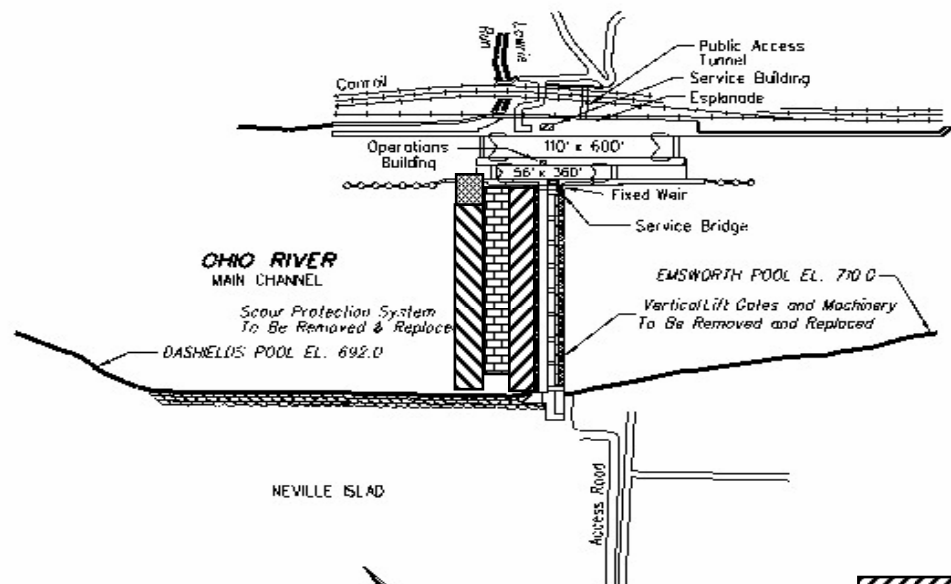
NON-FEDERAL COST: N/A

STATUS OF LOCAL COOPERATION: None Required



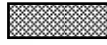

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of \$160,000,000 is reduced by \$3,800,000 from the latest estimate of \$163,800,000 presented to Congress (FY 2008).

STATUS OF ENVIRONMENTAL IMPACT STATEMENT COMPLIANCE: An Environmental Assessment was completed during the Rehabilitation Evaluation study, and the Finding of No Significant Impacts (FONSI) was signed on 12 July 2001.

OTHER INFORMATION: Project is high priority. In FY 2005, a total of \$3,505,000 of CG "wedge" funds was provided through the Dam Safety and Seepage/Stability Correction program to initiate the Emsworth Locks and Dams Major Rehabilitation Project, PA. This project was presented to Congress in 2008. The scheduled completion date is 2014.



**LEGEND**

-  WORK COMPLETE AS OF 30 SEPTEMBER 2008
-  WORK PROPOSED WITH FUNDS AVAILABLE FOR 2009
-  WORK PROPOSED WITH FUNDS REQUESTED FOR FY 2010
-  WORK REQUIRED TO COMPLETE PROJECT AFTER FY 2010

**EMSWORTH LOCK AND DAM**

**OHIO RIVER**

CORPS OF ENGINEERS U.S. ARMY  
 PITTSBURGH, PA. DISTRICT, GREAT LAKES AND OHIO RIVER DIVISION



28 Feb 2009

APPROPRIATION TITLE: Construction - Locks & Dams (Navigation)

PROJECT: Kentucky Lock and Dam, Tennessee River, Kentucky (Continuing)

LOCATION: The project is located on the Tennessee River at Mile 22.4 near Grand Rivers, Kentucky.

DESCRIPTION: The modernization of the existing facility will include the addition of a 110-foot x 1200-foot lock landward and adjacent to the existing 110-foot x 600-foot lock, and the relocation of an existing railroad, highway, and powerhouse access road. The railroad and highway will be relocated downstream of the new lock's lower gates and will require the construction of new bridges across the river. The powerhouse access road will be relocated from the east bank to the west bank and will require the construction of a new ramp.

AUTHORIZATION: The Water Resources Development Act of 1996.

REMAINING BENEFIT-REMAINING COST RATIO: 3.5 at 7.0 percent.

TOTAL BENEFIT-COST RATIO: 2.5 at 7.0 percent.

INITIAL BENEFIT-COST RATIO: 1.8 at 8 percent (FY 1994).

BASIS OF BENEFIT COST RATIO: Benefits are based on the Limited Reevaluation Report approved in November 1995 and costs are based on a 2003 update of the Innovated Design/Cost Reduction Studies completed in June 1995.

SUMMARIZED FINANCIAL DATA

		STATUS (1 Jan 2009)	PCT CMPL	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost	\$734,200,000			
Construction General	\$367,100,000			
Inland Waterways Trust Fund	\$367,100,000	Entire Project	35	TBD
Total Estimated Project Cost	\$734,200,000			

PHYSICAL DATA

Lock Chamber (New)	110 ft. x 1200 ft.
Bridges	
Railroad (New)	3100 ft.
Highway (New)	3100 ft.

Division: Great Lakes and Ohio River

District: Nashville

Kentucky Lock and Dam, Tennessee River, KY

7 May 2009

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SUMMARIZED FINANCIAL DATA (Continued)

	CONSTRUCTION	INLAND WATERWAYS TRUST FUND	ACCUM PCT OF EST FED COST
Allocations to 30 September 2006	92,735,000	92,735,000	
Allocation for FY 2007	10,071,960	10,071,960	
Allocation for FY 2008	25,584,000	25,584,000	
Conference Allowance for FY 2009	11,165,000	11,165,000	
Allocation for FY 2009			
Allocations through FY 2009	139,555,960	139,555,960	38
Allocation Requested for FY 2010	500,000	500,000	39
Programmed Balance to Complete after FY 2010	TBD	TBD	
Unprogrammed Balance to Complete after FY 2010	0	0	

JUSTIFICATION: The existing 110-foot x 600-foot Kentucky Lock is too small to handle a modern 15-barge tow without two lockages. This greatly increases the processing time resulting in Kentucky Lock having one of the highest average delay times on the inland waterway system. Delays at the lock averaged over 5.7 hours per tow in 2005. System traffic is expected to grow annually from the 40.5 million tons recorded in 2005 to an estimated 77 million tons in 2050 resulting in a 38.4 hour average delay per tow. The addition of a new 1200-foot lock will greatly reduce these delays and generate \$71 million (FY03 dollars) in average annual benefits to the nation as a result of reduced cost to transport commodities through the system.

FISCAL YEAR 2009: The current amount is being applied as follows:

Continue Highway/Railroad Superstructure Contract	18,900,000
Planning, Engineering and Design	1,300,000
Construction Management	2,130,000
Total	22,330,000

FISCAL YEAR 2010: The requested amount will be applied as follows:

Construction Management	1,000,000
Total	1,000,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, 50 percent of the total cost for the project will be derived from the Inland Waterways Trust Fund.

Division: Great Lakes and Ohio River

District: Nashville

Kentucky Lock and Dam, Tennessee River, KY

7 May 2009

LRD-60

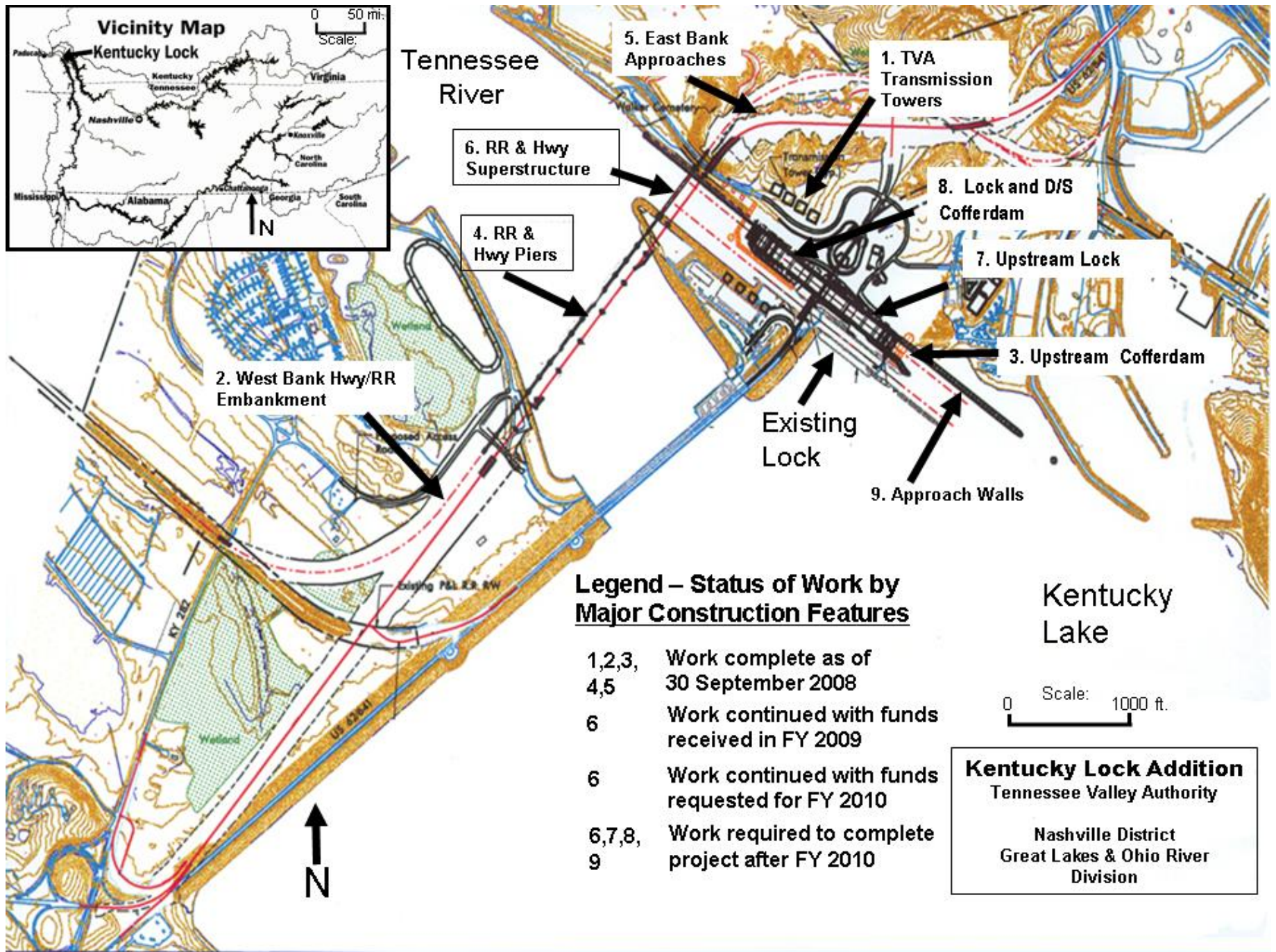
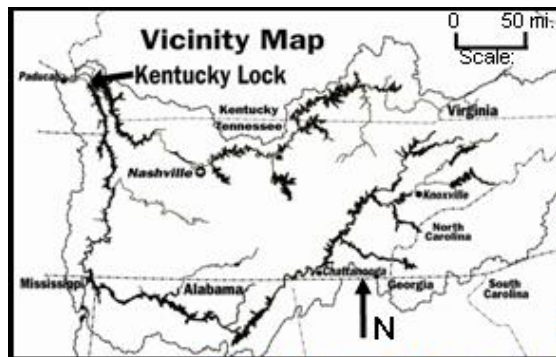
STATUS OF LOCAL COOPERATION: None required.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of \$734,174,200 is an increase of \$70,674,200 from the latest estimate (\$663,500,000) presented to Congress (FY 2009). The change includes the following items.

Item	Amount
Adjustments for actual contract amounts	\$ 31,490,000
Price Level Updating and Inflation	\$ 39,184,200
Total	\$ 70,674,200

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: An Environmental Impact Statement was included in the Final Feasibility Report and the Record of Decision was signed on March 26, 1998. A supplemental Environmental Impact Statement to address relocation feature changes and design refinements identified subsequent to the original report and Environmental Impact Statement was completed in 2001 and the Record of Decision was signed on July 20, 2001.

OTHER INFORMATION: Funds to initiate pre-construction engineering and design were appropriated in FY 1993. Funds to initiate construction were appropriated in FY 1998. The scheduled completion date is "To Be Determined".



**Legend – Status of Work by Major Construction Features**

- 1,2,3, 4,5 Work complete as of 30 September 2008
- 6 Work continued with funds received in FY 2009
- 6 Work continued with funds requested for FY 2010
- 6,7,8, 9 Work required to complete project after FY 2010

**Kentucky Lock Addition**  
 Tennessee Valley Authority  
 Nashville District  
 Great Lakes & Ohio River  
 Division



APPROPRIATION TITLE: Construction – Locks and Dams (Navigation)

PROJECT: Locks and Dams 2, 3 and 4, Monongahela River, Pennsylvania (Continuing)

LOCATION: These three Navigation facilities are located on the lower portion of the Monongahela River near the city of Pittsburgh, Pennsylvania. They are part of the Allegheny-Monongahela system and are located in Allegheny, Washington, and Westmoreland Counties. Measured from the Point in Pittsburgh, Locks and Dam 2 (Braddock) is at river mile 11.2, Locks and Dam 3 (Elizabeth) is at river mile 23.8, and Locks and Dam 4 (Charleroi) is at river mile 41.5. Six other navigation facilities situated upstream of Locks and Dam 4 provide a navigable waterway extending to Fairmont, West Virginia. At the Point in Pittsburgh, the Monongahela and Allegheny Rivers join to form the Ohio River.

DESCRIPTION: Existing Locks and Dams 2, 3, and 4 are the last of the old and undersized locks on the Monongahela River system and have components which have been in service for nearly 100 years. The existing Braddock facility consists of a main lock with chamber dimensions of 110 by 720 feet, an auxiliary lock with chamber dimensions of 56 by 360 feet, and a 748-foot fixed-crest dam. The existing Elizabeth facility consists of locks with chamber dimensions of 56 by 720 feet and 56 by 360 feet and a 670-foot fixed-crest dam. The existing Charleroi facility consists of locks with chamber dimensions of 56 by 720 feet and 56 by 360 feet and a gated dam consisting of five 84-foot gated sections and a 43-foot fixed weir section. The authorized projects consist of a new gated dam and a rehabilitated auxiliary chamber floodway bulkhead structure at Braddock; new twin 84 by 720 foot locks and below-dam scour protection at Charleroi; raising pool 2 by a nominal 5 feet and lowering pool 3 by a nominal 3.2 feet; removal of Locks and Dam 3; channel dredging; relocations; and bank stabilization. Construction began in FY 1995 with the upgrade of the Locks 2 auxiliary chamber floodway bulkhead and relocations. Replacement of the dam at Braddock began in 1999 and is complete. Only one operational lock remains at Charleroi L/D 4. Efforts are now focused on the new twin locks at Charleroi and remaining pool 2 relocations. All work is programmed.

AUTHORIZATION: Water Resources Development Act of 1992.

REMAINING BENEFIT-REMAINING COST RATIO: 3.8 to 1 at 7 percent.

TOTAL BENEFIT-COST RATIO: 2.2 to 1 at 7 percent.

INITIAL BENEFIT-COST RATIO: 6.7 to 1 at 7 3/4 percent (FY 1995).

BASIS OF BENEFIT-COST RATIO: The initial Benefit-Cost ratio is based upon the benefits and costs listed in the Feasibility Report dated December 1991. The initial rate is the FY 1995 rate when CG funds were first expended.

Division: Great Lakes and Ohio River

District: Pittsburgh

Locks and Dams 2, 3, and 4, Monongahela River, Pennsylvania

7 May 2009

LRD-63

SUMMARIZED FINANCIAL DATA			STATUS (1 JAN 2009)	PCT CMPL	PHYSICAL COMPLETION SCHEDULE
			Renovation and extension of Locks 2 Upper Guard wall	100	Jan 98
Estimated Federal Cost	845,000,000	/1	Bulkhead Structure L/D 2	100	Mar 96
Programmed Construction	845,000,000		Braddock Dam	100	Jul 04
Unprogrammed Construction	0		Remove L/D 3	0	To be determined
Estimated Non-Federal Cost	0		Raise and Lower Pool	0	To be determined
			Public Relocations	50	To be determined
Total Estimated Programmed Construction Cost	845,000,000		Charleroi River Chamber Lock	19	To be determined
Total Estimated Unprogrammed Construction Cost	0		Charleroi Scour Protection	0	To be determined
Total Estimated Project Cost	845,000,000		Charleroi Land Chamber Lock	0	To be determined
			Entire project	54 /2	To be determined

/1 Unapproved fully funded estimate is \$1.7B. This project will require a Post Authorize Change Report when the allocated amount approaches the current estimated 902 Authorization Limit of \$1.1B. Through FY08 the project was \$689M below the authorized limit.

/2 Project completion percentage is based on the \$845M estimate and the \$460M received thru FY 2008.

	GENERAL APPNS	INLAND WATERWAYS TRUST FUNDS	ACCUM PCT OF EST FED COST
Allocations to 30 September 2006	177,904,500	178,062,500	/1
Allocation for 2007	31,636,000	31,636,000	
Allocation for 2008	20,200,000	20,200,000	/2
Conference Allowance for 2009	7,950,000	7,950,000	
Allocation for 2009	719,500	719,500	
Allocations through 2009	230,460,000	230,618,000	54%
Allocation Requested for 2010	3,105,000	3,105,000	55%
Programmed Balance to Complete after 2010	TBD	TBD	
Unprogrammed Balance to Complete after 2010	0	0	

/1 Includes \$12,542,300 of PED funds.

/2 FY08 allocation was \$28,775,000 below the appropriated amount due to IWTF funding constraints.

JUSTIFICATION: The major risks associated with these facilities are their deteriorated structural condition and lock capacity. These risks are becoming increasingly severe as the facilities age and deteriorate. The extreme structural deterioration of Locks and Dam 3 and Locks 4 is of paramount concern. Major repairs and rehabilitation will not prevent structural failure. There is a significant probability of structural failure and loss of navigation on the Monongahela River. The highest risks are at Elizabeth L/D 3 and at Charleroi L/D 4. Dam 3 has been classified as a DSAC 1 navigation dam and has previously shown signs of active failure. O&M funds were used in FY07 and FY08 to perform emergency stabilization work on the dam that will serve as a band-aid repair to allow the facility to operate for the next 5-10 years. At Charleroi, there is only one operational lock that is over 75 years old and in poor condition. The District is focusing resources on completing the new Charleroi River Chamber. The continued viability of the Lower Monongahela River navigation system is vital to economic well being of southwestern Pennsylvania, northeastern West Virginia, and the nation. Locks and Dam 2, 3, and 4 cumulatively provide over 14,000 direct jobs in the region. Loss of transportation on this river would have an extremely detrimental effect to the regional and local economy. Average annual benefits at 7 percent are as follows:

Annual Benefits	Amount
Commercial Navigation	39,729,000
Advanced replacement of shore side facilities	2,000,000
Eliminated cost of help boats	100,000
Flood damage reduction	500,000
Normal O&M reduction	1,000,000
Maintenance Savings	176,703,000
Total	220,032,000

FISCAL YEAR 2009: FY 09 funding is severely constrained by the IWTF. Work to be accomplished in FY 09 includes continuation of construction of the Charleroi River wall and completion of the Victory Hollow disposal site. Fabrication contracts for miter gates, floating mooring bits, maintenance bulkheads, and filling and emptying valves will continue in FY09. Continue efforts on prior year fully funded relocations in the communities of McKeesport, Duquesne, North Versailles, and Glassport.

FISCAL YEAR 2010: The requested amount will be applied as follows:

	Amount
Charleroi river wall contract	6,210,000
Total	6,210,000

NON-FEDERAL COST: In accordance with the cost-sharing and financing concepts reflected in the Water Resource Development Act of 1986, 50% of the total cost of construction will be derived from the Inland Waterways Trust Fund.

Construction of this project requires modification to privately owned shore side facilities and submarine utility crossings, which were all constructed under Department of the Army permits pursuant to Section 10 of the Rivers and Harbors Act, approved March 3, 1899. The estimated cost to owners of adapting these facilities to new project conditions is \$111M in Oct 1992 dollars.

STATUS OF LOCAL COOPERATION: None required.

Division: Great Lakes and Ohio River

District: Pittsburgh

Locks and Dams 2, 3, and 4, Monongahela River, Pennsylvania

7 May 2009

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COMPARISON OF FEDERAL COST ESTIMATES: The most recent fully funded estimate for this project was \$845M. The costs are being updated in FY2009 and it is estimated that the revised fully funded project estimate will be approximately \$1.7B (October 2009 dollars). The increase from \$845M to the unapproved estimate of \$1.7B is reflective of three major factors, 1) funding significantly below the project capability level, 2) IWTF funding constraints beginning in FY2008 and extending indefinitely, and 3) design modifications to assumptions made during the feasibility study in December 1991.

STATUS OF ENVIRONMENTAL IMPACT STATEMENT COMPLIANCE: The final Environmental Impact Statement was filed with the Environmental Protection Agency on January 28, 1992. The Director of Civil Works signed the Record of Decision on December 17, 1992. A Supplemental Environmental Impact Statement on Project Disposal and various other Environmental Assessments, all-resulting in Finding of No Significant Impacts has been completed pursuant to NEPA. Changes since the last supplemental have been captured through the issuance of Public Notices under the Clean Water Act.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were first appropriated in FY 1992. Funds to initiate construction were first appropriated in FY 1995. The original project was to be completed in FY2004. Project funding shortfalls are one of the two primary reasons the project schedule has been extended and the estimated project cost has escalated to \$1.7B (unapproved). Extensions of this project schedule directly affect the Operations and Maintenance funding needs on the Monongahela River.

Lock 3 (Elizabeth) are highly unreliable. Dam 3 has been classified as a DSAC 1 navigation dam and has previously shown signs of active failure. "Band-Aid" repairs were completed in FY08 to the most critical portions of the 104 year old dam in an effort to extend the dam's life an additional 5-10 years. Failure of Dam 3 would result in loss of navigation in pool 3, adverse impacts to multiple water intakes, and a potential failure of the only operational lock at Charleroi.

Lock 4 (Charleroi) has only one highly unreliable 75 year old lock chamber. Loss of downstream pool, due to failure of Dam 3, would seriously affect the stability of the existing lock. Lock 4 has a 56 foot wide chamber which is a safety hazard to the navigation industry as well as a bottleneck to efficient navigation on the lower Monongahela River.



APPROPRIATION TITLE: Construction – Locks and Dams

PROJECT: Markland Locks and Dam, Kentucky - Continuing

LOCATION: The project is located on the Ohio River at mile 531.5 in Gallatin County, Kentucky, approximately 58 river miles west of Cincinnati, Ohio. The project was placed in operation in June 1964.

DESCRIPTION: The existing dam consists of 12 operating tainter gates and is approximately 1,395 feet long. A portion of the dam is a licensed hydroelectric facility operated by the CINERGY Corporation and rated at 81,000 KVA. There are two locks at the project: the main chamber is 1,200 feet X 110 feet and the auxiliary chamber measures 600 feet X 110 feet. The project is a unit of the U.S. Inland Waterway navigation system on the Ohio River and is ranked 12th in the nation based on tons of commodities transiting the lock. The project consists of construction of a miter gate assembly pier, fabrication and installation of new miter gates in the 1200 foot main chamber and fabrication and installation of new culvert valves for the main chamber.

AUTHORIZATION: The Rivers and Harbor Act of 1953

REMAINING BENEFIT-COST RATIO: 6.5 to 1 at 7 percent

TOTAL BENEFIT-COST RATIO: 2.4 to 1 at 7 Percent

INITIAL BENEFIT-COST RATIO: 2.8 to 1 at 5 3/8 percent (FY 2008)

BASIS OF BENEFIT COST RATIO: Markland Locks and Dam Rehabilitation Report, dated March 2000, and updated November 2004.

SUMMARIZED FINANCIAL DATA:			STATUS (1 Jan 2009)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost		33,700,000	Entire Project	10	To Be Determined
General Appropriations	16,850,000				
Inland Waterways Trust Fund	16,850,000				
PHYSICAL DATA					
Estimated Non-Federal Cost		0	Dam: Operating Gates		
			Length		1,395 ft.
			Height		42 ft.
			Number of Gates		12
			Lock Chamber (Main)		110 X 1,200 ft.
			(Aux)		110 X 600 ft.
Total Estimated Project Cost		33,700,000			
Division: Great Lakes and Ohio River			District: Louisville		Markland Locks and Dam, Kentucky

7 May 2009

SUMMARIZED FINANCIAL DATA (Cont'd)

	GENERAL APPNS.	INLAND WATERWAYS TRUST FUNDS	PCT. OF EST. FED. COST
Allocations to 30 September 2006	0	0	
Allocation for FY 2007	0	0	
Allocation for FY 2008	4,610,000	4,610,000	
Conference Allowance for FY 2009	10,600,000	0	
Allocation for FY 2009	10,144,000	0	
Allocations through FY 2009	14,754,000	4,610,000	57.5
Allocation Requested for FY 2010	0	1,000,000	60.4
Programmed Balance to Complete after FY 2010	TBD	TBD	100.0
Unprogrammed balance to Complete after FY 2010	0	0	

JUSTIFICATION: The Markland Locks and Dam project consists of an operating dam with 12 tainter gates and a hydroelectric facility and a main 1,200 foot lock chamber with a 600 foot auxiliary chamber. In continuous operation since 1964, the existing lock gates and culvert valves have shown increasing fatigue and stress cracking over the last ten years of documented inspections. Numerous repairs have been accomplished but have only slowed the deterioration of the facility. The risk is very high that a total failure of the lock gates could occur. This would force traffic to pass through the auxiliary lock for an extended period of time causing huge delays and financial impacts to the towing industry. Without this rehabilitation, the gates and valves will eventually fail with significant adverse impact to the Nation's commerce, Ohio River navigation and operation of the project.

Average annual benefits are as follows:

Annual Benefits	Amount
Commercial Navigation	4,196,902
Other	17,280
Total	4,214,182

FISCAL YEAR 2009: The current amount is being applied as follows:

Fabricate Gates	\$9,076,000
Engineering & Design	454,000
Construction Management	614,000
Total	\$10,144,000

FISCAL YEAR 2010: The requested amount will be applied as follows:

Install Gates	\$1,000,000
Total	\$1,000,000

NON-FEDERAL COSTS: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, 50 percent of the total cost of construction will be derived from the Inland Waterways Trust Fund.

STATUS OF LOCAL COOPERATION: None required.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of \$33,700,000 is an increase of \$3,182,000 from the latest estimate (\$30,518,000) presented to Congress (FY 2009) for construction. The change includes the following items:

Item	Amount
Design Changes	\$2,816,000
Price Escalation	\$ 366,000
Total	\$3,182,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: Although the proposed action consists of a repair to an existing operating project, an Environmental Assessment (EA) and a Finding of No Significant Impact (FONSI) were completed in June 2000, in compliance with the requirements of NEPA documentation. An Environmental Impact Statement is not required.

OTHER INFORMATION: Total cost of the project is \$33,700,000. The Rehabilitation Report for Markland Locks and Dams, Ohio River was approved for the rehabilitation program by the Chief, Operations Division, Director of Civil Works U. S. Army Corps of Engineers on 7 July 2000.

Division: Great Lakes and Ohio River

District: Louisville





Markland Locks and Dam, Kentucky

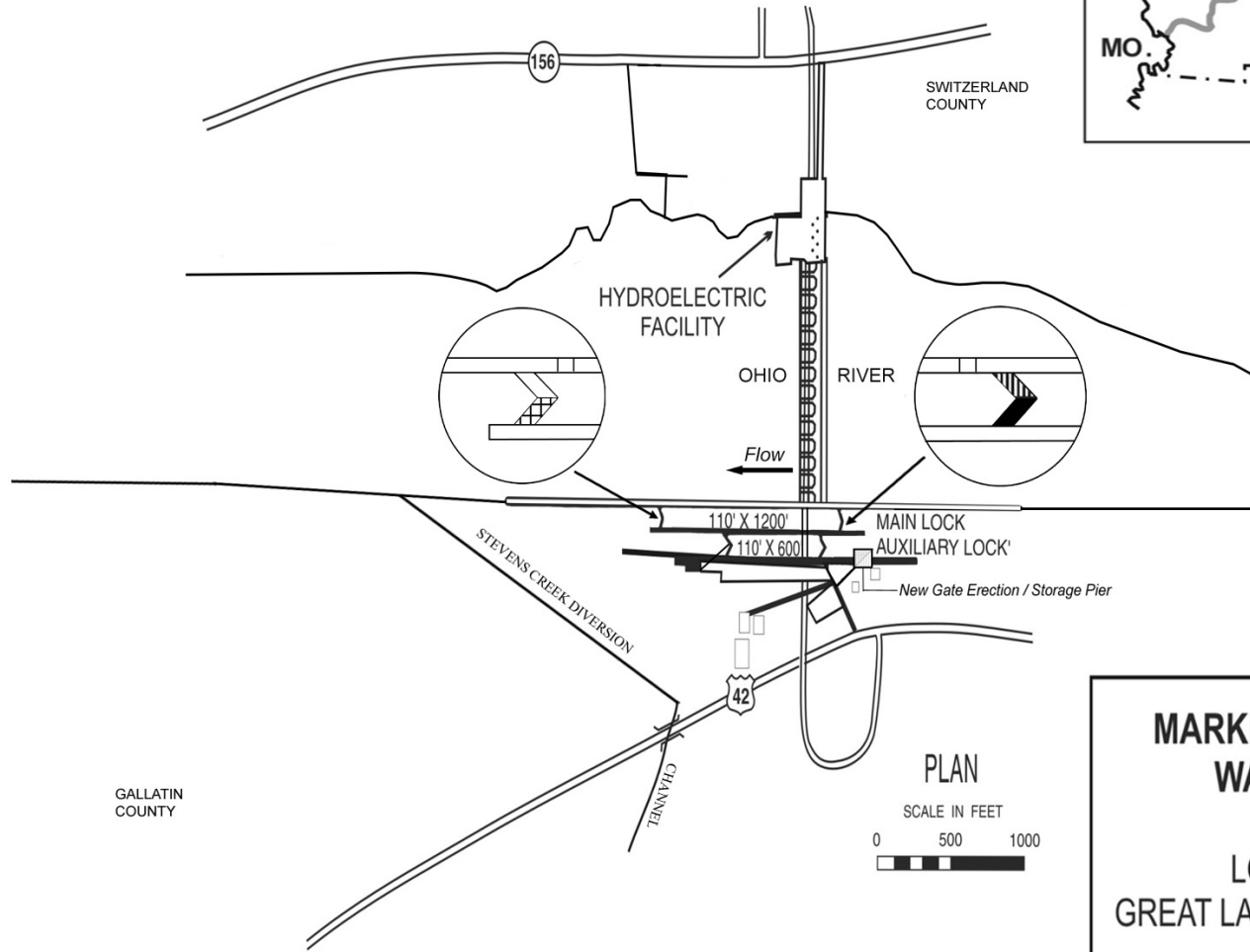
7 May 2009

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**Legend - Status of Work**

-  Work completed as of September 2008
-  Work underway with funds available for FY09
-  Work proposed with funds requested for FY10
-  Work required to complete the project after FY10



PLAN



**MARKLAND LOCKS AND DAM  
WARSAW, KENTUCKY**

LOUISVILLE DISTRICT  
GREAT LAKES & OHIO RIVER DIVISION

1 JANUARY 2009

APPROPRIATION TITLE: Construction - Locks and Dams (Navigation)

PROJECT: Olmsted Locks and Dam, Illinois and Kentucky (Continuing)

LOCATION: The project is located in Pulaski County, Illinois, and Ballard County, Kentucky, on the Ohio River near Olmsted, Illinois, approximately 964 miles downstream from Pittsburgh, Pennsylvania.

DESCRIPTION: The project will replace Ohio River Locks and Dams 52 and 53. The new structure will consist of two 110' by 1200' locks adjacent to the Illinois shore and a dam comprised of tainter gates, navigable pass, and a fixed weir. All work is programmed.

AUTHORIZATION: Water Resources Development Act of 1988.

REMAINING BENEFIT-REMAINING COST RATIO: 6.5 to 1 at 7 percent.

TOTAL BENEFIT-COST RATIO: 11.3 to 1 at 7 percent.

INITIAL BENEFIT-COST RATIO: 3.7 at 8 3/4 percent (FY 1991).

BASIS OF BENEFIT-COST RATIO: Benefits are based on the Olmsted Locks and Dam Benefit Update, dated October, 1990.

SUMMARIZED FINANCIAL DATA		STATUS (1 Jan 2009)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE	
Estimated Federal Cost		\$2,124,000,000	Entire Project	48	To Be Determined
General Appropriations	1,062,000,000				
Inland Waterways Trust Fund	1,062,000,000				
PHYSICAL DATA					
Estimated Non-Federal Cost		0	Lock - 110 by 1,200 foot Chambers		2
			Dam - Navigable Pass		1,400 ft.
Total Estimated Project Cost		\$ 2,124,000,000	Fixed Weir		561 ft.
			Tainter Gates		744 ft.
			Acres – Dam		123 acres
			Road		21 acres
			Disposal Area		114 acres

Division: Great Lakes & Ohio River

District: Louisville

Olmsted Locks & Dam, IL. & KY

7 May 2009

LRD-72

SUMMARIZED FINANCIAL DATA (Continued)	GENERAL APPNS.	INLAND WATERWAYS TRUST FUNDS	ACCUM. PCT. OF EST. FED. COST
Allocations to 30 September 2006	\$ 390,305,500	\$ 390,305,500	36.8
Allocations for FY 2007	55,000,000	55,000,000	41.9
Allocations for FY 2008	51,168,000	51,168,000	46.7
Conference Allowance for FY 2009	54,547,000	54,547,000	51.9
Allocation for FY 2009	54,547,000	54,547,000	51.9
Allocations through FY 2009	551,020,500	551,020,500	51.9
Allocation Requested for FY 2010	54,895,000	54,895,000	57.1
Programmed Balance to Complete after FY 2010	TBD	TBD	100.0
Unprogrammed Balance to Complete after FY 2010	\$ 0	\$ 0	

JUSTIFICATION: The project is in a strategic location on the inland waterway system. Virtually all waterway traffic moving between the Ohio River and tributaries and the Mississippi River and tributaries passes through the project area. Olmsted Locks and Dam will replace existing Ohio River Locks and Dams 52 and 53, which are over 80 years old. Both projects have temporary lock chambers that are inefficient and neither project conforms to current design criteria for structural stability. Commercial navigation in 2007 was 89 million tons through Lock 52 and 78 million tons through Lock 53. Over the last five years, tonnage has been relatively constant, with the 5 year average of 93 million tons through Lock 52 and 83 million tons through Lock 53. The long term (2010-2030) average annual growth rate is projected to be between 0.9 and 1.1 percent. The value of the commodities through the project area in 2005 was estimated at \$18.7 billion. Coal comprise approximately 21% of the total tonnage, aggregates 18%, petroleum 11%, grain 13%, iron/steel 15%, chemicals 10% and ores/minerals and other 11%. The projected increases in waterway traffic demands in combination with the limited capacity of the existing locks will result in increased lockage delays, costing the industry \$488 million on an annual basis.

The following counties qualify as areas of "substantial and persistent" unemployment: Illinois - Alexander, Johnson, Massac, Pope, Pulaski, and Union; Kentucky - Ballard, Carlisle, Graves, Livingston, and Marshall.

Average annual benefits at 7 percent are as follows:	Annual Benefits	Amount
	Navigation	\$ 441,304,447
	Other Benefits	46,806,411
	Total	\$ 488,110,858

Division: Great Lakes & Ohio River

District: Louisville

Olmsted Locks & Dam, IL. & KY

7 May 2009

LRD-73

FISCAL YEAR 2009: The current amount of \$109,094,000 is being applied as follows:

Continue Dam Construction Contract	\$ 100,426,000
Mussel Monitoring	589,000
Storage Building	72,000
Cultural Resources	22,000
Planning, Engineering, and Design	1,637,000
Construction Management	5,896,000
Lock Operation during Construction (Hired Labor)	452,000
Total	\$ 109,094,000

FISCAL YEAR 2010: The requested amount of \$ 109,790,000 will be applied as follows:

Continue Dam Construction Contract	\$ 101,357,000
Mussel Monitoring	538,000
Planning, Engineering, and Design	1,376,000
Construction Management	6,067,000
Lock Operation during Construction (Hired Labor)	452,000
Total	\$ 109,790,000

NON-FEDERAL COSTS: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, 50% of the total cost of construction will be derived from the Inland Waterways Trust Fund.

STATUS OF LOCAL COOPERATION: None required.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of \$2,124,000,000 is an increase of \$57,000,000 from the latest estimate (\$2,067,000,000) presented to Congress (FY 2009). The change includes the following item.

Item	Amount
Inflation During Construction	57,000,000
Total	\$ 57,000,000

Division: Great Lakes & Ohio River

District: Louisville

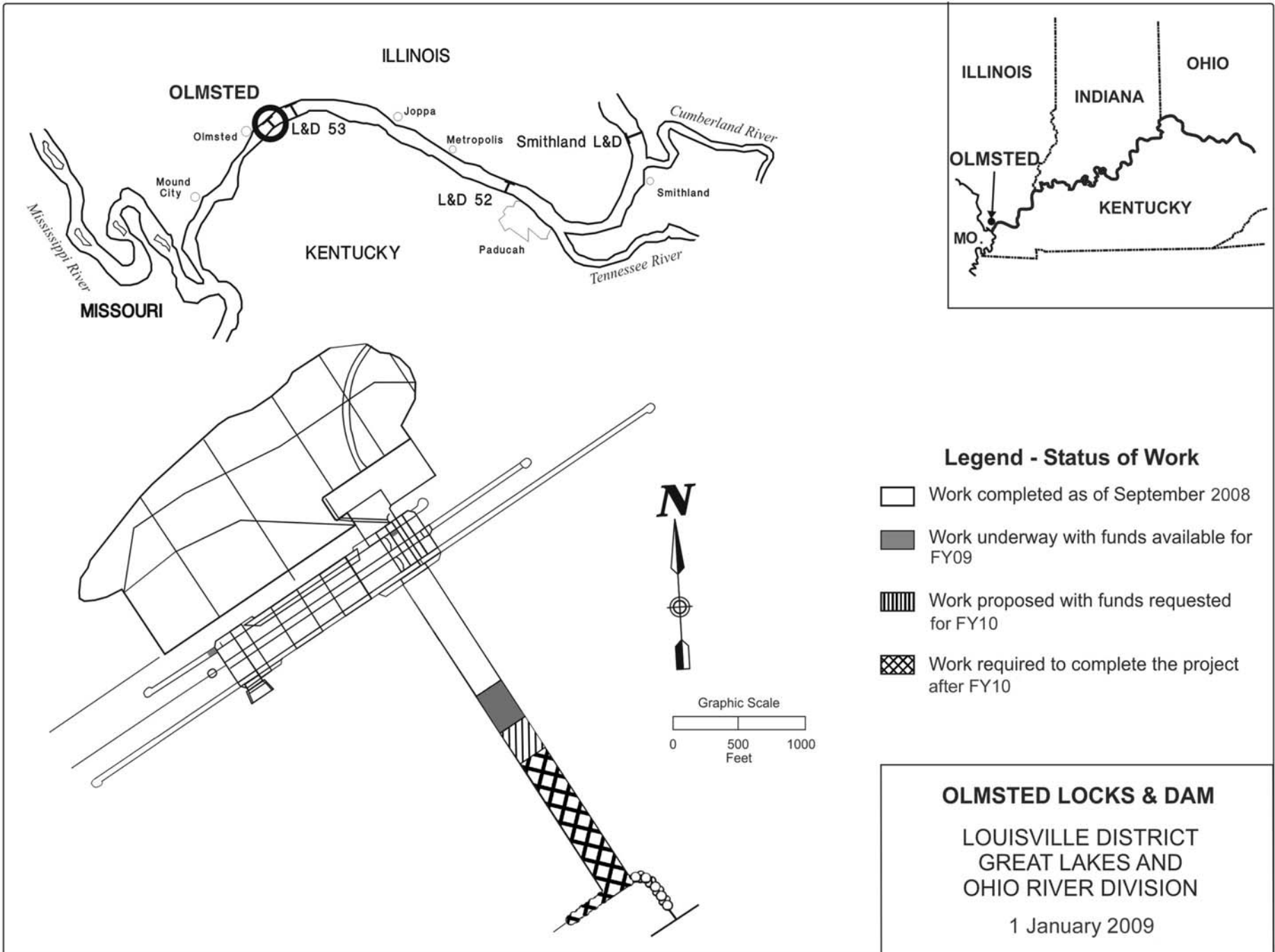
Olmsted Locks & Dam, IL. & KY

7 May 2009

LRD-74

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: A final Environmental Impact Statement (EIS) was filed with the Environmental Protection Agency on April 4, 1986. Due to project changes, a Draft Supplemental EIS was filed in November 1991. The Final Supplement to the EIS was filed on March 26, 1993, and the Record Of Decision was signed on May 5, 1993.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in FY 1986. Funds to initiate construction were appropriated in FY 1991. The twin 110 x 1200-foot locks were substantially completed in 2005. Construction on the dam was initiated in Jan 2004. Demolition of Locks and Dams 52 and 53 will follow completion of dam construction. The scheduled completion date has not changed from the latest presented to Congress (FY 2009) "To Be Determined".



# ENVIRONMENT

# AQUATIC ECOSYSTEM RESTORATION



# INVESTIGATIONS

APPROPRIATION TITLE: Investigations, Fiscal Year 2010

Great Lakes and Ohio River Division

Project	Total Estimated Federal Cost \$	Allocation Prior to FY 2007 \$	Allocation FY 2007 \$	Allocation FY2008 \$	Allocation FY 2009 \$	Tentative Allocation FY 2010 \$	Additional to Complete After FY 2010 \$
Buffalo River Environmental Dredging, NY Cost-shared Feasibility Study Buffalo District	1,165,000	221,000	175,204	142,000	296,000	100,000	TBD

The Buffalo River is located at the eastern end of Lake Erie in Buffalo, NY. The Buffalo River has been identified as one of 43 Areas of Concern (AOCs) in the Great Lakes Basin. Contaminated sediments adjacent to the Federal navigation channel eventually settle in the Federal navigation channel and are unsuitable for open lake disposal. Periodic maintenance of the Federal navigation project requires disposal of the contaminated sediments into a confined disposal facility (CDF) at considerable Federal expense. The reconnaissance report was completed in December 2003 and addressed the use of Section 312 of the WRDA 1990, as amended, which allows the removal of contaminated sediments adjacent to Federal Navigation projects. The feasibility study provides for sediment analyses, delineation of areas requiring environmental dredging, development of project cost estimates/cost sharing, and an assessment of the ability of the local sponsor to support the project. Removal or remediation of these sediments will significantly reduce the future Federal cost of maintaining the navigation channel, restore beneficial uses of the river, and allow for the implementation of ecosystem restoration projects. Beneficial use impairments for the Buffalo River currently listed by the USEPA include: restrictions on fish and wildlife consumption; fish tumors or other deformities; degradation of benthos; restrictions on dredging activities; and loss of fish and wildlife habitat. The New York State Department of Environmental Conservation and the Buffalo River Remedial Action Plan (RAP) Committee support contaminated sediment removal. Additionally, the city of Buffalo and Erie County have demonstrated an interest in supporting environmental restoration projects within the study area. The feasibility cost sharing agreement initiating the feasibility study was signed with the Friends of the Buffalo Niagara Rivers, now the Buffalo/Niagara RIVERKEEPERS, on April 8, 2005.

The Allocation for FY 2009 will be used to execute the technical investigations composing the feasibility study such as the human health and ecological risk assessment; the ice scour analysis; and the engineering and design analysis. The Tentative Allocation FY 2010 of \$100,000 will be used to continue the feasibility report and environmental impact statement. The estimated cost of the feasibility phase is \$2,100,000, which is to be shared on a 50/50 percent basis by both Federal and non-Federal interests. A summary of study cost sharing is as follows:

Total Estimated Study Cost	\$2,215,000
Reconnaissance Phase (Federal)	115,000
Feasibility Phase (Federal)	1,050,000
Feasibility Phase (Non-Federal)	1,050,000

The completion date for the feasibility study is "to be determined".

7 May 2009

LRD-80

APPROPRIATION TITLE: Investigations, Fiscal Year 2010

Great Lakes and Ohio River Division

Study	Total Estimated Federal Cost \$	Allocation Prior to FY 2007 \$	Allocation FY 2007 \$	Allocation FY 2008 \$	Tentative Allocation FY 2009 \$	Tentative Allocation FY 2010 \$	Additional to Complete After FY 2010 \$
<b>SURVEYS – NEW (ENVIRONMENTAL RESTORATION)</b>							
Green River Watershed, KY Louisville District	400,000	0	0	0	0	200,000	TBD

The Green River Basin, with a drainage area of 9,230 square miles, is located in west-central Kentucky with a small portion in north-central Tennessee. The study will investigate water resources infrastructure, basin hydrology, and problems and opportunities for ecologically and economically sustainable improvements. Hydrologic Engineering Center will assist in surface and groundwater hydrology, river hydraulics and sediment transport, reservoir system analysis, planning analysis, real-time water control management, and ecosystem flow modeling. Outputs include: (1) Develop model for operating four lakes per Corps reservoir and dam safety regulations, Corps Environmental Operating Principles, and goals of Corps and The Nature Conservancy's joint Sustainable River Project, (2) Identify possible physical improvements to system and cost share partners, and (3) Provide guidance to local governments in meeting present and future water resources issues and/or challenges.

FY 2010 funds will be used to initiate a reconnaissance report.

Authority: Resolution of the Committee on Environment and Public Works of the U.S. Senate dated December 17, 1987.

APPROPRIATION TITLE: Investigations, Fiscal Year 2010

Great Lakes and Ohio River Division

Study	Total Estimated Federal Cost \$	Allocation Prior to FY 2007 \$	Allocation FY 2007 \$	Allocation FY 2008 \$	Allocation FY 2009 \$	Tentative Allocation FY 2010 \$	Additional to Complete After FY 2010 \$
<b>PRECONSTRUCTION ENGINEERING AND DESIGN (PED) ACTIVITIES</b>							
Indiana Harbor, IN Chicago District	3,225,000	0	0	0	478,000	300,000	TBD

The project area is located in northwest Indiana in the communities of Gary, East Chicago, and Hammond, Indiana. The project area covers 15.4 miles of river and adjacent wetlands, including the Indiana portion of the Grand Calumet River (GCR) with the exception of an area cleaned up by United States Steel, and the portions of the Lake George Canal and the Indiana Harbor Canal that are not part of the federal navigation channel. This project will remove up to 2 million cubic yards of sediments that are highly contaminated with PAHs, metals, and PCB's (below the Toxic Substance Control Act level), causing it to be designated an Area of Concern (AOC) in the Great Lakes Water Quality Agreement. The GCR fails all fourteen beneficial uses and is ranked as the most impaired of all 43 AOCs. Contaminated sediments discharged from the GCR put the potable water supply for 223,000 people at risk. Modeling the movement of discharged GCR contaminated sediments identified over 900,000 acres along the eastern shore of Lake Michigan where bioaccumulation of contaminants can occur. The project will also isolate any remaining in river contamination with the placement of an engineered cap that will provide suitable substrate for habitat restoration. The GCR is a high priority area for the Indiana Department of Environment Management and the Indiana Department of Natural Resources, the non-Federal sponsors; the U.S. Fish and Wildlife Service; and the U.S. Environmental Protection Agency. The purpose of this PED phase is to design the recommended alternatives for management of the contaminated sediment including sediment removal, stabilization of embankments, and other features within the ordinary High Water Mark for the GCR. Contaminated sediment is the primary source of contamination and ecological degradation, and environmental restoration cannot occur without removal or management of the contaminated sediment. The Locally Preferred Plan is likely to be the Recommended Plan with an estimated total project cost of approximately \$150,000,000, over a 20-year construction period. The 20 year construction period is based upon anticipated annual Federal appropriations. PED will ultimately be cost shared at 35% non-Federal, but will be financed through the PED phase at 25% non-Federal. Any adjustments that may be necessary to bring the non-Federal contribution in line with the project cost sharing will be accomplished in the first year of construction.

Total Estimated Preconstruction Engineering and Design Costs	\$4,300,000	Total Estimated Preconstruction Engineering and Design Costs	\$4,300,000
Initial Federal Share	3,225,000	Ultimate Federal Share	2,800,000
Initial Non-Federal Share	1,075,000	Ultimate Non-Federal Share	1,500,000

PED agreement will be executed in FY 2010. Carryover from FY 2009 funds will be used to initiate PED. FY 2010 funds will be used to continue PED. The completion date for PED is "To Be Determined".

APPROPRIATION TITLE: Investigations, Fiscal Year 2010

Great Lakes and Ohio River Division

Study	Total Estimated Federal Cost \$	Allocation Prior to FY 2007 \$	Allocation FY 2007 \$	Allocation FY 2008 \$	Allocation FY 2009 \$	Tentative Allocation FY 2010 \$	Additional to Complete After FY 2010 \$
Inter-Basin Control of Great Lakes-Mississippi River Aquatic Nuisance Species, IL, IN, OH & WI Chicago District	10,000,000	0	0	0	287,000	300,000	TBD

The Chicago Sanitary and Ship Canal (CSSC) is a man-made waterway that connects the Chicago and the Des Plaines Rivers to the Illinois River, which creates a waterway connection between the Lake Michigan and the Mississippi River basins. The CSSC connects the Great Lakes (GL) and their 121 tributaries to the Mississippi River (MR) and its 852 tributaries, thereby providing a potential pathway for aquatic nuisance species (ANS) to spread across over 30 states and two Canadian provinces. A electric Demonstration Dispersal Barrier has been operating in the CSSC since 2002 and a second more permanent electric barrier, with a design life of 20 years, is to be implemented in 2 stages. Stage IIA is constructed and has been operational since April 2009. Stage IIB is in design and is scheduled to be operational by September 2011. Demonstration Barrier I will be upgraded to permanent and operational by 2013. The upgraded demonstration barrier and the second barrier are both needed for O&M of the barrier system and to provide the necessary redundancy. However, neither of these barriers protect against the full range of ANS that could use the CSSC to transit between the two basins. The electric dispersal barriers in the CSSC were designed to stop the movement of fish, but will not be effective for many other species and will not stop ANS that do not swim such as plants, larvae, eggs or seeds.

The ecologic and economic impacts of aquatic nuisance species are significant. The Great Lakes Regional Collaboration identified ANS as an “invasional meltdown that may be more severe than chemical pollution”. The commercial and sport fisheries of the GL, which could be impacted by invasive species from the MR basin, are valued at 4 to 5 billion dollars annually. The zebra mussel, which moved from the GL into the MR basin, is costly to control. According to the National Oceanic and Atmospheric Administration (NOAA), the annual cost to control zebra mussels in the GL alone is estimated between \$100M and \$400M/year. A feasibility study is necessary to examine the full range of options and technologies available to prevent the spread of all ANS at all life stages between the GL and MR basins through the CSSC and other aquatic pathways. Up to 30 states, Federal agencies and international stakeholders will participate in development of goals, objectives, scope and alternatives that impact entire MR and GL basins. Projects may be implemented by Federal, State, local and international agencies. The impacts of ANS are far-reaching, affecting native flora and fauna, invertebrates, fisheries, habitat, the navigation industry and water intake structures

Congressional add funds in FY 09 of \$287,000 will be used to initiate the feasibility study. Work efforts will include the development and approval of a Review Plan, Draft Project Management Plan, and Quality Control Plan. A draft Memorandum of Agreement (MOA) will be developed between Corps District and Division offices for the execution of this regional study. The MOA will include Chicago, Detroit, Buffalo and Rock Island Districts and the Great Lakes and Ohio River and Mississippi Valley Divisions. Additional study efforts in FY 09 include the preparation of a draft Communications Plan; establishment of the basic Project Development Team, Committees and Study Support Teams; implementation of a strategy to identify and recruit stakeholders; release of the Public Notice of Feasibility Study; and initiation and release of a Public Notice of Intent to Prepare an EIS.

FY 10 funds will be used to continue work on the feasibility study as well as further efforts to develop the Committees, Study Support Teams and stakeholder groups. Feasibility study efforts will include more technical efforts including data gap analysis and data collection and initiation of analyses. The feasibility completion date is, “To Be Determined”.

APPROPRIATION TITLE: Investigations, Fiscal Year 2010

Great Lakes and Ohio River Division

Study	Total Estimated Federal Cost \$	Allocation Prior to FY 2007 \$	Allocation FY 2007 \$	Allocation FY 2008 \$	Allocation FY 2009 \$	Tentative Allocation FY 2010 \$	Additional to Complete After FY 2010 \$
Davidson County, Mill Creek Watershed, TN Nashville District	1,434,000	885,000	150,000	253,000	96,000	50,000	0

Mill Creek is a major tributary of the Cumberland River in southeastern Davidson County and northeastern Williamson County. The Mill Creek watershed is 108 square miles and home to the federally listed endangered Nashville Crayfish. Corrective measures evaluated during the reconnaissance study include floodway evacuation combined with wetland restoration and enhancement. Project would restore 143 acres of wetlands emerging from the unconsolidated shore and riparian woodland. The watershed provides habitat for all life cycles of the Nashville crayfish (endangered species) according to a 1989 USF&WS recovery plan. Restoration of the baseflow and connecting with the floodplain would focus flows to provide interstitial spaces for crayfish and other benthic organisms. Outputs to restore the in-stream structure and pool, riffle run, glide; reducing and treating erosion and sedimentation transport improvements; and restore detritus and woody debris with riparian improvements would be developed. The watershed connects and improves 80% of the main tributary's watershed. Three state agencies view it as the most important urban stream with the highest potential for restoration. Mill Creek is integral to a multi-agency regulatory plan developed with USFWS, TDEC, and the Corps as noted in the World Wildlife Federation's Vision for the Tennessee, Cumberland, and Mobile River Basins at Risk (2002). The sponsor is the Metropolitan Government of Nashville and Davidson County. The sponsor understands its cost sharing responsibilities and has expressed an interest in cost sharing the feasibility phase, by letter of intent dated March 2001. The Feasibility Cost Sharing Agreement was executed on April 24, 2003.

The feasibility report will be completed March 2010 with the issuance of the Division Commanders public notice. The current estimated project cost is \$15,000,000 (October 2001 price levels) with an estimated Federal share of \$5,850,000 and an estimated non-Federal share of \$3,150,000, includes riparian restoration, sediment management and control, and wetland creation and enhancement. Preconstruction Engineering and Design will ultimately be cost shared at the rate for the project to be constructed but will be financed through the PED period at 25% non-Federal. Any adjustments that may be necessary to bring the non-Federal contribution in line with the project cost sharing will be accomplished in the first year of construction.

FY 2009 funds will be used to continue the feasibility study. FY 2010 funds will be used to complete the feasibility phase. The estimated cost of the feasibility phase is \$2,642,000, which is to be shared on a 50-50 basis by Federal and non-Federal interests. A summary of study cost sharing follows:

Total Estimated Study Cost	\$2,245,000
Reconnaissance Phase (Federal)	113,000
Feasibility Phase (Federal)	1,321,000
Feasibility Phase (Non-Federal)	1,321,000

The reconnaissance phase was completed in April 2003. The completion date for the feasibility study is March 2010.

# CONSTRUCTION

APPROPRIATION TITLE: Construction - (Environmental Mitigation, Restoration and Protection)

PROJECT: Chicago Sanitary & Ship Canal Dispersal Barriers, Illinois (Continuing)

LOCATION: The Dispersal Barriers are near River Mile 296.5 in Romeoville, IL in Cook County.

DESCRIPTION: The Chicago Sanitary and Ship Canal (CSSC) is a man-made waterway connecting the Lake Michigan and the Mississippi River basins. A temporary Demonstration Dispersal Barrier was constructed and has been operating in the CSSC since 2002 to determine what DC voltage and pulsing best disperse aquatic nuisance fish species, such as Asian carp. A second more permanent electric barrier, with a design life of 20 years, is to be implemented in 2 stages. Stage IIA is constructed and has been operational since April 2009. The upgraded demonstration barrier and the second barrier are both need for O&M of the barrier system and to provide the necessary redundancy.

Barrier I and Barrier II were authorized as separate projects. WRDA 2007 authorized the barriers as a single project at Federal expense. WRDA 2007 further authorized USACE to upgrade and make permanent Barrier I; complete Barrier II; operate and maintain both barriers as a system; conduct a study of a range of options and technologies for reducing impacts of hazards that may reduce the efficacy of the barriers (hazards study); and provide to each state a credit in an amount equal to the amount of funds contributed toward Barrier II.

AUTHORIZATION: Section 3061, Water Resources Development Act 2007. Barrier I: Section 1202, Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990 (P.L. 101-636, 11/29/90, as amended through 10/26/96), Section 2309, Emergency Supplemental Appropriations Act for Defense, the Global War on Terror, and Hurricane Recovery 2006 (P.L. 109-234). Barrier II: Section 1135, Water Resources Development Act 1986 (Continuing Authority Program), Section 345, FY 2005 DC Appropriations Act (P.L. 108-335).

REMAINING BENEFIT-REMAINING COST RATIO: N/A.

TOTAL BENEFIT-COST RATIO: N/A.

INITIAL BENEFIT-COST RATIO: N/A.

BASIS OF BENEFIT-COST RATIO: N/A.

Division: Great Lakes and Ohio River

District: Chicago

Chicago Sanitary and Ship Canal Dispersal Barrier, IL

7 May 2009

LRD-86



SUMMARIZED FINANCIAL DATA			PHYSICAL STATUS (1 Jan 2009)	PERCENT COMPLETE	COMPLETION SCHEDULE
	<u>Demo Barrier I</u>	<u>Barrier II &amp; Perm. Barrier I</u>			
Estimated Federal Cost	\$5,808,000	\$28,372,000	Barrier I	35	TBD
Estimated Non-Federal Cost	0	0	Barrier II	55	TBD
Cash Contributions		2,275,000 <sup>1/</sup>	Physical Data		
Other Costs		0	Barrier I: 12 160-ft steel cable electrodes over 54 ft of the CSSC + control house.		
Project Cost Subtotals	\$5,808,000	\$30,647,000 <sup>2/</sup>	Barrier II: 84 160-ft steel billet electrodes over 480 ft of the CSSC + 2 control houses		
Total Estimated Project Cost		\$36,455,000			

<sup>1/</sup> Non-federal cash contributions for which a credit is to be provided.

<sup>2/</sup> \$19,000,000 for Barrier II, \$10,647,000 for making Barrier I permanent, and \$1,000,000 for the hazards study.

SUMMARIZED FINANCIAL DATA	<u>Demo Barrier I</u>	<u>Barrier II &amp; Perm. Barrier I</u>	<u>Total</u>	ACCUM. PCT. OF EST. FED. COST
Allocations to 30 September 2006	\$4,070,000	\$ 6,825,000	\$10,895,000	
Allocations for FY 2007	500,000	0	500,000	
Allocations for FY 2008	738,000	7,872,000	8,610,000	
Conference Allowance for FY 2009	500,000	5,750,000 <sup>3/</sup>	6,250,000	
Allocations for FY 2009	500,000	5,750,000	6,250,000	
Allocations thru FY 2009	5,808,000	20,447,000	26,255,000	72
Allocation Requested for FY 2010	0	5,000,000	5,000,000	86
Programmed Balance to Complete after FY 2010	0	TBD	TBD	
Unprogrammed Balance to Complete after FY 2010	0	0	0	

<sup>3/</sup> Includes CAP Section 1135 allocations of \$3,702,000.

Division: Great Lakes and Ohio River

District: Chicago

Chicago Sanitary and Ship Canal Dispersal Barrier, IL

7 May 2009

LRD-87

JUSTIFICATION: The Chicago Sanitary and Ship Canal is the only continuous aquatic link between the Great Lakes and Mississippi River watersheds. The canal is heavily used by commercial and recreational crafts. This man-made canal serves as the primary corridor for the dispersal of aquatic invasive species between these two major drainage basins. The adverse economic and ecological effects of invasive species can be devastating, as has been evidenced by the Zebra Mussel and Sea Lamprey infestations of the Great Lakes. Currently the Asian Carp fish infestation in the Illinois Waterway is about 50 miles from the barrier location, with isolated fish as close as 20 miles. Asian carp would have a strong negative effect on the commercial and sport fisheries industries in the Great Lakes, which have an estimated value to the regional economy of \$4 to \$5 billion annually. It is important to keep an operational barrier system and to ensure all possible steps are taken for the successful operation of the system. The aquatic nuisance species Dispersal Barriers protect the sustainability of aquatic habitat in the 5 Great Lakes and the 121 rivers within the Great Lakes basin and 852 rivers within the Mississippi River basin while maintaining the commercial and economic viability of the Chicago Sanitary and Ship Canal. The project provides an example of technologies that can be applied to other navigation canals where invasive species are a concern such as the Erie Canal, Lake Champlain, and the Tennessee Tombigbee Waterway.

FISCAL YEAR 2009: The current amount of \$6,250,000 is being applied as follows:

Continue Operation of Barrier I and IIA	\$ 1,000,000 <sup>1/</sup>
Engineering and Design to make Barrier I permanent	200,000
Continue construction of Barrier IIB	4,400,000
Construction Management of Barrier IIB	400,000
Analyze efficacy of the Barriers	250,000
Total	\$ 6,250,000

FISCAL YEAR 2010: The requested amount of \$5,000,000 will be applied as follows:

Complete construction of Barrier IIB	\$3,700,000
Continue Operation of Barrier I and IIA	1,000,000 <sup>2/</sup>
Engineering, Design to upgrade Barrier I	100,000
Construction Management for Barrier IIB	200,000
Total	\$ 5,000,000

<sup>1/</sup> Continued operation of Barrier I and IIA during completion of Barrier IIB.

<sup>2/</sup> Operation of Barrier I and IIA during completion of Barrier IIB.

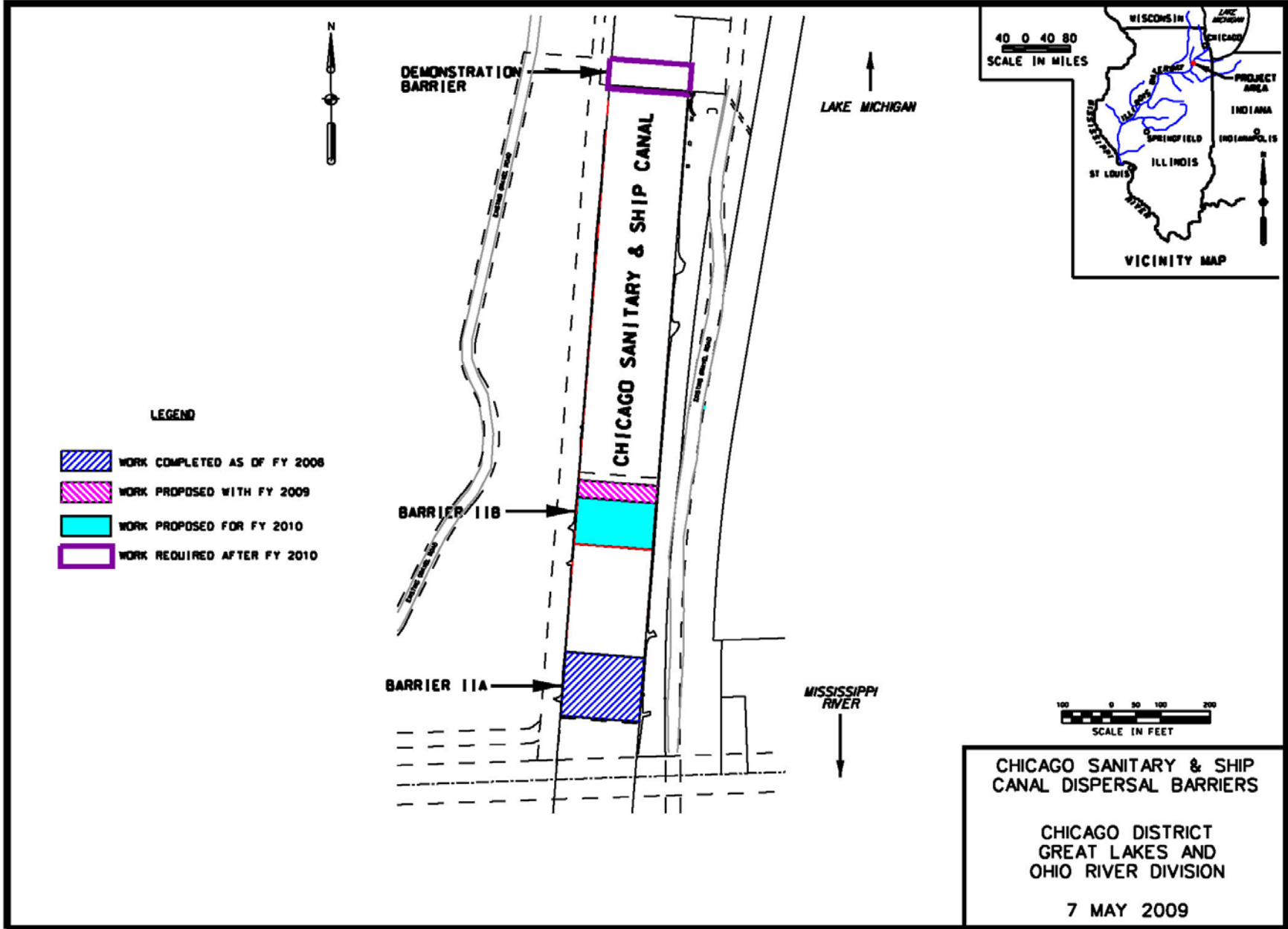
NON-FEDERAL COST: The non-Federal contribution to Barrier II through FY07 was \$2,275,000. WRDA 2007 makes the remainder of the project, including future operation and maintenance, a full Federal responsibility and provides the sponsor a credit on future work with the Corps for the funds they contributed.

STATUS OF LOCAL COOPERATION: As a result of WRDA 2007, the barrier project is 100% Federal. The State of Illinois was the local sponsor for the Barrier II project. The Project Cooperation Agreement was executed on 21 November 2003 and amended on 14 July 2005.

COMPARISON OF FEDERAL COST ESTIMATE: The current Federal cost estimate is \$36,455,000. The Federal cost estimate reported for the FY09 budget was \$29,638,000. The increase of \$6,817,000 is due to incorporation of enhanced safety features in the barrier system and increased costs for construction materials and services.

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The Environmental Assessment was issued in August 1999. A Finding of No Significant Impact was signed 28 December 1999.

OTHER INFORMATION: Funds to initiate construction for Barrier I were appropriated in FY 1998. Barrier II was initiated under Section 1135 of the Continuing Authorities Program. After Section 345 was enacted, funds specifically for Barrier II were appropriated in FY 2005. Barrier IIA has been tested and successfully operated at 1 volt/inch. Testing must still be completed at higher voltages (up to 4 V/in). Barrier I in continuous operation. Barrier IIA is in continuous operation at 1 volt/inch as of 21 April 2009. Barrier I operates at a maximum voltage (1 V/in) which is sufficient to repel larger fish. An independent study indicates that repelling small fish may require higher voltages. USACE is studying optimal operating settings. Initial results will be available by Fall 09. The completion date for the Barriers is, "To Be Determined".



CSS.DGM

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# MISSISSIPPI VALLEY DIVISION

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# FLOOD AND COASTAL STORM DAMAGE REDUCTION

# INVESTIGATIONS



APPROPRIATION TITLE: Investigations, Fiscal Year 2010

Mississippi Valley Division

Study	Total Estimated Federal Cost \$	Allocation Prior To FY 2007 \$	Allocation FY 2007 \$	Allocation FY 2008 \$	Allocation FY 2009 \$	Tentative Allocation FY 2010 \$	Additional to Complete After FY 2010 \$
<b>SURVEYS – CONTINUING</b>							
<b>LOUISIANA</b>							
Louisiana Coastal Protection and Restoration New Orleans District	\$27,872,000	12,920,000	7,000,000	2,952,000	0	3,000,000	TBD

The study area includes all of the parishes of coastal Louisiana. The lands in this area vary. In southwest and south central Louisiana the lands are low lying areas of little relief draining through both natural bayous and man-made canals that ultimately empty directly into the Gulf of Mexico. In southeast Louisiana, the area consists of highly urbanized areas around the City of New Orleans with a population in excess of 1 million people. The coastal area of Louisiana has been subject to numerous events of tidal flooding due to storms. In 2005, Hurricane Katrina and Hurricane Rita produced catastrophic flooding throughout southeastern Louisiana. On August 29, 2005, Hurricane Katrina, a category 4 storm, made landfall in southeast Louisiana, near Buras. Hurricane Katrina produced surges higher than the design protection levels provided by existing hurricane protection projects. Consequently, catastrophic flooding in Plaquemines, St. Bernard, and parts of Orleans Parishes occurred due to the overtopping of existing levee and floodwall systems. In St. Tammany Parish, the storm surge inundated large parts of Slidell. The storm also revealed significant problems with existing pumping and drainage systems in the impacted areas.

Less than a month later, on September 24, 2005, Hurricane Rita impacted the southwest Louisiana coast. This category 3 storm caused extensive flooding in coastal Louisiana. In the study area, coastal communities in St. Tammany, Jefferson, Lafourche, Terrebonne, and St. Mary Parishes suffered significant inundation. In addition, Hurricane Rita flooded many areas of Orleans and St. Bernard Parishes that were previously flooded by Hurricane Katrina because the weakened levee systems had not been fully repaired.

The study is addressing coastal restoration as well as flood and hurricane storm damage reduction for the southern Louisiana area. The largest population centers within the study area are the New Orleans metropolitan area, the Houma–Thibodeaux region in Lafourche and Terrebonne Parishes, Lake Charles in Calcasieu Parish and Abbeville in Vermilion Parish.

The final Technical Report is scheduled to be completed and transmitted to Assistant Secretary of the Army (Civil Works) by 31 August 2009. Funds requested for Fiscal Year 2010 will be used to continue work on a plan for a prudent method to provide Category 5 hurricane storm damage risk reduction.

The estimated cost of the effort is \$27,872,000. The initial \$25,872,000 is 100 percent Federal. Cost sharing for the balance has not been established. Completion of the study effort is being determined.

The study was authorized by the Energy and Water Development Act of 2006 (P.L. 109-103), 19 Nov 05; Emergency Supplemental Appropriations Act of 2006, Chapter 3 (P.L.109-148), 30 Dec 05; Emergency Supplemental Appropriations to Address Hurricanes in the Gulf of Mexico, and Pandemic Influenza Act of 2006 (P. L. 109-234); and 2008 Consolidated Appropriations Act (P.L. 110-161).

7 May 2009

APPROPRIATION TITLE: General Investigations, Fiscal Year 2010

Mississippi Valley Division

Study	Total Estimated Federal Cost \$	Allocation Prior to FY 2007 \$	Allocation FY 2007 \$	Allocation FY 2008 \$	Allocation FY 2009 \$	Tentative Allocation FY 2010 \$	Additional to Complete After FY 2010 \$
<b>SURVEYS - NEW</b>							
<b>MISSOURI</b>							
St. Louis, MO, Watershed St. Louis District	700,000	0	0	0	0	400,000	TBD

The study area is comprised of the large river floodplains within the greater Metropolitan St. Louis area and includes the City of St. Louis plus four Missouri Counties of Franklin, St. Charles, St. Louis, and Jefferson and five Illinois Counties of Calhoun, Jersey, Madison, St. Clair, and Monroe. Over 250,000 people are estimated to reside in these floodplains with over 20,000 in the 100-year floodplain. This study will examine the cumulative effects of various types of past development such as levees, flood control reservoirs, river navigation structures, transportation and other infrastructure as well as the project-induced flooding effects associated with various types of potential future development. The study will broadly address impacts to wetlands, navigation, and commercial floodplain activities. These findings could be invaluable to local and regional decision makers as well as to the Corps of Engineers and other Federal planners, such as Federal Emergency Management Agency, in making decisions on the full costs, benefits, and impacts associated with various Federal, state, and local projects.

As the availability of good developable land becomes scarcer in the St. Louis Metropolitan area, there is increasing pressure to develop the floodplains of the Mississippi, Missouri, and Illinois Rivers in various ways. There is also increasing concern within the greater St. Louis Metropolitan Area that floodplain development (transportation, levees, navigation structures) are causing higher flood heights. This watershed study will evaluate the regional hydraulic effects of flood damage reduction, navigation and transportation infrastructures in Missouri and Upper Mississippi basins. Study products will assist in development of a watershed plan for the region. Long-term planning and zoning regulations could be updated to provide a balance among competing interests. Many stakeholders support the regional watershed evaluation approach, including the East-West Gateway Council of Governments, the St. Louis County Levee Association, the Missouri Department of Conservation, the Missouri Department of Natural Resources, the Illinois Department of Natural Resources, the Great Rivers Habitat Alliance, the Missouri Coalition for the Environment, the Great Rivers Greenway District, the Metro East Park and Recreation District, the Southwestern Illinois Resource Conservation and Development District, and numerous drainage and levee districts. The funds requested in Fiscal Year 2010 will be used to initiate a reconnaissance study at full Federal expense. The completion date for the reconnaissance phase is being determined.

This project is authorized by Committee Resolution on Environment and Public Works of the United States Senate, adopted June 23, 2004.

7 May 2009

# CONSTRUCTION

APPROPRIATION TITLE: Construction, General – Local Protection (Flood Control)

PROJECT: Alton to Gale Organized Levee Districts, Illinois and Missouri (Deficiency Correction).

LOCATION: The levee system is located adjacent to the Mississippi River between Alton, Illinois, and Gale, Illinois, (Mississippi River miles 46-202).

DESCRIPTION: The project involves repairing levee slides and the stabilization of levee slopes to prevent failure during high water events. The recommended plan requires the use of a lime stabilization process to repair the levee slides.. Unprogrammed portion reflects an estimate of future levee slides??.

AUTHORIZATION: Flood Control Acts of 1936, 1938, 1946; Water Resources Development Act of 1986.

REMAINING BENEFIT-REMAINING COST RATIO: Not applicable because project construction is substantially complete, except for remedial work.

TOTAL BENEFIT-COST RATIO: 6.8 to 1 at 7 percent.

INITIAL BENEFIT-COST RATIO: 7.9 to 1 at 7 percent.

BASIS OF BENEFIT-COST RATIO: Benefits are based on the Deficiency Corrections Letter Report dated April 2003 at October 2002 price level.

SUMMARIZED FINANCIAL DATA:

Original Project	
Actual Federal Cost (COE)	\$ 87,516,000
Actual Federal Cost (Jobs Bill)	1,954,000 <sup>1</sup>
Actual non-Federal Cost	(Not available)
Cash Contributions	
Other Costs	
Total Original Project Cost	\$ 89,470,000

<sup>1</sup> Funds provided by the Productive Employment Appropriation Act of 1983 (PL 98-8) enacted 24 March 1983 (Jobs Bill).

Mississippi Valley Division

St. Louis District  
7 May 2009

Alton to Gale Organized Levee Districts  
Illinois and Missouri (Deficiency  
Correction) (Resumption)

SUMMARIZED FINANCIAL DATA

Remedial Work		
Estimated Federal Cost		\$ 19,548,000
Programmed Construction	12,008,000	
Unprogrammed Construction	7,540,000	

Estimated Non-Federal Cost		4,374,000
Programmed Construction	456,000	
Cash Contributions	456,000	
Other Costs	0	
Estimated Non-Federal Cost		
Unprogrammed Construction	3,918,000	
Cash Contributions	3,918,000	
Other Costs	0	

Total Estimated Programmed Construction Cost		\$101,934,000
Total Estimated Unprogrammed Construction Cost		11,458,000
Total Estimated Project Cost		113,392,000

Allocations to 30 September 2006	101,378,000 <sup>1</sup>	
Allocations for FY 2007	0	
Allocations for FY 2008	93,000	
Conference Allowance for FY 2009	287,000	
Allocation for FY 2009	287,000	
Allocations through FY 2009	101,758,000	93
Allocation Requested for FY 2010	300,000	93
Programmed Balance to Complete After FY 2010	TBD <sup>2</sup>	
Unprogrammed Balance to Complete After FY 2010	TBD	

<sup>1</sup> Includes \$1,954,000 provided by PL 98-8 enacted 24 March 1983 (Jobs Bill).

<sup>2</sup> Cost estimate will be updated upon finalization of the Deficiency Correction Letter Report.

Mississippi Valley Division

St. Louis District  
7 May 2009

Alton to Gale Organized Levee Districts  
Illinois and Missouri (Deficiency  
Correction) (Resumption)

JUSTIFICATION: Construction of the levees was completed in 1977. For many years some reaches of this levee system have been experiencing a significant number of slides, reducing the ability of the levee system to provide the authorized level of protection. It has been determined that the slides are due to a design deficiency. This project, in addition to preventing damages to property, is effective in reducing a high risk to life for the populations in the project area. That risk must be considered in evaluating the project justification in addition to economic analyses. Risk is created by both hydrologic factors (flood depth, velocity, and short warning time) and cultural factors (size of population and available routes of egress from the flood plain).

FISCAL YEAR 2010: The requested amount will be applied as follows:

Planning, Engineering, and Design	\$ 300,000
Total	\$300,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation, and Replacement Costs
Pay 25 percent of the costs allocated to flood control remedial work and bear all costs of operation, maintenance, repair, rehabilitation, and replacement of flood control facilities.	\$ 4,374,000	\$0
Total Non-Federal Costs	\$ 4,374,000	\$0

The local sponsors of cost-shared remedial work will be required to make all payments concurrent with project construction.

STATUS OF LOCAL COOPERATION: Formal assurances were received prior to construction of the original project. Supplemental assurances have been executed for the remedial work that is 100 percent Federally funded for repair of 12.4 miles of levee located in Prairie du Rocher, Degognia-Fountain Bluff, Grand Tower, and Metro East Drainage and Levee Districts. Supplemental assurances for the remedial work that is to be cost shared in accordance with the provisions of the Water Resources Development Act of 1986 (Public Law 99-662) will be scheduled upon completion and approval of the deficiency report. This report will provide an update to the 1986 letter report and address a long-term solution to the problem for the entire levee system.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of \$109,018,000 is an increase of \$488,000 from the latest estimate (\$108,530,000) presented to Congress (FY 1998). This change includes the following item:

Mississippi Valley Division

St. Louis District  
7 May 2009

Alton to Gale Organized Levee Districts  
Illinois and Missouri (Deficiency  
Correction) (Resumption)

Item	Amount
Price Escalation on Construction Features	\$ 488,000
Total	\$ 488,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: A Finding of No Significant Impact (FONSI) was signed on 7 September 1989 and was distributed to public agencies and officials. An Environmental Assessment (EA) is being prepared as part of the letter report and will be distributed to public agencies and officials for review.

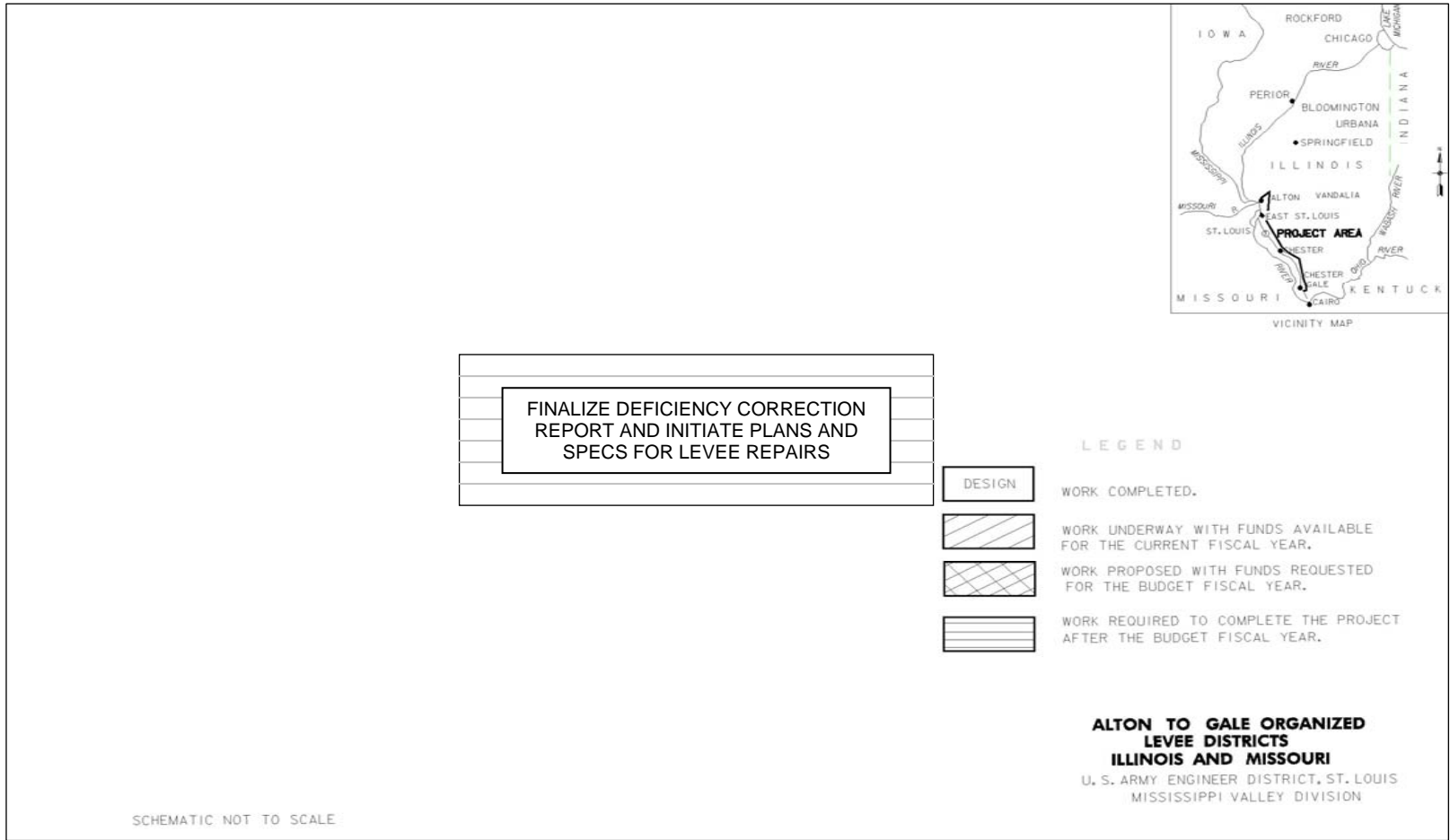
OTHER INFORMATION: Funds to initiate construction of the remedial work were appropriated in Fiscal Year 1989. Previous funding included actual cost of \$87,516,000 for the construction of the original project, completed in 1977, and \$1,954,000 provided by the Productive Employment Appropriation Act of 1983 (Public Law 98-8). The scheduled completion date is being determined. This project has not been presented to Congress since Fiscal Year 1998. The design deficiency results from levee slides that have occurred because highly plastic clay material was improperly used in the original construction. The Assistant Secretary of the Army (Civil Works) has agreed to 100 percent Federal cost for repair of 12.4 miles of levee located in Prairie du Rocher, Degognia-Fountain Bluff, Grand Tower, and Metro East Drainage and Levee Districts. In November 2000, the St. Louis District Corps of Engineers received permission to pursue the repair of the slides at full Federal expense. A contract was awarded in August 2001 to repair 44 existing slides at 100 percent Federal cost, and completed September 2002. The ASA(CW) also requested an update to the 1986 letter report to address a long-term solution to the problem for the entire levee system. The design deficiency report, when completed, will address a long-term solution for levee slides over the entire levee system. The letter report was initiated in Fiscal Year 2001 and submitted to the Mississippi Valley Division (MVD) for approval in April 2003. The engineering and design funds received in Fiscal Year 2008 will be used to resolve MVD's review comments and finalize the draft report, including Independent External Peer Review (IEPR). The number of slides continues to increase and flooding in the spring and summer of 2008 has severely worsened the slides. Repairs to many of the levees are scheduled under PL 84-99. However, the PL84-99 repairs are only a temporary solution and do not fully address the deficiency. The current cost estimate reflects October 1997 price levels and will be updated after the deficiency correction letter report is finalized.

Corps' policy requires 75 percent Federal and 25 percent non-Federal cost sharing for the remaining areas, which include Grand Tower, Degognia-Fountain Bluff, Prairie du Rocher, Metro East, Clear Creek, Kaskaskia Island, East Cape, Bois Brule, Fort Chartres, Preston, and Wood River Drainage and Levee Districts.

Mississippi Valley Division

St. Louis District  
7 May 2009

Alton to Gale Organized Levee Districts  
Illinois and Missouri (Deficiency  
Correction) (Resumption)





APPROPRIATION TITLE: Construction, General – Channels and Harbors (Navigation)

PROJECT: Chain of Rocks Canal, Mississippi River, Illinois, (Deficiency Correction) (Continuing)

LOCATION: The Chain of Rocks Canal is located on the Mississippi River adjacent to river miles 184 to 194.4 in Madison County, Illinois.

DESCRIPTION: The recommended plan for design deficiency correction involves the installation of relief wells and construction of berms and a pump station. All work is programmed.

AUTHORIZATION: The original project was authorized by the River and Harbor Act of 2 March 1945.

REMAINING BENEFIT-REMAINING COST RATIO: 2.35 to 1 at 7 percent.

TOTAL BENEFIT-COST RATIO: 1.5 to 1 at 7 percent.

INITIAL BENEFIT-COST RATIO: 1.6 to 1 at 7 3/8 percent (FY 1999).

BASIS OF BENEFIT-COST RATIO: Based on the Chain of Rocks Design Deficiency Report dated July 1997 at October 1996 price levels.

SUMMARIZED FINANCIAL DATA	Original Project	STATUS (1 Jan 2009)	PCT CMPL	PHYSICAL COMPLETION SCHEDULE
		Entire Project	40	To Be Determined
Actual Federal Cost	\$59,260,000	PHYSICAL DATA		
Actual Non-Federal Cost	0	The proposed plan provides for correcting underseepage deficiencies on the nine-mile long levee, installing new relief wells, replacing nonfunctional relief wells, utility relocations landside of the levee, adding fill to berms and filling in low areas, constructing a 155 cfs pump station, and constructing wetland mitigation features.		
Cash Contributions	\$ 0			
Other Costs	0			
Total Original Project Cost	\$59,260,000			

Mississippi Valley Division

St. Louis District  
7 May 2009

Chain of Rocks Canal, Mississippi River, Illinois  
(Deficiency Correction)

		ACCUM PCT OF EST FED COST (Remedial Work Only)	
Remedial Work			
Estimated Federal Cost		\$53,400,000	
Estimated Non-Federal Cost		0	
Cash Contributions	\$ 0		
Other Costs	0		
Total Estimated Remedial Cost		\$53,400,000	
Total Estimated Project Cost		\$112,660,000	
Allocations to 30 September 2006		\$ 17,193,000	
Allocation for FY 2007		6,800,000	
Allocation for FY 2008		4,080,000	
Conference Allowance for FY 2009		2,392,000	
Allocation for FY 2009		2,392,000	
Allocations to 30 September 2009		30,465,000	57
Allocation Requested for FY 2010		6,500,000	69
Programmed Balance to Complete after FY 2010		TBD	
Unprogrammed Balance to Complete after FY 2010		0	

Mississippi Valley Division

St. Louis District  
7 May 2009

Chain of Rocks Canal, Mississippi River, Illinois  
(Deficiency Correction)

JUSTIFICATION: This project is receiving a higher funding priority in the budget than its remaining benefit-remaining cost ratio would normally allow because it addresses significant risk to human safety in accordance with the Army Corps of Engineers performance-based guidelines for the construction account. The Chain of Rocks Canal Levee System consists of a dual line of levees running parallel to the canal constructed as part of the Chain of Rocks Canal, Illinois, navigation project. The operation and maintenance of these levees is a 100 percent Federal responsibility. The eastern line of this levee system serves as an integral part of the main line levee protection to the East St. Louis and vicinity area. The east levee has demonstrated inadequate underseepage performance during past floods. Quick conditions and sand boils developed on the landside of the levee during high river stages. The original design assumptions related to the coefficients of permeability for the aquifer and top stratum materials were incorrect. The relief well system was found to be deficient. The levee, as originally designed, relies on the impoundment of water against the landside toe of the levee in order to maintain levee stability; however, development over the last 40 years has prevented effective use of this method. Correction of the deficiencies will assure the integrity of the levee system and provide urban level protection for the East St. Louis metropolitan area. Failure of the levee would affect a population of 250,000 mainly low income residential neighborhoods and a heavily industrialized area with total property values of approximately \$1.4 billion.

The Budget includes funding primarily to address a significant risk to human safety. The Corps made this determination based on many factors such as the likelihood and magnitude of the potential flooding, the number of people living in the flood plain, the likely warning time, the availability of evacuation routes, and site-specific engineering factors. This project, in addition to preventing damages to property, is effective in reducing a high risk to life for the populations in the project area. That risk must be considered in evaluating the project justification in addition to economic analyses. Risk is created by both hydrologic factors (flood depth, velocity, and short warning time) and cultural factors (size of population and available routes of egress from the flood plain).

Average annual benefits for the design deficiency correction are as follows:

Annual Benefits	Amount
Flood Damage Reduction	\$ 2,618,000
Navigation	29,000
Total	\$ 2,647,000

FISCAL YEAR 2009: Current year funds are being used as follows:

Berms	2,016,000
Maintenance During Construction	11,000
Mitigation	21,000
Planning, Engineering and Design	211,000
Construction Management	133,000
Total	\$2,392,000

Mississippi Valley Division

St. Louis District  
7 May 2009

Chain of Rocks Canal, Mississippi River, Illinois  
(Deficiency Correction)

FISCAL YEAR 2010: The requested amount will be applied as follows:

Berms	\$5,875,000
Maintenance During Construction	25,000
Planning, Engineering and Design	375,000
Construction Management	225,000
Total	\$6,500,000

NON-FEDERAL COST: The project is 100 percent Federal.

STATUS OF LOCAL COOPERATION: Not applicable.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of \$53,400,000 is an increase of \$4,900,000 from the latest estimate (\$48,500,000) presented to Congress (FY 2009). This change includes the following items:

Item	Amount
Price Escalation on Construction Features	\$ 981,000
Post Contract Award and Other Estimating (including Contingency Adjustments)	3,935,000
Price Reduction on Real Estate	-16,000
Total	\$4,900,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The Environmental Assessment resulted in a Finding of No Significant Impact (FONSI), which was signed 21 May 1996. A second FONSI for revised plans was signed 14 August 2002.

OTHER INFORMATION: Previous funding included the actual cost of \$59,260,000 for the construction of the original project, which was completed in Fiscal Year 1953. Funds to initiate construction for the remedial work were appropriated in Fiscal Year 1999. The deficiency report documented a need for a pumping station to handle 155 cubic feet per second in interior flows. Without this pump station, there is no means of handling the additional flows from newly installed relief wells. Award of the pump station contract is pending completion of the levee rehabilitation. Fish and Wildlife costs are \$1,265,000.

Mississippi Valley Division

St. Louis District  
7 May 2009

Chain of Rocks Canal, Mississippi River, Illinois  
(Deficiency Correction)



APPROPRIATION TITLE: Construction – Local Protection (Flood Control)

PROJECT: East St. Louis, Illinois (Continuing)

LOCATION: The project is located in St. Clair and Madison Counties, Illinois, along the left bank of the Mississippi River between river miles 175 and 195 above the Ohio River.

DESCRIPTION: The project consists of the rehabilitation of 21 small gravity drains, 10 large gravity drains (gatewells), 20 closure structures, and 300 relief wells; minor floodwall and levee repair work; rehabilitation of 12 pumping stations and 3 drainage control structures; replacement of 3 bridge structures, abandonment and removal of 4 bridge structures and 6 segments of channel rehabilitation. All work, except bridges, is programmed. The bridge work, which is unprogrammed, will be performed at 100 percent non-Federal cost.

AUTHORIZATION: Energy and Water Development Appropriations Act of 1988 (PL 100-202).

REMAINING BENEFIT-REMAINING COST RATIO: 12.0 to 1 at 7 percent.

TOTAL BENEFIT-COST RATIO: 6.9 to 1 at 7 percent.

INITIAL BENEFIT-COST RATIO: 4.6 to 1 at 8 7/8 percent (FY 1988).

BASIS OF BENEFIT-COST RATIO: Benefits are from the Supplemental Project Report, completed March 1999.

SUMMARIZED FINANCIAL DATA			ACCUM PCT OF EST FED COST	STATUS (1 Jan 2009)	PCT Cmpl	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost		\$ 40,651,000		Entire Project	93	TBD
Programmed Construction	40,651,000					
Unprogrammed Construction	0					
PHYSICAL DATA						
Estimated Non-Federal Cost		17,367,000		Floodwall & Levee Work		
Programmed Construction	13,409,000			Small Gravity Drains		21
Cash Contributions	9,943,000 <sup>1</sup>			Large Gravity Drains		10
Other Costs	3,466,000			Closure Structures		20
Estimated Non-Federal Cost				Relief Wells		300
Unprogrammed Construction	3,958,000			Pumping Stations		12
Other Costs	3,958,000			Drainage Control Structures		3
Total Estimated Programmed Construction Cost		\$ 54,060,000		Bridge Replacements		3
Total Estimated Unprogrammed Construction Cost		3,958,000		Bridge Abandonment and Removal		4
Total Estimated Project Cost		58,018,000 <sup>2</sup>		Channels		6 segments
Allocations to 30 September 2006		34,176,000				
Allocation for FY 2007		2,802,000				
Allocation for FY 2008		2,266,000				
Conference Allowance for FY 2009		718,000				
Allocation for FY 2009		718,000				
Allocations to 30 September 2009		39,962,000	98			
Allocation Requested for FY 2010		2,000,000 <sup>2</sup>	103			
Programmed Balance to Complete After FY 2010		TBD <sup>2</sup>				
Unprogrammed Balance to Complete After FY 2010		0				

<sup>1</sup> A cash contribution of \$12,842,000 is partially offset by a credit of \$2,899,000 for work-in-kind on completed work.

<sup>2</sup> Cost estimate will be updated upon finalization of the Limited Reevaluation Report.

Mississippi Valley Division

St. Louis District  
7 May 2009

East St. Louis, Illinois

JUSTIFICATION: The original project, authorized by the Flood Control Act of 1936, provides protection for 85,000 acres consisting of business, industrial, residential, and metropolitan areas, including East St. Louis, Granite City, Madison, Venice, Brooklyn, Fairmont City, Sauget, and Cahokia Illinois. The urban design levee was designed to provide flood protection from the Mississippi River to a flood stage of 52 feet on the St. Louis, Market Street gage. The project protects the largest urbanized Mississippi River floodplain north of New Orleans. The rehabilitation project was authorized by the Energy and Water Development Appropriations Act of 1988. As a result of failure of a deteriorated roller gate, localized flooding occurred in 1986 leading to the evacuation of 1,200 residents and causing an estimated \$35,000,000 in property damage. The need for extensive rehabilitation work was confirmed during preparation of a General Design Memorandum for the project during Fiscal Year 1990. A tax referendum, passed in February 1989, provides the Metro East Sanitary District with increased tax revenue necessary to cost share in the rehabilitation project and perform the necessary maintenance of the project after the rehabilitation work is completed. Because the levee system protects heavy industry (including chemical manufacturing facilities and steel mills) as well as hazardous/toxic chemical disposal sites (Sauget Area 1 Superfund Site/Sauget Area 2 Superfund site), failure of the levee could create an environmental disaster as well as adversely impact the economy. This project, in addition to preventing damages to property, is effective in reducing a high risk to life for the populations in the project area. That risk must be considered in evaluating the project justification in addition to economic analyses. Risk is created by both hydrologic factors (flood depth, velocity, and short warning time) and cultural factors (size of population and available routes of egress from the flood plain). The average annual benefits, all flood control, are \$30,159,000.

FISCAL YEAR 2009: Current year funds will be used as follows:

Planning, Engineering, and Design	\$718,000
Total	\$718,000

FISCAL YEAR 2010: The requested amount will be applied as follows:

Planning, Engineering, and Design	\$2,000,000
Total	\$2,000,000



NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation, and Replacement Costs
Provide lands, easements, rights-of-way, and dredged material disposal areas.	\$ 613,000	
Pay 23.9 percent of the costs allocated to flood control to bring the total non-Federal share of flood control costs to 25 percent, as determined under Section 103(m) of the Water Resources Development Act of 1986 to reflect the non-Federal sponsor's work-in-kind credit based on Section 215 of the Flood Control Act of 1968.	12,842,000	\$ 426,000
Modify or relocate utilities, roads, bridges (except railroad bridges), and other facilities where necessary for construction of the project.	3,912,000	
<b>Total Non-Federal Costs</b>	<b>\$17,367,000</b>	<b>\$ 426,000</b>

Local interests are also required to operate and maintain all works after completion.

STATUS OF LOCAL COOPERATION: The local sponsor, the Metro East Sanitary District, is strongly supportive of the project. A tax referendum passed in February 1989, provided sufficient funds for local sponsorship of the project. Three Project Cooperation Agreements were executed for this project. The Project Cooperation Agreement for the first construction item was executed in November 1989. The second Project Cooperation Agreement was executed on 11 December 1990. The third Project Cooperation Agreement was executed on 11 March 1992. Amendment No. 1 to the third Project Cooperation Agreement, crediting the local sponsor for costs of work-in-kind (Clearing & Excavation of Drainage Channels), was executed on 9 August 1994. Amendment No. 2, executed on 2 September 1997, allows the Corps to award a contract for the previously identified work-in-kind and adds mitigation as a project cost feature. A Third Party Agreement, executed in August 1999 between Metro East Sanitary District and Canteen Creek Drainage District, eliminated the requirement for a fourth Project Cooperation Agreement for this project. The current non-Federal cost estimate of \$17,367,000, which includes a cash contribution of \$12,842,000, is an increase of \$9,763,000 from the non-Federal cost estimate of \$7,604,000 noted in the Project Cooperation Agreement, which included a cash contribution of \$7,062,000. In a financial document dated 19 May 1999, the non-Federal sponsor indicated they are financially capable and willing to contribute the increased non-Federal share. Our analysis of the non-Federal sponsor's financial capability to participate in the project affirms that the sponsor has a reasonable and implementable plan for meeting its financial commitment.

Mississippi Valley Division

St. Louis District  
7 May 2009

East St. Louis, Illinois

In order to restore the authorized level of protection to the levee, additional work will be needed to address critical underseepage and through-seepage problems that manifested themselves during the floods of 1993, 1995 and 2008. The project sponsor has been notified that these problems are the result of design deficiency issues that will be addressed in an upcoming Limited Reevaluation Report (LRR). Following completion of the LRR, a new Project Partnership Agreement will be executed with the Metro East Sanitary District and future sponsors (Madison County Flood Prevention District and St. Clair County Flood Prevention District). These future sponsors will have a central role in providing project funding for design deficiency correction construction work. The Metro East Sanitary District will continue operation and maintenance responsibilities of the levee.

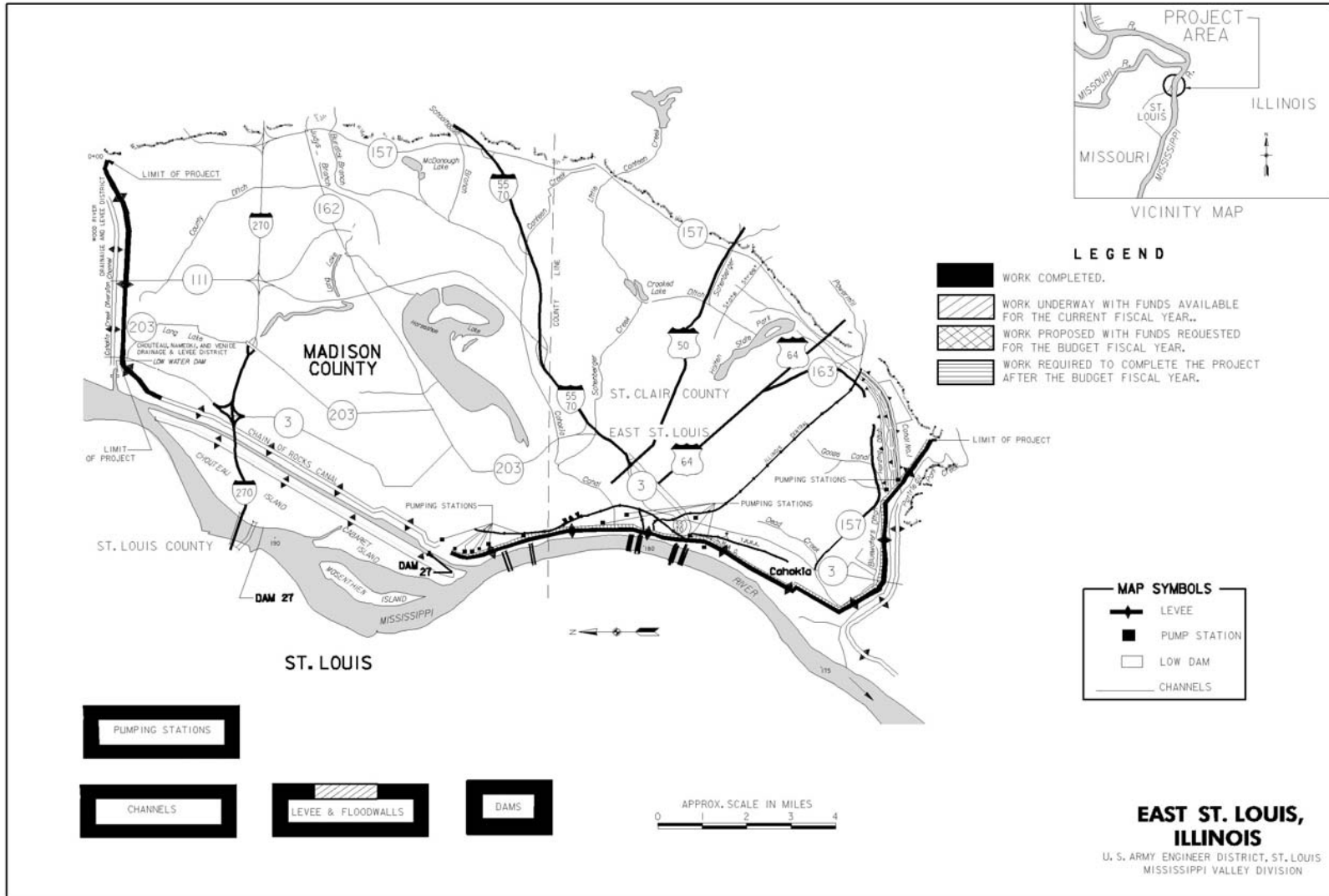
COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of \$40,651,000 is the same as the last estimate presented to Congress (FY 2009).

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The project consists of rehabilitation of existing facilities and, for the major part of the project, will not affect environmental conditions except for short-term localized impacts. An environmental assessment and Finding of No Significant Impact was signed by the District Commander on 1 August 1991. With respect to future design deficiency correction work, an Environmental Assessment was drafted and sent out for public notice in late 2008. Pending resolution of public comments, a Finding of No Significant Impact is expected to be signed by the District Commander in June 2009.

OTHER INFORMATION: Funds to initiate construction were appropriated in Fiscal Year 1988.

As a result of the drainage ditch clearing and excavation, mitigation was approved as a project cost per amendment Number 2 to the third Project Cooperation Agreement and was accomplished on project lands. The current cost estimate reflects October 2007 price levels and will be updated upon finalization of the Limited Reevaluation Report.

Fish and Wildlife mitigation costs are \$19,000.



Mississippi Valley Division

St. Louis District  
7 May 2009

East St. Louis, Illinois

APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: Larose to Golden Meadow, Louisiana (Hurricane Protection) (Continuing)

LOCATION: The project is located in Lafourche Parish, Louisiana, about 28 miles southwest of New Orleans and about 25 miles inland from the Gulf of Mexico along Bayou Lafourche, south of the Gulf Intracoastal Waterway, extending from Larose to Golden Meadow, a distance of about 16 miles.

DESCRIPTION: The project consists of a ring levee approximately 48 miles in length encircling the areas along Bayou Lafourche from Larose to Golden Meadow and extending approximately 9,800 feet from each side of the bayou. Enlargement of about 3 miles of the existing levee at Golden Meadow and construction of floodgates on Bayou Lafourche at the upper and lower limits of the protection system will be used for navigation and hurricane protection purposes. A Post Authorization Change Report is required because of increased construction costs, post Katrina design and construction criteria changes, and the levee system currently authorized does not provide 100-year level of risk reduction.

AUTHORIZATION: Flood Control Act of 1965.

REMAINING BENEFIT - REMAINING COST RATIO: A new benefits to cost ratio will be calculated in the Post Authorization Change Report.

TOTAL BENEFIT - COST RATIO: A new benefits to cost ratio will be calculated in the Post Authorization Change Report.

INITIAL BENEFIT - COST RATIO: A new benefits to cost ratio will be calculated in the Post Authorization Change Report.

BASIS OF BENEFIT - COST RATIO: A new benefits to cost ratio will be calculated in the Post Authorization Change Report.

SUMMARIZED FINANCIAL DATA		ACCUM PCT OF EST FED COST	STATUS (1 Jan 2009)	PCT Cmpl	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost		TBD	Entire Project	TBD	TBD
Estimated Non-Federal Cost		TBD			
Cash Contributions	TBD				
Other Cost	TBD				
Total Estimated Project Cost		TBD			
Allocations to 30 September 2006		83,050,000			
Allocation for FY 2007		1,000,000			
Allocations for FY 2008		\$ 29,979,500			
Conference Allowance for FY 2009		\$957,000			
Allocations for FY 2009		\$957,000			
Allocations to 30 September 2009		\$114,986,500			
Allocation Requested for FY 2010		\$ 1,200,000			
Programmed Balance to Complete After FY 2010		TBD			
Un-programmed Balance to Complete After FY 2010		TBD			

#### PHYSICAL DATA

Levees	Floodgates	Drainage Structures
Loop levee approximately 40 miles in length along both banks of Bayou Lafourche; enlargement of three miles of levees at Golden Meadow; eight miles of low interior levee to regulate intercepted drainage.	2	Local Pumping Stations

JUSTIFICATION: The project area is of great economic importance to the State of Louisiana, and includes lands and improvements having an aggregate value of approximately \$203,904,000 (1995 prices). The population of the area was 20,000 in 1980 and has increased to 23,865 in 2000. While oil and gas production, commercial fisheries, and related service industries dominate the economy of the area, there is a wide spectrum of economic activity.

Situated within a region of high hurricane incidence (on the average, two hurricanes threaten the Louisiana coast every three years), the project area is highly vulnerable to overflow from the tidal surges which accompany hurricanes. The highest flood stage during the hurricane of 1915 was 5.5 feet at Golden Meadow, taken from a high-water mark. Should a hurricane similar to that of 1915 move through the area, damages of approximately \$10,962,000 (1995 prices) could be

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Larose to Golden Meadow, Louisiana  
(Hurricane Protection)

expected. Hurricane Juan (1985) was accompanied by flooding of 6.6 feet, as recorded on the Leeville, LA gauge. Damages sustained during Hurricane Juan were \$35,000,000 and at current prices (1995), \$44,866,000. The flood duration was from two days to one week. Damages began at 3 feet, with significant damages at 4.5 feet. Should a major hurricane approaching the standard project hurricane in intensity move through the area, the entire project area would be submerged in the tidal surge, and monetary damages would likely amount to \$86,811,000 (1995 prices). This damage would include minor crop losses, but the bulk of the damage would consist of physical damage to residential, commercial, and industrial establishments. Residential and commercial facilities are valued at \$52,000,000 (1971 prices), excluding contents, plus \$3,500,000 (1971 prices), or \$207,713,000 (1995 price levels). Average annual damages with the project are negligible (zero), while without the project they are \$14,947,000 (1995 price levels). Flood damages prevented on future developments were determined by projecting future damages at rates equal to the projected population growth and bringing them back to present value by applying a discount rate of 3-1/4 percent. Present values were then amortized for the life of the project to obtain average annual benefits on future damages prevented. The relationship between depth of flooding and percent damage of structures and contents was derived from detailed studies of flood damages in the coastal area of Louisiana for four hurricanes, Carla (1961), Hilda (1964), Betsy (1965) and Camille (1969). These in-depth studies were made for flood insurance rate studies conducted by the U.S. Army Corps of Engineers for the Federal Insurance Administration.

Based on the latest hydraulic modeling the project no longer provides 100-year level of risk reduction. The models show the existing project elevations are, in some locations, as much as 10 feet less than required to provide 2060 100-year level of risk reduction. Recent surveys have also revealed that the system is about 12-18 inches deficient in elevation for the authorized project. To provide increased level of risk reduction a Post Authorization Change Report is required. The draft Post Authorization Change Report is estimated to be completed in the third quarter of Fiscal Year 2011.

Lafourche Parish has been determined to be an area of "substantial and persistent" unemployment.

The average annual benefits will be calculated in the Post Authorization Change Report.

Annual Benefits	Amount
Flood Control	TBD
Area Redevelopment	TBD
 Total	 TBD

FISCAL YEAR 2009: The requested amount will be used as follows:

Continue work on C-North levee	\$957,000
Total	\$957,000

FISCAL YEAR 2010: The requested amount will be used as follows:

Initiate Post Authorization Change Report	\$1,200,000
Total	\$1,200,000

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NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Flood Control Act of 1965, the Non-Federal sponsor must comply with the requirements listed below:

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation, and Replacement Costs
Provide lands, easements, and rights-of-way, including borrow and dredged material disposal areas (as applicable).	TBD	
Accomplish alterations to roads, pipelines, cables, wharves, oil wells, and any other facilities necessary for construction of the project.	TBD	
Pay 30 percent of the total project cost, to include the items listed above and a cash contribution or equivalent work specifically undertaken as an integral part of the project after authorization and in accordance with construction schedules as required by the Chief of Engineers.	TBD	
Bear all cost of operation and maintenance including replacements.		TBD
Total Non-Federal Cost	TBD	TBD

The non-Federal sponsor has also agreed to make all required payments concurrently with project construction.

STATUS OF LOCAL COOPERATION: Assurances covering all requirements of local cooperation were received from the South Lafourche Levee District and accepted on behalf of the United States on 29 August 1973. The South Lafourche Levee District has requested and received funds from the State of Louisiana for rights-of-way acquisition and relocations required to support construction work. In addition to lands and damages and relocations, the South Lafourche Levee District has accomplished levee construction, pumping station and administrative/operating work.

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The Final Environmental Impact Statement was filed with the Council on Environmental Quality on 13 May 1974. A draft supplement to the Environmental Impact Statement covering the revised levee alignments, previously unidentified wetland impacts, and necessary mitigation, was filed with the Environmental Protection Agency on 20 July 1984, and the final supplement was filed with the Environmental Protection Agency on 1 March 1985. An Environmental Assessment covering the revised levee alignment for Section D-North was distributed for review on 3 December 1990, and a Finding of No Significant Impact for the revised alignment was signed on 8 March 1991.

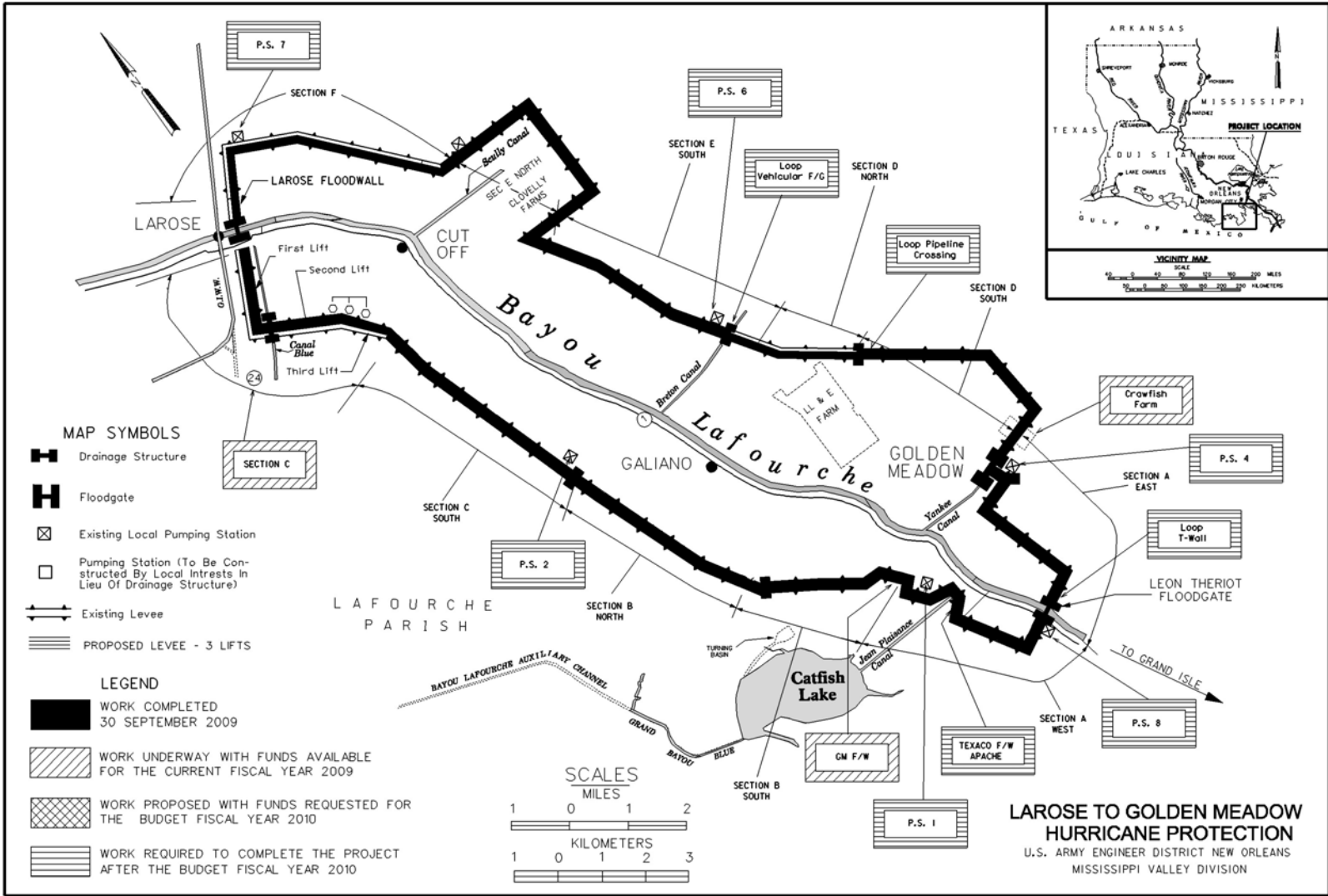
OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in Fiscal Year 1967, and funds to initiate construction were appropriated in Fiscal Year 1972.

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Larose to Golden Meadow, Louisiana  
(Hurricane Protection)





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Larose to Golden Meadow, Louisiana  
 (Hurricane Protection)

APPROPRIATION TITLE: Construction – Local Protection (Flood Control)

PROJECT: Monarch-Chesterfield, Missouri (Continuing)

LOCATION: The project is located along the right bank of the Missouri River between river miles 46.0 and 38.5. The existing private levee system is 11.5 miles long and protects approximately 4,240 acres from the 100-year flood event.

DESCRIPTION: The Chesterfield project is located along the right bank of the Missouri River between river miles 46 and 38.5. The existing private levee system is 11.5 miles and protects approximately 4,240 acres from the 1 percent annual occurrence flood event (100-year). During the Great Flood of 1993, the existing levee failed causing flood damages in excess of \$200,000,000. The project consists of raising the existing levees on the Missouri River and Bonhomme Creek to provide protection from a .2 percent annual occurrence flood event (500-year) along with relief wells, a sheet pile cutoff, and berms to control underseepage. Other features include roadways, railroad and roadway closure structures, retaining walls, relocations, pumping stations with gravity structures, and environmental mitigation features. All work is programmed.

AUTHORIZATION: The Water Resources Development Act of 2000.

REMAINING BENEFIT-REMAINING COST RATIO: 4.34 to 1 at 7 percent.

TOTAL BENEFIT-COST RATIO: 3.05 to 1 at 7 percent.

BASIS OF BENEFIT-COST RATIO: Benefits are from the Feasibility Report approved in December 2000 at 2000 price level as amended by the Flood Control Study Supplement, dated June 2003.

SUMMARIZED FINANCIAL DATA		ACCUM. PCT. OF EST. FED. COST	STATUS (1 Jan 2009)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost	\$44,647,000	Entire Project		0	TBD
Estimated Non-Federal Cost	24,041,000				
Cash Contributions	\$ 3,434,000				
Other Costs	20,607,000				
Total Estimated Project Cost	\$68,688,000				
Allocations to 30 September 2006	2,344,000				
Allocation for FY 2007	0				
Allocation for FY 2008	1,096,000				
Conference Allowance for FY 2009 deep	3,349,000				
Allocation for FY 2009	3,349,000				
Allocations through FY 2009	6,789,000	15			
Allocation Requested for FY 2010	3,331,000	23			
Programmed Balance to Complete after FY 2010	TBD				
Unprogrammed Balance to Complete after FY 2010	0				
					PHYSICAL DATA
					Levee: 11.5 miles
					Pump Stations: 4 (222cfs; 44.5cfs; 133.5 cfs; 273.5 cfs)
					Large Gravity Drains: 8
					Relief Wells: 33
					Mitigation features: 12.94 acres
					Sheetpile cutoff wall: 1,100 feet long by 50 feet
					Berms: 150 to 300 feet wide and 5 to 15 feet thick
					Road closure structure: 2
					Railroad closure structure: 1

JUSTIFICATION: During the Great Flood of 1993 the levee system breached causing 250 businesses, comprising over 3,000,000 square feet of commercial development to close, 50 residences were evacuated, Interstate 64/U.S. Route 40 was closed for three weeks as were other transportation routes into the area, the Spirit of St. Louis Airport was closed for nearly three months, and the St. Louis County Correctional Institution was forced to evacuate inmates to temporary quarters for up to six months. Estimated flood damages totaled in excess of \$200,000,000. The present value of properties that will be protected by the project are \$505,000,000. The average annual benefits, all flood control, are \$8,871,099. Average annual damages without the project are \$9,355,226, while the average annual damages with the project are \$484,127, a reduction of 95 percent.

FISCAL YEAR 2009:

Initiate Cultural Resource	\$ 286,000
Complete Baxter Road Phase I	2,786,000
Planning, Engineering, and Design	167,000
Supervision and Administration	110,000
Total	\$3,349,000

FISCAL YEAR 2010: The requested amount will be applied as follows:

Initiate Pump Stations	\$1,781,000
Planning, Engineering, and Design	1,220,000
Supervision and Administration	330,000
Total	\$3,331,000

NON-FEDERAL COST: In accordance with the cost-sharing and financing concepts contained in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation Maintenance, Repair Rehabilitation, and Replacement Costs
Provide lands, easements, and rights-of-way.	\$13,061,000	\$0
Modify or relocate utilities, roads, bridges (except railroad bridges), and other facilities, where necessary for the construction of the project	30,000	\$0
Pay 35 percent of the costs allocated to flood control to bring the total non-Federal share of flood control costs to 35 percent as determined under Section 103(m) of the Water Resources Development Act of 1986, as amended, to reflect the non-Federal sponsor's ability to pay as reduced for credit allowed based on prior work (Section 104 of the Water Resources Development Act of 1986) as amended; and bear all costs of operation, maintenance, repair, rehabilitation, and replacement of flood control facilities.	10,950,000	\$80,506
Total Non-Federal Costs	\$24,041,000	\$80,506

STATUS OF LOCAL COOPERATION: The local sponsor for this project is the Monarch-Chesterfield Levee District. The Project Cooperation Agreement was executed 1 February 2008. The local sponsor has received approval from the Assistant Secretary of the Army (Civil Works) for three credit applications of work.

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St. Louis District

Chesterfield, Missouri

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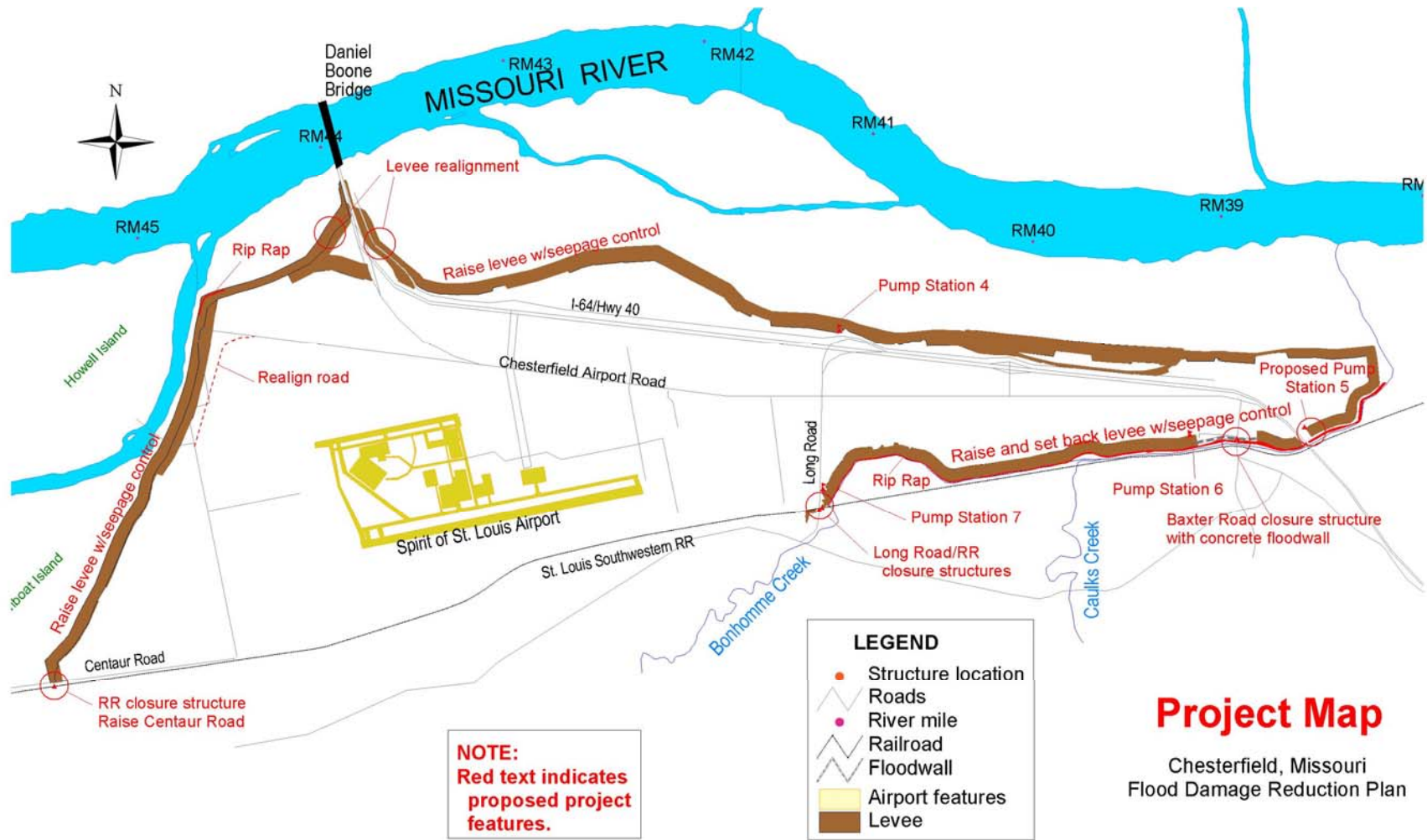
These applications included: 1) construction of three pump stations within the protected area, 2) levee improvement from Centaur Road to Interstate 64/U.S. 40, and 3) realignment of the levee near Boone's Crossing Interchange and levee improvement along the left bank of Bonhomme Creek. The Levee District has not been reimbursed for the credits.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate is \$44,647,000. This estimate has not previously been presented to Congress.

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement was filed with EPA in October 2000 and published in the Federal Register on 9 November 2000.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in FY 2001. Funds to initiate construction were appropriated in FY 2004.

Fish and wildlife mitigation costs are \$585,000.



APPROPRIATION TITLE: Construction – Local Protection (Flood Control)

PROJECT: St. Louis Flood Protection, Missouri and Illinois – Deficiency Correction (Continuing)

LOCATION: The St. Louis Flood Protection Project is located in St. Louis, Missouri, on the right bank of the Mississippi River between Miles 176.3 and 187.2, above the mouth of the Ohio River.

DESCRIPTION: The existing project consists of 11-miles of flood protection by combination of 35,614 feet of floodwalls, 20,700 feet of levees, 33 street and railroad closure structures, 28 pump stations, gravity drains, subdrains, relief wells, sheet pile cutoff walls, and pressure sewer emergency closure gatewells. The project protects approximately 3,160 acres of industrial and commercial development. The flood protection system was constructed with inadequate closure structures and underseepage protection. These design deficiencies must be corrected to ensure that the system provides its authorized level of service. The recommended rehabilitation includes replacing swing gates at 20 closure structures, permanently closing openings at 13 closure structures, installing 70 new relief wells and replacing 103 existing relief wells needed to improve underseepage control, and planting hardwoods to mitigate for 0.1 acre of impact. All work is programmed.

AUTHORIZATION: Public Law 84-256 dated 9 August 1955.

REMAINING BENEFIT-REMAINING COST RATIO: 10.8 to 1 at 7 percent.

TOTAL BENEFIT-COST RATIO: 5.4 to 1 at 7 percent.

BASIS OF BENEFIT-COST RATIO: Benefits are based on the Reconstruction Reevaluation Report at October 2005 price level.

SUMMARIZED FINANCIAL DATA		ACCUM PCT OF EST FED COST	STATUS (1 Jan 2009)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost	13,100,000		Entire Project	0	TBD
Estimated Non-Federal Cost	7,054,000				
Cash Contributions	7,054,000		PHYSICAL DATA:		
Other	0				
 Total Estimated Project Cost	 \$20,154,000		Levee (main line)	11 miles	
Allocations to 30 September 2006	1,160,000		Relief wells – existing	103	
Allocation for FY 2007	378,000		Relief wells – new	70	
Allocation for FY 2008	1,993,000 <sup>1</sup>		Closure structures	33	
Conference Allowance for FY 2009	3,500,000				
Allocation for FY 2009	3,500,000				
Allocations through FY 2009	7,031,000	54			
Allocation Requested for FY 2010	566,000	58			
 Programmed Balance to Complete after FY 2010	 TBD				
Unprogrammed Balance to Complete after FY 2010	0				

<sup>1</sup> Includes allocation of \$25,000 to PED.

JUSTIFICATION: The flood frequency against which protection is to be provided is 800-year. River stage exceeds flood stage in approximately 1 out of every 2 years at the St. Louis Flood protection. For the design event and the without project condition, the average depth and velocity affecting most of the area is 22 feet and 7 feet per second, respectively. For the design event and the without project condition, the average warning time affecting most of the area is 12 hours, and the limiting factor to leave most of the benefit area is several dozen roads. During the flood of 1993, the system's current flood of record, portions of the levee experienced unexpected seepage problems that had to be handled on an emergency basis. The flood of record occurred during the summer of 1993 when the St. Louis gage recorded 49.58 ft. River elevations were above flood stage from 3 April to 7 October 1993. The frequency interval of that event was approximately 300-years. The project endured two other significant flood events: 43.3 feet on the St. Louis gage in 1973 and 41.9 feet on the St. Louis gage in 1995. The most recent flood was in 2002 which was approximately 37 feet on the St. Louis gage and was approximately an 8-year flood. In 1993, a severe underseepage floodwall foundation blow out occurred immediately east of Riverview Boulevard. On July 22, 1993, with a Mississippi River level at 46.9 feet on the St. Louis gage, a geyser of seepage water and foundation material that was gushing up from underneath the floodwall monolith on the landside of the floodwall was observed to be 4 feet high and 18 inches in diameter. With the floodwall monolith in imminent danger of collapse from loss of foundation materials that had eroded away by the uncontrolled seepage, extraordinary emergency flood fight measures were required to prevent disastrous flooding of the protected area. Hundreds of tons of crushed stone were rushed to the failing floodwall monoliths and dumped over the geyser, which slowed down the flows. During the ensuing months after the

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St. Louis Flood Protection, Missouri



Flood of 1993, four floodwall monoliths were demolished, the foundation was replaced with a compacted clay backfill and a sheet pile cutoff wall to bedrock that completely blocks underseepage flows at this location, and the floodwall monoliths were reconstructed. The flood of 1993 showed that the City of St. Louis flood control project has a deficiency related to underseepage, and most likely will not function safely with floods of the design level of 52.0 feet on the St. Louis Gage because of inadequate underseepage control features. As time continues to pass without corrections being undertaken the probability that the project will fail continues to increase. As the flood protection continues to age, many components of the system will reach their design life. Flood fighting could be especially difficult if underseepage issues are not addressed. Even with proper maintenance, continued deterioration of the system and lack of correction will threaten the ability of the flood protection system to prevent interior damages from a major flood. If the City of St. Louis experiences a flood protection system failure during a major flood, inundation damages have been estimated at upwards of \$1,000,000,000 in the City of St. Louis. The St. Louis Flood Protection levee protects a floodplain population of several hundred thousand people as well as major industrial and commercial businesses, one major sewage treatment plant, and several dozen roads. Design deficiency corrections are necessary to ensure the proper functioning of the underseepage system of the existing project which protects a high value industrial area with significant transportation, power and sewage treatment infrastructures. The City of St. Louis would face potential risk to human safety and loss of jobs, property, and industrial production. Relief well failure can be sudden and catastrophic. The City of St. Louis and areas downstream would also incur significant environmental degradation due to the many chemical plants and a radioactive waste site in the protected area. Failure of the flood protection system would inundate areas that have nuclear contaminants, superfund sites, a sewage treatment plant, and industries such as plating factories. These contaminants would be redistributed with the floodplain and carried into the Mississippi River. This project, in addition to preventing damages to property, is effective in reducing a high risk to life for the populations in the project area. That risk must be considered in evaluating the project justification in addition to economic analyses. Risk is created by both hydrologic factors (flood depth, velocity, and short warning time) and cultural factors (size of population and available routes of egress from the flood plain). The average annual damages without the project are \$3,505,000 and with the project are \$97,000. The average annual benefits for the total project, all flood control, are \$3,429,000.

FISCAL YEAR 2009: The current year funds will be used as follows:

Construct relief wells	\$2,273,000
Closure gate construction/permanent closure	343,000
Planning, Engineering, and Design	616,000
Construction Management	268,000
Total	\$3,500,000

FISCAL YEAR 2010: The requested amount will be applied as follows:

Closure gate construction	\$113,000
Planning, Engineering, and Design	272,000
Construction Management	181,000
Total	\$566,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below.

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St. Louis Flood Protection, Missouri

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation, and Replacement Costs
Pay 35 percent of the costs allocated to flood control to bring the total non-Federal share of flood control costs to 35 percent as determined under Section 103 (m) of the Water Resources Development Act of 1986, as amended, to reflect the non-Federal sponsor's ability to pay and bear all cost of operation, maintenance, repair, rehabilitation and replacement of flood control features.	\$7,054,000	
<b>Total Non-Federal Costs</b>	<b>\$7,054,000</b>	<b>\$94,500</b>

Local interests are also required to operate and maintain all works after completion.

**STATUS OF LOCAL COOPERATION:** The City of St. Louis is the local sponsor for the project. The Project Partnership Agreement was executed 29 February 2008.

**COMPARISON OF FEDERAL COST ESTIMATES:** The current Federal cost estimate of \$13,100,000 is an increase of \$2,271,000 from the latest estimate (\$10,829,000) presented to Congress (FY 2009). This change includes the following items:

Item	Amount
Price Escalation on Construction Features	\$ 81,000
Post Contract Award and Other Estimating Adjustments	2,190,000
<b>Total</b>	<b>\$2,271,000</b>

**STATUS OF ENVIRONMENTAL IMPACT STATEMENT:** An environmental assessment was completed in July 2005 and a Finding of No Significant Impact was signed on 27 July 2005.

**OTHER INFORMATION:** Funds to initiate preconstruction, engineering, and design (PED) were appropriated in FY 2000. Funds to initiate construction were appropriated in FY 2008. This project requires minimal mitigation for removal of 0.1 acre of forest for relief well installation.

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St. Louis District  
7 May 2009

St. Louis Flood Protection, Missouri



APPROPRIATION TITLE: Construction – Local Protection (Flood Control)

PROJECT: Wood River Levee, Illinois – Deficiency Correction (Continuing) and Reconstruction (New)

LOCATION: The Wood River Levee Project is located in Madison County, Illinois, along the left bank of the Mississippi River between river miles 195 and 203 above the Ohio River.

DESCRIPTION: The proposed project includes rehabilitation of 21 miles of levee, replacing 163 of 170 existing relief wells and installing 60 new relief wells as a design deficiency correction under the existing project authorization. Results of more detailed analysis indicate that seepage berms and possibly cutoff trenches may be required in lieu of relief wells. The reconstruction portion of the project includes gravity drains, pump stations, and closure structures.

AUTHORIZATION: Section 4 of Flood Control Act of 1938; Section 1001(20) of Water Resources Development Act of 2007.

REMAINING BENEFIT-REMAINING COST RATIO: 3.6 to 1 at 7 percent.

TOTAL BENEFIT-COST RATIO: 2.8 to 1 at 7 percent.

BASIS OF BENEFIT-COST RATIO: Benefits are based on the General Reevaluation Report dated March 2006 at October 2005 price level.

SUMMARIZED FINANCIAL DATA		ACCUM PCT OF EST FED COST	STATUS (1 Jan 2009)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
			Entire Project	0	TBD
Estimated Federal Cost	24,427,000		PHYSICAL DATA:		
Estimated Non-Federal Cost	13,154,000		Levee (main line)	21 miles	
Cash Contributions	13,012,000		Relief wells - existing	170	
Other Costs	142,000		Relief wells – new	60	
Total Estimated Project Cost	37,581,000		Closure structures	26	
Allocations to 30 September FY 2006	1,231,000		Gravity drains	41	
Allocation for FY 2007	0		Pump stations	7	
Allocation for FY 2008	321,000				
Conference Allowance for FY 2009	2,632,000				
Allocations for FY 2009	2,632,000				
Allocations through FY 2009	4,184,000	17			
Allocation Requested for FY 2010	1,170,000	22			
Programmed Balance to Complete after FY 2010	TBD				

JUSTIFICATION: The levee district is protected by an urban design levee, across the Mississippi River from St. Louis and St. Charles counties in Missouri. This existing system includes approximately 21 miles of main line levee, 170 existing relief wells of which 7 are wells installed in 1985 and are not part of the deficiency correction, 26 closure structures, 41 gravity drains of which 3 have been fixed due to emergency, and 7 pump stations. It provides flood protection for residential, commercial, and industrial structures located within a 21.4 square mile area. There are approximately 13,700 acres of bottomland within the district and 4,700 acres of hill land tributary to the levee units. The study area lies in the Mississippi River flood plain of Madison County, Illinois, just upstream of the City of East St. Louis. The flood frequency against which protection is to be provided is 500 year. The maximum flood of record occurred in 1993 when the St. Louis gage recorded 49.58 feet which was approximately a 200-year flood at the Wood River levee. River stage exceeds flood stage in approximately three out of every four years at the Wood River levee. The most recent flood was in 2002 which was approximately 11 feet over flood stage and was about a 10-year flood. For the design event and the without project condition, the average depth and velocity affecting most of the area is 22 feet and 2 feet per second, respectively. In the event of a design flood, overtopping would occur and average warning time is estimated to be 24 hours; however, in case of catastrophic event occurrence (underseepage failure), estimated warning time is less than 6 hours. The limiting factor to leave most of the benefit area is several dozen roads. Certain reaches of the levee system could become unstable during high water events. Levee reaches that presented problems in 1993 will worsen while new reaches will present similar problems. Failure of this levee would produce tremendous economic loss and create an unprecedented environmental disaster as well as impact the defense and national security needs as the levee system protects a large refinery (10<sup>th</sup> largest U.S. refinery of gasoline, jet and diesel fuel), chemical

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St. Louis District  
7 May 2009

Wood River Levee, Illinois

manufacturing, and munitions production area as well as an urban residential area. It could adversely impact downstream levee systems (East St. Louis). At a conservative estimate of \$125,000 per acre of clean up costs, a loss of this levee would result in environmental damages exceeding \$2,000,000,000 not including the relocation costs of residents and future loss of agriculturally productive land. Development is expected to continue on the interior as a major Interstate Highway has recently opened in the levee district. The connection that this new highway makes to the regional interstate system increases the likelihood of future development in the project area. At current estimates, levee failure would cost approximately \$1,500,000,000 in economic damages to residential, commercial and industrial buildings and would shut down transport between Illinois and Missouri at St. Louis as bridge approaches could be submerged. This project, in addition to preventing damages to property, is effective in reducing a high risk to life for the populations in the project area. That risk must be considered in evaluating the project justification in addition to economic analyses. Risk is created by both hydrologic factors (flood depth, velocity, and short warning time) and cultural factors (size of population and available routes of egress from the flood plain). The average annual damages without the project are \$3,865,000, and with the project are \$1,200,800. The average annual benefits for the project, all flood control, are \$2,664,200.

FISCAL YEAR 2009: The current year funds will be used as follows:

Continue construction of additional relief wells	238,000
Initiate gravity drain reconstruction	572,000
Planning, Engineering, and Design	1,756,000
Construction Management (S&A)	66,000
Total	\$2,632,000

FISCAL YEAR 2010: The requested amount will be applied as follows:

Planning, Engineering, and Design	\$1,170,000
Total	\$1,170,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below.

	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation, and Replacement Costs
Requirements of Local Cooperation		
Provide lands, easements, rights-of-way, and dredged material disposal areas.	\$ 142,000	
Pay 35 percent of the costs allocated to flood control to bring the total non-Federal share of flood control costs to 35 percent as determined under Section 103 (m) of the Water Resources Development Act of 1986, as amended, to reflect the non-Federal sponsor's ability to pay and bear all cost of operation, maintenance, repair, rehabilitation and replacement of flood control features.	\$13,012,000	
Total Non-Federal Costs	\$13,154,000	100,856

Local interests are also required to operate and maintain all works after completion.

STATUS OF LOCAL COOPERATION: The Wood River Drainage and Levee District is the local sponsor for the project. The Project Partnership Agreement was executed on 30 June 2008.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of \$24,427,000 is an increase of \$2,377,000 over the estimate of \$22,050,000 last submitted to Congress (FY 2009). This change includes the following item:

Item	Amount
Price Escalation on Construction Features	\$2,377,000
Total	\$2,377,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: An environmental assessment was completed in July 2005. A Finding of No Significant Impact was signed on 23 March 2006. Additional analysis during detailed design indicates alternative underseepage measures may be required (seepage berm and/or cutoff trench). A supplement to the EA will be prepared to include new feature(s) as required.

Mississippi Valley Division

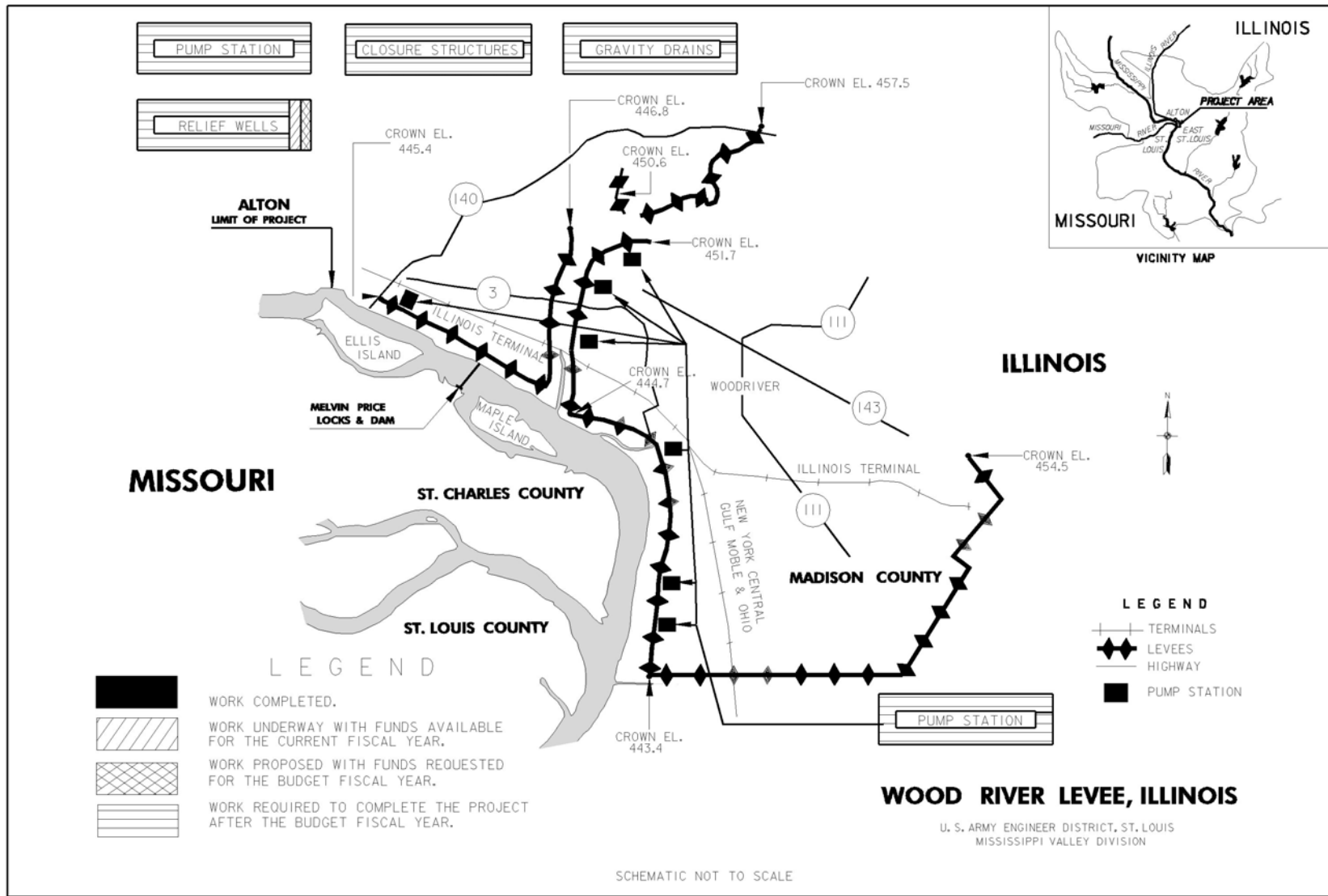
St. Louis District  
7 May 2009

Wood River Levee, Illinois

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in FY 2000, and construction funds were appropriated in FY 2008. A General Reevaluation Report was submitted to HQ on 5 August 2005. The final GRR was transmitted to MVD and HQ on 27 March 2006. The Chief's report was signed on 18 July 2006 and transmitted to ASA(CW) on 18 July 2006. The OMB clearance letter was signed on 14 June 2007. Correction of performance problems that resulted from deficiencies (relief wells) would not require further authorization. Design deficiency correction and reconstruction project features will be cost shared 65 percent Federal and 35 percent non-Federal in accordance with Section 103 of Water Resources Development Act of 1986, as amended by Section 202 of WRDA 1996.

This project requires no mitigation; however, that will likely change due to anticipated berm construction.





Mississippi Valley Division

St. Louis District  
 7 May 2009

Wood River Levee, Illinois

# NAVIGATION

# INVESTIGATIONS

APPROPRIATION TITLE: Investigations, Fiscal Year 2010 Mississippi Valley Division

Project	Total Estimated Federal Cost \$	Allocation Prior To FY 2007 \$	Allocation FY 2007 \$	Allocation FY 2008 \$	Allocation FY 2009 \$	Tentative Allocation FY 2010 \$	Additional to Complete After FY 2010 \$
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PRECONSTRUCTION ENGINEERING AND DESIGN (PED) ACTIVITIES – (CONTINUING)

LOUISIANA

Bayou Sorrel Lock, LA New Orleans District	12,600,000	2,229,000	2,970,000	1,263,000	1,434,000	1,239,000	TBD
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Bayou Sorrel Lock is a component of the Mississippi River and Tributaries (MR&T), Atchafalaya Basin, Louisiana Project. The lock provides navigation access, while maintaining a continuous line of protection against the MR&T project design flood flow. The project flood flow line for the Atchafalaya Basin was modified in 1986 to the current elevation of 28.7 feet National Geodetic Vertical Datum (NGVD). In order to maintain the level of flood protection provided by the Atchafalaya Basin, Louisiana Project, the lock must be modified or replaced. The need to modify Bayou Sorrel Lock presents an opportunity to address increasing navigation concerns at this lock. Planning, engineering, and design of the modification or replacement for flood reduction benefits were delayed until the optimum navigation plan could be studied. The feasibility study was approved in March 2004. The recommended plan consists of replacing the existing lock with a new 75- by 1,200-foot concrete chamber lock immediately adjacent to the existing lock at an estimated cost of \$102,200,000, of which \$9,600,000 is the navigation portion and \$92,600,000 is attributed to MR&T. Preconstruction engineering and design cost is 100 percent Federally funded.

Total Estimated Preconstruction Engineering and Design Costs	\$12,600,000	Total Estimated Preconstruction Engineering and Design Costs	\$12,600,000
Initial Federal Share	12,600,000	Ultimate Federal Share	12,600,000
Initial Non-Federal Share	0	Ultimate Non-Federal Share	0

Funds requested for Fiscal Year 2009 are being used to initiate the Post Authorization Change Report. Thirty-five percent design cost estimate demonstrates that the project cannot be executed at the amount authorized in WRDA 2007 for the Navigation component. Therefore a Post Authorization Change (PAC) report must be prepared and submitted to Congress for authorization.

Funds requested for Fiscal Year 2010 will be used to complete the Post Authorization Change Report. Completion of PED is being determined.

The project was authorized for construction by the Water Resources Development Act of 2007, Public Law 110-114.

APPROPRIATION TITLE: Investigations, Fiscal Year 2010

Mississippi Valley Division

Study	Total Estimated Federal Cost \$	Allocation Prior To FY 2007 \$	Allocation FY 2007 \$	Allocation FY 2008 \$	Allocation FY 2009 \$	Tentative Allocation FY 2010 \$	Additional To Complete After FY 2010 \$
<b>SURVEYS – CONTINUING</b>							
<b>LOUISIANA</b>							
Calcasieu Lock, LA New Orleans District	\$5,808,000	1,791,000	422,000	98,000	574,000	1,000,000	TBD

Calcasieu Lock is a feature of the Gulf Intracoastal Waterway between Appalachee Bay, Florida, and the Mexican Border Project. The lock is located east of the Calcasieu River, approximately 10 miles south of Lake Charles, Louisiana, in Calcasieu Parish. The lock prevents saltwater intrusion from the Calcasieu River into the Mermentau River basin, a major rice producing area. Calcasieu Lock, which was completed in 1950, has dimensions of 13 by 75 by 1,206 feet and is structurally sound. The lock is congested due to increasing traffic. The Calcasieu Lock Section 905(b) analysis supports a benefit-cost ratio of 1.2 to 1 for provision of a new lock and recommended proceeding with feasibility phase studies. The study is addressing the feasibility of measures to replace or supplement the existing lock to reduce navigation delays. The study is 100 percent Federally funded. The anticipated output of improved navigation efficiency is in accord with Administration policy.

Fiscal Year 2009 funds are being used to complete the internal review of the hydraulic model and to initiate the economic evaluations of project benefits.

Policy changes in the manner in which economic analyses are conducted have resulted in additional requirements and costs for completion of the feasibility study.

Funds requested for Fiscal Year 2010 will be used to continue feasibility study efforts, including continuing the economic analysis, inception of the environmental analysis, and the preliminary design of alternative plans. Study tasks for 2011 include the Alternative Formulation Briefing and preparing the draft report and EIS.

The reconnaissance phase was completed in February 2001. The feasibility study completion date is being determined.

# CONSTRUCTION

APPROPRIATION TITLE: Construction - Locks and Dams (Navigation)

PROJECT: J. Bennett Johnston Waterway - Mississippi River to Shreveport, Louisiana (Continuing)

LOCATION: The project is located in central and northwest Louisiana and provides a commercial navigation route from the Mississippi River at its juncture with Old River via Old and Red Rivers to Shreveport, Louisiana. The effected parishes and counties for this project include: (Louisiana) Caddo, Bossier, Webster, De Soto, Red River, Bienville, Lincoln, Winn, Natchitoches, La Salle, Grant, Rapides, Avoyelles, Concordia; and (Arkansas) Hempstead, Miller, Nevada, Lafayette, and Columbia.

DESCRIPTION: The project provides for a 9- by 200-foot navigation channel extending about 236 miles from the Mississippi River through Old River and Red River to the vicinity of Shreveport, Louisiana. Five locks with dimensions of 84 by 705 by 14 feet and adjacent dams provide a lift of 141 feet. The project also provides for realigning the channel by means of dredging, cutoffs, and training works and for stabilizing its banks by means of revetments, dikes, and other methods. Recreation facilities and fish and wildlife development are also an integral parts of the project. The major unprogrammed work includes channel stabilization work, recreation sites, and continued acquisition of mitigation lands. This project is part of the J. Bennett Johnston Waterway, Louisiana, Texas, Arkansas, and Oklahoma, which also includes the Shreveport, to Daingerfield, Texas (navigation), Shreveport, Louisiana, to Index, Arkansas (bank stabilization), and Index, Arkansas, to Denison Dam (bank stabilization) reaches.

AUTHORIZATION: River and Harbor Act of 1968, Water Resources Development Act of 1976, Supplemental Appropriations Act of 1984, Water Resources Development Acts of 1986, 1988, 1990, 1992, 1996, 2000, and 2007.

REMAINING BENEFIT - REMAINING COST RATIO: 1.6 to 1 at 7 percent.

TOTAL BENEFIT-COST RATIO: 0.6 to 1 at 7 percent.

INITIAL BENEFIT-COST RATIO: 1.3 to 1 at 3-1/4 percent (FY 1973).

BASIS OF BENEFIT-COST RATIO: Benefits are from the General Reevaluation Report and Final Supplement No. 2 to the Environmental Impact Statement, at 1982 price levels, approved 4 January 1984. Costs for current analysis are based on October 2005 costs deflated to October 1982 price levels.

Mississippi Valley Division

Vicksburg District  
7 May 2009

J. Bennett Johnston Waterway-  
Mississippi River to Shreveport, Louisiana

SUMMARIZED FINANCIAL DATA			STATUS	PCT	PHYSICAL
Estimated Federal Cost (COE)			(1 Jul 2009)	CMPL	COMPLETION
			Entire Project	93	SCHEDULE
Programmed Construction	\$ 1,959,536,000				TBD
Unprogrammed Construction	0				
Estimated Apprn Requirements (U.S. Coast Guard)					
Programmed Construction	764,000		764,000		Open to 9-Foot Navigation
Unprogrammed Construction	0				Dec 87
Estimated Non-Federal Cost					Lindy Boggs Lock & Dam
Programmed Construction	61,245,000		108,100,000		Dec 87
Cash Contributions	\$8,563,000				John H. Overton Lock and Dam
Other Costs	52,682,000				Dec 87
Unprogrammed Construction					Lock and Dam No. 3
Cash Contributions	24,217,000				Dec 91 <sup>3</sup>
Other Costs	22,638,000				Russell B. Long Lock and Dam
					Dec 94
					Joe D. Waggoner, Jr., Lock and Dam
					Dec 94
					PHYSICAL DATA
					Lands and Damages: 26,000 acres, authorized mitigation
					Channels and Canals: Channel 9 feet deep,
					200 feet wide, and 236 miles long from
					Old River to Shreveport, Louisiana. Total length of
					bank protection - 273 miles
					Locks: Number - 5; Size - 84 by 705 feet
					Dams: Number - 5; Type - Tainter Gated
					Relocations: Roads (Modify one bridge)
					Railroads (Replace one and modify one bridge)

<sup>3</sup> Initial interim pool impounded.

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J. Bennett Johnston Waterway-  
Mississippi River to Shreveport, Louisiana



SUMMARIZED FINANCIAL DATA (Continued)		ACCUM PCT OF EST FED COST
Total Estimated Programmed Construction Cost	\$ 2,021,545,000	
Total Estimated Unprogrammed Construction Cost	46,855,000	
Total Estimated Project Cost	2,068,400,000	<sup>1</sup>
Allocations to 30 September 2006	\$ 1,802,372,000	
Allocations for FY 2007	1,600,000	
Allocations for FY 2008	6,888,000	
Conference Allowance for FY 2009	7,656,000	
Allocation for FY 2009	7,656,000	*
Allocations through FY 2009	1,818,516,000	<sup>1</sup> 90
Allocation Requested for FY 2010	7,000,000	90
Programmed Balance to Complete After FY 2010	TBD	
Unprogrammed Balance to Complete After FY 2010	TBD	

\* Assumed allocation. Final, actual allocations yet to be determined.

<sup>1</sup> Includes \$26,654,000 for John H. Overton Lock and Dam and \$21,653,000 for Red River Emergency Bank Protection for construction work.

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J. Bennett Johnston Waterway-  
Mississippi River to Shreveport, Louisiana

JUSTIFICATION: The Red River was a very erratic river, subject to wide fluctuations in stage and meandering because of the erodible soils. A system of dependable pools was constructed to enable navigation while work continues on channel alignment. The pools are provided by five locks and dams and the proper alignment is provided by bank and channel stabilization works. These works improve water quality, fish and wildlife habitat, and preserve lands. On 31 December 1994, a 9-foot-deep by 200-foot-wide navigation channel was opened from the Mississippi River to Shreveport. The channel provides dependable 9-foot commercial navigation depths year-round.

Navigation from the Mississippi River to Shreveport provides an artery for low-cost transportation which is an integral part of economic growth of the region. Estimated savings are based on an annual movement, as forecast, of 7,845,000 tons. Waterborne commerce tonnage on the waterway in 2006 was 9,785,000 tons including all commodities that transited any portion of the system. Commodities carried over the waterway include iron and steel products and pipe, industrial chemicals, paper and allied paper products, petroleum and petroleum products, other metals and ores, sulphur, agricultural chemicals, and grain. The public will realize an average annual savings of \$64,092,000 which will result from reduced transportation costs. Several local entities are actively involved in port development on the waterway. The City of Alexandria has constructed port facilities in Pool 2 for use by industry. The Natchitoches Parish Port in Pool 3 was opened in 1996, and a chip loading facility, general cargo dock and transit shed have been constructed at the port. The Caddo-Bossier Port in Pool 5 was opened in April 1997 and shipped 244,000 tons in 2005. Commodity movement through the port is steadily increasing. The Red River Parish Port was opened in 2002 in Pool 4. These ports will be able to accommodate tows or barges of various sizes. The usable lock dimensions were designed for a configuration of six barges with individual dimensions of 35 by 195 feet and a towboat. Larger grain and petroleum barges can also be expected to call at the ports. The project is credited with benefits derived from transportation savings from use of the waterway, flood control, damages prevented by bank stabilization, security against levee crevasses, fish and wildlife, recreation, area redevelopment, reduced maintenance on existing revetments, reduced sedimentation, irrigation, reduced costs of municipal and industrial water supply, and reduced pumping costs.

The average annual benefits are as follows:

Annual Benefits	Amount
Navigation	\$ 68,831,000
Flood Control	2,037,000
Bank Stabilization	16,602,000
Fish and Wildlife	460,000
Recreation	4,435,000
Area Redevelopment	14,808,000
Other:	
Irrigation and reduced costs of municipal and industrial water supply	53,000
Total	\$ 107,226,000

Mississippi Valley Division

Vicksburg District  
7 May 2009

J. Bennett Johnston Waterway-  
Mississippi River to Shreveport, Louisiana

FISCAL YEAR 2009: Current year funds are being used as follows:

Pools 1-5

Fausse/Natchitoches/Phillip Revetment Phase 1	\$1,301,000
Lake St. Agnes Revetment	4,110,000
Continue Mitigation	1,215,000
E&D	630,000
S&A	400,000
TOTAL	\$7,656,000

FISCAL YEAR 2010: The requested amount will be applied as follows:

Pools 1-5

Continue Mitigation	\$7,000,000
TOTAL	\$7,000,000

NON-FEDERAL COST: With the exception of the Louisiana-Arkansas Railroad Bridge Relocation and the mitigation element, local interests are required to provide all lands, easements, and rights-of-way, including a proportionate share of the cost of the bridge relocations over existing channels in accordance with the principles of Section 6 of the Bridge Alteration Act (Truman-Hobbs) of 21 June 1940, as amended by the Act of 16 July 1952, 25 percent of the cost of necessary retaining dikes for dredged materials and 50 percent of the total cost of recreation facilities. The non-Federal sponsor must comply with the requirements listed below:

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J. Bennett Johnston Waterway-  
Mississippi River to Shreveport, Louisiana

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation, and Replacement Costs
Provide lands, easements, rights-of-way, and dredged material disposal areas	\$ 41,638,000	
Modify or relocate utilities, roads, bridges (except railroad bridges), and other facilities, where necessary for the construction of the project	10,150,000	\$ 211,700
Pay one-half of the separable costs allocated to recreation (except recreational navigation) and bear all costs of operation, maintenance, repair, rehabilitation, and replacement of recreation facilities	53,480,000	1,448,000
Pay 6 percent of the first costs allocated to fish and wildlife and pay 6 percent of the costs of operation, maintenance, repair, rehabilitation, and replacement of fish and wildlife facilities	827,000 <sup>1</sup>	332,800 <sup>2</sup>
Pay 25 percent of the first cost allocated to retention dikes required for construction and maintenance dredging	2,005,000	31,200
Replacement costs		302,900
Total Non-Federal Costs	\$ 108,100,000	\$ 2,326,600

<sup>1</sup> Since the local sponsor will assume all operation and maintenance costs and this cost will exceed the 6 percent local share, there will be no local requirement toward implementation costs for Loggy Bayou increment. Implementation costs shown are for the Bayou Bodcau increment.

<sup>2</sup> 100 percent of annual management costs for Loggy Bayou and Bayou Bodcau increments.

Mississippi Valley Division

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J. Bennett Johnston Waterway-  
Mississippi River to Shreveport, Louisiana

The non-Federal sponsor has also agreed to make all required payments concurrently with project construction. Non-Federal cost associated with the scheduled portion of the project are broken down as follows:

Lands and Damages	\$ 41,638,000
Utility Relocations	9,144,000
Recreation (Other)	24,538,000
Cash Contribution	32,780,000
Recreation Facilities	(29,093,000)
Bridge Relocations	(1,006,000)
Retaining Dikes	(1,829,000)
Mitigation	(852,000)
Total	\$108,100,000

STATUS OF LOCAL COOPERATION: Formal assurances of local cooperation were furnished by the Red River Waterway Commission on 26 February 1969 and accepted on behalf of the United States on 15 April 1969. That agency was formed expressly to provide the local cooperation required for the project and has levied a 2-mill assessment to fulfill its obligations. Amended assurances covering the provisions of the Uniform Relocations Assistance and Real Property Acquisition Policies Act of 1970, Public Law 91-646, and the specific written agreement requirements of Section 221 of the Flood Control Act of 1970, Public Law 91-611, were executed by the Red River Waterway Commission on 23 May 1973 and were accepted on behalf of the United States on 14 November 1973. A cost sharing agreement covering nine recreation sites in Pools 1 and 2 was approved by the Deputy Chief of Engineers on 23 July 1985. A Memorandum of Understanding between the Corps and the local sponsor for development of these nine sites was executed in January 1986. A supplement to this cost-sharing agreement was executed in the last quarter of FY 1994 to cover the construction of three boat ramps and ancillary facilities in Pools 4 and 5 in FY 1995. In the Conference Report that accompanied the Energy and Water Development Appropriations Act of 1993, Congress directed the Corps of Engineers to prepare a supplement to the recreation master plan to serve as the project document to support the contract for recreation development in Pools 3 to 5. The Project Cooperation Agreement for recreation developments in Pools 3 to 5 was executed in April 2000.

The Red River Waterway Commission agreed by letter dated 6 September 1983 to fulfill all responsibilities of the local sponsor relative to the purchase of wildlife mitigation lands. The Louisiana Department of Wildlife and Fisheries, by letter dated 22 July 1983, agreed to assume operation and maintenance responsibilities for acquired wildlife mitigation lands. Updated letters of agreement covering the mitigation plan as presently conceived (i.e., acquisition of up to 5,000 acres in the vicinity of Loggy Bayou) were furnished by the Red River Waterway Commission and the Louisiana Department of Wildlife and Fisheries on 13 August 1990 and 17 August 1990, respectively. The Local Cooperation Agreement between the Federal Government and the State of Louisiana for the acquisition of up to 5,000 acres of mitigation lands in the vicinity of Stumpy Lake/Swan Lake/Loggy Bayou Wildlife Management Area was executed by the Red River Waterway Commission in May 1993 and by the Assistant Secretary of the Army in June 1993.

The Project Cooperation Agreement covering the acquisition of mitigation lands in the vicinity of the Bayou Bodcau Wildlife Management Area was executed in June 1996.

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Mississippi River to Shreveport, Louisiana

The Red River Waterway Commission furnished a letter of agreement dated 10 October 1997 supporting additional mitigation lands in Red River and Caddo Parishes that are to be considered adjacent to the Loggy Bayou Wildlife Management Area. These new areas were directed in the Water Resources Development Act of 1996. A report detailing a plan of action to acquire these lands was processed as directed by the legislation. Amendment No. 1 to the June 1993 Loggy Bayou Area Local Cooperation Agreement covering the initial acquisition effort in Caddo Parish was executed by the Red River Waterway Commission and the Assistant Secretary of the Army in October 1999. The Water Resource Development Act of 2000 authorized the acquisition of mitigation lands in any of the parishes that comprise the Red River Waterway District, consisting of Avoyelles, Bossier, Caddo, Grant, Natchitoches, Rapides, and Red River Parishes. The WRDA Act of 2007 increased the authorization to \$33,912,000. This authorized the purchase and reforestation of cleared lands in addition to forested lands and allowed incorporation of wildlife and forestry management practices to improve species diversity on mitigation lands.

The Red River Waterway Commission is providing its share of the project first costs by furnishing the necessary lands, easements, and rights-of-way, performing utility relocations as needed, and providing cash contributions for recreation facilities, bridge relocations, and retaining dikes. They will contribute their share of retention dike construction for maintenance dredging by cash contribution and they will provide the lands, easements, and rights-of-way for these dikes.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate (Corps of Engineers) of \$1,960,300,000 is a increase of \$3,235,000 from the latest estimate (\$1,957,065,000) presented to Congress (FY 2009). This change includes the following item.

Item	Amount
Price Escalation on Construction Features	\$3,235,000
Total	\$3,235,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final statement was filed with the Council on Environmental Quality on 11 May 1973. The Environmental Impact Statement is included in the project "Red River Waterway." Supplement No. 1 to the Environmental Impact Statement was prepared for the Mississippi River to Shreveport reach of the J. Bennett Johnston Waterway due to a change in project alignment from the authorizing document, and to include updated environmental information due to a reanalysis and to include results of the ground-water studies. The final Supplement No. 1 was filed with the Council on Environmental Quality on 18 February 1977, and published in the Federal Register on 25 February 1977. A third Environmental Impact Statement (Supplement No. 2) was submitted to the Environmental Protection Agency in final form on 10 November 1983, and the record of decision was signed by the Division Engineer on 4 January 1984.

An Environmental Assessment was prepared for Pool No. 2 to present the results of investigations of the impacts of the 58- and 64-foot elevations. The Environmental Assessment resulted in a Finding of No Significant Impact which allowed a design change from 58- to 64-foot pool elevations. Following review by the public, the Finding of No Significant Impact was signed on 21 April 1982.

An Environmental Assessment of the Loggy Bayou Area mitigation increment has been performed. This area was not included in the original mitigation report. The Environmental Assessment was required to satisfy the National Environmental Policy Act. The Environmental Assessment resulted in a Finding of No Significant Impact, which was signed 11 January 1993. Environmental Assessments are required to present the impacts associated with the construction of riverside levee protection berms in Pools 3 and 5. The berms are necessary to ensure the integrity of the existing flood control levee system. The Environmental

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J. Bennett Johnston Waterway-  
Mississippi River to Shreveport, Louisiana

Assessment for the berms in Pool 3 resulted in a Finding of No Significant Impact which was signed on 16 July 1992. The Environmental Assessment for the berms in Pool 5 also resulted in a Finding of No Significant Impact which was signed on 24 May 1993.

Environmental Assessments were required for the Bayou Bodcau mitigation increment and the Nantachie Lake drawdown structure to satisfy National Environmental Policy Act requirements. The Bayou Bodcau mitigation Environmental Assessment resulted in a Finding of No Significant Impact that was signed on 28 April 1995, and the Nantachie Lake drawdown structure Environmental Assessment was completed in FY 1996, also resulting in a Finding of No Significant Impact. An Environmental Assessment for the mitigation lands to be acquired in Caddo and Red River Parishes will be performed. An assessment of the initial tract in Caddo Parish has been completed, and resulted in a Finding of No Significant Impact that was signed on 23 September 1999.

A Final Environmental Assessment has been prepared covering instream disposal of maintenance dredge material in Pools 3, 4, and 5 in lieu of disposal in contained upland areas. A Finding of No Significant Impact was signed on 19 March 1996.

A Final Environmental Assessment has been prepared covering maintenance dredging of the oxbow lakes designated for preservation in project documentation. The dredging consists of maintaining a 5-foot-deep by 20-foot-wide connection from the river into the oxbow lakes in order to achieve all project benefits. The dredged material will be disposed of instream. A Finding of No Significant Impact was signed 18 November 1997.

An Environmental Assessment and Finding of No Significant Impact are included in Supplement No. 2 to the Recreation Master Plan which presents the revised plan for recreation development in Pools 3, 4, and 5. Supplement No. 2 was approved by the Mississippi River Commission on 1 May 1998. The Finding of No Significant Impact was signed on 6 October 1997. An Environmental Assessment was performed in Fiscal Year 2000 for the Hampton's Lake Recreation Area that was added to the Pools 3 to 5 Master Plan by August 1999, Supplement No. 3. A Finding of No Significant Impact was signed on 24 May 2000.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in Fiscal Year 1971 and allotted in Fiscal Year 1972. Funds to initiate construction were appropriated in Fiscal Year 1973.

The Energy and Water Development Appropriations Act of 1996 authorized a Regional Visitors Center in the vicinity of Shreveport. The Energy and Water Development Appropriations Act of 1997 provided \$3,000,000 and directions to initiate design and construction of the Regional Visitors Center in Fiscal Year 1997. The 1997 Appropriations Act also provided funds to initiate design of the previously authorized Project Visitors Center at Grand Ecore. The Fiscal Year 2001 Appropriations Act (P.L. 106-377) directed the use of available Construction funds, in addition to the funds provided by the Fiscal Year 1997 Appropriations Act, to complete design and construction of the Regional Visitor Center at an estimated cost of \$6,000,000. Construction of the Project Visitors Center at Grand Ecore was completed in Fiscal Year 2003 and the Regional Visitors Center at Shreveport was completed in the 1st quarter of Fiscal Year 2006.

The Master Plan Supplement No. 3 covering adjustments to cost-shared recreation facilities in Pools 3, 4, and 5 was approved by the District Commander in September 1999. The Project Cooperation Agreement covering the same recreation facilities presented in Supplement Nos. 2 and 3 was executed in April 2000. Recreation Master Plan Supplement No. 4 covering minor transfers of facilities between approved sites, with no net change in quantity of facilities, was approved by the District Commander in April 2003.

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J. Bennett Johnston Waterway-  
Mississippi River to Shreveport, Louisiana

The Water Resources Development Act of 1996 increased the total cost of the Loggy Bayou mitigation increment to \$10,500,000. It further provided that lands that are purchased adjacent to the Loggy Bayou Wildlife Management Area may be located in Caddo Parish or Red River Parish. The Water Resources Development Act of 1996 also modified the waterway project to require the Secretary to dredge or perform other related work as required to reestablish and maintain access to, and the environmental value of, the bendway channels designated for preservation in previous project documentation. Further, this work shall be carried out in accordance with the local cooperation requirements for other navigation features of the project. These project modifications are subject to completion of reports showing the work is technically sound and environmentally and economically acceptable, as applicable. The favorable bendway channel (oxbow lakes) dredging report has been returned by OMB for the development of supplemental environmental data and resubmission, and was resubmitted in late Fiscal Year 2001.

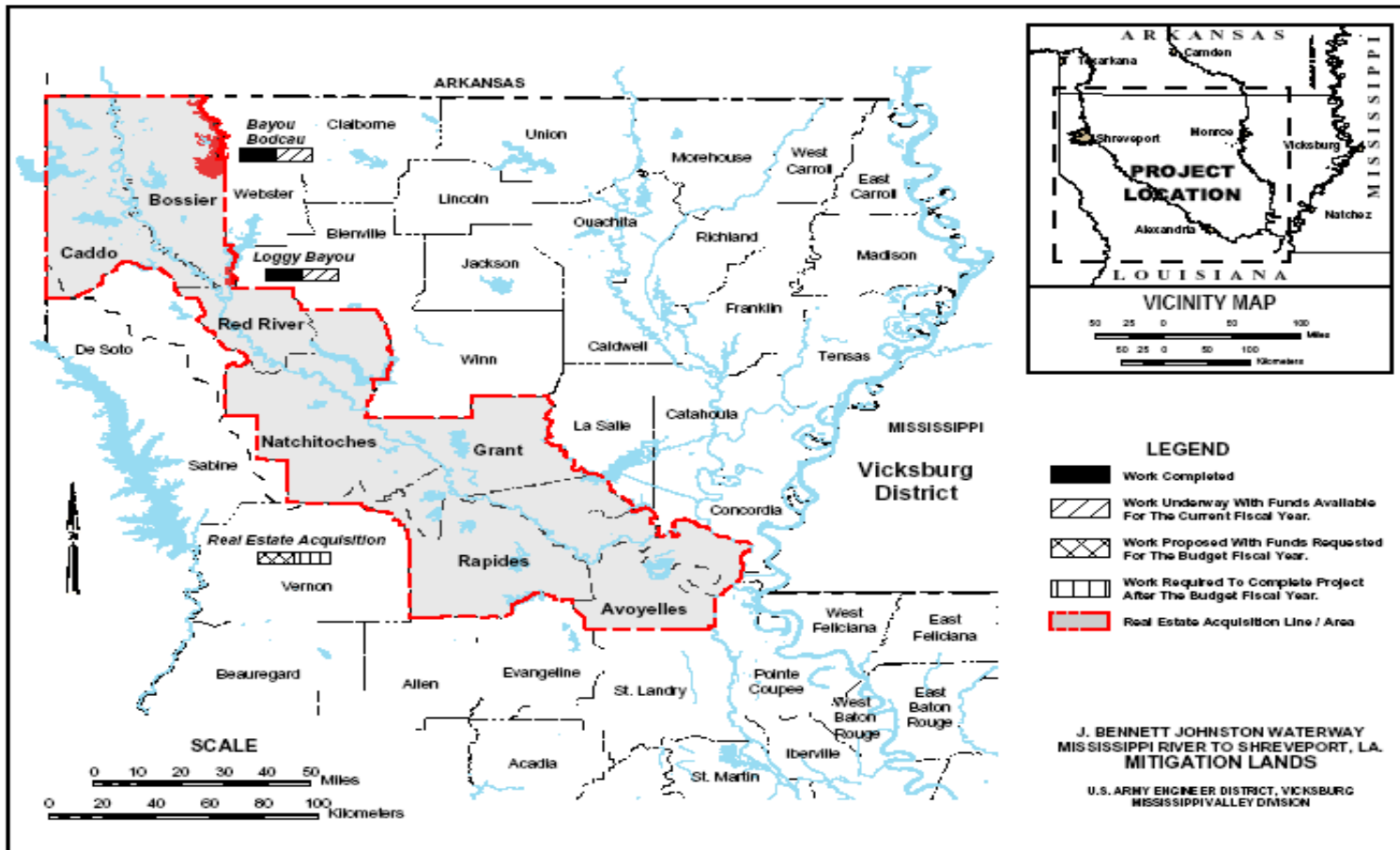
The Water Resources Development Act of 1986, as modified by the Water Resources Development Acts of 1988, 1990 and 2000, and the Fiscal Year 1990 and Fiscal Year 1994 Energy and Water Development Appropriations Acts, authorized the wildlife mitigation project for the waterway above mile 104 to Shreveport, Louisiana, at a total cost of \$9,420,000. The Water Resources Development Act of 1990 modifies the mitigation project by authorizing the Secretary of the Army to acquire an additional 12,000 acres adjacent to or close to the Bayou Bodcau Wildlife Management Area. The real estate design memorandums, which present the real estate requirements for the Loggy Bayou area and Bayou Bodcau area mitigation lands, have been approved. A supplemental report, which was submitted prior to passage of the Fiscal Year 1990 Energy and Water Development Appropriations Act and the Water Resources Development Act of 1990, recommends the acquisition of only 300 acres in the Stumpy Lake area and no lands in the vicinity of the Bayou Bodcau Wildlife Management Area. In the Energy and Water Development Appropriations Act of 1994, the Corps was directed to reimburse the project local sponsor annually for the Federal share of management costs for the Bayou Bodcau mitigation area. The Water Resources Development Act of 2000 modifies the mitigation project by authorizing the purchase of mitigation land from willing sellers in any of the parishes that comprise the Red River Waterway District, consisting of Avoyelles, Bossier, Caddo, Grant, Natchitoches, Rapides, and Red River Parishes. The WRDA Act of 2007 increased the authorization to \$33,912,000. This authorized the purchase and reforestation of cleared lands in addition to forested lands and allowed incorporation of wildlife and forestry management practices to improve species diversity on mitigation lands.

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J. Bennett Johnston Waterway-  
Mississippi River to Shreveport, Louisiana





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J. Bennett Johnston Waterway-  
Mississippi River to Shreveport, Louisiana

APPROPRIATION TITLE: Construction – Channels and Harbors (Navigation)

PROJECT: Mississippi River Between the Ohio and Missouri Rivers (Regulating Works), Missouri and Illinois (Continuing)

LOCATION: The project involves improvement of the Mississippi River from the mouth of the Ohio River to the mouth of the Missouri River at river mile 195 above the mouth of the Ohio River. The project covers the following counties: (Missouri) St. Louis, Jefferson, Ste. Genevieve, Perry, Cape Girardeau, Scott, Mississippi; (Illinois) Madison, St. Clair, Monroe, Randolph, Jackson, Union, Alexander, and Pulaski.

DESCRIPTION: The project consists of a navigation channel 9 feet deep and not less than 300 feet wide with additional width in bends, from the mouth of the Ohio River to the mouth of the Missouri River, a distance of approximately 195 miles. Project improvements are achieved by means of dikes, revetment, construction dredging, and rock removal. All work is programmed.

AUTHORIZATION: River and Harbor Acts of 1910, 1927, and 1930.

REMAINING BENEFIT-REMAINING COST RATIO: 8.0 to 1 at 7 percent.

TOTAL BENEFIT-COST RATIO: 5.3 to 1 at 7 percent.

INITIAL BENEFIT-COST RATIO: 7.2 to 1 at 2.5 percent (FY 1961).

BASIS OF BENEFIT-COST RATIO: Benefits are based on the Upper Mississippi River Master Plan Report of 1982 at 1986 price levels.

Mississippi River Division

St. Louis District  
7 May 2009

Mississippi River Between the Ohio and Missouri  
Rivers (Regulating Works), Missouri and Illinois

SUMMARIZED FINANCIAL DATA		ACCUM PCT OF EST FED COST	STATUS (1 Jan 2009)	PCT CMPL	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost	\$350,000,000		Entire Project	80	TBD
Estimated Non-Federal Cost	0				
Cash Contributions	0				
Other Cost	0				
PHYSICAL DATA					
Total Estimated Project Cost	\$350,000,000		195 miles of navigation channel Ohio River to mouth of Missouri River 9 feet deep x 300 feet wide		
Allocations to 30 September 2006	\$211,731,000				
Allocation for FY 2007	7,560,000				
Allocation for FY 2008	1,966,000				
Conference Allowance for FY 2009	4,795,000				
Allocation for FY 2009	4,795,000				
Allocations to 30 September 2009	226,052,000	65			
Allocation Requested for FY 2010	580,000	65			
Programmed Balance to Complete After FY 2010	TBD				
Unprogrammed Balance to Complete After FY 2010	0				

JUSTIFICATION: The Mississippi River between the Ohio and Missouri Rivers is a major artery of the inland waterway system. Commerce in this reach has increased from 4,500,000 tons in 1945 to 110,243,075 tons in 2006 worth approximately \$15 billion. Commerce is expected to increase to 167,000,000 tons by the year 2020; therefore, it is essential that construction of project works be continued at a rate which will insure 9-foot channel depths for a year-round navigation season. The average annual benefits, all navigation, are \$261,809,000.

Mississippi River Division

St. Louis District  
7 May 2009

Mississippi River Between the Ohio and Missouri  
Rivers (Regulating Works), Missouri and Illinois

FISCAL YEAR 2009: Current year funds will be used as follows:

Initiate Eliza Point/Greenfield Bend Phase 2 dike and revetment contract	\$2,600,000
Continue bankline stabilization through tree planting at Thompson Bend Riparian Corridor	70,000
Initiate and complete Grand Tower Phase 4 dike and revetment contract	1,212,000
Planning, Engineering, and Design	657,000
Construction Management	256,000
Total	\$4,795,000

FISCAL YEAR 2010: The requested amount will be applied as follows:

Construct Eliza Point/Greenfield Bend Phase 2 Dike and Revetment contract	\$445,000
Continue bankline stabilization through tree planting at Thompson Bend Riparian Corridor	70,000
Planning, Engineering, and Design	30,000
Construction Management	35,000
Total	\$580,000

NON-FEDERAL COST: None.

STATUS OF LOCAL COOPERATION: Not applicable.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of \$350,000,000 is an increase of \$81,000,000 from the latest estimate of \$269,000,000 presented to Congress (FY 2009). This change includes the following item:

Item	Amount
Price Escalation on Construction Features	\$ 1,982,000
Post Contract Award and Other Estimating Adjustments	79,018,000
Total	\$81,000,000

Mississippi River Division

St. Louis District  
7 May 2009

Mississippi River Between the Ohio and Missouri  
Rivers (Regulating Works), Missouri and Illinois

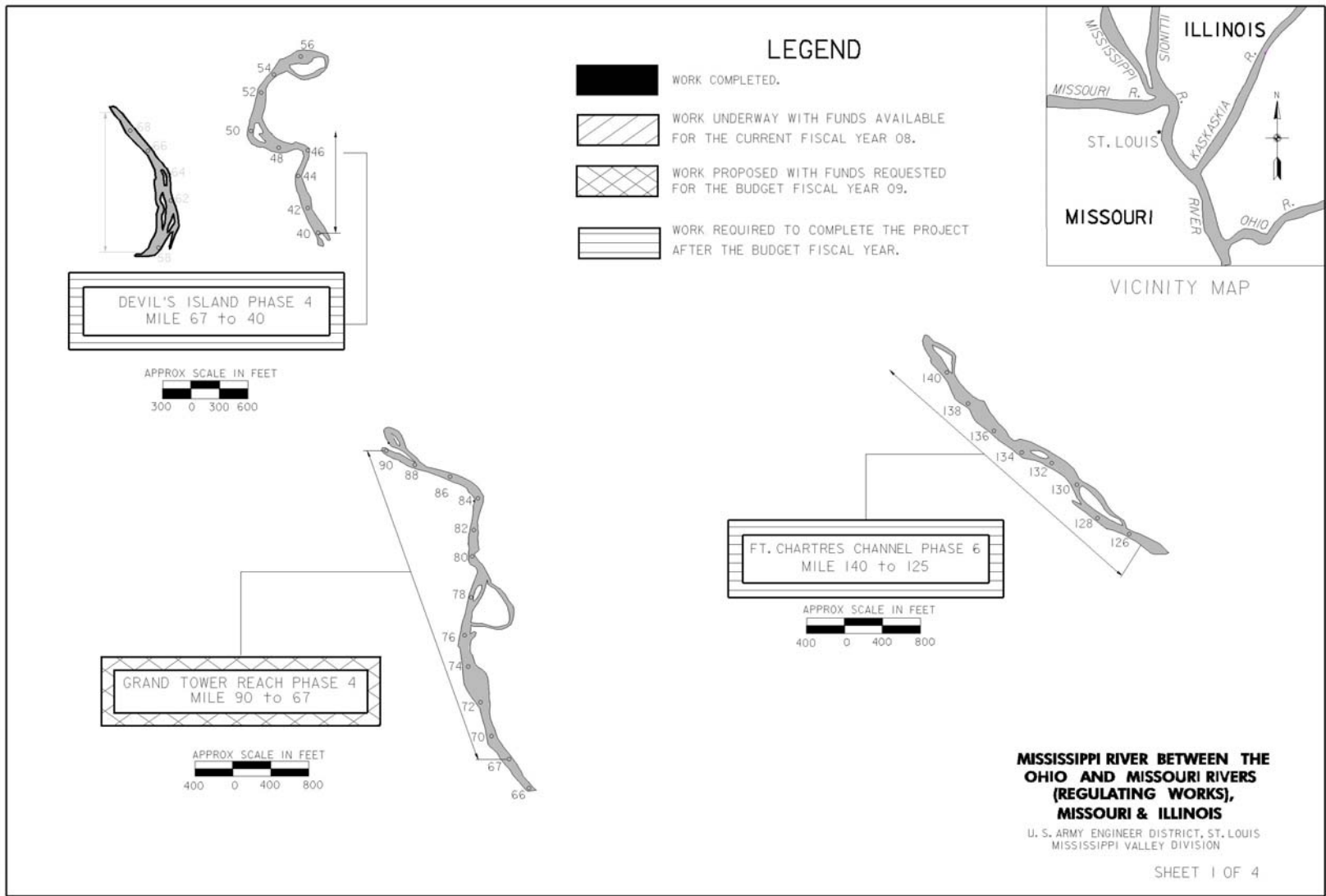
STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement was filed with the Council on Environmental Quality on 8 April 1976 and published in the Federal Register on 23 April 1976. An Environmental Analysis was completed for the Rock Removal and Finding of No Significant Impact signed on 28 October 1988.

OTHER INFORMATION: Planning was initiated prior to 1910, and construction was initiated in 1910. This project requires no mitigation.

Mississippi River Division

St. Louis District  
7 May 2009

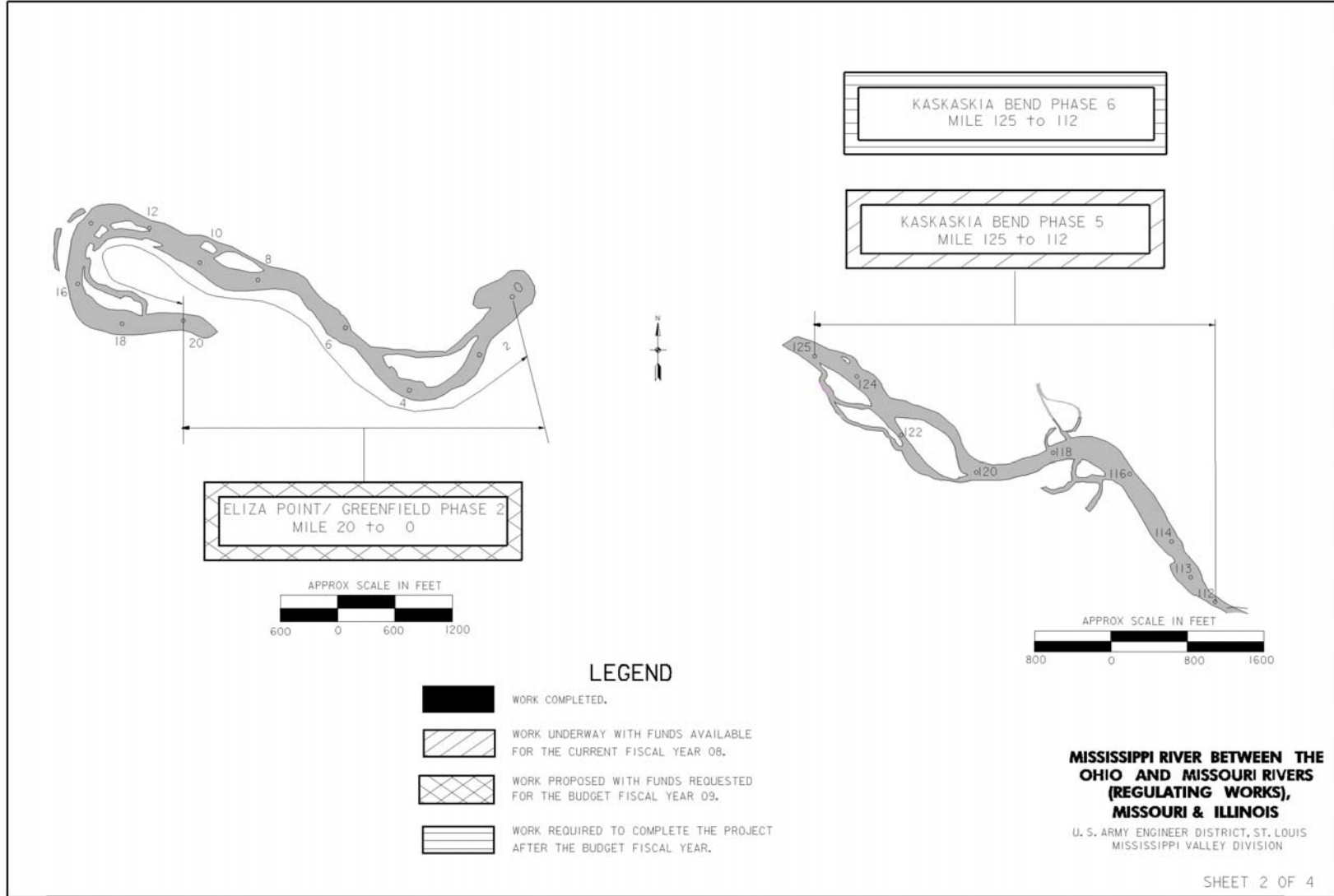
Mississippi River Between the Ohio and Missouri  
Rivers (Regulating Works), Missouri and Illinois



Mississippi River Division

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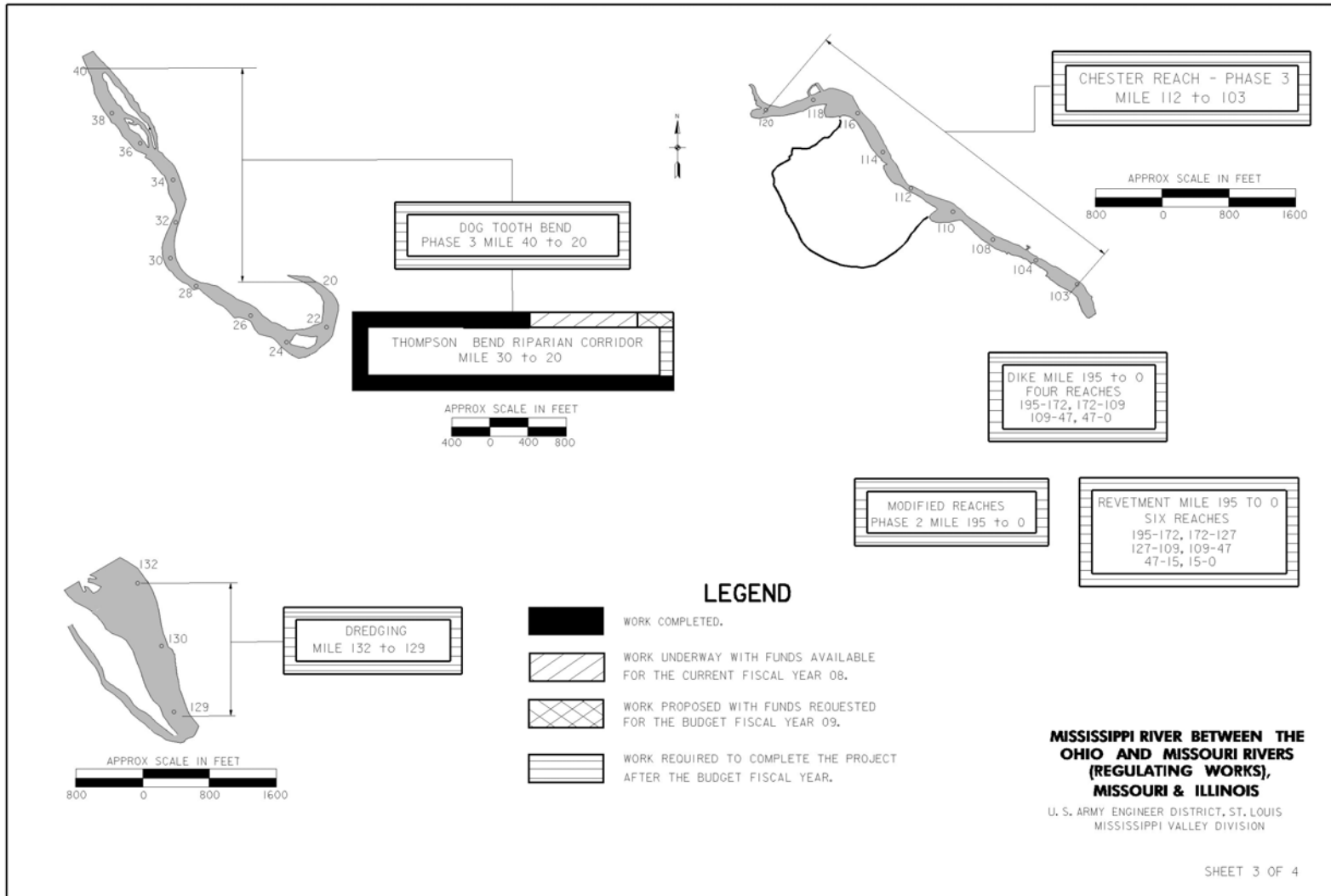
Mississippi River Between the Ohio and Missouri Rivers (Regulating Works), Missouri and Illinois



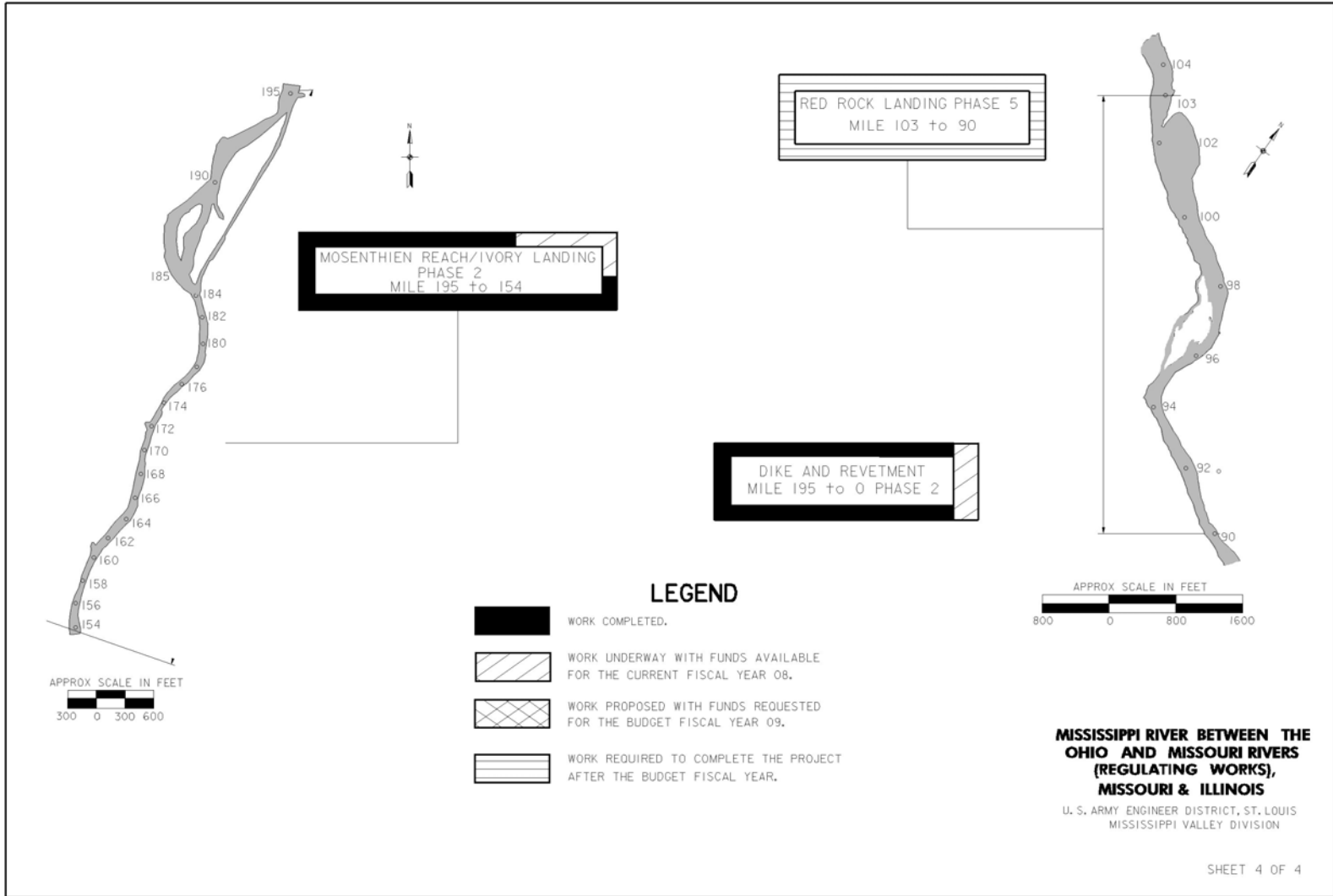
Mississippi River Division

St. Louis District  
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Mississippi River Between the Ohio and Missouri Rivers (Regulating Works), Missouri and Illinois







# AQUATIC ECOSYSTEM RESTORATION

# INVESTIGATIONS

APPROPRIATION TITLE: General Investigations, Fiscal Year 2010

Mississippi Valley Division

Study	Total Estimated Federal Cost \$	Allocation Prior To FY 2007 \$	Allocation for FY 2007 \$	Allocation for FY 2008 \$	Allocation for FY 2009 \$	Allocation Requested for FY 2010 \$	Additional to Complete After FY 2010 \$
<b>SURVEYS - CONTINUING</b>							
<b>ILLINOIS</b>							
Illinois River Basin Restoration, IL Rock Island District	7,623,000	3,763,000	750,000	725,000	382,000	400,000	TBD

The Illinois River Basin Restoration Study encompasses the entire Illinois River watershed within the State of Illinois, a nationally significant ecosystem. The purpose of the Illinois River Basin Restoration Study includes the development of a comprehensive plan for the restoration of the Illinois River watershed and evaluation and construction of critical restoration projects within the basin. The feasibility cost sharing agreement with the State of Illinois was signed 31 July 2002.

The Comprehensive Plan was transmitted to Congress for information in June 2008. The Plan addresses habitat, water quality, navigation, and economic opportunities. Major components include fish and wildlife conservation and rehabilitation measures; land and water resources enhancement; sediment transport; sediment removal and disposal measures; long-term resource monitoring; and a computerized inventory and analysis. The Illinois River Basin Critical Restoration Projects authorized in WRDA 2000, Section 519, (as amended by WRDA 2007) are continuing and no additional authority is required.

Sixteen critical restoration projects have been identified to date. These projects were selected based on assessment of restoration needs with involvement of Federal and non-Federal partners. Critical restoration projects are currently being evaluated through feasibility, designed, and two are proceeding with construction using Construction funds.

Fiscal Year 2009 funds are being used to continue feasibility level analysis of critical restoration projects (i.e., Senachwine Creek, Starved Rock Pool, Blackberry Creek, Alton Pool, and Kankakee River) and complete feasibility at Waubonsie Creek.

Funds requested for Fiscal Year 2010 will be used to complete critical restoration project feasibility efforts at Alton Pool and Blackberry Creek, and continue critical restoration project feasibility efforts at Starved Rock Pool, Senachwine Creek, Kankakee River, and Ten Mile Creek at an efficient rate in concert with the non-Federal sponsor.

The estimated cost of the feasibility phase is \$11,020,000. In accordance with Section 519, WRDA 2000, this study is to be shared on a 65-35 percent basis by Federal and non-Federal interests. A summary of study cost sharing is as follows:

Total Estimated Study Cost	\$11,480,000
Reconnaissance Phase (Federal)	460,000
Feasibility Phase (Federal)	7,163,000
Feasibility Phase (Non-Federal)	3,857,000

The recon phase was completed in July 2002. The completion date for feasibility studies for Critical Restoration Projects is being determined.

7 May 2009

APPROPRIATION TITLE: Investigations, Fiscal Year 2010

Mississippi Valley Division

Study	Total Estimated Federal Cost \$	Allocation Prior To FY 2007 \$	Allocation FY 2007 \$	Allocation FY 2008 \$	Allocation FY 2009 \$	Tentative Allocation FY 2010 \$	Additional to Complete After FY 2010 \$
LOUISIANA							
Louisiana Coastal Area -- Ecosystem Restoration, LA New Orleans District	157,500,000	41,667,000 <sup>a</sup>	2,500,000	5,452,000	8,604,000	25,000,000	TBD

<sup>a/</sup> Includes \$11 million provided in Department of Defense, Emergency Supplemental Appropriations to Address Hurricanes in the Gulf of Mexico, and Pandemic Influenza Act, 2006, PL109-148, December 2005. \$1M was executed by S&T Program for Hurricane Assessment.

LOCATION: Over 1 million acres of Louisiana's coastal wetlands have been lost since the 1930's; another one-third of a million acres could be lost over the next 50 years unless large-scale corrective actions are taken. The area supports a complex, coastal wetlands and barrier island ecosystem, which is an environmental resource of national significance. The coastal land loss results from human intervention and natural processes, including: (1) efforts to maintain a Federal navigation channel from the Gulf of Mexico to New Orleans and farther up the Mississippi River; (2) the implementation of flood and storm damage reduction projects by or for communities in the Louisiana coastal plain; (3) oil and gas development, including thousands of miles of canals built by private interests for exploration and production; (4) natural subsidence and erosion of the lands where the Mississippi delta meets the Gulf of Mexico; and (5) storms associated with winter colds fronts, tropical storms, and hurricanes.

JUSTIFICATION: The Louisiana Coastal Area (LCA) Ecosystem Restoration Study Report was completed in November 2004. Feasibility cost-sharing agreements have been executed between the Federal Government and the State of Louisiana, Department of Natural Resources, which is the non-Federal sponsor. A near-term plan of studies and projects was developed through a public involvement process and working closely with other Federal agencies and the State of Louisiana. A Chief of Engineers Report on this near-term plan was signed on 31 January 2005, and was then authorized in the Water Resources Development Act of 2007 (WRDA 2007). The plan emphasizes projects that involve diverting and managing freshwater and the associated sediment for restoration purposes. Wetlands created or sustained in this manner can help restore/sustain nesting, feeding and resting habitats for fish and wildlife, including threatened and endangered species (eagle, sturgeon, brown pelican, piping plover). The plan also includes barrier Island restoration, which can favorably impact nesting and resting cover for brown pelican and piping plover.

WRDA 07 authorized fifteen near-term features aimed at addressing the critical restoration needs of coastal Louisiana, with five of the features designated as critical restoration features. In addition, it authorized demonstration projects, a beneficial use of dredged material program, project modifications, and a science and technology program (S&T). The overall goal of the LCA S&T Program is to inform and guide the LCA Ecosystem Restoration Program (LCA Program) both in the near-term and in the long-term. It is independent of, yet responsive to, the State and Federal managers of the LCA Ecosystem Restoration Program, who are ultimately accountable for ensuring that the restoration effort is cost-effective and meets the most critical ecological needs. The LCA S&T Program supports the LCA Program by providing the necessary science support aimed at improving implementation. It also evaluates the validity of scientific hypotheses and assumptions regarding the effectiveness of current approaches to the restoration of this ecosystem, thereby reducing uncertainty over time.

7 May 2009

Louisiana Coastal Area -- Ecosystem Restoration, LA – Continued

This budget request continues the restoration planning efforts that are currently underway. The LCA Program will construct significant restoration features, undertake demonstration projects, study potentially promising large-scale, long-term concepts, and take other needed actions to restore the ecosystem. All construction activities under the plan will be subject to approval of feasibility level of detail documents by the Secretary of the Army.

DESCRIPTION: In June 2006, two feasibility cost share agreements were signed: one for the Beneficial Use of Dredged Material Program feasibility study, and another for the Barataria Basin Barrier Shoreline feasibility study. In November 2008, a feasibility cost share agreement was signed that provides for the production of one feasibility reports for each six of the 15 LCA features. Execution of feasibility cost share agreements for the remaining 9 features, are scheduled to be executed in late Fiscal Year (FY) 2009.

\* The Beneficial Use of Dredged Material Program will provide the framework, process and procedures for selecting, funding and implementing projects over a 10-year period that could create over the 10-year life of the Program an estimated 21,000 acres of coastal wetlands. Dredged material will be acquired from maintenance activities of Federal waterways. This study is being undertaken pursuant to the execution of a cost sharing agreement dated June 2006. Benefits to EFH, threatened/endangered species, colonial nesting birds. In FY10, the study will be completed.

\* The Barataria Basin Barrier Shoreline Restoration feature consists of headland and barrier island restoration. Restoring and protecting these features helps preserve the western boundary of the Barataria Basin, preserve natural hydrologic function, provide habitat crucial to migratory birds, endangered species, commercial and recreational fisheries as well as contributing to the lines of defense for risk reduction to Barataria Basin interior wetlands and transportation infrastructure. Benefits to threatened/endangered species, colonial nesting birds. This study is being undertaken pursuant to the execution of a cost sharing agreement dated June 2006. In FY 10, the study will be completed.

\* The Multipurpose Operation of Houma Navigation Lock Canal (HNC) feature involves the multi-purpose operation of the authorized HNC Lock, located at near the southern end of the inland section of the HNC. The Morganza to the Gulf Hurricane Protection project includes construction of the lock, but does not include the multi-purpose operation of the lock. The objective of this project is to make more efficient use of Atchafalaya River waters and sediment flow, as well as maintain salinity regimes favorable for area wetlands. The structure would be operated to restrict saltwater intrusion and to aid in the distribution of freshwater and sediment during times of high Atchafalaya River flow. The proposed HNC project is designed to limit saltwater intrusion, but with minor modification in operations would provide additional benefits to the wetlands by increasing retention time of Atchafalaya River water in the Terrebonne Basin wetlands. An increased retention time would provide additional sediment and nutrients to nourish the wetlands and would benefit the forested wetlands, in addition to the fresh, intermediate, and brackish marshes adjacent to the lock and canal; the Lake Boudreaux wetlands to the north; the Lake Mechant wetlands to the west; and the Grand Bayou wetlands to the east. Benefits to threatened/endangered species, colonial nesting birds.

\* The Terrebonne Basin Barrier Shoreline Restoration feature consists of barrier island restoration of the Timbalier and Isle Derniers barrier island chains. Restoring and protecting these features helps preserve the southern boundary of the Terrebonne Basin, preserves natural hydrologic function, provides and protects habitat crucial to migratory birds, endangered species, commercial and recreational fisheries, as well as contributing to the lines of defense for risk reduction to the interior wetlands of Terrebonne Basin and transportation infrastructure. Benefits to threatened/endangered species, colonial nesting birds. In FY 10, the study will be completed.

7 May 2009

Louisiana Coastal Area -- Ecosystem Restoration, LA – Continued

- \* The Small Diversion at Convent/Blind River restoration project feature involves a small diversion (up to 5000 cfs) from the Mississippi River into Blind River through a new control structure. The objective of this project is to introduce sediment and nutrients into the southeast portion of Maurepas Swamp to facilitate organic deposition in the swamp, improve biological productivity, and prevent further swamp deterioration. The project will also benefit threatened/endangered species and colonial nesting birds. In FY 10, the study will be completed.
- \* The Amite River Diversion Canal Modification restoration project feature involves the construction of gaps in the existing dredged material banks of the Amite River Diversion Canal. The objective of this project is to allow waters to introduce additional nutrients and sediment into western Maurepas Swamp to facilitate organic deposition, improve biological productivity, and prevent further swamp deterioration. The exchange of flow would occur during high flow events on the river. This project would also provide benefits to threatened/endangered species and colonial nesting birds. In FY10, the study will be completed.
- \* The Medium Diversion at White Ditch restoration project feature, located at White Ditch, downstream of the existing Caernarvon diversion structure, provides for a medium diversion (5,000 – 15,000 cfs) from the Mississippi River into the central River aux Chenes area using a controlled structure. The objective of the project is to provide additional freshwater, nutrients, and fine sediment to the area between the Mississippi River and River aux Chenes ridges. The introduction of additional freshwater would facilitate organic sediment deposition, improve biological productivity, and prevent further deterioration of the marshes and provide benefits to essential fish habitat , threatened/endangered species and colonial nesting birds. In FY 10, a draft report will be completed.
- \* The Convey Atchafalaya River Water to Northern Terrebonne Marshes restoration project feature would increase existing Atchafalaya River influence to central (Lake Boudreaux) and eastern (Grand Bayou) Terrebonne marshes via the GIWW by introducing flow into the Grand Bayou Basin. This may be accomplished by enlarging the connecting channel (Bayou L'Eau Bleu) to capture as much of the surplus flow (max. 2000 to 4000 cfs) that would otherwise leave the Terrebonne Basin. Gated control structures would be installed to restrict channel cross-sections to prevent increased saltwater intrusion during the late summer and fall when Atchafalaya River influence is typically low. Some auxiliary freshwater distribution structures may be included. This project also includes increasing freshwater supply through repairing banks along the GIWW, enlarging constrictions in the GIWW, and diverting additional Atchafalaya River freshwater through the Avoca Island Levee and into Bayou Chene/GIWW system. Benefits to threatened/endangered species and colonial nesting birds are in addition to wetlands benefits. In FY 10, a draft report will be completed.
- \* The Land Bridge between Caillou Lake and Gulf of Mexico feature would maintain the natural hydrologic barrier between the Gulf and Caillou Lake and associated Terrebonne Basin wetlands as well as allow increased freshwater influence from the Atchafalaya River waters flowing eastward into Four League Bay. Project features may to be considered include armoring the Gulf shoreline, and rock armoring or marsh creation to plug/fill broken marsh to preserve the integrity of the land bridge and increase freshwater influences. Coastal marsh would be protected, protects habitat crucial to migratory birds, and the bald eagle and essential fish habitat would also benefit. Benefits to threatened/endangered species, colonial nesting birds. In FY 10, a draft report will be completed.
- \* The Gulf Shoreline at Point Au Fer Island feature provides for stabilizing the Gulf shoreline of this island, thereby precluding the formation of direct connections between the Gulf and Four League Bay, a situation that would lead to increasing salinities of island and inland coastal wetlands influenced by Atchafalaya River water. Protecting this island also protects habitat crucial to migratory birds, and provides storm surge protection to the southwestern corner of the Terrebonne Bay wetland system. In FY 10, a draft report will be completed.

7 May 2009

Louisiana Coastal Area -- Ecosystem Restoration, LA – Continued

- \* The Modification to Caernarvon feature will increase wetland creation and protection outputs for this existing structure thru changes in the structure's operation. Currently, the structure operates on average at about ½ of its capacity to maintain salinity gradients. The wetlands of St. Bernard and Plaquemines Parishes that suffered extensive losses from Hurricane Katrina will be directly benefitted by the added sediments and freshwater introduced from the Mississippi River by increasing the freshwater introduction volume. The bald eagle and essential fish habitat are expected to benefit. In FY 10, the study will be completed.
- \* The Modification to Davis Pond feature will increase wetland creation and protection outputs for this existing structure thru changes in the structure's operation. The structure, operating on average at about ½ of its capacity, maintains salinity gradients in the central Barataria Basin. In addition to wetland creation, the freshwater wetlands of the upper Barataria Basin will be directly benefitted by the added sediments and freshwater introduced from the Mississippi River. The bald eagle and essential fish habitat are also expected to benefit. In FY 10, the study will be completed.
- \* The Small Bayou Lafourche Reintroduction feature consists of increasing channel flows by introducing 1,000 cfs of Mississippi River water into the Bayou at Donaldsonville to mimic the actions of a river crevasse. The introduction method will be determined as a study output. Dredging and bank stabilization would be required to control water levels and maintain bank stability and a sediment trap and weirs are also features. Projections are that 2,500 acres of coastal marsh would be protected, thousands of acres would be benefitted as would the bald eagle and essential fish habitat. The State of Louisiana intends to complete the study and perform construction. Benefits to threatened/endangered species, colonial nesting birds. In FY 10, a draft report will be completed.
- \* The Medium Diversion at Myrtle Grove with dedicated dredging project consists of diverting 2,500 to 15,000 cfs from the Mississippi River into the Barataria Basin thru a box culvert system and using 2 mcy of Mississippi River material annually for several years to create marsh wetlands. As authorized, this feature is expected to deliver benefits in the range of 11,500 acres and would benefit EFH, threatened/endangered species, colonial nesting birds. In FY 10, a draft report will be completed.
- \* The Small Diversion at Hope Canal is expected to enhance approximately 36,000 acres of Maurepas Swamp wetlands primarily by introducing approx 5,000 cfs from the Mississippi River. Project features include two box culverts; a receiving pond reinforced with riprap; and a 50-foot wide, and a 10-foot deep outflow channel roughly 27,500 feet long that will run from the river to U.S. Interstate 10. Benefits to threatened/endangered species, colonial nesting birds. In FY 10, a draft report will be completed.
- \* The Mississippi River – Gulf Outlet (MRGO) environmental restoration feature involves the construction of shoreline protection measures such as rock breakwaters along the north bank of the MRGO and along important segments of the southern shoreline of Lake Borgne. As a result of the recently completed MRGO closure structure and WRDA directive to complete an ecosystem restoration study (WRDA 2007-Title VII, Sect 7013), this study will be held in abeyance until a determination is made under the Section 7013 study on how to proceed.
- \* The Mississippi River Hydro/Delta Management feature is a combination of the Mississippi River Hydrodynamic Model and the Mississippi River Delta Management Study features. This combined feature would provide a model to assess the effects on navigation and sediment dynamics along the Mississippi River mainstem associated with combinations of Mississippi River diversions. Model outputs would also be used to formulate and assess management options for the Delta. In FY 10, an initial draft report will be completed.

7 May 2009



Louisiana Coastal Area -- Ecosystem Restoration, LA – Continued

FY 10 funds will be used to support LCA Program studies by continuing identification of monitoring, modeling, planning tools needed to support analyses of the coastal ecosystem of Louisiana and Mississippi including the role of coastal features in storm damage reduction. Activities that will be undertaken in FY10 include beginning an assessment of historical water quality data sets associated with freshwater diversions, updating and enhancing environmental benefit assessment techniques, and further refining the role of emergent aquatic vegetation in storm damage mitigation and levee protection. Additionally, in support of and to be funded from LCA MS River Hydro/Delta Management investigation, continuing from FY09, is the interagency regional modeling team's work to address hydraulic and sediment transport issues within the Mississippi River with regards to proposed river diversions.

To assure the scientific defensibility of products, FY 10 funds will also be used to support a Science Board, and a Science Coordination Team.

SUMMARIZED FINANCIAL DATA:

The estimated cost of preparing the Near-Term Program follow-on feasibility studies is \$185,000,000.

Total Estimated Study Cost (50/50)	\$185,000,000	Total Estimated PED Cost (65/35)	\$73,300,000
Reconnaissance Phase (Federal)	N/A	Federal (65)	\$47,645,000
Feasibility Phase (Federal)	92,500,000	Non-Federal (35)	\$25,655,000
Feasibility Phase (Non-Federal)	92,500,000		

The estimated cost of the LCA S&T Program included in the January 2005 Chief's Report is \$100,000,000 over a 10-year period, cost shared on a 65-35 percent basis consistent with WRDA 2007.

Total Estimated Program Cost	\$100,000,000
Federal	65,000,000
Non-Federal	35,000,000

The schedule for completing follow-on feasibility studies and PED is being determined.

7 May 2009

APPROPRIATION TITLE: Investigations, Fiscal Year 2010

Mississippi Valley Division

Study	Total Estimated Federal Cost \$	Allocation Prior to FY 2007 \$	Allocation FY 2007 \$	Allocation FY 2008 \$	Allocation FY 2009 \$	Tentative Allocation FY 2010 \$	Additional to Complete After FY 2010 \$
<b>MINNESOTA</b>							
Minnesota River Watershed Study, MN and SD (Minnesota River Basin, MN and SD) St. Paul District	5,390,000	0	0	33,000	0	350,000	TBD

The Minnesota River in southwestern Minnesota originates at the Minnesota-South Dakota border, flows 335 miles through some of the richest agricultural land in Minnesota and joins the Mississippi River at Minneapolis and St. Paul, Minnesota. The river drains 16,770 square miles, of which 14,840 are in Minnesota, 1,610 in South Dakota, and the remainder in North Dakota and Iowa. The Minnesota River reconnaissance study recommended three Feasibility studies. One of the recommendations included an integrated watershed, water quality management, and ecosystem restoration analysis that would produce a watershed management plan to facilitate better watershed management and identify specific opportunities for the Corps of Engineers and other stakeholders. An interagency technical team would be formed with expertise in hydrology, geomorphology, limnology, ecology, agriculture, and economics, planning and modeling. The non-Federal participants would be from the Minnesota Pollution Control Agency (MPCA), the Minnesota Department of Natural Resources (DNR), the Minnesota Board of Water and Soil Resources (BWSR), the Metropolitan Council of the Twin Cities, Minnesota State University – Mankato, the University of Minnesota and the Nature Conservancy. Federal participants would include the Corps of Engineers, the Natural Resources Conservation Service (NRCS), the U.S. Fish and Wildlife Service (FWS), the U.S. Geological Survey (USGS), and the U.S. Environmental Protection Agency (EPA). The study will take advantage of advanced watershed modeling techniques to understand the relationship of hydrologic and water quality parameters and the relative impacts and benefits of alternative measures for flood damage reduction and ecosystem restoration and would integrate the efforts of a wide range of agencies currently working independently, leading to more cost-effective use of existing government programs. It is expected that the integrated watershed study will identify additional projects for study and implementation.

The Minnesota River Watershed study is not funded in Fiscal Year 2009. Funds requested for Fiscal Year 2010 will be used to continue the feasibility study. The preliminary estimated cost of the feasibility phase is \$10,780,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. A summary of study cost sharing is as follows:

Total Estimated Feasibility Study Cost	\$10,780,000
Reconnaissance Phase (Federal)	NA <sup>1/</sup>
Feasibility Phase (Federal)	5,390,000
Feasibility Phase (Non-Federal)	5,390,000

A feasibility cost share agreement was executed 29 September 2008. The completion date for the feasibility study is being determined.

<sup>1/</sup> Reconnaissance phase funded under overall study authority for Minnesota River Basin.

7 May 2009

APPROPRIATION TITLE: Investigations, Fiscal Year 2010

Mississippi Valley Division

Study	Total Estimated Federal Cost \$	Allocation Prior to FY 2007 \$	Allocation FY 2007 \$	Allocation FY 2008 \$	Allocation FY 2009 \$	Tentative Allocation FY 2010 \$	Additional to Complete After FY 2010 \$
MINNESOTA	7,590,000	565,000	70,000	2,868,000	0	150,000	TBD
Red River of the North Basin, MN, ND, SD and Manitoba, Canada St. Paul District							

A watershed study for the entire Red River of the North Basin was initiated with execution of a Feasibility Cost Share Agreement in June 2008. Reconnaissance activities will continue for specific locations within the Basin as described in the reconnaissance report approved in October 2002. The Red River of the North, a northward flowing stream, originates at the convergence of the Ottertail, Minnesota, and Bois de Sioux Rivers, Minnesota and North Dakota and ends at Lake Winnipeg in Manitoba, Canada. Within the United States, the Red River drains portions of South Dakota, Minnesota, and North Dakota and forms the border between the latter two. The basin has lost much of the natural environment that existed in early settlement times, and flooding has repeatedly caused economic and human hardship. Major flood events totaling billions of dollars in damages have occurred in 1826, 1852, 1893, 1897, 1914, 1919, 1950, 1974, 1975, 1978, 1979, 1985, 1989, 1996, and 1997. Significant floods with substantial documented damages occurred on tributaries in other years. Drainage, river modifications, and land use changes (including those for enhancement of agriculture) adversely affected the natural ecosystems. The basin's water resources issues have been the focus of several watershed planning and management initiatives. Studies will address flood damage reduction and ecosystem restoration. Federal agencies, state agencies in Minnesota, North Dakota, and South Dakota, local units of government, non-profit environmental organizations, Canadian interests, business and agricultural representatives, and citizens participating in support of these initiatives see this study as critical to continued basin planning and implementation. The initial task in the basin-wide watershed study is development of a digital elevation model using LIDAR data.

In Fiscal Year 2009 funds in the amount of \$478,000 were reallocated to the Fargo, ND-Moorhead, MN Metro study. Funds requested for Fiscal Year 2010 will be used to continue the basin-wide watershed study, as well as produce reconnaissance supplements identifying additional feasibility studies. The estimated cost of the feasibility phase is \$13,000,000, which is to be shared on a 50-50 percent basis by the Federal and non-Federal interests. A summary of study cost sharing is as follows:

Total Estimated Study Cost	\$14,090,000 <sup>1/</sup>
Reconnaissance Phase (Federal)	1,090,000
Feasibility Phase (Federal)	6,500,000
Feasibility Phase (Non-Federal)	6,500,000

The completion schedule for each feasibility study will be established during negotiations with sponsors to determine the scope of study. The completion dates for the various feasibility studies are being determined.

1/ Excludes costs for Wild Rice River, MN; Roseau, MN; Fargo, ND-Moorhead, MN and Upstream; Fargo, ND-Moorhead, MN Metro; and Pembina River, ND feasibility studies.

7 May 2009

APPROPRIATION TITLE: Investigations, Fiscal Year 2010

Mississippi Valley Division

Study	Total Estimated Federal Cost \$	Allocation Prior to FY 2007 \$	Allocation FY 2007 \$	Allocation FY 2008 \$	Allocation FY 2009 \$	Tentative Allocation FY 2010 \$	Additional to Complete After FY 2010 \$
MINNESOTA Wild Rice River, MN (Red River of the North Basin, MN, ND, SD and Manitoba, Canada) St. Paul District	2,400,000	819,000	185,000	148,000	259,000	271,000	TBD

The Wild Rice River is a tributary of the Red River of the North in northwestern Minnesota, about 250 miles northwest of Minneapolis. Agriculture dominates the watershed economy and land use and has been the prime motivator for extensive channel straightening, ditching, and drainage. The topography contributes to flood problems. The Wild Rice River's fast moving flow from relatively steep upland and beach ridges from glacial Lake Agassiz discharges onto the flat glacial lakebed where channel capacity is inadequate. Flooding has become more frequent and severe in recent years. For example, the June 2002 flood was the flood of record at Ada, Minnesota (Norman County seat) and exceeded the 500-year event in portions of the watershed and significant flooding occurred again in April 2009. In collaboration with Federal and State agencies, environmental organizations, landowners, and other stakeholders, the Wild Rice Watershed District, non-Federal sponsor for the Wild Rice River Feasibility Study, conducted an assessment of water resource problems, needs, and opportunities. That assessment determined that priority should be given to flood damage reduction and environmental restoration in the lower portion of the watershed, recommended further investigation of a number of corrective measures, and concluded that high implementation costs necessitated Federal participation. Based on those findings, the Wild Rice Watershed District and Corps executed a feasibility cost sharing agreement 10 January 2003 and are partnering in the study. An earlier screening determined that there was Federal interest in ecosystem restoration and incidental flood damage reduction. The feasibility study will collect baseline data, develop analytical models, and conduct incremental cost analysis to determine a recommended project. In March 2009, the project sponsor voted unanimously to expand the current study to examine a full range of problems and opportunities in the basin.

Fiscal Year 2009 funds are being used for continuing the ecosystem restoration portion of the feasibility study. Specific goals include generating an environmental inventory, developing an environmental community model for measuring the environmental outputs and hydraulic modeling of the without-levee condition. Additionally, in response to the March 2009 request by the sponsor to expand the study, the study scope will be revised. Funds requested for Fiscal Year 2010 will be used to continue the feasibility study. Specific goals include preparing the environmental assessment; preparing a geotechnical studies report, social/institutional analysis, financial analysis, and real estate analysis; identifying plans, including the local sponsor's preferred plan; and continuing public involvement.

The estimated cost of the feasibility phase is \$4,800,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. The cost of the study will be revised when the scope of the study is revised. A summary of study cost sharing is as follows:

Total Estimated Feasibility Study Cost	\$4,800,000
Reconnaissance Phase (Federal)	N/A <sup>1</sup>
Feasibility Phase (Federal)	2,400,000
Feasibility Phase (Non-Federal)	2,400,000

The reconnaissance phase was completed in January 2003. The feasibility study completion date is being determined.

<sup>1</sup> Reconnaissance phase funded under overall study authority for Red River of the North.

7 May 2009

# CONSTRUCTION

APPROPRIATION TITLE: Construction, General – Environmental Mitigation, Restoration, and Protection

PROJECT: Upper Mississippi River Restoration, Illinois, Iowa, Minnesota, Missouri, and Wisconsin (Continuing)

LOCATION: The project is authorized for those river reaches having commercial navigation channels on the Upper Mississippi River, Illinois River, Minnesota River, St. Croix River, and Kaskaskia River in the states of Illinois, Iowa, Minnesota, Missouri, and Wisconsin. The following counties are included: (Illinois) Jo Daviess, Carroll, Whiteside, Rock Island, Mercer, Henderson, Hancock, Adams, Pike, Calhoun, Jersey, Madison, St. Clair, Monroe, Randolph, Jackson, Union, Alexander, Pulaski, Brown, Cass, Schuyler, Fulton, Mason, Peoria, Tazewell, Woodford, Marshall, Putnam, Bureau, LaSalle, Grundy, Will; (Iowa) Allamakee, Clayton, Dubuque, Jackson, Clinton, Scott, Muscatine, Louisa, Des Moines, Lee; (Wisconsin) St. Croix, Pierce, Pepin, Buffalo, Trempealeau, La Cross, Vernon, Crawford, Grant; (Minnesota) Anoka, Hennepin, Scott, Dakota, Ramsey, Washington, Goodhue, Wabasha, Winona, Houston; (Missouri) Clark, Lewis, Marion, Ralls, Pike, Lincoln, St. Charles, St. Louis, Jefferson, Ste. Genevieve, Perry, Cape Girardeau, Scott, Mississippi.

DESCRIPTION: The purpose of the Upper Mississippi River Restoration project is to address adverse impacts to the aquatic ecosystem of the Upper Mississippi River. Habitat rehabilitation and enhancement projects are effectively preserving and improving fish and wildlife habitat on the Upper Mississippi River System (UMRS). Projects completed to date have been designed to counteract the effects of backwater sedimentation through dike construction to limit sedimentation of prime habitat and dredging to restore aquatic habitat; provide water level control and optimal food growth for waterfowl; create islands to decrease wind generated disturbances, thereby reducing turbidity; alter the flow of water to side channels and backwaters to decrease flows of sediment-laden water during high water and to increase dissolved oxygen levels during low water; increase the diversity and abundance of mast (nut) producing trees and prairies to benefit wildlife. Long-Term Resource Monitoring provides scientific information for more informed management of the UMRS ecosystem. Ninety-seven percent of authorized Upper Mississippi River Restoration appropriations have been used to design and construct habitat rehabilitation and enhancement projects and for Long-Term Resource Monitoring. Recreation development is an authorized program element. All work is programmed.

AUTHORIZATION: Fiscal Year 1985 Supplemental Appropriations Act, P.L. 99-88; Water Resources Development Act of 1986, PL 99-662, Section 1103; Water Resources Development Act of 1990, P.L. 101-640, Section 405; Water Resources Development Act of 1992, P.L. 102-580, Section 107; Water Resources Development Act of 1999, P.L. 106-53, Section 509; and the Water Resources Development Act of 2007, P.L. 110-114, Section 3177.

REMAINING BENEFIT-REMAINING COST: The remaining benefit-remaining cost ratio for the entire project is not applicable because monetary benefits are not quantified.

TOTAL BENEFIT-COST RATIO: The total benefit-cost ratio for the entire project is not applicable because monetary benefits are not quantified. Projects within the Upper Mississippi River Restoration project are selected for design and construction based on continued assessment of habitat restoration and enhancement opportunities as determined by the involved Federal and non-Federal partners.

INITIAL BENEFIT-COST RATIO: The initial benefit-cost ratio for the entire project is not applicable because monetary benefits are not quantified.

BASIS OF BENEFIT-COST RATIO: The basis for the benefit-cost ratio for the entire project is not applicable because monetary benefits are not quantified.

SUMMARIZED FINANCIAL DATA			ACCUM PCT OF EST FED COST
Estimated Federal Cost		\$ 766,195,000	
Estimated Non-Federal Cost		8,204,000	
Cash Contribution	\$ 8,204,000		
Other Costs	0		
Total Estimated Project Cost		\$ 774,399,000	
Allocations to 30 September 2006		\$ 297,167,000	
Allocation for FY 2007		21,894,000	
Allocation for FY2008		16,851,000	
Conference Allowance for FY 2009		17,713,000	
Allocation for FY 2009		17,713,000	
Allocations to 30 September 2009		353,625,000	46
Allocation Requested for FY 2010		\$ 20,000,000	48
Programmed Balance to Complete After FY 2010		TBD	
Unprogrammed Balance to Complete After FY 2010		0	

STATUS: (1 January 2009)

PERCENT COMPLETE      PHYSICAL COMPLETION SCHEDULE <sup>1/</sup>

Long Term Resource Monitoring		NA	NA
Economic Impacts of Recreation Study		100	(Sep 92)
Traffic Monitoring		100	(Sep 90)
Habitat Rehabilitation and Enhancement Projects (Construction)			
Angle Blackburn, MO	ST. LOUIS DISTRICT	0	Deferred
Batchtown Mgt. Area, IL	ST. LOUIS DISTRICT	82	Dec 09
Calhoun Point, IL	ST. LOUIS DISTRICT	91	TBD
Clarksville Refuge, MO	ST. LOUIS DISTRICT	100	(Apr 90)
Cuivre Island, MO	ST. LOUIS DISTRICT	100	(Jul 99)
Dresser Island, MO	ST. LOUIS DISTRICT	100	(Sep 91)
Establishment Chute, MO	ST. LOUIS DISTRICT	0	Deferred
Godar, IL	ST. LOUIS DISTRICT	1	TBD
Jefferson Barracks Side Channel	ST. LOUIS DISTRICT	0	Deferred
Least Tern, MO	ST. LOUIS DISTRICT	22	Deferred
Norton Woods, MO	ST. LOUIS DISTRICT	0	Sep 14
Pharrs Island, Phase I, MO	ST. LOUIS DISTRICT	100	(Jun 92)
Piasa & Eagle Nest Island, IL	ST. LOUIS DISTRICT	1	TBD
Pool 24 Islands, MO	ST. LOUIS DISTRICT	1	TBD
Pools 25 and 26, MO	ST. LOUIS DISTRICT	27	TBD
Reds Landing, IL	ST. LOUIS DISTRICT	0	Deferred
Rip Rap Landing, IL	ST. LOUIS DISTRICT	1	TBD
Salt Lake/Ft Chartres S.C., IL	ST. LOUIS DISTRICT	7	TBD
Stag & Keaton Is., MO	ST. LOUIS DISTRICT	100	(Sep 98)
Stump Lake, IL	ST. LOUIS DISTRICT	100	(Nov 98)
Schenimann, MO	ST. LOUIS DISTRICT	15	TBD
Stone Dike Alteration, IL/MO	ST. LOUIS DISTRICT	10	Deferred
Swan Lake, IL	ST. LOUIS DISTRICT	90	TBD
Ted Shanks, MO	ST. LOUIS DISTRICT	6	TBD
Wilkinson Island, IL	ST. LOUIS DISTRICT	1	TBD
Andalusia Refuge, IL	ROCK ISLAND DISTRICT	100	(Dec 94)
Banner Marsh, IL	ROCK ISLAND DISTRICT	100	(Dec 03)
Bay Island, MO	ROCK ISLAND DISTRICT	100	(Nov 94)
Beaver Island, IA	ROCK ISLAND DISTRICT	2	TBD

Mississippi Valley Division

Rock Island District

Upper Mississippi River Restoration,  
Missouri, and Wisconsin



STATUS: (1 January 2009) (Continued)

PERCENT COMPLETE      PHYSICAL COMPLETION SCHEDULE <sup>1/</sup>

Bertom Lake, WI	ROCK ISLAND DISTRICT	100	(Jun 92)
Big Timber, IA	ROCK ISLAND DISTRICT	100	(Jun 95)
Brown's Lake, IA	ROCK ISLAND DISTRICT	100	(Sep 94)
Chautauqua Refuge, IL	ROCK ISLAND DISTRICT	100	(Dec 03)
Cottonwood Island, MO	ROCK ISLAND DISTRICT	100	(Dec 99)
Fox Island, MO	ROCK ISLAND DISTRICT	40	TBD
Gardner Div., IL	ROCK ISLAND DISTRICT	100	TBD
Huron Island, IA	ROCK ISLAND DISTRICT	7	TBD
Lake Odessa, IA	ROCK ISLAND DISTRICT	65	TBD
Pool 11 Islands, WI/IA	ROCK ISLAND DISTRICT	100	TBD
Pleasant Creek, IA	ROCK ISLAND DISTRICT	100	(Jan 03)
Monkey Chute, MO	ROCK ISLAND DISTRICT	100	(Aug 89)
Peoria Lake, IL	ROCK ISLAND DISTRICT	100	(Sep 97)
Peosta Channel, IA	ROCK ISLAND DISTRICT	0	Deferred
Pool 12 Overwintering IA/IL	ROCK ISLAND DISTRICT	23	TBD
Potters Marsh, IL	ROCK ISLAND DISTRICT	100	(Jun 96)
Princeton, IA	ROCK ISLAND DISTRICT	100	(Dec 01)
Rice Lake, IL	ROCK ISLAND DISTRICT	20	TBD
Smith's Creek, IA	ROCK ISLAND DISTRICT	9	Deferred
Spring Lake, IL	ROCK ISLAND DISTRICT	100	(Sep 01)
Ambrough Slough, WI	ST. PAUL DISTRICT	100	(Sep 04)
Blackbird Slough, MN	ST. PAUL DISTRICT	0	Deferred
Blackhawk Park, WI	ST. PAUL DISTRICT	100	(Nov 90)
Bussey Lake, IA	ST. PAUL DISTRICT	100	(Jun 96)
Capoli Slough, WI	ST. PAUL DISTRICT	20	TBD
Cold Springs, WI	ST. PAUL DISTRICT	100	(Aug 94)
Conway Lake, IA	ST. PAUL DISTRICT	10	TBD
East Channel, WI, MN	ST. PAUL DISTRICT	100	(Jun 97)
Finger Lakes, MN	ST. PAUL DISTRICT	100	(Jul 94)
Guttenberg Fish Ponds, IA	ST. PAUL DISTRICT	100	(Oct 90)
Harpers Slough, IA	ST. PAUL DISTRICT	20	TBD
Indian Slough, WI	ST. PAUL DISTRICT	100	(Jun 94)
Island 42, MN	ST. PAUL DISTRICT	100	(May 87)
Lake Onalaska, WI	ST. PAUL DISTRICT	100	(Jul 90)

Mississippi Valley Division

Rock Island District

Upper Mississippi River Restoration,  
Missouri, and Wisconsin

STATUS: (1 January 2009) (Continued)

PERCENT COMPLETE      PHYSICAL COMPLETION SCHEDULE <sup>1</sup>

Lake Winneshiek, WI	ST. PAUL DISTRICT	5	TBD
Lansing Big Lake, IA	ST. PAUL DISTRICT	100	(Nov 94)
Long Lake, WI	ST. PAUL DISTRICT	100	(May 00)
Long Meadow Lake, MN	ST. PAUL DISTRICT	100	(Nov 06)
McGregor Lake, WI	ST. PAUL DISTRICT	1	TBD
Miss. River Bank Stabilization, MN/WI	ST. PAUL DISTRICT	100	(Sep 99)
Peterson Lake, MN	ST. PAUL DISTRICT	100	(Jun 96)
Polander Lake, MN	ST. PAUL DISTRICT	100	(Nov 00)
Pool 8 Isl, Phase I, WI	ST. PAUL DISTRICT	100	(Jun 93)
Pool 8 Isl, Phase II, WI	ST. PAUL DISTRICT	100	(Sep 99)
Pool 9 Isl Protection, WI	ST. PAUL DISTRICT	100	(Jun 95)
Pool 8 Isl, Phase III, WI	ST. PAUL DISTRICT	35	TBD
Pool Slough, IA	ST. PAUL DISTRICT	100	Apr 07
Rice Lake, MN	ST. PAUL DISTRICT	100	(Nov 98)
Small Scale Drawdown, WI	ST. PAUL DISTRICT	100	(Sep 97)
Spring Lake Peninsula, WI	ST. PAUL DISTRICT	100	(Nov 94)
Spring Lake Islands, WI	ST. PAUL DISTRICT	100	(Jul 06)
Trempealeau NWR, WI	ST. PAUL DISTRICT	100	(Sep 99)
Whitewater River, MN	ST. PAUL DISTRICT	2	Deferred
Zumbro River, WI	ST. PAUL DISTRICT	0	Deferred
Recreation		0	Unscheduled
Habitat Needs Assessment		100	(Sep 00)

<sup>1</sup> Parentheses indicate actual date.

JUSTIFICATION: Implementation of the Upper Mississippi River Restoration project is essential to the continued viability of the ecosystem of the Upper Mississippi River and important to the long-term public acceptance and support of Upper Mississippi River System (UMRS) navigation. Habitat rehabilitation and enhancement projects help reduce the negative effects of navigation features on the system's backwater and side channels. Projects are selected for design and construction based on continued assessment of habitat restoration and enhancement opportunities as determined by the involved Federal and non-Federal partners. Long-Term Resource Monitoring provides data to indicate trends in key environmental parameters, analyzing sedimentation and other UMRS resource problems, and producing a spatial information database. An Economic Impacts of Recreation Study has been conducted to enable Federal and non-Federal management decisions to better consider impacts on recreation and the consequent changes in recreation-related expenditures in the local and regional economies.

FISCAL YEAR 2009: The requested amount will be used to continue projects under way in FY 2008 and to continue monitoring and other restoration-related activities, as follows:

PROJECT	DISTRICT	AMOUNT	STATUS
Batchtown Mgmt Area III, IL	ST. LOUIS DISTRICT	1,831,000	Continue Construction
Calhoun Point, IL	ST. LOUIS DISTRICT	7,000	Continue Construction
Pool 25 and 26, MO	ST. LOUIS DISTRICT	25,000	Continue Design
Rip Rap Landing, IL	ST. LOUIS DISTRICT	260,000	Continue Design
Swan Lake, IL	ST. LOUIS DISTRICT	130,000	Continue Design
Ted Shanks, MO	ST. LOUIS DISTRICT	430,000	Continue Design
Wilkinson Island, IL	ST. LOUIS DISTRICT	225,000	Continue Design
Beaver Island, IA	ROCK ISLAND DISTRICT	50,000	Continue Design
Fox Island	ROCK ISLAND DISTRICT	90,000	Continue Design
Huron Island, IA	ROCK ISLAND DISTRICT	50,000	Continue Design
Lake Odessa Stg 2, IA	ROCK ISLAND DISTRICT	2,080,000	Continue Construction
Rice Lake, IL	ROCK ISLAND DISTRICT	300,000	Continue Design
Capoli Slough, WI	ST. PAUL DISTRICT	82,000	Continue Design
Conway Lake, IA	ST. PAUL DISTRICT	3,000	Continue Design
Harpers Slough, IA	ST. PAUL DISTRICT	136,000	Continue Design
Finger/ Clear Lake, MN	ST. PAUL DISTRICT	91,000	Continue Construction
Lake Winneshiek, WI	ST. PAUL DISTRICT	3,000	Continue Design
Long Meadow Lake, MN	ST. PAUL DISTRICT	9,000	Continue Design
McGregor, IA	ST. PAUL DISTRICT	6,000	Continue Design
Pool 8 Phase III, Stg II, WI	ST. PAUL DISTRICT	4,647,000	Continue Construction

Mississippi Valley Division

Rock Island District

Upper Mississippi River Restoration,  
Missouri, and Wisconsin

FISCAL YEAR 2009 (Continued):

PROJECT	AMOUNT
Regional Project Sequencing	65,000
Habitat Evaluation/Monitoring	677,000
Public Involvement	40,000
Long Term Resource Monitoring	5,505,000
Report to Congress	50,000
Program Management	921,000
TOTAL	\$17,713,000

FISCAL YEAR 2010: The requested amount will be used to continue projects under way in FY 2009, initiate six new construction phases, and to continue monitoring and other restoration-related activities, as follows:

PROJECT	DISTRICT	AMOUNT	STATUS
Batchtown Mgmt Area III, IL	ST. LOUIS DISTRICT	1,500,000	Complete Construction
Calhoun Point, IL	ST. LOUIS DISTRICT	25,000	Complete Construction
Pool 24 Islands, MO	ST. LOUIS DISTRICT	75,000	Continue Design
Pool 25 and 26, MO	ST. LOUIS DISTRICT	150,000	Continue Design
Pool 25 and 26, MO	ST. LOUIS DISTRICT	200,000	Initiate Construction
Rip Rap Landing, IL	ST. LOUIS DISTRICT	50,000	Continue Design
Swan Lake, IL	ST. LOUIS DISTRICT	1,275,000	Complete Construction
Ted Shanks, MO	ST. LOUIS DISTRICT	100,000	Initiate Construction
Wilkinson Island, IL	ST. LOUIS DISTRICT	50,000	Continue Design
Beaver Island, IA	ROCK ISLAND DISTRICT	150,000	Continue Design
Fox Island	ROCK ISLAND DISTRICT	200,000	Complete Design
Fox Island	ROCK ISLAND DISTRICT	3,000,000	Initiate Construction
Huron Island, IA	ROCK ISLAND DISTRICT	150,000	Continue Design
Rice Lake, IL	ROCK ISLAND DISTRICT	250,000	Complete Design
Rice Lake, IL	ROCK ISLAND DISTRICT	1,000,000	Initiate Construction
Capoli Slough, WI	ST. PAUL DISTRICT	865,000	Initiate Construction
Conway Lake, IA	ST. PAUL DISTRICT	100,00	Continue Design
Harpers Slough, IA	ST. PAUL DISTRICT	150,000	Complete Design
Harpers Slough, IA	ST. PAUL DISTRICT	500,000	Initiate Construction
Lake Winneshiek, WI	ST. PAUL DISTRICT	75,000	Continue Design
McGregor, IA	ST. PAUL DISTRICT	75,000	Continue Design
Pool 8 Phase III, Stg II, WI	ST. PAUL DISTRICT	1,800,000	Complete Construction
Zumbro River, WI	ST. PAUL DISTRICT	50,000	Continue Design
Regional Project Sequencing		50,000	
Habitat Evaluation/Monitoring		950,000	
Public Involvement		60,000	
Long Term Resource Monitoring		6,092,000	
Report to Congress		100,000	
Program Management		958,000	
TOTAL		20,000,000	

Mississippi Valley Division

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Upper Mississippi River Restoration,  
Missouri, and Wisconsin

NON-FEDERAL COSTS: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986 and amended by Section 107(b) of the Water Resources Development Act of 1999, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation, and Replacement Costs
Pay 25 percent of the first costs allocated to fish and wildlife enhancement for the following projects:		
Baldwin Backwater, IL	\$ 624,000	
Banner Marsh, IL	1,780,000	
Batchtown, IL	146,000	
Blackhawk Park, WI	77,000	
Bussey Lake, IA	162,000	
Cuivre Island, MO	498,000	
Osborne Channel, IL	190,000	
Peoria Lake, IL	42,000	
Princeton, IA	54,000	
Swan Lake, IL	262,000	
Subtotal	\$ 3,835,000	\$ 0
Pay 35 percent of the first costs allocated to fish and wildlife enhancement for the following projects:		
Ambrough Slough, WI	\$ 166,000	
Pool Slough, IA, MN	175,000	
Rice Lake, IL	3,378,000	
Smith Creek, IA	300,000	
Kaskaskia Oxbow	350,000	
Subtotal	\$ 4,369,000	\$ 0
Pay 50 percent of the first costs allocated to recreation projects.	0 <sup>1</sup>	
Total Non-Federal Construction Costs	\$ 8,204,000	\$ 0

<sup>1</sup> No recreation projects scheduled.

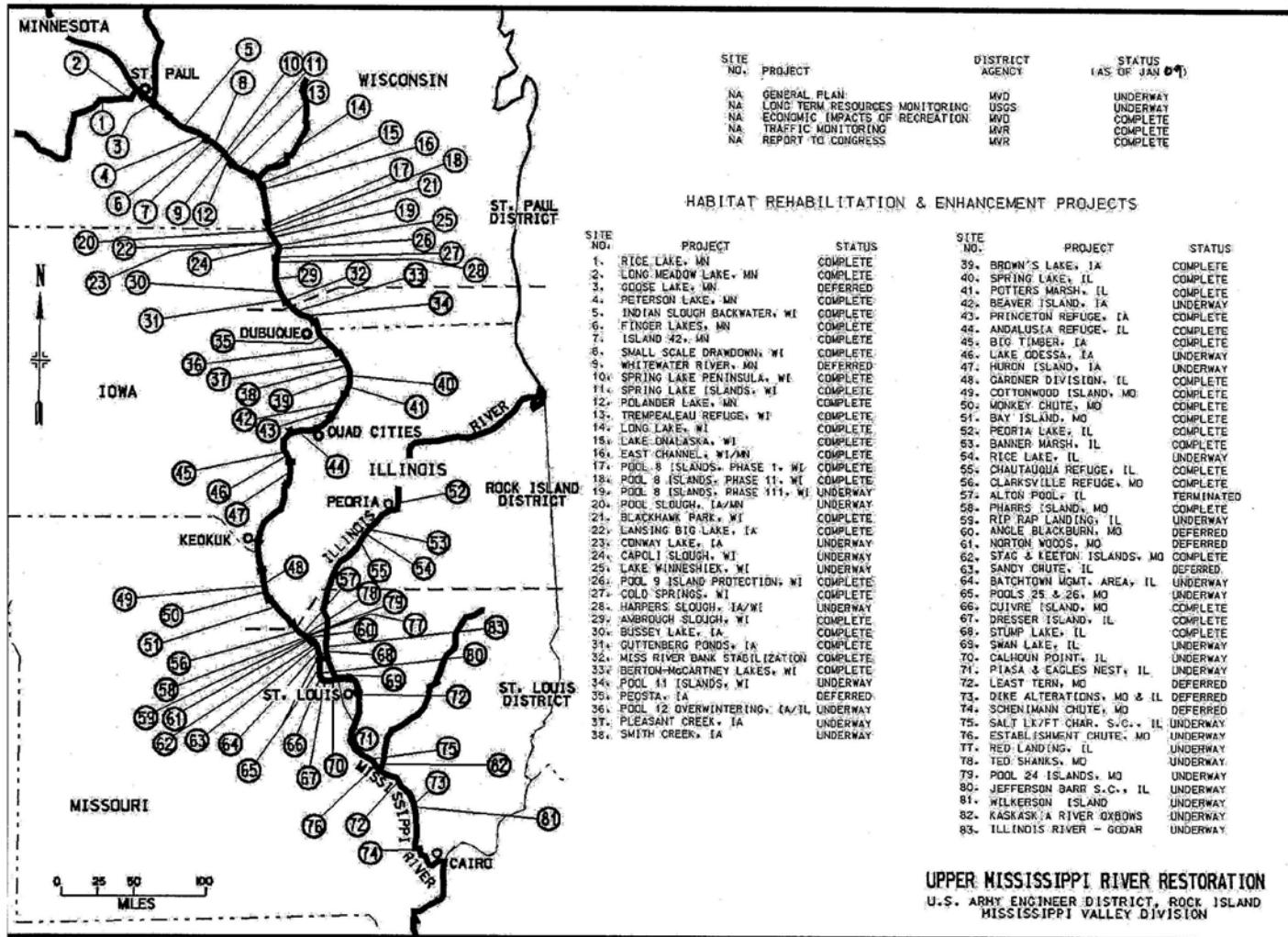
The non-Federal sponsors have agreed to make all required payments concurrently with project construction.

STATUS OF LOCAL COOPERATION: A Project Cooperation Agreement is required only for projects that are not located on lands managed as a national wildlife refuge.

COMPARISON OF FEDERAL COST ESTIMATE: The current Federal cost estimate of \$766,195,000 is the same as the latest estimate presented to Congress (FY 2009).

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: National Environmental Policy Act compliance is accomplished prior to implementation of each individual project.

OTHER INFORMATION: Funds to initiate construction were appropriated in FY 1985. The Water Resources Development Act of 1999, P.L. 106-53, amends the previous authority to increase annual appropriation limits available to the project; requires submission of a report to Congress on a 6 year cycle which began in December 2004 to evaluate projects, accomplishments, systemic habitat needs, and identifies any needed changes to the project authorization; and authorizes an independent technical review committee through FY 2009. Program received \$7,000,000 in Supplemental Appropriations in FY 2008 due to flood damages at Odessa Habitat site.



Mississippi Valley Division

Rock Island District

Upper Mississippi River Restoration,  
Missouri, and Wisconsin



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# FLOOD AND COASTAL STORM DAMAGE REDUCTION

# INVESTIGATIONS

APPROPRIATION TITLE: Flood Control, Mississippi River and Tributaries, AR, IL, KY, LA, MS, MO, and TN - Investigations, Fiscal Year 2010

Study	Total Estimated Federal Cost \$	Allocation Prior to FY 2007 \$	Allocation FY 2007 \$	Allocation FY 2008 \$	Allocation FY 2009 \$	Allocation FY 2010 \$	Additional to Complete After FY 2010 \$
<b>PRECONSTRUCTION ENGINEERING AND DESIGN (PED) ACTIVITIES</b>							
Alexandria, LA, to the Gulf of Mexico, LA New Orleans District	\$2,430,000	0	0	0	790,000	1,000,000	TBD

The study area is located in south-central Louisiana and encompasses an area of about 1,700 square miles extending through nine parishes from Alexandria, Louisiana, to the Gulf of Mexico. The area is the drainage basin for the West Atchafalaya Basin Floodway Levee intercepted drainage system, a feature of the Mississippi River and Tributaries project that prevents overflow from the Atchafalaya Basin Floodway and intercepts flows from the areas major outlets. The largest urban area in the study area is Alexandria, which has experienced numerous floods in its metropolitan area. There have been extensive flooding problems in the Alexandria area and widespread flooding throughout the basin in the more rural and agricultural areas. Since 1953, there have been fifteen significant storm events with rainfall ranging from 5.4 to 18 inches in the study area. More recent, Hurricane Gustav in September 2008 produced 12 inches within a 24 hour period thus producing a 100-year storm event. The local sponsor is the Louisiana Department of Transportation and Development and the Rapides Parish Gravity Drainage District No.1. The sponsors have requested that flooding problems in the Alexandria, Louisiana area be addressed in the feasibility study. The feasibility cost sharing agreement was executed on 14 April 2003.

The reconnaissance phase was completed in June 1999. The feasibility study completion is scheduled for September 2010, transmission of the Division Engineers Report.

FY10 funds will be used to Initiate preconstruction, engineering and design.

A summary of the cost estimate break down is provided below:

Total Estimated PED Cost	\$3,240,000
PED Phase (Federal)	\$2,430,000
PED Phase (Non-Federal)	\$810,000

7 May 2009

APPROPRIATION TITLE: Flood Control, Mississippi River and Tributaries, AR, IL, KY, LA, MS, MO, and TN - Investigations, Fiscal Year 2010

Study	Total Estimated Federal Cost \$	Allocation Prior to FY 2007 \$	Allocation FY 2007 \$	Allocation FY 2008 \$	Allocation FY 2009 \$	Allocation FY 2010 \$	Additional to Complete After FY 2010 \$
MISSISSIPPI							
Coldwater River Basin Below Arkabutla Lake, MS Vicksburg District	2,198,000	1,394,000	300,000	295,000	125,000	84,000	0

The study area is located in northwest Mississippi approximately 30 miles south of Memphis, Tennessee. Increased development has created adverse impacts on area streams in meeting water quality standards while maintaining flood damage reduction goals. The Yazoo Mississippi Delta Joint Water Management District in conjunction with Tunica County, Mississippi, has requested assistance in identifying measures to improve water management, water quality, flood control, and the wetland ecosystem throughout this watershed. The sponsors desire specific projects and guidelines for future development that will improve flood protection and the aquatic environment and conserve water resources. Projects will also be designed to prevent increases in downstream stages. The sponsors are the Yazoo Mississippi Delta Joint Water Management District and Tunica County Soil and Water Conservation District. The feasibility cost sharing agreement was executed 18 June 2003.

Fiscal Year 2009 funds are being utilized to continue environmental and economic base condition analyses, continue alternative plan formulation and coordination with local, state and Federal agencies for watershed optimization, and continue hydrologic and hydraulic modeling and economic and environmental analyses for future without-project and with-project watershed conditions.

Fiscal Year 2010 funds will be used to complete the feasibility phase of the study.

The estimated cost of the feasibility phase is \$4,082,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. A summary of the study cost sharing is as follows:

Total Estimated Study Cost	\$4,239,000
Reconnaissance Phase (Federal)	157,000
Feasibility Phase (Federal)	2,041,000
Feasibility Phase (Non-Federal)	2,041,000

The reconnaissance phase was completed in June 2003. The estimated feasibility study completion date is 30 September 2010.

7 May 2009

APPROPRIATION TITLE: Flood Control, Mississippi River and Tributaries, AR, IL, KY, LA, MS, MO, and TN - Investigations, Fiscal Year 2010

Study	Total Estimated Federal Cost \$	Allocation Prior to FY 2007 \$	Allocation FY 2007 \$	Allocation FY 2008 \$	Allocation FY 2009 \$	Allocation FY 2010 \$	Additional to Complete After FY 2010 \$
Collection and Study of Basic Data	N/A	N/A	1,092,000	1,378,000	1,370,000	500,000	N/A

Surveys, Gages, and Observations.

Fiscal Year 2009 funds are being used for the collection of essential basic data which are subsequently used in the planning and design of flood control projects. The data collected under this activity are for authorized projects or units thereof. The data to be collected will consist of information on stream flow, rainfall, floods, and other items of related hydrologic nature. Funds are also being utilized to initiate LIDAR mapping in the Delta portion of Mississippi. This LIDAR mapping is being undertaken jointly by the U.S. Department of Agriculture and U.S. Geological Survey (USGS). Without this new mapping, planners, engineers, landowners, and county governments would have to continue to rely on the old and outdated USGS quadrangle maps, many of which have not been updated in 40 years.

Fiscal Year 2010 funds will be used for the collection of essential basic data which are subsequently used in the planning and design of flood control projects. The data collected under this activity are for authorized projects or units thereof. The data to be collected will consist of information on stream flow, rainfall, floods, and other items of related hydrologic nature.

7 May 2009

APPROPRIATION TITLE: Flood Control, Mississippi River and Tributaries, AR, IL, KY, LA, MS, MO, and TN – Investigations, Fiscal Year 2010

Study	Total Estimated Federal Cost \$	Allocation Prior to FY 2007 \$	Allocation FY 2007 \$	Allocation FY 2008 \$	Allocation FY 2009 \$	Allocation FY 2010 \$	Additional to Complete After FY 2010 \$
Donaldsonville, LA to the Gulf of Mexico New Orleans District	\$4,447,000	\$4,047,000	\$0	\$0	\$0	\$400,000	TBD

The study area is located in South Louisiana and includes portions of the Parishes of Ascension, Assumption, St. James, St. John the Baptist, Lafourche, St. Charles, Jefferson, Orleans, and Plaquemines. The study area is within the Louisiana Coastal Protection Restoration Project. Donaldsonville field data, maps, and designs are being used for the Project. The study area is particularly prone to flooding from storm surges generated in the Gulf of Mexico by hurricanes and tropical storms. About 100,000 residents and 33,000 housing units (1999 data) are at risk of flooding. Since 1985, FEMA has declared six Federal Disasters within the study area due to flooding. Flooding from Hurricanes Katrina and Rita was limited to the coastal areas, since the storms were too far east or west to affect the interior portion of the basin. Storms in 1959, 1989, 1991, and Hurricane Juan in 1985 produced near-100-year flood conditions. The basin is subject to tidal and hurricane surges from the gulf, which reduce the basin's capacity to accommodate heavy rainfall events. Flood damages are increased by the long duration of high stages due to conveyance restrictions, high tides, land subsidence, and sea level rise. Alternatives being studied include various alignments for a hurricane protection levee between Bayou Lafourche and the Mississippi River. One or two flood control structures will be required to keep gulf surges from entering the protected area through existing navigable waterways. The hurricane levee will protect US 90 and LA 308, two major hurricane-evacuation routes. Interior drainage improvements are being investigated. Portions of the study area are in desperate need of environmental restoration. The non-federal sponsors are the Lafourche Basin Levee District and the Louisiana Department of Transportation and Development.

Funds were not included in the President's budget for Fiscal Year 2009.

Funds requested for Fiscal Year 2010 will be used to complete the feasibility study. The feasibility study is scheduled for completion in April 2010.

A summary of the study cost sharing is as follows:

Total Estimated Study Cost	\$8,355,000
Reconnaissance Phase (Federal)	\$539,000
Feasibility Phase (Total)	\$7,816,000
Feasibility Phase (Federal)	3,908,000
Feasibility Phase (Non-Federal)	3,908,000

7 May 2009

APPROPRIATION TITLE: Flood Control, Mississippi River and Tributaries, AR, IL, KY, LA, MS, MO, and TN - Investigations, Fiscal Year 2010

Study	Total Estimated Federal Cost \$	Allocation Prior to FY 2007 \$	Allocation FY 2007 \$	Allocation FY 2008 \$	Allocation FY 2009 \$	Allocation FY 2010 \$	Additional to Complete After FY 2010 \$
<b>SURVEYS – Continuing (Feasibility)</b>							
Memphis Metropolitan Area, Storm Water Management Study, TN & MS Memphis District	1,300,000	120,000	150,000	146,000	33,000	100,000	TBD

The study area includes all or part of five counties: Shelby, Tipton and Fayette Counties in Southwest Tennessee, and DeSoto and Marshall Counties in Northwest Mississippi. The area encompasses all or part of six major drainage basins: Hatchie River, Loosahatchie River, Wolf River, Nonconnah Creek, Horn Lake Creek, and Coldwater River and includes approximately 2,600 square miles. The area has experienced extensive growth and development in recent years and these trends are projected to continue at an accelerated rate. Major problems with drainage and other infrastructure are prevalent throughout the area. Recent studies show that the 100-year flood profile has increased up to two feet in some locations as a result of development with similar situations expected area wide. Integrated solutions to these issues will require significant collaborative and consensus building efforts among all stakeholders and local agencies. The Memphis Metropolitan Area Reconnaissance Report, completed in March 1999, identified over 70 areas where flooding, erosion and water quality problems exist, but it did not fully address all of the problem areas and the need for a collaborative, holistic approach to storm water management. The purpose of the Memphis Metropolitan Storm Water Management study is to evaluate the additional need for improvements for flood control, ecosystem restoration, water quality, and related purposes associated with storm water runoff and management in the area. Six drainage basins were investigated in 2006, 2007, and 2008. Areas identified by Shelby and Tipton County officials (Grays Creek, Marys Creek, Beaver Creek, Cole Creek, Hebron Creek, and the Pidgeon Industrial Ditch) were investigated for flood risk management issues and under current conditions were determined not to have Federal interest in more detailed studies. Therefore, this reconnaissance study primarily focuses on problems, needs and opportunities for ecosystem restoration concerning the various storm water resource problems within the six river basins located in the Memphis Metropolitan study area.

The draft reconnaissance report is scheduled to be completed in May 2009 at a cost of \$300,000. If the reconnaissance report identifies a Federal interest and a potential cost share partner, Fiscal Year 2009 funds will be used to initiate the feasibility phase.

7 May 2009



Memphis Metropolitan Area, Storm Water Management Study, TN & MS - Continued

Fiscal Year 2010 funds will be used to continue the feasibility phase of the study. The preliminary estimated cost of the feasibility phase is \$2,000,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. A summary of study cost sharing is as follows:

Total Estimated Study Cost	\$2,300,000
Reconnaissance Phase (Federal)	300,000
Feasibility Phase (Federal)	1,000,000
Feasibility Phase (Non-Federal)	1,000,000

The reconnaissance phase is scheduled for completion in August 2009. The feasibility study completion date is yet to be determined.

7 May 2009

# CONSTRUCTION

APPROPRIATION TITLE: Flood Control, Mississippi River and Tributaries, AR, IL, KY, LA, MS, MO, and TN - Construction

PROJECT: Atchafalaya Basin, Louisiana (Continuing)

LOCATION: The project is located in south-central Louisiana below the latitude of Old River and west of and generally paralleling the Mississippi River. The Atchafalaya River flows through the middle of the basin.

DESCRIPTION: The plan of improvement consists of a leveed floodway about 15 miles wide and 110 miles long that extends generally from the latitude of Old River to the Gulf of Mexico. The upper half of the basin is divided by the leveed Atchafalaya River. The Morganza Floodway is to the east of the Atchafalaya River and has a capacity of 600,000 cubic feet per second, which is introduced into the floodway by a gated control structure. The West Atchafalaya Floodway, which is located to the west of the river, is placed into operation when the fuse plug sections are overtopped bringing flows from the river that will introduce 900,000 cubic feet per second into the lower basin. After passing through the floodways, the flood waters enter the Gulf of Mexico through the Lower Atchafalaya River at Morgan City and the Wax Lake Outlet channel constructed west of Patterson, Louisiana. The project is part of a system and all work is programmed.

AUTHORIZATION: Flood Control Acts of 1928, 1934, 1936, 1938, 1941, 1946, 1950, 1954.

REMAINING BENEFIT - REMAINING COST RATIO: Validated Remaining Benefit-Remaining Cost Ratio not available.

TOTAL BENEFIT-COST RATIO: 3.8 to 1 at 7 percent. The benefit-cost ratio is based on all features which comprise the Main Stem system of the Mississippi River and Tributaries project.

INITIAL BENEFIT - COST RATIO: This project feature of the Main Stem system was authorized in Fiscal Year 1928 and initial construction funds were provided in Fiscal Year 1928. The authorized comprehensive review of the Mississippi River and Tributaries project, contained in House Document 308/88/2, as updated to reflect 1965 conditions and price levels, is considered to be the base estimate for the Main Stem system. The benefit-cost ratio for the Main Stem components computed for the base estimate was 7.9 to 1.

BASIS OF BENEFIT - COST RATIO: Benefits are from latest available evaluation approved in October 1979 at 1979 price levels. The latest comprehensive analysis was conducted in 1974. The 1979 analysis is the same as the 1974 analysis except that certain undocumented benefit categories were eliminated and 1979 prices were used.

SUMMARIZED FINANCIAL DATA			ACCUM PCT OF EST FED COST	STATUS (1 January 2009)	PCT CMPL	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost		1,798,000,000		Entire Project	96 Physical	TBD
Estimated Non-Federal Cost		11,000,000				
Cash Contributions	2,500,000					
Other Costs	8,500,000					
Total Estimated Project Cost		1,809,000,000				
Allocations to 30 September 2006		993,373,000				
Allocation for FY 2007		24,919,000				
Allocation for FY 2008		16,419,000				
Conference Allowance for FY 2009		14,850,000				
Allocation for FY 2009		14,850,000				
Allocations through FY 2009		1,049,561,000	58			
Allocation Requested for FY 2010		5,834,000	59			
Programmed Balance to Complete after FY 2010		TBD				
Unprogrammed Balance to Complete after FY 2010		0				

Mississippi River Commission

New Orleans District  
7 May 2009

Atchafalaya Basin, LA

## PHYSICAL DATA

### Levees:

Average Height - 20 feet  
Length - 449 miles

### Relocations:

Roads - 15 miles  
Railroads - 20 miles

### Drainage Structures:

Pointe Coupee	2 gates, 10.5 by 15 feet
Melville	2 - 72-inch corrugated metal pipe with vertical lift gate
Darbonne	10-foot by 10-foot barrel with vertical lift gate
Bayou des Glaises	72-inch corrugated metal pipe with flap gate
Bayou Courtableau	2 weirs, 503 feet long
Brushy Bayou	5-foot by 6-foot barrel with vertical lift gate
Bayou Courtableau	5-barrel, each 10 feet by 15 feet with vertical lift gate
Wax Lake East	25 pipes, 5 feet in diameter with slide gates
Wax Lake West	15 pipes, 5 feet in diameter with slide gates

Lands and Damages:  
289,212 acres

### Pumping Stations:

Number - 15  
Capacity - Minimum - 50 cubic feet per second  
Maximum - 1,500 cubic feet per second  
Average - 400 cubic feet per second

### Bank Stabilization:

Length - 58 miles

### Floodgates:

Charenton - Sector-gated, 45 feet wide  
East Calumet - Sector-gated, 45 feet wide  
West Calumet - Sector-gated, 45 feet wide

### Channels:

Length: 147.1 miles

### Locks:

Bayou Boeuf, 75 feet by 1,156 feet, earth chamber  
Bayou Sorrel, 56 feet by 797 feet, earth chamber  
Berwick, 45 feet by 300 feet, concrete chamber

### Atchafalaya River Navigation:

New Channel-10.1 miles

### Freshwater Control Structure (Planned):

Sherburne - dual 10-foot by 10-foot reinforced  
concrete box culverts with gates  
Henderson - dual 10-foot by 10-foot reinforced  
concrete box culverts with gates

**JUSTIFICATION:** The Mississippi River below Morganza Floodway is capable of carrying 1,500,000 cubic feet per second without threatening the integrity of the levees along its banks which protect densely populated areas, highly developed agricultural lands, industries, and the City of New Orleans, as well as a number of communities. Studies indicate that the project flood against which the flood control protection works are designed could be of such magnitude that 3,030,000 cubic feet per second will pass the latitude of Old River. Since the Mississippi River below the Morganza Floodway can carry only one-half this amount, the other one-half must be diverted from the main channel. The diversion is made through the Old River Control Structure, the Old River Auxiliary Structure, and the Atchafalaya River, and through the Morganza and West Atchafalaya Floodways. In order to prevent diverted waters from spreading over the rich and highly developed agricultural lands within the Atchafalaya Basin, these rivers and floodways have been leveed to confine the diverted flow.

This floodway system is, for all practical purposes, a part of the main river system, in as much as the integrity of the main river system depends upon its utilization. Since this construction began, farms and industries have developed in the areas adjacent to the floodway assuming that they would receive protection. Therefore, overtopping or crevassing of the levees would cause far more damage than anticipated at the start of project construction. The main protection levees in the lower reaches are deficient because of consolidation of the soft underlying soils, especially those below the latitude of Krotz Springs, LA. Early construction of these levees to the approved grade is essential, not only for flood protection, but as a means of access for the movement of manpower and equipment to any spot threatened by floods.

The Atchafalaya Basin project is one of several Main Stem components, which together comprise the plan of improvement for the control of floods on the Mississippi River. The components are: Mississippi River Levees, Channel Improvement, South Bank Arkansas and South Bank Red River Levees, the Atchafalaya Basin, Atchafalaya Basin Floodway System, Old River, and a few miscellaneous items. Because the benefits of the Atchafalaya Basin derive from the way in which they operate together with the other Main Stem components when the Mississippi River floods, the benefit-cost ratio is a composite one that covers the entire plan.

The value of lands and improvements protected by authorized works against the design flood is \$189.2 billion in 2008 dollars. This consists of 226,000 residential acres which include the City of New Orleans, 45,000 acres of commercial lands, 10 million acres of agricultural lands, and 6.5 million acres of woodland and marshland. The area subject to flooding by project flood assuming no protective works is 22.7 million acres. The area that will be provided complete protection by the completed project is 15.1 million acres.

The maximum flood of record was the 1927 flood which overflowed about 26,000 square miles, caused the deaths of 214 people, rendered 637,000 people temporarily homeless, and caused property damages of \$347.0 million. This would be equivalent to \$14.3 billion damages in 2008 prices.

The next flood of magnitude was the 1973 flood which overflowed 16,875 square miles (10.8 million acres), caused the death of 28 people, and displaced approximately 45,300 persons. The deaths and displacements of persons would have been significantly higher without the project in place. Without Federal projects, approximately 19.8 million acres would have been inundated. Total damages with existing projects in operation were \$643 million (1973 price levels). Damages without projects would have been \$11.3 billion and total damages prevented by projects amount to \$10.6 billion. Expressed in 2008 prices, damages without the projects would have been \$51.8 billion and damages prevented would have been \$48.9 billion.

The benefit-cost ratio was derived by measuring the total benefits credited to those Main Stem components against their total cost. Average annual benefits for the composite of Main Stem features are as follows:

Annual Benefits	Amount @ 2.5%	Amount @ 7%
Flood Control	\$ 1,127,581,971	\$ 449,208,729
Navigation	227,928,488	118,453,767
Area Redevelopment	1,998,285	1,716,721
Recreation	2,765,302	2,861,202
Total	\$ 1,360,274,046	\$ 572,240,419

FISCAL YEAR 2009: Current year funds are being used as follows:

Initiate and Complete:	
Award West Bayou Sale North Bend Phase I	2,753,500
Award E-40	4,500,000
Award W-86, Phase B	5,000,000
Lands and Damages	150,000
Surveys and Layouts	50,000
Planning, Engineering and Design	1,196,500
Construction Management	1,200,000
Total	\$14,850,000

FISCAL YEAR 2010: The requested amount will be applied as follows:

Lands and Damages	100,000
Surveys and Layouts	50,000
Construction	0
Planning, Engineering and Design	3,684,000
Construction Management	2,000,000
Total	\$5,834,000

Mississippi River Commission

New Orleans District  
7 May 2009

Atchafalaya Basin, LA

NON-FEDERAL COST: In accordance with the Flood Control Act of 15 May 1928, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation and Replacement Costs
Bear the administrative costs for furnishing rights-of-way for levee and levee drainage construction; purchase maintenance equipment; and perform miscellaneous levee work.	1,110,000	0
Agree to accept lands turned over to them under the provision of Section 4 of the Flood Control Act of 15 May 1928, and as provided in the Flood Control Act of 18 August 1941.	0	0
Bear costs for and maintain all flood control works after their completion, except controlling and regulating spillway structures, including special levees; maintenance includes normally such matters as cutting grass, removal of weeds, local drainage and minor repairs to the levees.	0	3,700,000
For the Upper Point Coupee Loop Area, provide an interior drainage system and comply with the applicable provisions of the Uniform Relocations Assistance and Real Property Acquisition Policies Act of 1970, PL 91-646, approved 2 January 1971, and comply with the provision of Section 221 of the Flood Control Act of 1970, PL 91-611.	7,390,000	0
The State of Louisiana, through the Department of Transportation and Development as the local sponsor, will provide a voluntary 25% cost share for the planning, design, and construction of the interim protection for floodproofing of riverfront businesses in Morgan City and Berwick.	2,500,000	0
Total Non-Federal Costs	11,000,000	3,700,000

Mississippi River Commission

New Orleans District  
7 May 2009

Atchafalaya Basin, LA

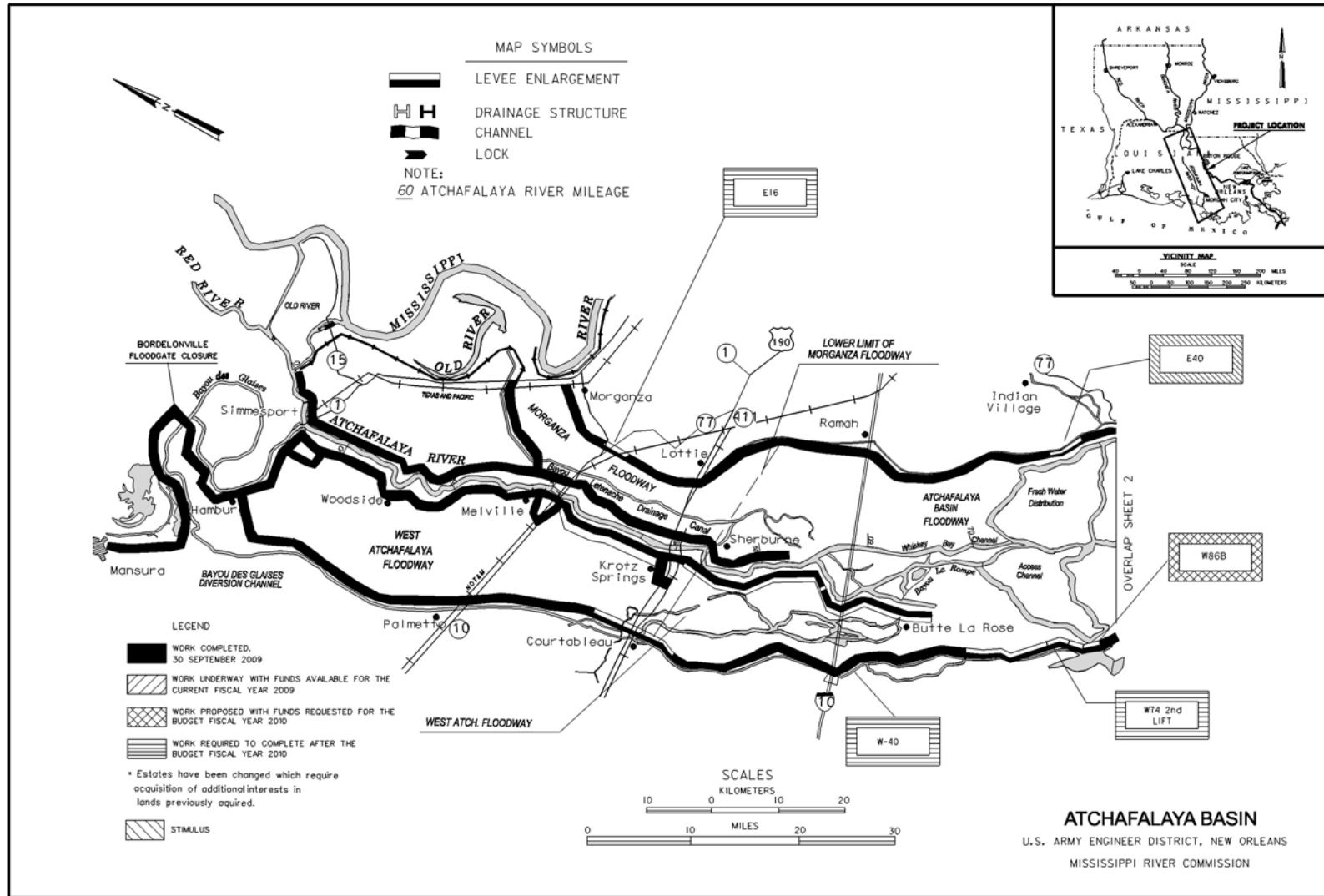


STATUS OF LOCAL COOPERATION: Necessary assurances for maintaining the project have been furnished by the Atchafalaya Basin Levee District; Red River, Atchafalaya and Bayou Boeuf Levee District; St. Mary Parish Government; Pointe Coupee Parish Police Jury; and the towns of Berwick and Morgan City, LA. These agencies are furnishing all requirements of local cooperation necessary for meeting present project schedules.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of \$1,798,000,000 is the same as the latest estimate presented to Congress (Fiscal Year 2009).

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement was filed with the Environmental Protection Agency on 20 August 1982. The final Environmental Impact Statement for the Upper Pointe Coupee Loop Area was filed with the Council on Environment Quality on 11 June 1976.

OTHER INFORMATION: Funds to initiate construction were appropriated in 1928.

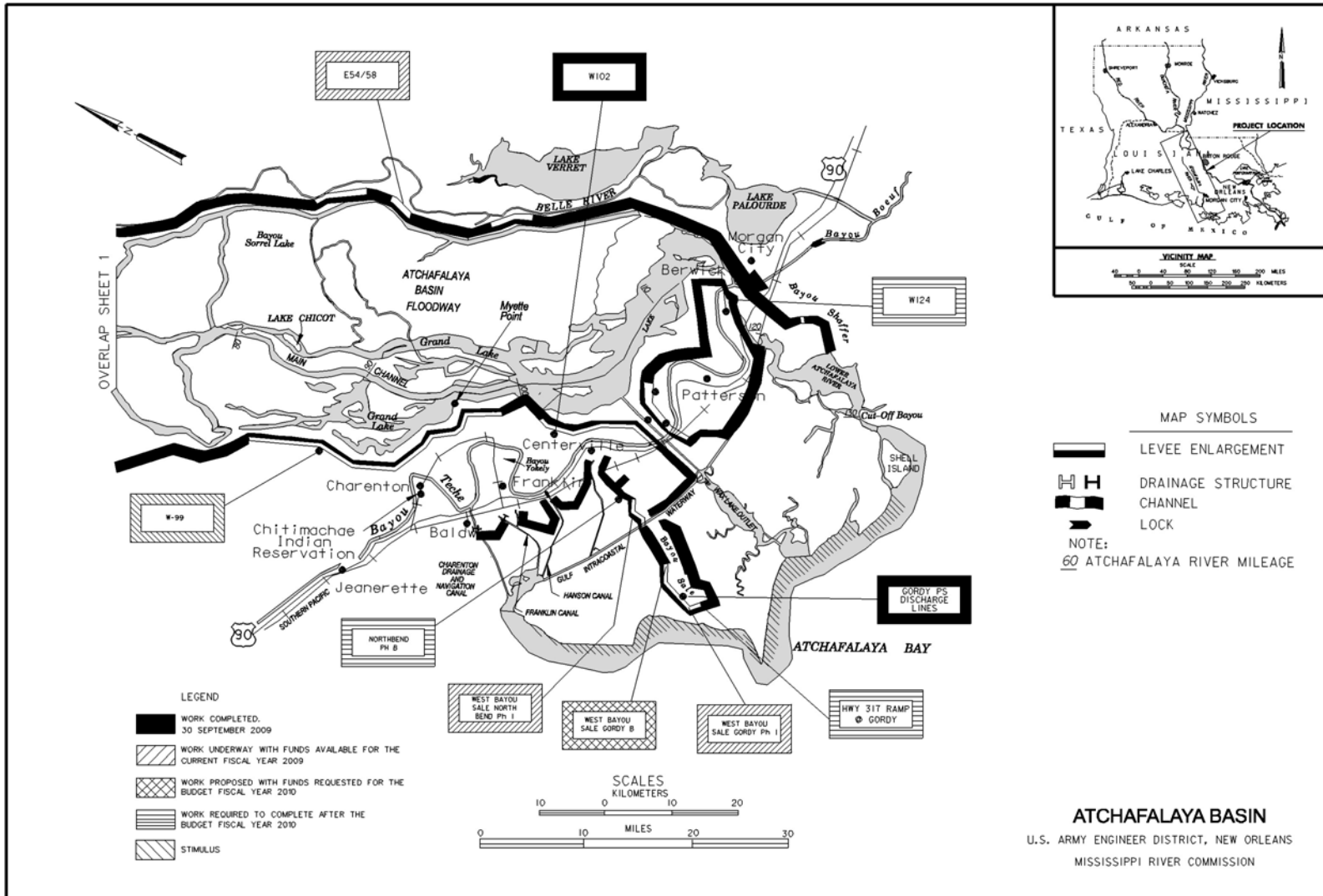


SHEET 1 OF 2

Mississippi River Commission

New Orleans District  
7 May 2009

Atchafalaya Basin, LA



SHEET 2 OF 2

APPROPRIATION TITLE: Flood Control, Mississippi River and Tributaries, AR, IL, KY, LA, MS, MO and TN - Construction

PROJECT: Channel Improvement, Arkansas, Illinois, Kentucky, Louisiana, Mississippi, Missouri and Tennessee (Continuing)

LOCATION: The project is located in the Mississippi River and along its banks from the vicinity of Cairo, Illinois, to the Head of Passes, Louisiana, a distance of approximately 966 miles.

DESCRIPTION: The plan of improvement consists of stabilizing the banks of the river in a desirable alignment and obtaining the most efficient flow characteristics for it for flood control and navigation by means of revetments, dikes, foreshore protection, and improvement dredging. All work is programmed.

AUTHORIZATION: Flood Control Acts of 1928, 1936, 1938, 1941, 1944, 1962, 1965, 1966, and 1970.

REMAINING BENEFIT-REMAINING COST RATIO: Validated Remaining Benefit – Remaining Cost Ratio not available.

TOTAL BENEFIT-COST RATIO: 3.5 to 1 at 7 percent. The benefit-cost ratio is based on all features which comprise the Main Stem system of the Mississippi River and Tributaries project.

INITIAL BENEFIT-COST RATIO: This project feature of the Main Stem system was authorized in Fiscal Year 1928 and initial construction funds were provided in Fiscal Year 1928. The authorized comprehensive review of the Mississippi River and Tributaries project, contained in House Document 308/88/2, as updated to reflect 1965 conditions and price levels, is considered to be the base estimate for the Main Stem system. The benefit-cost ratio for the Main Stem components computed for the base estimate was 7.9 to 1.

BASIS OF BENEFIT-COST RATIO: Benefits are from the latest available evaluation approved in October 1979 at 1979 price levels. The latest comprehensive analysis was conducted in 1974. The 1979 analysis is the same as the 1974 analysis except that certain undocumented benefit categories were eliminated and 1979 prices were used.

SUMMARIZED FINANCIAL DATA		ACCUM PCT OF EST FED COST	STATUS (1 January 2009)	PCT CMPL	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost	\$4,168,000,000		Entire Project	93	TBD
Estimated Non-Federal Cost	\$ 1,900,000				
Cash Contributions	\$1,800,000				
Other Costs	100,000				
<b>Total Estimated Project Cost</b>	<b>\$4,169,900,000</b>				<b>PHYSICAL DATA</b>
Allocations to 30 September 2006	\$2,809,068,000		Lands and Damages	19,135 acres	
Allocation for FY 2007	48,714,000		Revetments	1,085 miles	
Allocation for FY 2008	55,077,000		Dikes	339 miles	
Conference Allowance for FY 2009	52,875,000		Dredging	As required	
Allocation for FY 2009	52,875,000		Foreshore Protection	160 miles	
Allocations to 30 September 2009	2,965,734,000	71	Pumping Station	1	
Allocation Requested for FY 2010	47,721,000	72			
Programmed Balance to Complete After FY 2010	TBD				
Unprogrammed Balance to Complete After FY 2010	0				

Mississippi River Commission

Memphis, Vicksburg, and  
New Orleans Districts  
7 May 2009

Channel Improvement, AR, IL,  
KY, LA, MS, MO, and TN

**JUSTIFICATION:** The Channel Improvement Project is one of several Main Stem components, which together comprise the plan of improvement for the control of floods on the Mississippi River. The components are: Mississippi River Levees, Channel Improvement, South Bank Arkansas and South Bank Red River Levees, the Atchafalaya Basin, Atchafalaya Basin Floodway System, Old River, and a few miscellaneous items. Because the benefits of Channel Improvement derive from the way in which they operate together with the Main Stem components when the Mississippi River floods, the benefit-cost ratio is a composite one that covers the entire plan.

The Mississippi River, with a drainage area of about 1,245,000 square miles, has a wide range of flow, increasing from an approximate minimum of 90,000 cubic feet per second (675,000 gallons per second) to a maximum of 2,345,000 cubic feet per second (17,587,000 gallons per second) which occurred in 1927 at the latitude of Red River Landing. The project flood is 3,030,000 cubic feet per second (22,500,000 gallons per second). Part of the tremendous energy of this volume of flowing water is directed toward a relentless attack on the banks of the river, causing the unprotected banks to cave into the river. As this caving progresses, the attack becomes more direct, the bendway moves in toward the levee, and more sediment is placed in the river and deposited downstream in the form of a sandbar. This bar gradually builds out into the channel and deflects the river's attack to the opposite bank. As the cycle is repeated the river tends to meander and lengthen. Revetment is placed against the banks of the river at locations where mainline levees are being threatened with destruction or where unsatisfactory alignment and channel conditions are developing. Revetment serves a three-fold purpose in that the river is prevented from encroaching on the Main Stem levees, excess material is kept out of the stream, and a favorable channel alignment and depth are maintained. An objective of the plan is to preserve favorable alignments and efficient cross-sectional areas and to prevent the river from creating new meander patterns. In wide reaches of the river, dikes are used to contract the channel width so as to produce a single efficient channel for navigation and to insure the flood carrying capacity of the river. Chutes and secondary channels are controlled for the same purpose. Improvement dredging is employed to assist the river in removing natural obstructions which deflect the current into undesirable patterns of flow and to assist in developing an efficient channel. Foreshore protection is utilized to preserve the integrity of the Mississippi River Levees from attack by erosion of the batture. Erosion of the batture leads to steep slopes which, when undermined, result in considerable loss of batture and possible failure of the levee.

The value of lands and improvements protected by the Main Stem System authorized works against the design flood is \$189.2 billion in 2008 dollars. This consists of 226,000 residential acres which include the City of New Orleans, 45,000 acres of commercial lands, 10 million acres of agricultural lands, and 6.5 million acres of woodland and marshland. The area subject to flooding by project flood assuming no protective works is 22.7 million acres. The area that will be provided complete protection by the completed project is 15.1 million acres.

The maximum flood of record was the 1927 flood which overflowed about 26,000 square miles, caused the deaths of 214 people, rendered 637,000 people temporarily homeless, and caused property damages of \$347.0 million. This would be equivalent to \$14.3 billion in damages in 2008 prices.

The next flood of magnitude was the 1973 flood which overflowed 16,875 square miles (10.8 million acres), caused the death of 28 people, and displaced approximately 45,300 persons. The deaths and displacements of persons would have been significantly higher without the project in place. Without Federal projects, approximately 19.8 million acres would have been inundated. Total damages with existing projects in operation were \$643 million (1973 price levels). Damages without projects would have been \$11.3 billion and total damages prevented by projects amounted to \$10.6 billion. Expressed in 2008 prices, damages without the projects would have been \$51.8 billion and damages prevented would have been \$48.9 billion.

Mississippi River Commission

Memphis, Vicksburg, and  
New Orleans Districts  
7 May 2009

Channel Improvement, AR, IL,  
KY, LA, MS, MO, and TN

The benefit-cost ratio was derived by measuring the total benefits credited to those Main Stem components against their total cost. Average annual remaining benefits for the composite of Main Stem features are as follows:

Annual Remaining Benefits	Amount @ 2.5 %	Amount @ 7%
Flood Control	\$ 1,127,581,971	\$ 449,208,729
Navigation	227,928,488	118,453,767
Area Redevelopment	1,998,285	1,716,721
Recreation	2,765,302	2,861,202
Total	\$ 1,360,274,046	\$ 572,240,419

FISCAL YEAR 2009: Current funds are being used as follows:

Revetments	\$ 37,690,000
Dikes	\$ 15,185,000
Total	\$ 52,875,000

The items of revetment work are: Approximate length in feet:

Island 18, MO	2,000
Bauxippi Wyanoke, AR	2,000
Bougere, LA	3,000
Reinforcement	17,280

Revetments: The planned program consists of items of work for which funds will be required as follows:

Lands and Damages	\$ 95,000
Construction of Revetments	31,137,000
Cultural Resources	50,000
Planning, Engineering, and Design	5,437,000
Construction Management	971,000
Total	\$ 37,690,000

Dikes: The planned dike work consists of the following items:

Friar Point, MS	\$4,945,000
Robinson Caruso, AR	850,000
Cat Island, AR	2,000,000
Island 70, MS	4,300,000
Lands and Damages	50,000
Cultural Resources	40,000
Planning, Engineering, and Design	2,187,000
Construction Management	813,000
Total	\$15,185,000

Mississippi River Commission

Memphis, Vicksburg, and  
New Orleans Districts  
7 May 2009

Channel Improvement, AR, IL,  
KY, LA, MS, MO, and TN



FISCAL YEAR 2010: The requested amount will be applied as follows:

Revetments	\$ 33,121,000
Dikes	\$ 14,600,000
Total	\$ 47,721,000

The items of revetment work are:

Approximate length in feet:

Hickman Bar, KY	1,600
Heloise, TN	1,500
Cedar Point,-Densford, TN	1,000
Pritchard, MO	1,500
Hardscrabble, LA	2,500
Reinforcement	12,320

Revetments: The planned program consists of items of work for which funds will be required as follows:

Lands and Damages	\$ 83,000
Construction of Revetments	25,470,000
Cultural Resources	33,000
Planning, Engineering, and Design	6,846 ,000
Construction Management	689,000
Total	\$ 33,121,000

Mississippi River Commission

Memphis, Vicksburg, and  
New Orleans Districts  
7 May 2009

Channel Improvement, AR, IL,  
KY, LA, MS, MO, and TN

FISCAL YEAR 2010 (Continued)

Dikes: The planned dike work consists of the following items:

Seyppel, AR	\$1,150,000
Randolph, TN	2,500,000
Cottonwood Bar/Arcadia Pt	2,500,000
Waterproof, LA	3,300,000
Lands and Damages	55,000
Cultural Resources	40,000
Planning, Engineering, and Design	4,125,000
Construction Management	930,000
Total	\$14,600,000

NON-FEDERAL COST: In accordance with Section 4 of the Flood Control Act of 1944, as amended by Section 207 of the Flood Control Act of 1962, the non-Federal sponsor must comply with the requirements listed below:

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation and Replacement Costs
Provide lands, easements, rights-of-way, and borrow and excavated or dredged material disposal area.	\$ 100,000	
Pay one-half of the separable costs allocated to recreation (except recreational navigation) and bear all costs of operation, maintenance, and replacement of recreation facilities.	1,800,000	\$ 197,417
Total Non-Federal Costs	\$ 1,900,000	\$ 197,417

Mississippi River Commission

Memphis, Vicksburg, and  
New Orleans Districts  
7 May 2009

Channel Improvement, AR, IL,  
KY, LA, MS, MO, and TN

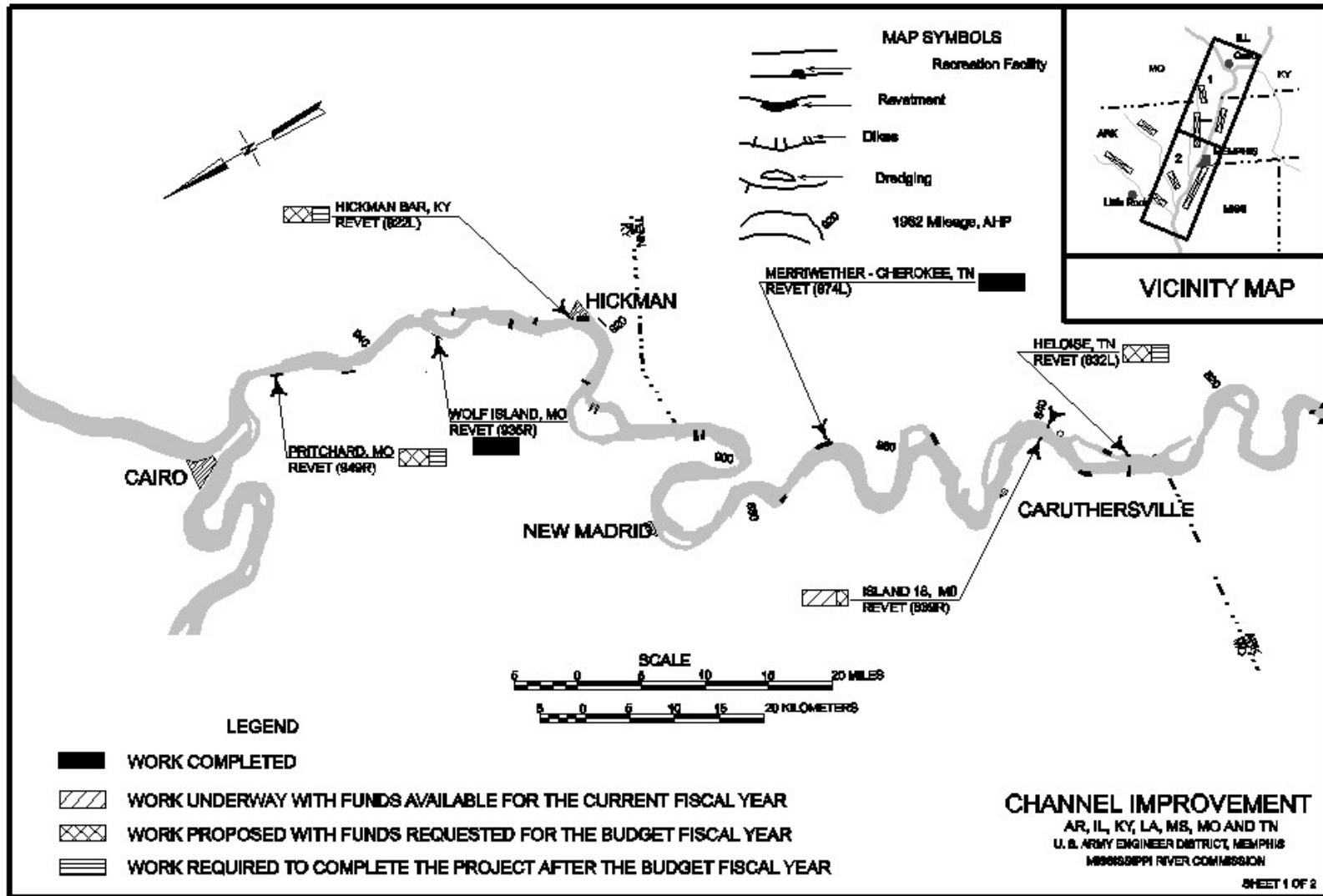
STATUS OF LOCAL COOPERATION: Assurances furnished by the Missouri Department of Conservation for the Dorena Recreation Facility were accepted 27 August 1971; assurances furnished by the Tennessee Department of Conservation for the Richardson Landing Recreation Facility were accepted 3 September 1976; and assurances furnished by the City of Memphis, Tennessee, for Volunteer Bicentennial Park were accepted 11 September 1975. Assurances furnished by the City of Osceola, Arkansas, for Lake Neark, Arkansas, are embodied in the contract for cost sharing approved on 19 September 1982. A Local Cooperation Agreement for the Ed Jones Boat Ramp with the State of Tennessee was signed 27 October 1988. A Local Cooperation Agreement for the Shelby Forest Boat Ramp with the State of Tennessee was signed 11 October 1990. A Local Cooperation Agreement for the Dyersburg, Tennessee, Boat Ramp with the State of Tennessee was signed 11 July 1994.

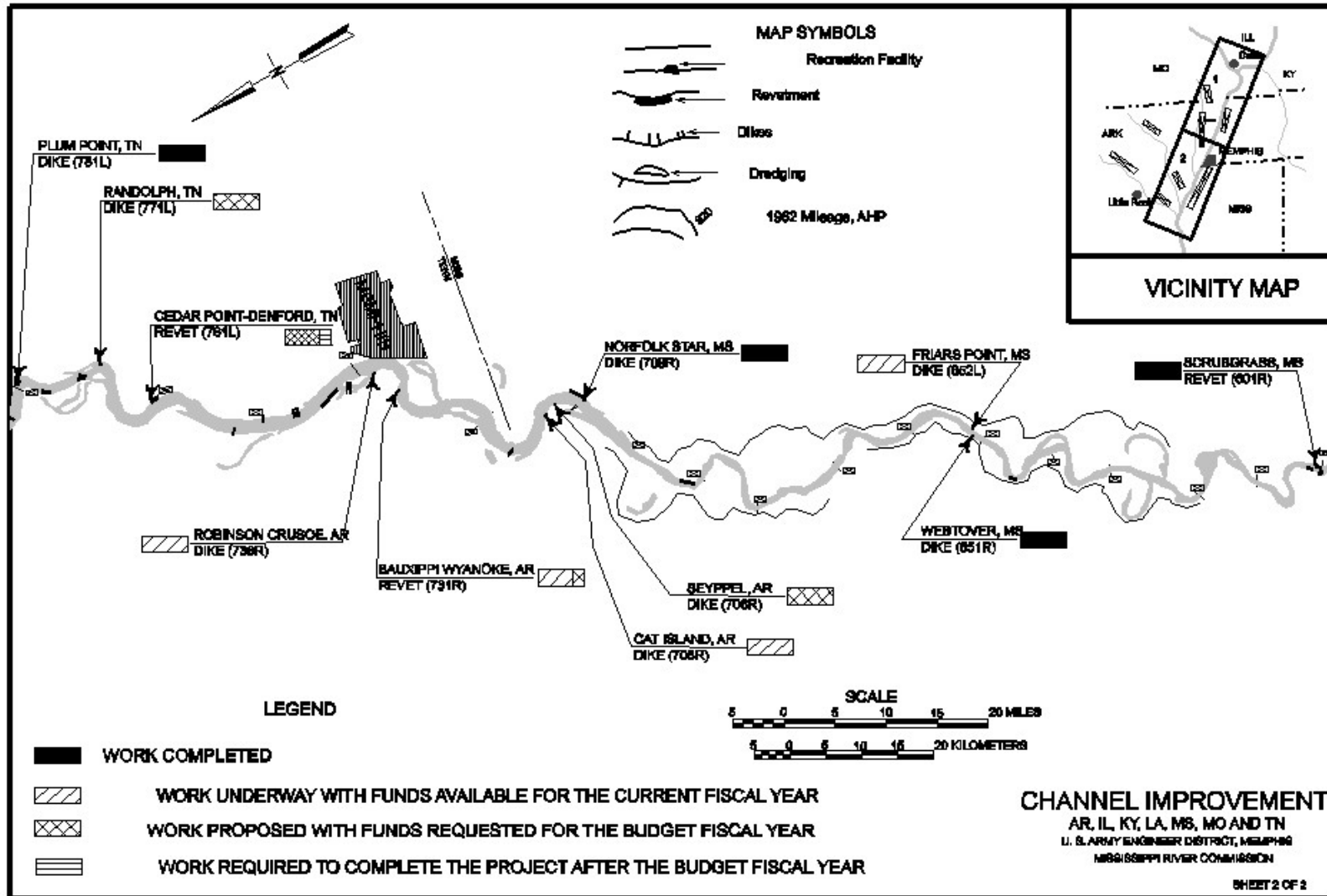
COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of \$4,168,000,000 is an increase of \$153,000,000 from the latest estimate (\$4,015,000,000) presented to Congress (FY 2009). This change includes the following items:

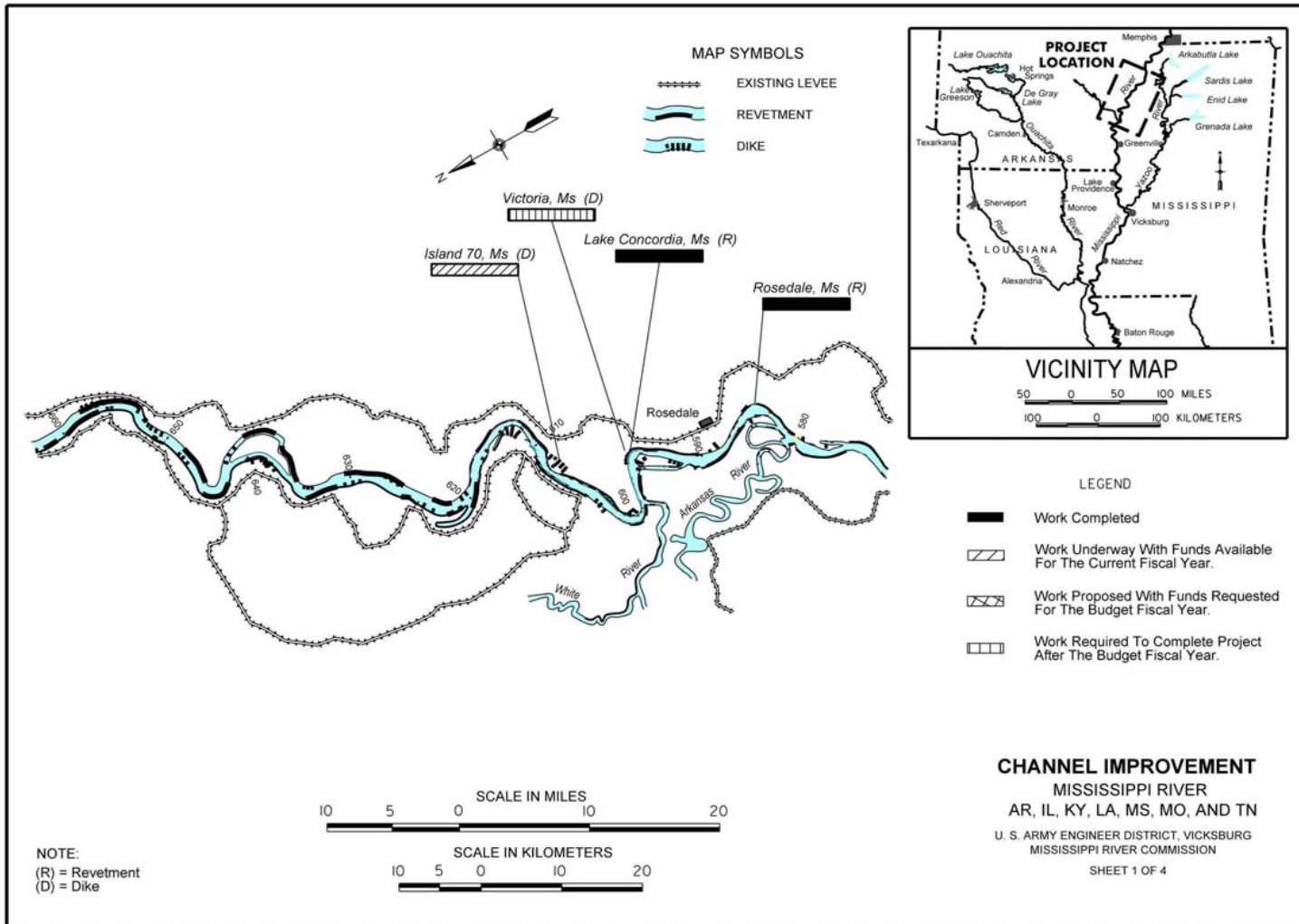
Item	Amount
Price Escalation on Construction Features	\$152,709,000
Post Contract Award and Other Estimating Adjustments	0
Price Escalation on Real Estate	291,000
Total	\$153,000,000

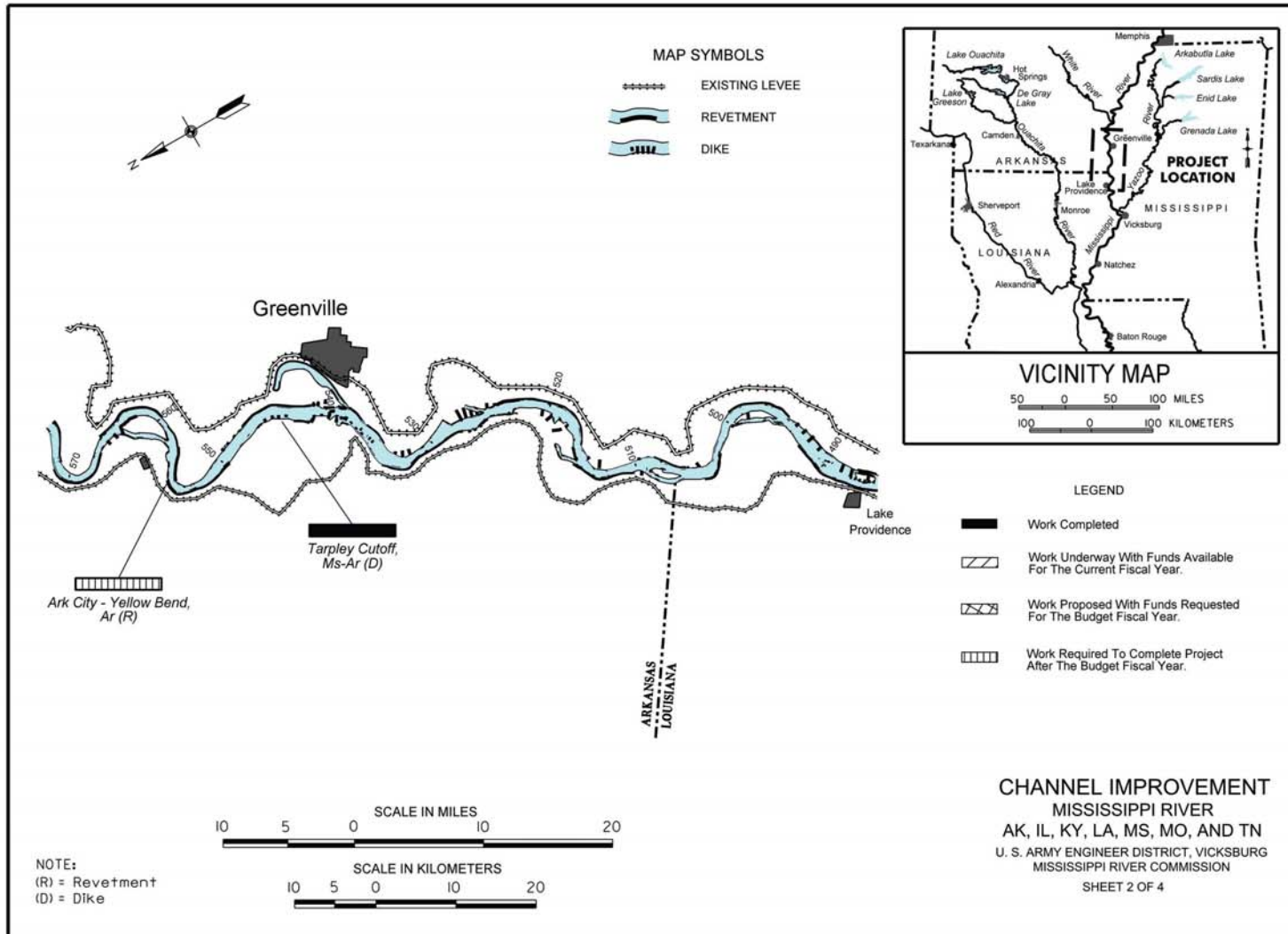
STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The Final Environmental Impact Statement was filed with the Council on Environmental Quality on 16 April 1976.

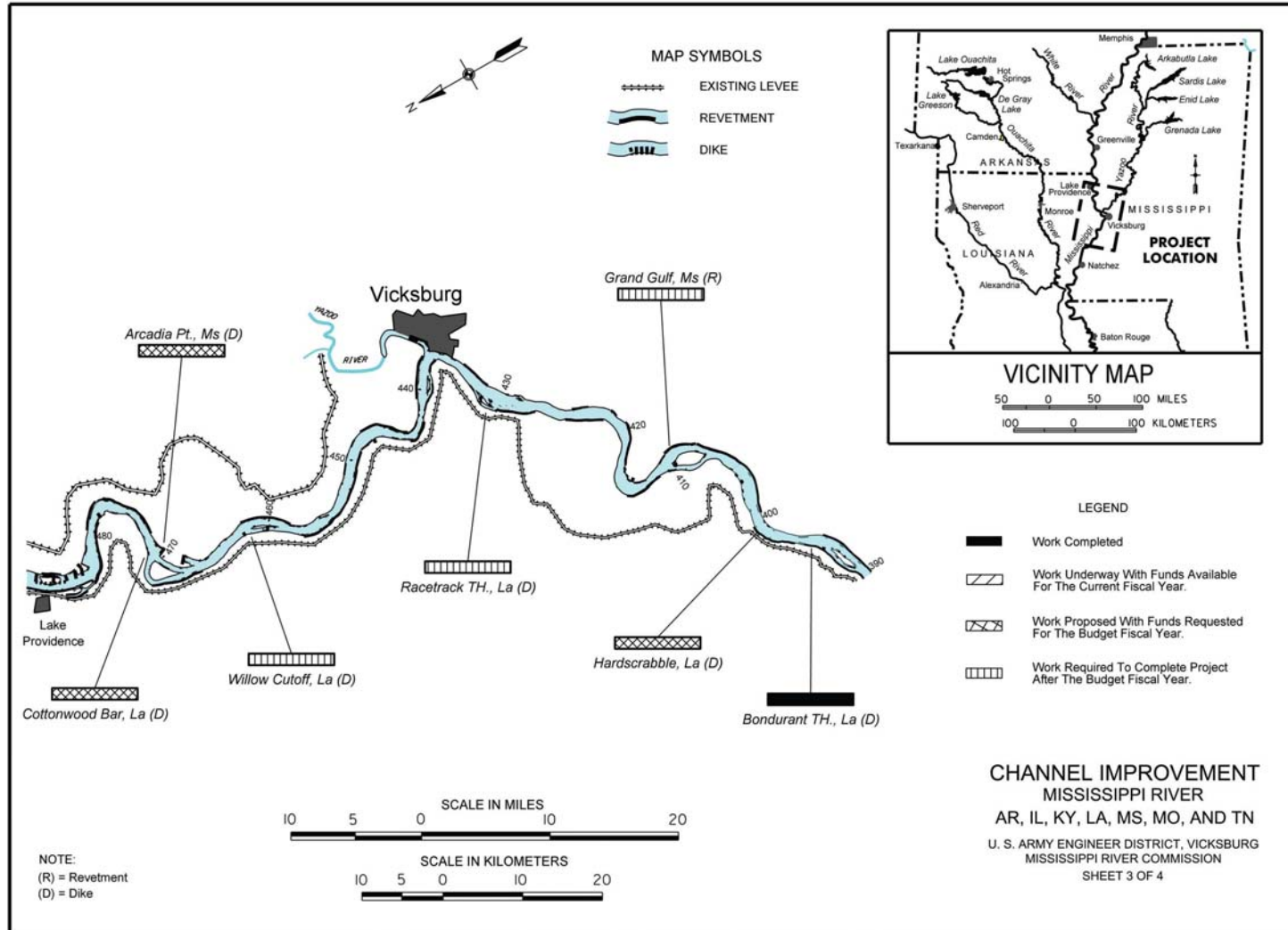
OTHER INFORMATION: Initial construction funds were appropriated in Fiscal Year 1928.



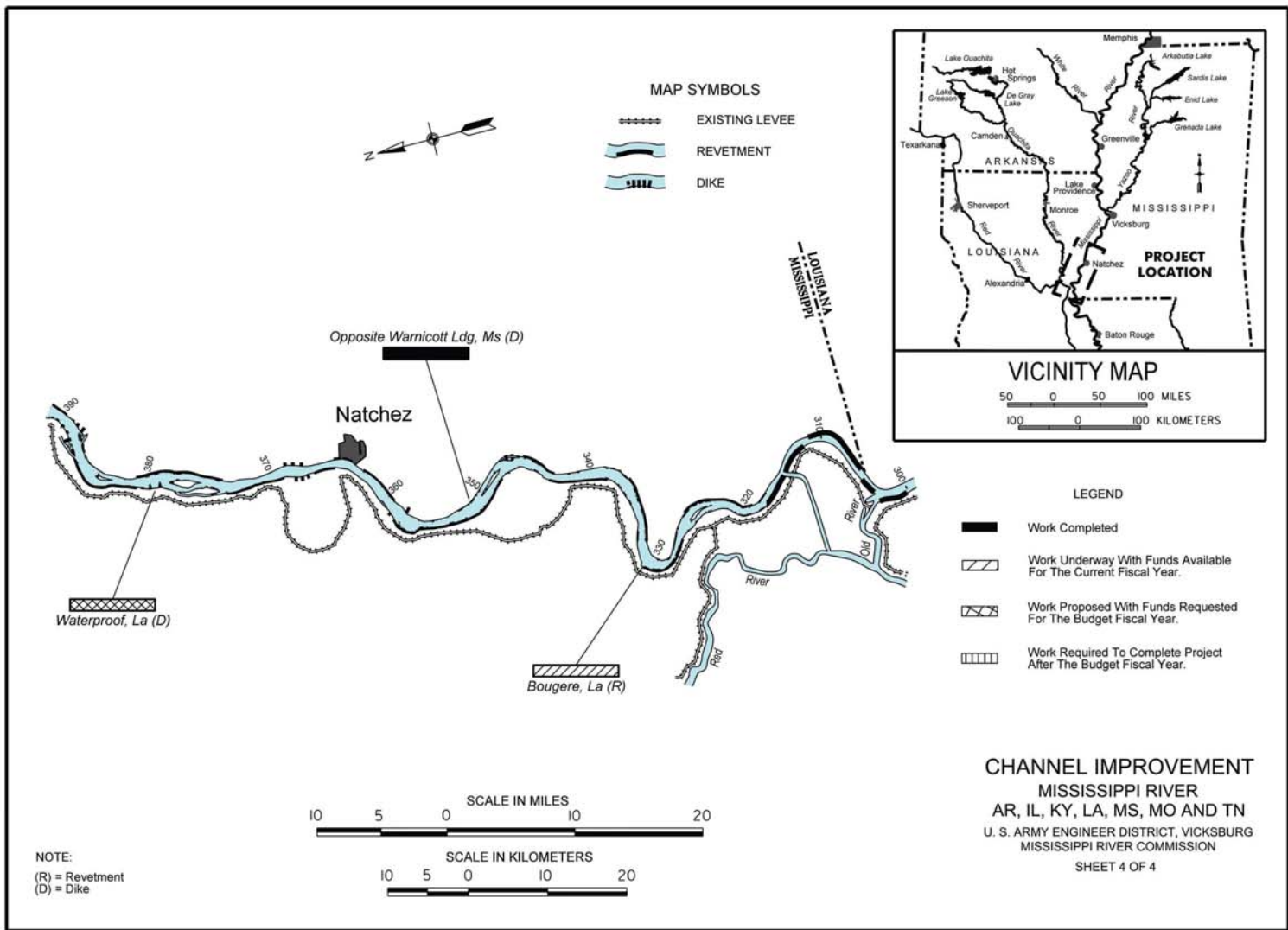


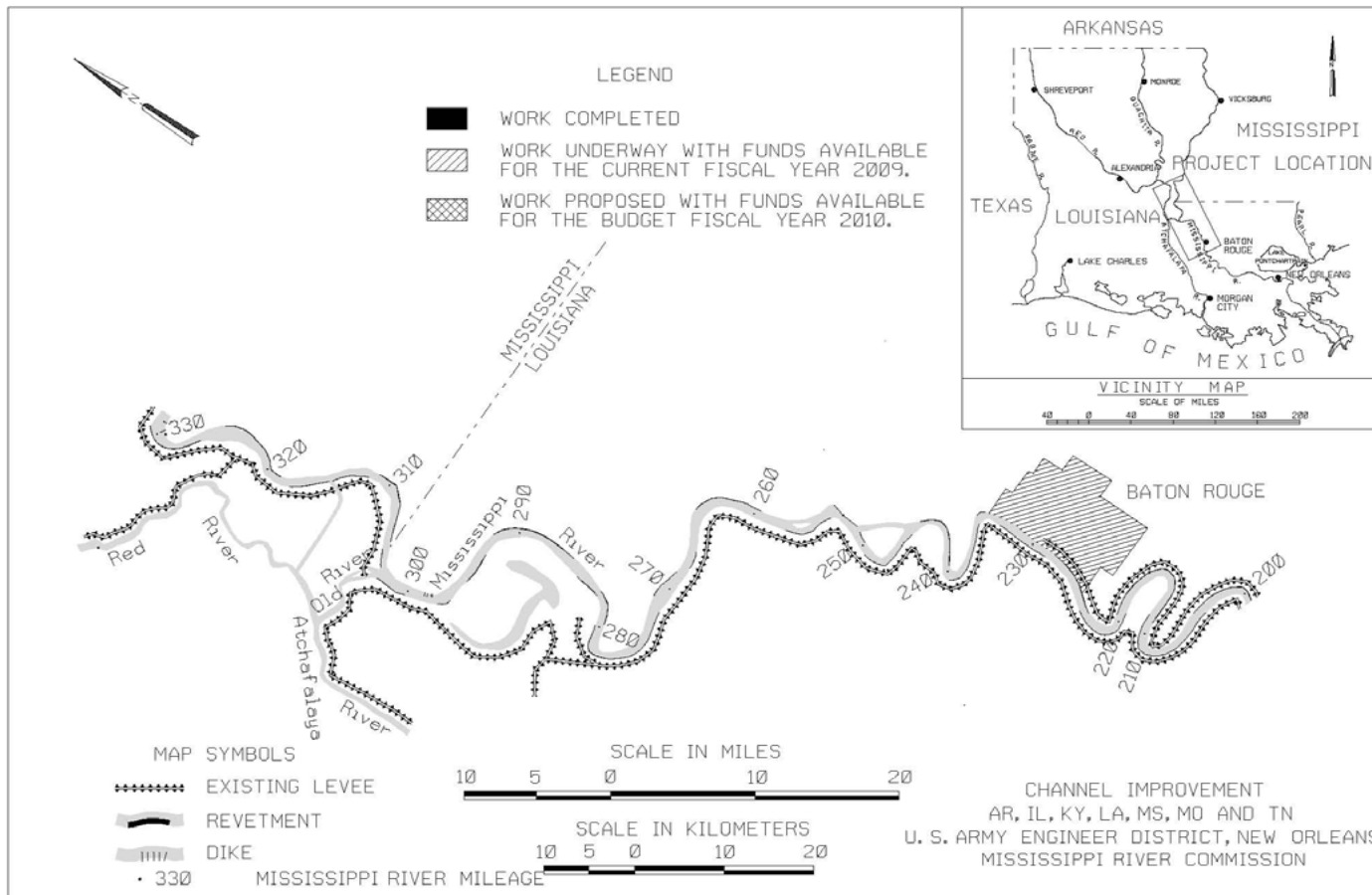




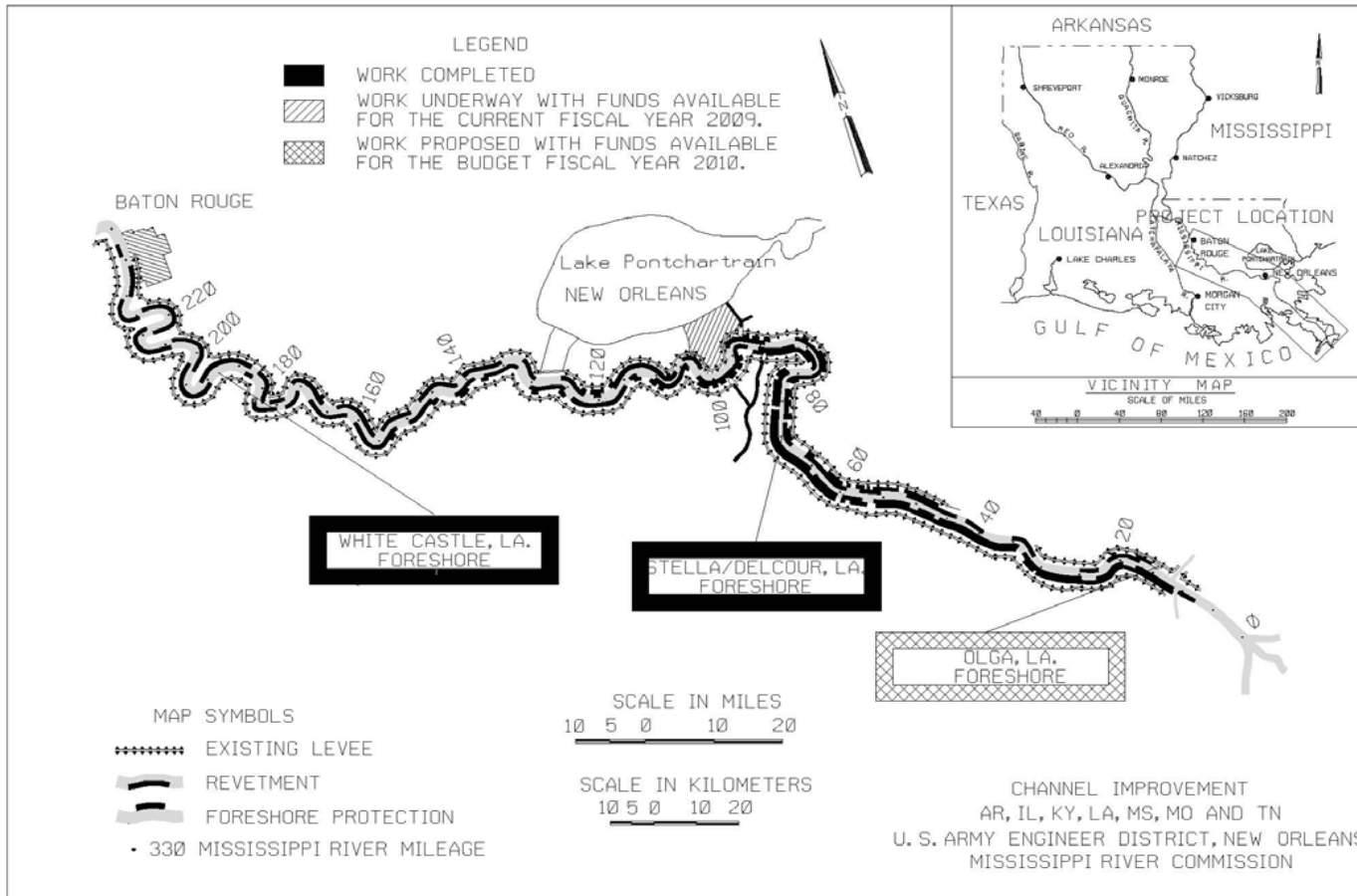








SHEET 1 OF 2



SHEET 2 OF 2

APPROPRIATION TITLE: Flood Control, Mississippi River and Tributaries, AR, IL, KY, LA, MS, MO, TN - Construction

PROJECT: Mississippi River Levees, Arkansas, Illinois, Kentucky, Louisiana, Mississippi, Missouri and Tennessee (Continuing)

LOCATION: The Mississippi River Levee system on the west bank extends from Allenville, Missouri, on the Little River Diversion Channel generally southward to the vicinity of Venice, Louisiana, and on the east bank from Hickman, Kentucky, to opposite Venice, Louisiana, except where interrupted by hills and tributary streams. Included in the system are the levees which protect Mounds, Mound City and Cairo, Illinois, and the New Madrid Levee and Floodway.

DESCRIPTION: The plan of improvement provides for raising, strengthening, and in some cases, extending existing levees to provide protection against the project flood. This feature includes 1,519.5 miles of levees and 14.8 miles of floodwall. All work is programmed.

AUTHORIZATION: Flood Control Acts of 1928, 1936, 1938, 1941, 1946, 1950, 1954, 1962, 1965, 1968, and PL 92-222.

REMAINING BENEFIT-REMAINING COST RATIO: Validated Remaining Benefit – Remaining Cost Ratio not available.

TOTAL BENEFIT-COST RATIO: 3.5 to 1 at 7 percent. The benefit-cost ratio is based on all features which comprise the Main Stem system of the Mississippi River and Tributaries project.

INITIAL BENEFIT-COST RATIO: This project feature of the Main Stem system was authorized in Fiscal Year 1928 and initial construction funds were provided in Fiscal Year 1928. The authorized comprehensive review of the Mississippi River and Tributaries project, contained in House Document 308/88/2, as updated to reflect 1965 conditions and price levels, is considered to be the base estimate for the Main Stem system. The benefit-cost ratio for the Main Stem components computed for the base estimate was 7.9 to 1.

BASIS OF BENEFIT-COST RATIO: Benefits are from the latest available evaluation approved in October 1979 at 1979 price levels. The last comprehensive analysis was conducted in 1974. The 1979 analysis is the same as the 1974 analysis except that certain undocumented benefit categories were eliminated and 1979 prices were used.

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Mississippi River Levees, AR, IL,  
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SUMMARIZED FINANCIAL DATA		ACCUM PCT OF EST FED COST	STATUS (1 January 2009)	PCT CMPL	PHYSICAL COMPLETION SCHEDULE
Estimated Total Appropriation Requirement	\$2,483,374,000		Entire Project	94	TBD
Future Non-Federal Reimbursement	674,000				
Estimated Federal Cost (Ultimate)	2,482,700,000				PHYSICAL DATA
Estimated Non-Federal Cost	\$ 82,900,000		Channel and Canals		72 miles
Cash Contributions	\$ 2,656,000		Levees:		
Other Costs	79,570,000		Average Height		20-35 feet
Reimbursement	674,000		Length		1,519.5 miles
Recreation Facilities	\$674,000		Floodwalls:		
			Average Height		14-23 feet
Total Estimated Project Cost	\$2,565,600,000		Length		14.8 miles
Allocations to 30 September 2006	\$ 1,163,711,000		Levee Berms		629.3 miles
Allocation for FY 2007	67,617,000		Levee Roads		1,500.0 miles
Allocation for FY 2008	53,874,000		Pumping Stations		5
Conference Allowance for FY 2009	65,047,000				
Allocation for FY 2009	65,047,000				
Allocations through 30 September 2009	1,350,249,000	54			
Allocation Requested for FY 2010	28,874,000	56			
Programmed Balance to Complete After FY 2010	TBD				
Unprogrammed Balance to Complete After FY 2010	0				

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JUSTIFICATION: The Mississippi River Levee system is one of several Main Stem components, which together comprise the plan of improvement for the control of floods on the Mississippi River. The components are: Mississippi River Levees, Channel Improvement, South Bank Arkansas and South Bank Red River Levees, the Atchafalaya Basin, Atchafalaya Basin Floodway System, Old River and a few miscellaneous items. Because the benefits of the Mississippi River Levees derive from the way in which they operate together with the other Main Stem components when the Mississippi River floods, the benefit-cost ratio is a composite one that covers the entire plan.

The Mississippi River Levee System provides protection to 23,620 square miles and partial protection to an additional 3,780 square miles in the alluvial valley subject to flooding by the project flood. The alluvial valley is over 650 miles long and varies in width from 20 to 90 miles. Numerous railroads, highways, and airfields connecting the major transportation centers lie within the protected area as do several major transcontinental communication routes. In addition to highly developed agricultural areas, the levees afford protection to urban areas and many industries.

The value of lands and improvements protected by the Main Stem System authorized works against the design flood is \$189.2 billion in 2008 dollars. This consists of 226,000 residential acres which include the City of New Orleans, 45,000 acres of commercial lands, 10 million acres of agricultural lands, and 6.5 million acres of woodland and marshland. The area subject to flooding by project flood assuming no protective works is 22.7 million acres. The area that will be provided complete protection by the completed project is 15.1 million acres.

The maximum flood of record was the 1927 flood which overflowed about 26,000 square miles, caused the deaths of 214 people, rendered 637,000 people temporarily homeless, and caused property damages of \$347.0 million. This would be equivalent to \$14.3 billion in damages in 2008 prices.

The next flood of magnitude was the 1973 flood which overflowed 16,875 square miles (10.8 million acres), caused the death of 28 people, and displaced approximately 45,300 persons. The deaths and displacements of persons would have been significantly higher without the project in place. Without Federal projects, approximately 19.8 million acres would have been inundated. Total damages with existing projects in operation were \$643 million (1973 price levels). Damages without projects would have been \$11.3 billion and total damages prevented by projects amounted to \$10.6 billion. Expressed in 2008 prices, damages without the projects would have been \$51.8 billion and damages prevented would have been \$48.9 billion.

The benefit-cost ratio was derived by measuring the total benefits credited to those Main Stem components against their total cost. Average annual remaining benefits for the composite of Main Stem features are as follows:

Annual Remaining Benefits	Amount @ 2.5 %	Amount @ 7%
Flood Control	\$ 1,127,581,971	\$ 449,208,729
Navigation	227,928,488	118,453,767
Area Redevelopment	1,998,285	1,716,721
Recreation	2,765,302	2,861,202
<b>Total</b>	<b>\$ 1,360,274,046</b>	<b>\$ 572,240,419</b>

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Mississippi River Levees, AR, IL,  
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FISCAL YEAR 2009: Current funds are being used as follows:

Continue:

Lands and damages	
Acquisition of mitigation lands	\$ 85,000
Surveys & borings	8,800,000
	160,000

Award (Fully Fund):

Magna-Vista Brunswick, Item 468-L	10,500,000
Vidalia-Moreville, LA Item 365-R (preaward activities)	50,000
Gretna to Point Celeste	3,200,000
Advance completion of levee enlargement, paving, and slope stability contracts	4,100,000
St. John's levee closure/box culvert site restoration	3,800,000
LMRMRIS	15,573,000

Planning, Engineering, and Design	15,302,000
Supervision and Administration	3,477,000

Total \$65,047,000

In the event of emergency conditions, such as levee slides, sand boils, bank erosion or other events which threaten levee integrity, the Corps intends to reallocate the funds identified on the priorities presented below to accomplish necessary emergency actions.

FISCAL YEAR 2010: The requested amount will be applied as follows:

Continue:

Lands and Damages	100,000
Acquisition of mitigation lands	500,000
Relocations	2,000,000

Award (Fully Fund):

Vidalia-Moreville, Item 365-R	10,000,000
Fifth Levee District Phase I	3,600,000
Baton Rouge Front Phase III	540,000

Planning, Engineering, and Design	8,160,000
Supervision and Administration	3,974,000

Total \$28,874,000

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NON-FEDERAL COST: In accordance with the Flood Control Acts of 1928, 1936, 1938, 1941, 1946, 1950, 1954, 1962, 1965, 1968 and PL 92-222, the non-Federal sponsor must comply with the requirements listed below:

	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation and Replacement Costs
Requirements of Local Cooperation		
Provide lands, easements, rights-of-way, and borrow and excavated or dredged material disposal areas.	\$79,248,000	
Minor maintenance of all flood control works after their completion, except controlling a regulating spillway structures, including special relief levees; maintenance includes normally such matters as cutting grass, removal of weeds, local drainage and minor repairs to mainline river levees.		\$9,601,000
Pay one-half of the separable costs allocated to recreation (except recreational navigation) and bear all costs of operation, maintenance, repair, rehabilitation and replacement of recreation facilities.	3,330,000	
Other (levee and revetment construction)	\$322,000	
<b>Total Non-Federal Costs</b>	<b>\$82,900,000</b>	<b>\$9,601,000</b>

STATUS OF LOCAL COOPERATION: It is estimated that local interests had spent approximately \$292,000,000 for flood protection prior to the Act of 15 May 1928. After passage of the Act, the 37 levee districts along the Mississippi River adopted resolutions assuring the United States that the requirements of local cooperation will be met. These local interests have acquired all rights-of-way for work completed and underway and will try to provide the rights-of-way for work scheduled for Fiscal Year 2009. Some levee boards are having difficulty in providing right-of-way when requested, even for construction work in areas where the existing levees are farthest below the authorized grade. Supplemental assurances covering the requirements of the Uniform Relocations Assistance and Real Property Acquisition Policies Act of 1970 (PL 91-646) have been accepted for Main Stem Mississippi River Levees in Arkansas, Illinois, Kentucky, Louisiana, Mississippi, Missouri, and Tennessee.

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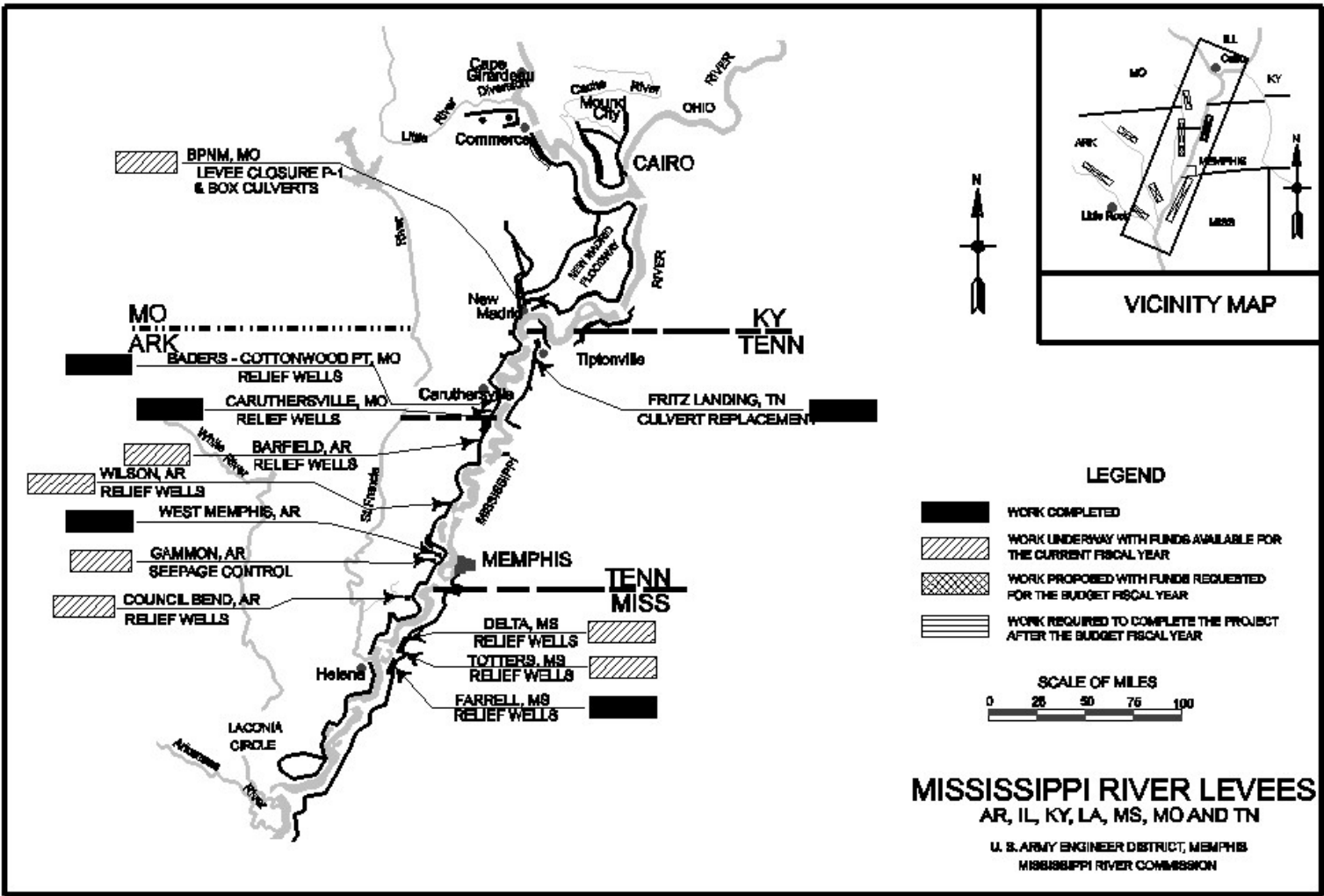
Assurances of local cooperation for the recreation facilities at Warfield Point, Mississippi, were accepted on 14 October 1969. Supplemental assurances covering the River and Harbor Act of 1970 (PL 91-611) and PL 91-646 were accepted 7 August 1972. Assurances have not as yet been requested for the recreation facilities at Mississippi River State Park, Arkansas.

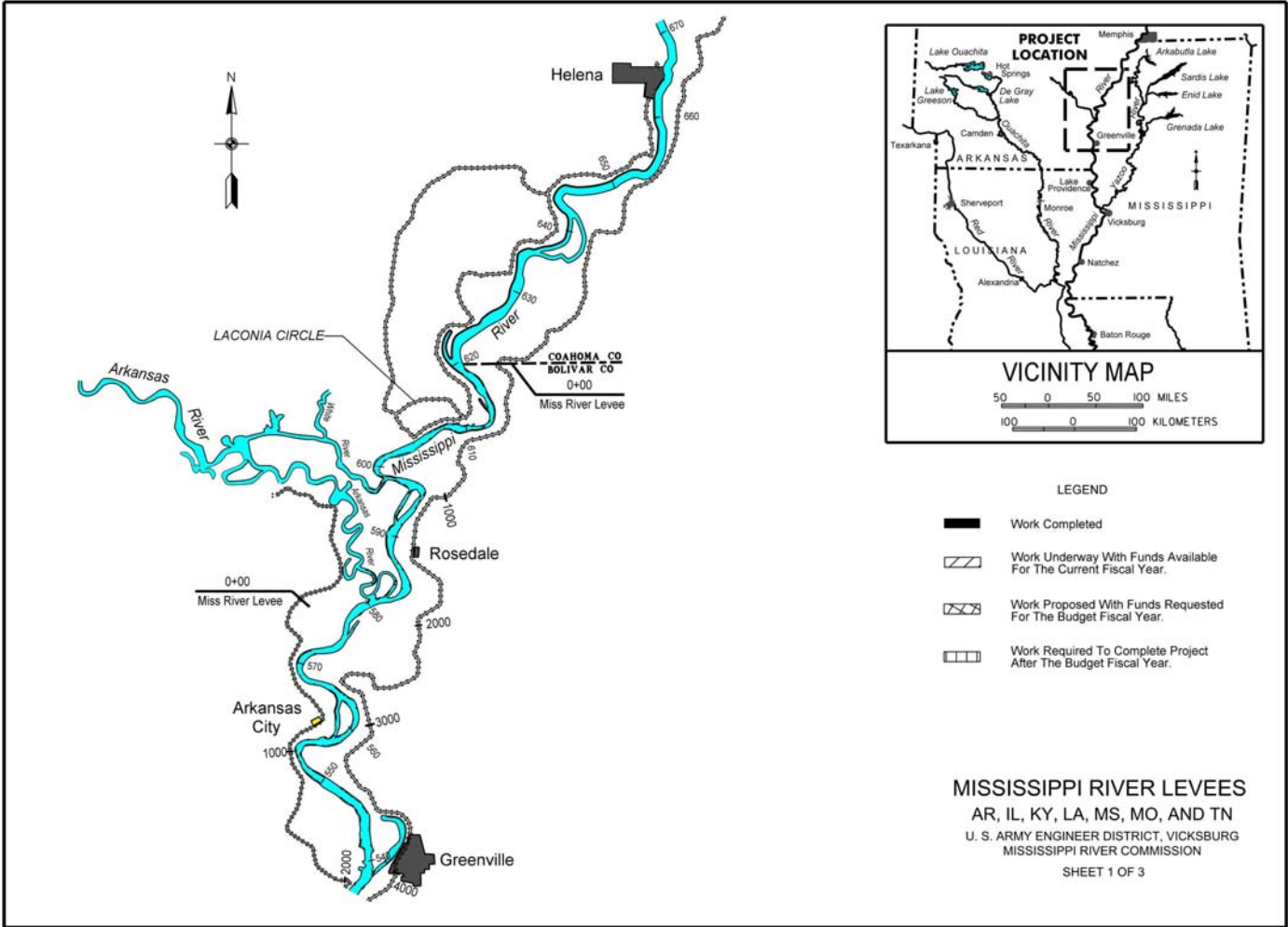
COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of \$2,482,700,000 is an increase of \$301,700,000 from the latest estimate (\$2,181,000,000) presented to Congress (FY 2009). This change includes the following items:

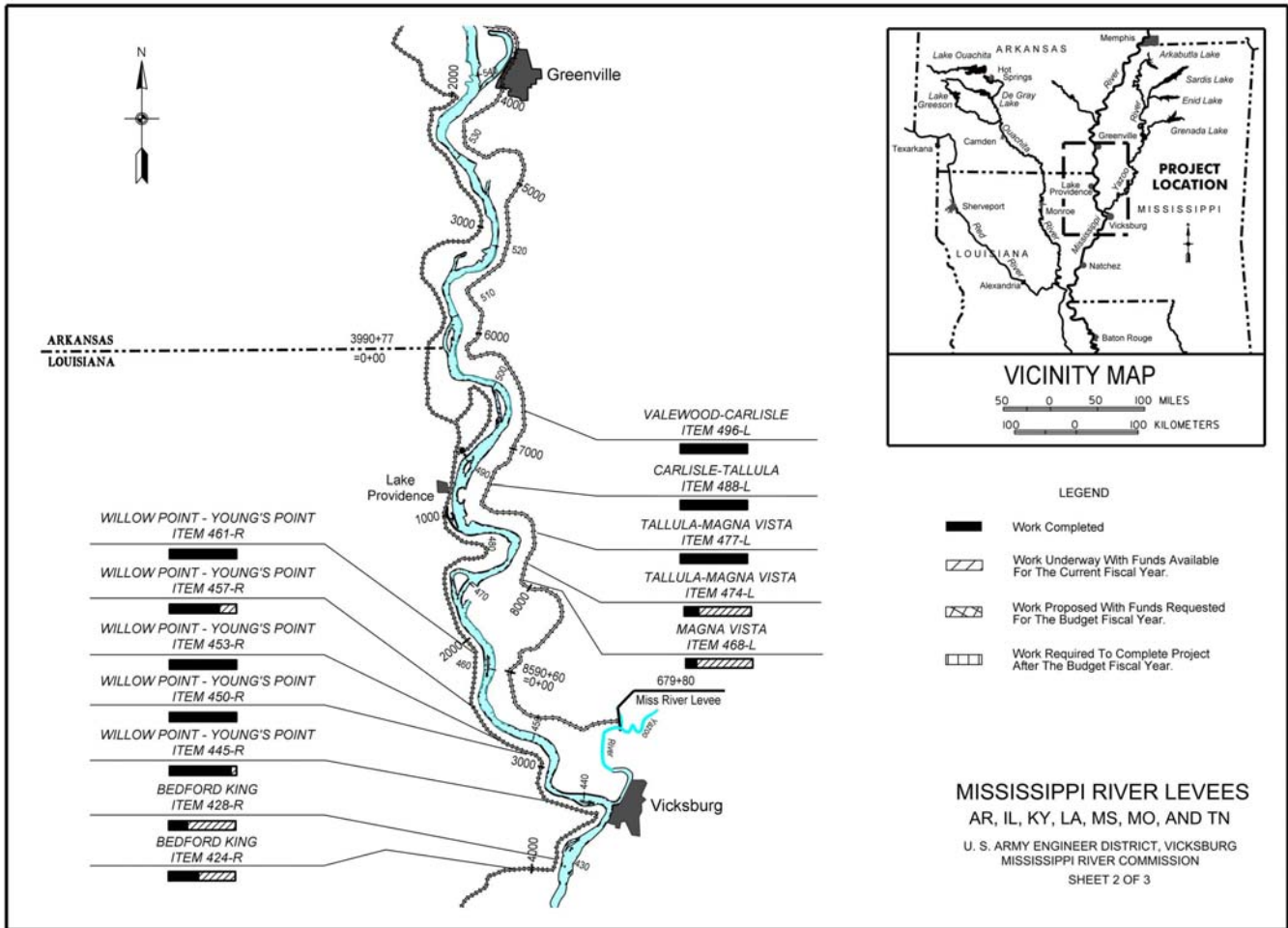
Item	Amount
Price Escalation on Construction Features	233,748,000
Post Contract Award and Other Estimating Adjustments	63,050,000
Price Escalation on Real Estate	4,902,000
Price Escalation on Design Costs	0
Additional Deficiencies Identified	0
Total	\$ 301,700,000

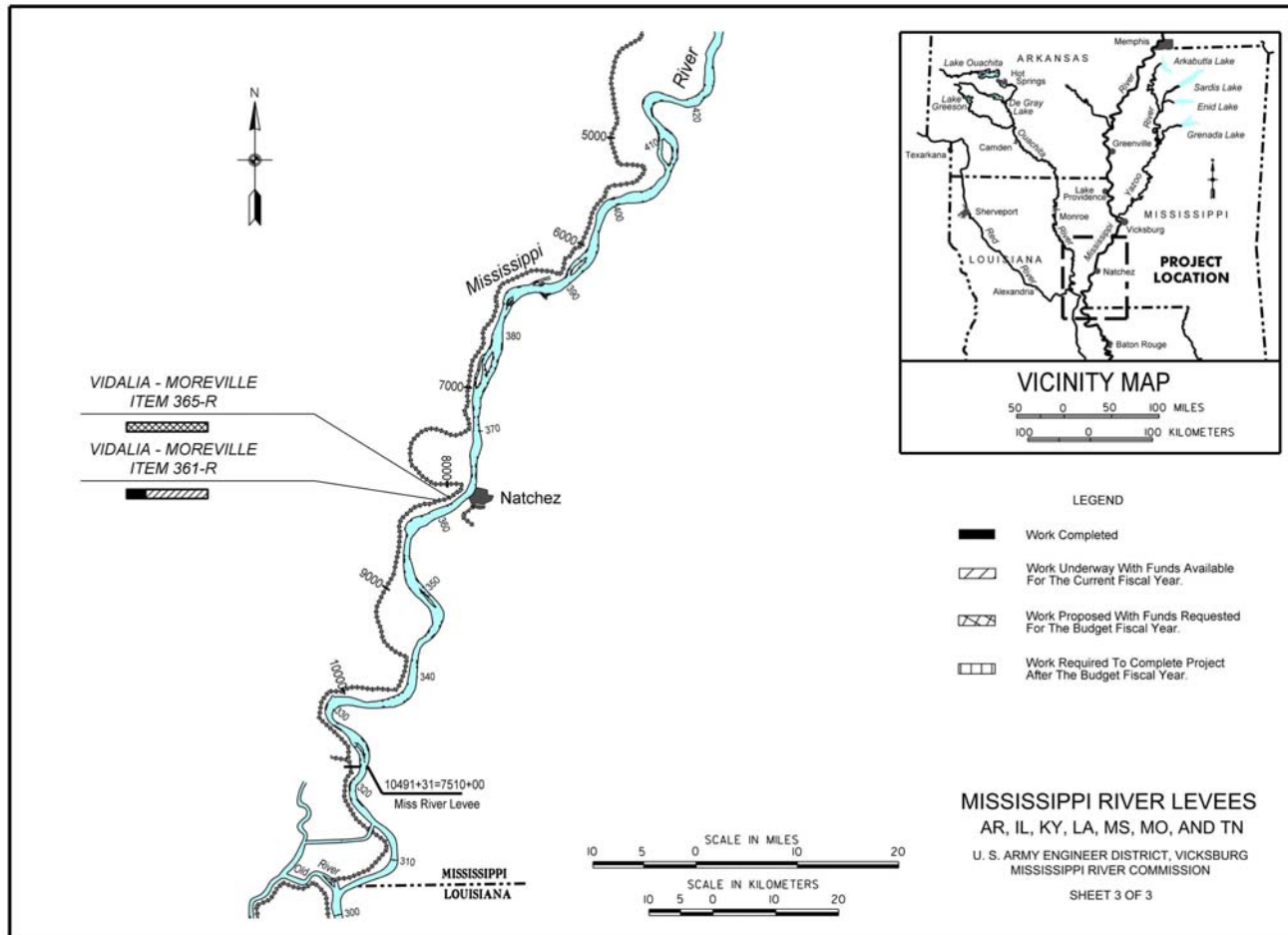
STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The Final Environmental Impact Statement was filed with the Council on Environmental Quality on 16 April 1976. A Supplemental Environmental Impact Statement for the project was completed and the Record of Decision was signed on 5 October 1998. The adequacy of the Supplemental Environmental Impact Statement was challenged but upheld by the United States District Court for the Eastern District of Louisiana. The Fifth Circuit Court of Appeals on October 23, 2000, affirmed the district court's grant of summary judgment to the Government.

OTHER INFORMATION: Initial construction funds were appropriated in Fiscal Year 1928.





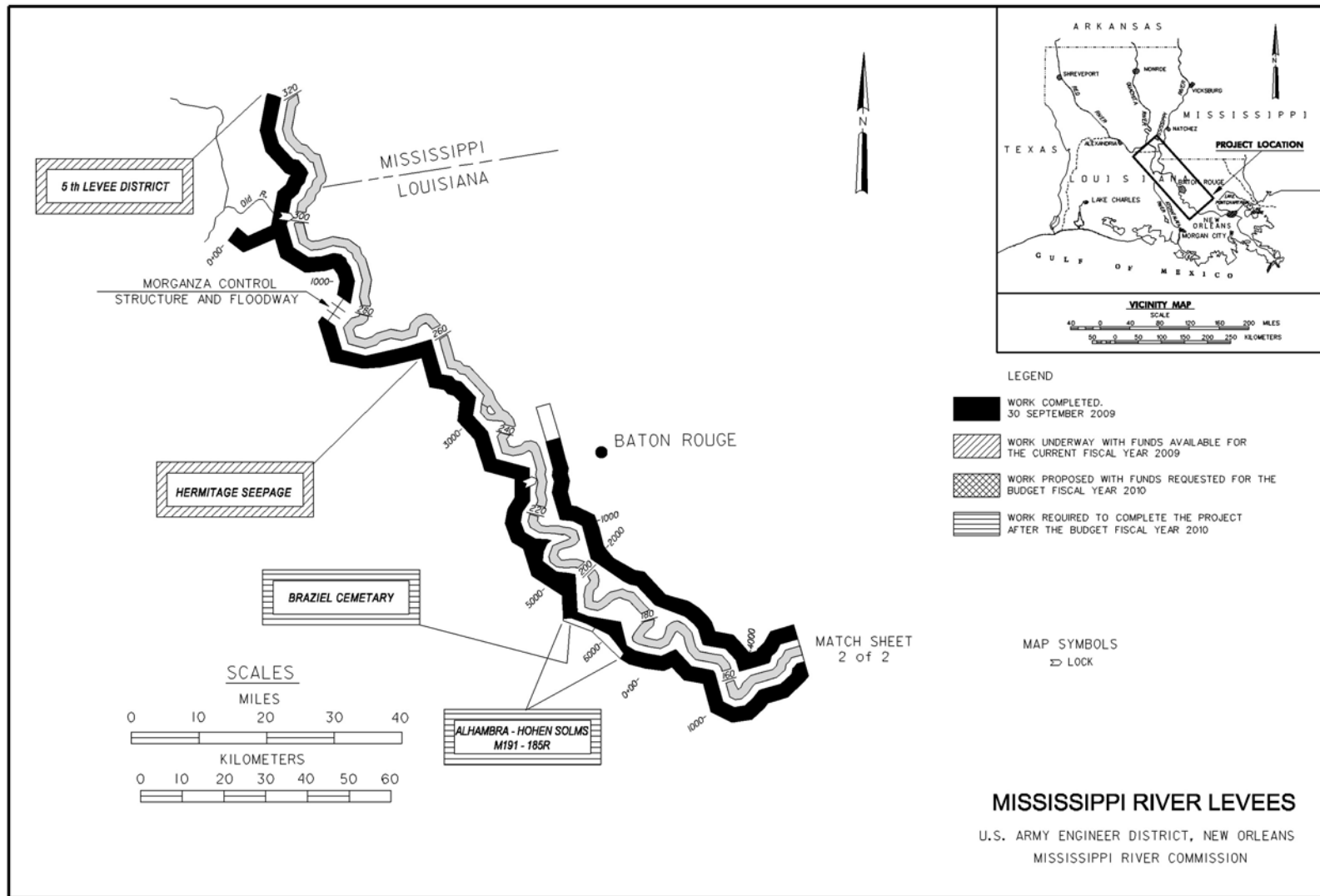




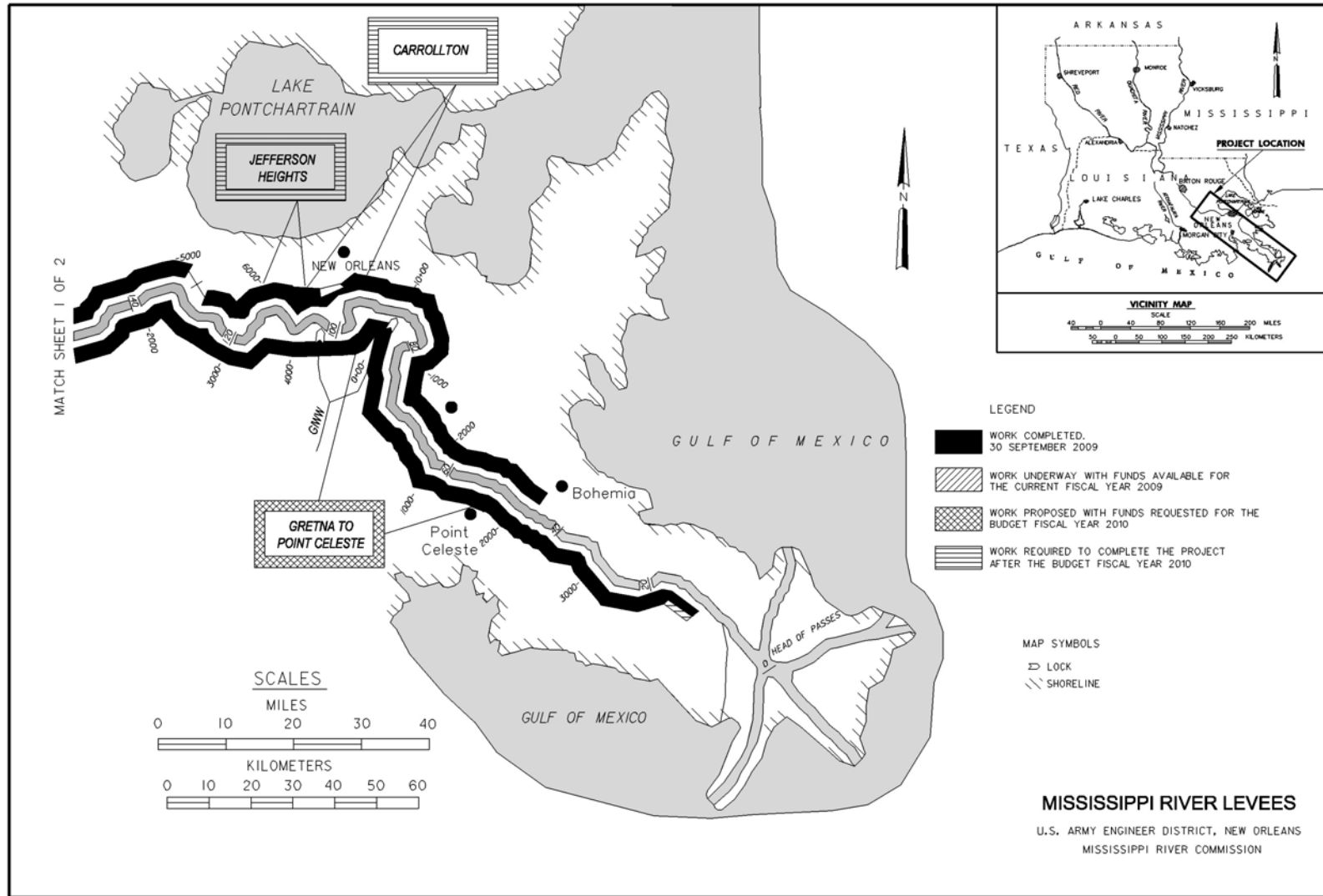
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Mississippi River Levees, AR, IL,  
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Mississippi River Levees, AR, IL,  
 KY, LA, MS, MO, and TN

# AQUATIC ECOSYSTEM RESTORATION



# CONSTRUCTION

APPROPRIATION TITLE: Flood Control, Mississippi River and Tributaries, AR, IL, KY, LA, MS, MO, and TN - Construction

PROJECT: Atchafalaya Basin Floodway System, Louisiana (Continuing)

LOCATION: The project is located in south-central Louisiana and encompasses approximately 595,000 acres in an area bounded on the north by south right-of-way line of the Union Pacific Railroad (just south of US Hwy 190 passing through Krotz Springs, LA); on the south by Morgan City; and on the east and west by the East and West Atchafalaya Basin Protection Levees.

DESCRIPTION: The plan of improvement consists of acquisition of real estate interest, excluding minerals, in the Lower Atchafalaya Floodway for flood control purposes, environmental protection purposes, developmental control purposes, and public access; acquisition of real estate interest, excluding minerals, in the Lower Atchafalaya Floodway, for recreation developmental purposes and construction of several campgrounds, boat launching ramps, visitor's center, other recreational facilities and initial construction of two pilot water management units, including construction of miscellaneous canal closures and water circulation improvements, and implementation of future units at the discretion of the Chief of Engineers. These project features will be implemented in accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986. All work is programmed.

AUTHORIZATION: Supplemental Appropriations Act, 1985; Water Resources Development Act, 1986; Energy and Water Development Appropriations Act, 1988; Energy and Water Development Appropriations Act, 1991; Energy and Water Development Appropriations Act, 1997; and Water Resources Development Act, 2000, and Water Resources Development Act of 2007.

REMAINING BENEFIT-REMAINING COST RATIO: Validated Remaining Benefit-Remaining Cost Ratio not available.

TOTAL BENEFIT-COST RATIO: 3.8 to 1 at 7 percent. The benefit-cost ratio is based on all features that comprise the Main Stem system of the Mississippi River and Tributaries project.

INITIAL BENEFIT-COST RATIO: This project is a feature of the Main Stem system that was authorized in Fiscal Year 1928. Initial funds for the acquisition of real estate interests for flood control, developmental control, environmental protection, and public access were provided in 1985. The authorized comprehensive review of the Mississippi River and Tributaries project, contained in House Document 308/88/2, as updated to reflect 1965 conditions and price levels, is considered to be the base estimate for the Main Stem system. The benefit-cost ratio for the Main Stem components computed for the base estimate was 7.9 to 1.

BASIS OF BENEFIT-COST RATIO: Benefits are from the latest available evaluation approved in October 1979 at 1979 price levels. The latest comprehensive analysis was conducted in 1974. The 1979 analysis is the same as the 1974 analysis except that certain undocumented benefit categories were eliminated and 1979 prices were used.

SUMMARIZED FINANCIAL DATA		ACCUM PCT OF EST FED COST	STATUS (1 January 2009)	PCT CMPL	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost		387,366,000	Land Acquisition	60	TBD
Estimated Non-Federal Cost		78,816,000	Recreation	4	TBD
Cash Contribution	70,934,400		Management Units	5	TBD
Other Costs	7,881,600		Entire Project	33	TBD
Total Estimated Project Cost		466,182,000			
PHYSICAL DATA					
Allocations to 30 September 2006		120,483,000			
Allocations for 2007		5,300,000			Lands and Damages: 388,000 Acres
Allocations for FY 2008		1,771,000			Recreational Facilities
Conference Allowance for FY 2009		2,025,000			3 campgrounds – developed
Allocation for FY 2009		2,025,000			7 campgrounds – primitive
Allocations through FY 2009		129,579,000	33		15 2-lane boat launching ramps
Allocation Requested for FY 2010		2,664,000	34		1 Visitors Center
Programmed Balance to Complete after FY 2010		TBD			Trails
Unprogrammed Balance to Complete after FY 2010		0			Water Management Units
					Miscellaneous canal closures and water circulation channels

**JUSTIFICATION:** The Atchafalaya Basin Floodway System features result from a comprehensive study with a view to developing a plan for the enhancement, management, and preservation of the water quality and related land resources of the Atchafalaya River Basin, Louisiana, which would include provisions for reductions of siltation, improvement of water quality, and possible improvements of the area for commercial and sport fishing. The features of the Atchafalaya Basin Floodway System are compatible with the current flood control plan, and include real estate acquisition of lands, flowage easements, and developmental control easements in the floodway south of Krotz Springs, Louisiana, to ensure unhampered use of the floodway during major floods; and environmental protection easements to protect the basin's environmental resources. Provision of additional public access and several campgrounds, boat launching ramps, visitors' center, and other recreational facilities are also authorized. The water management units' feature involves making use of distinct and unique hydrologic units within the floodway to improve historical (where practical) overflow conditions and thereby enhance aquatic ecosystem productivity.

The Atchafalaya Basin Floodway System is one of several Main Stem components, which together comprise the plan of improvement for the control of floods on the Mississippi River. The components are: Mississippi River Levees, Channel Improvement, South Bank Arkansas and South Bank Red River Levees, the Atchafalaya Basin, Atchafalaya Basin Floodway System, Old River, and a few miscellaneous items. The benefits of the Atchafalaya Basin Floodway System are derived from the way in which they operate together with all other Main Stem components when the Mississippi River floods, the benefit-cost ratio is a composite one that covers the entire plan.

The value of lands and improvements protected by authorized works against the design flood is \$189.2 billion in 2008 dollars. This consists of 226,000 residential acres that include the City of New Orleans, 45,000 acres of commercial lands, 10 million acres of agricultural lands, and 6.5 million acres of woodland and marshland. The area subject to flooding by project flood assuming no protective works is 22.7 million acres. The area that will be provided complete protection by the completed project is 15.1 million acres.

The maximum flood of record was the 1927 flood that overflowed about 26,000 square miles, caused the deaths of 214 people, rendered 637,000 people temporarily homeless, and caused property damages of \$347.0 million. This would be equivalent to \$14.3 billion damages in 2008 prices.

The next flood of magnitude was the 1973 flood that overflowed 16,875 square miles (10.8 million acres), caused the death of 28 people, and displaced approximately 45,300 persons. The deaths and displacements of persons would have been significantly higher without the project in place. Without Federal projects, approximately 19.8 million acres would have been inundated. Total damages with existing projects in operation were \$643 million (1973 price levels). Damages without projects would have been \$11.3 billion and total damages prevented by projects amounted to \$10.6 billion. Expressed in 2008 prices, damages without the projects would have been \$51.8 billion and damages prevented would have been \$48.9 billion.

Measuring the total benefits credited to those Main Stem components against their total cost derived the benefit-cost ratio. Average annual benefits for the composite of Main Stem features are as follows:

Annual Benefits	Amount @ 2.5%	Amount @7%
Flood Control	\$ 1,127,581,971	\$ 449,208,729
Navigation	227,928,488	118,453,767
Area Redevelopment	1,998,285	1,716,721
Recreation	2,765,302	2,861,202
Total	\$ 1,360,274,046	\$ 572,240,419

FISCAL YEAR 2009: The current amount is being applied as follows:

Buffalo Cove (Management Unit Construction)	\$1,000,000
Supplemental Environmental Studies	200,000
Lands and Damages	400,000
Construction Management	100,000
Flood Damage Reduction:	
Lands and Damages	325,000
Total	\$ 2,025,000

FISCAL YEAR 2010: The requested amount will be applied as follows:

Continue:	
Buffalo Cove Construction	\$1,631,000
Buffalo Cove Monitoring and EIS	500,000
Water Management Units	\$533,000
Total	\$2,664,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation and Replacement Costs
Pay one-half of the separable cost allocated to recreation and bear all costs of operation, maintenance, and replacement of recreation facilities.	54,085,000	1,081,700
Provide lands, easements, rights-of-way, and dredged material disposal areas for recreation.	2,247,750	0
Pay 25 percent of construction, operation, and maintenance of Water Management Units.	22,483,250	4,271,818
Total Non-Federal Costs	78,816,000	5,353,518

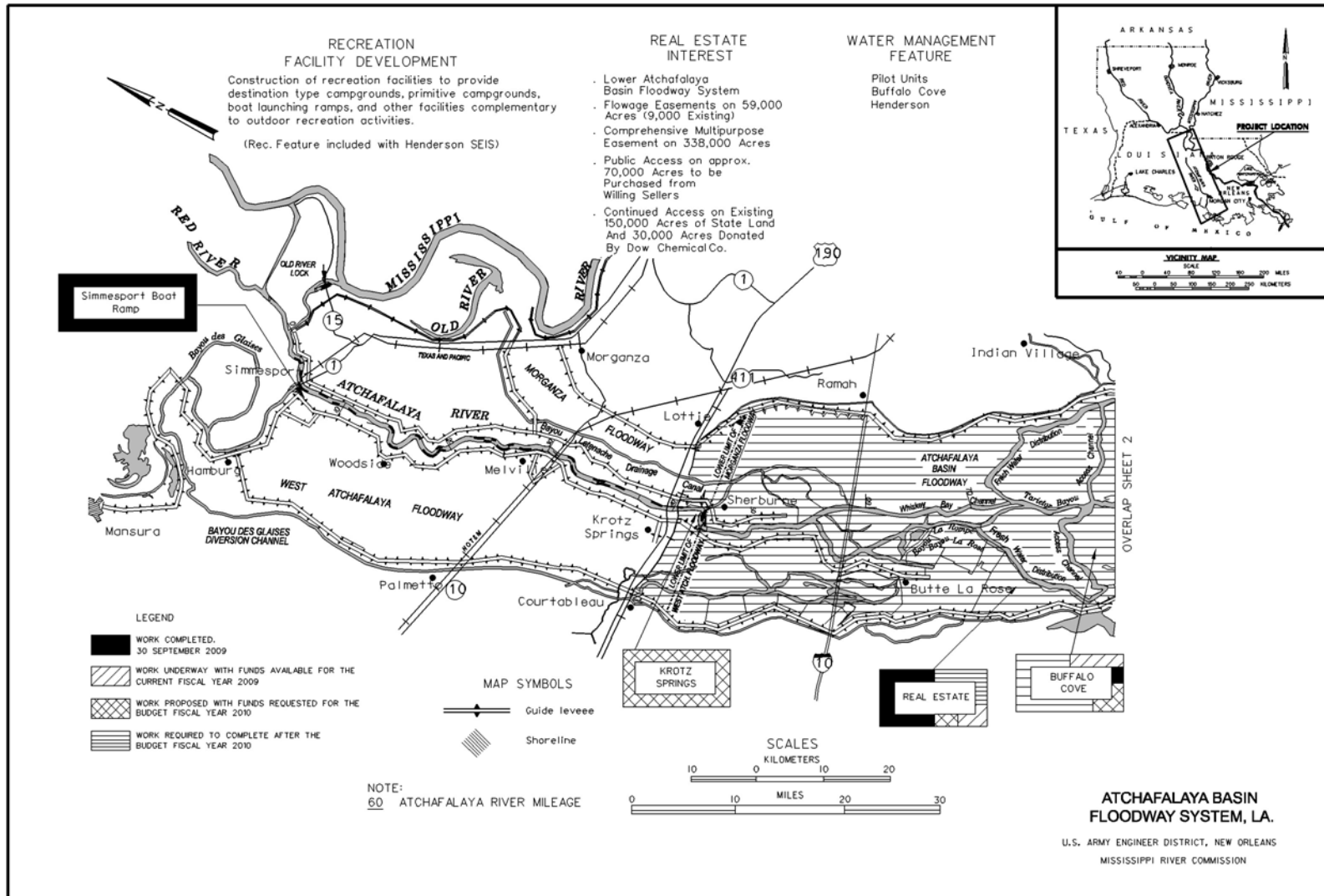
The non-Federal sponsor has agreed to voluntarily contribute 25 percent of construction costs for Water Management Units. Buffalo Cove Water Management Unit construction has been exempted from non-Federal sponsor cost sharing.

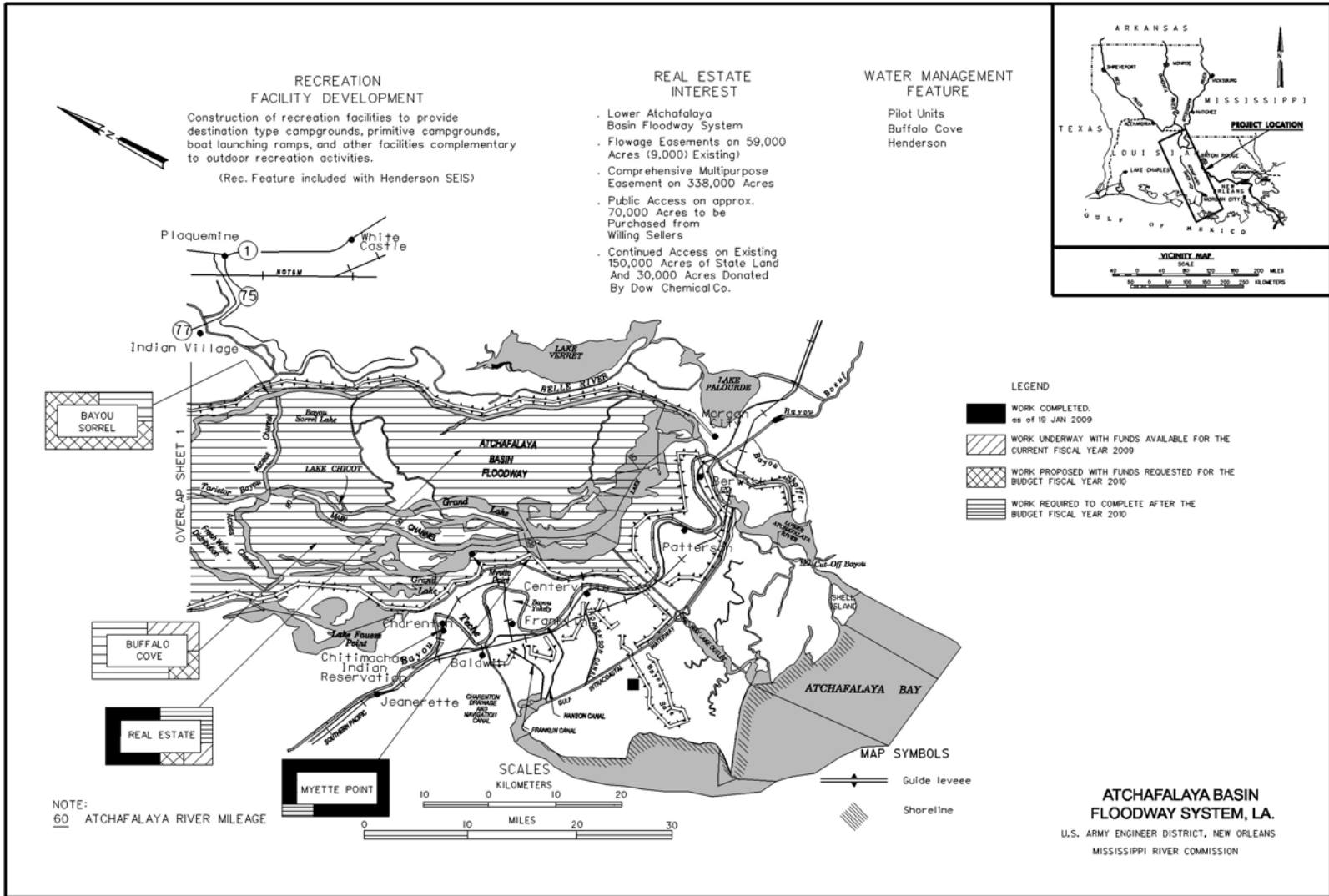
STATUS OF LOCAL COOPERATION: The State designated the Department of Natural Resources to be the lead State agency to represent the State in the implementation of the project. Additional sponsors, St. Mary Parish, serves as local sponsor for Myette Point Boat Landing and the PCA was executed on 18 May 2004. Iberville Parish serves as the local sponsor for the Bayou Sorrel boat landing and a design agreement was executed in November 2003. The Town of Krotz Springs is the local sponsor for the Krotz Springs boat landing. The State of Louisiana, Department of Natural Resources, is also serving as the sponsor for the management units. The PCA for the Buffalo Cove management unit was executed on 16 May 2005.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of \$387,366,000 is the same as the last estimate presented to Congress (Fiscal Year 2009).

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement was filed with the Environmental Protection Agency on 20 August 1982. A Supplemental Environmental Impact Statement (SEIS) for Henderson Lake Management Unit and Recreation Feature (combined) has been initiated in fiscal year 2008. A Supplemental Environmental Impact Statement (SEIS) for Buffalo Cove, Flat Lake, Beau Bayou, Cocodrie Swamp has also been initiated with completion paralleling the 5 year monitoring program for Buffalo Cove.

OTHER INFORMATION: First Fiscal Year project funds were appropriated was 1985.







APPROPRIATION TITLE: Flood Control, Mississippi River and Tributaries, AR, IL, KY, LA, MS, MO, and TN - Construction

PROJECT: Mississippi Delta Region, Louisiana (Salinity Control Structures) (Continuing)

LOCATION: The project is located in the lower Mississippi River delta region in Plaquemines and St. Charles Parishes, Louisiana. The Caernarvon structure is located in Plaquemines Parish on the east bank of the Mississippi River in the vicinity of Caernarvon, Louisiana. The Davis Pond structure is located in St. Charles Parish on the west bank just downstream of Luling, Louisiana.

DESCRIPTION: The plan of improvement originally consisted of four salinity control structures (Caernarvon, Davis Pond, Homeplace, and Bohemia) with appurtenant levees and channels, to divert freshwater from the Mississippi River into coastal bays and marshes for fish and wildlife restoration. The Caernarvon and Davis Pond salinity control structures are programmed, including post-construction environmental monitoring which will continue for four years after completion of construction of each structure. The Homeplace and Bohemia structures were deauthorized on 1 May 1997.

AUTHORIZATION: Flood Control Act of 1965, and Water Resources Development Acts of 1974, 1986 and 1996.

REMAINING BENEFIT - REMAINING COST RATIO: 21.2 to 1 at 7 percent (Davis Pond).

TOTAL BENEFIT-COST RATIO: 2.8 to 1 at 3-1/4 percent for Caernarvon (Fiscal Year 1969), and 2.4 to 1 at 8-7/8 percent for Davis Pond.

INITIAL BENEFIT - COST RATIO: 3.4 to 1 at 3-1/4 percent for Caernarvon (Fiscal Year 1969), and 3.0 to 1 at 8-1/8 percent for Davis Pond (Fiscal Year 1983).

BASIS OF BENEFIT - COST RATIO: Benefits are from the latest available evaluations: Caernarvon - approved in November 1985, at 1985 price levels; and Davis Pond - approved in September 1992 at 1990 price levels.

SUMMARIZED FINANCIAL DATA		ACCUM PCT OF EST FED COST	STATUS (1 January 2009)	PCT CMPL	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost	118,576,542		Caernarvon	100	February 1997
Estimated Non-Federal Cost	39,525,514		Davis Pond	95	2010
Cash Contribution	27,762,000		Entire Project	97.5	2010
Other Costs	11,763,514				
<b>Total Estimated Project Cost</b>	<b>158,102,056</b>				
Allocations to 30 September 2006	104,716,000				
Allocations for FY 2007	3,984,000				
Allocations for FY 2008	984,000				
Conference Allowance for FY 2009	3,768,000				
Allocation for FY 2009	3,768,000				
Allocations to 30 September 2009	113,452,000	96			
Allocation Requested for FY 2010	2,250,000	98			
Programmed Balance to Complete After FY 2010	TBD				
Unprogrammed Balance to Complete After FY 2010	0				

PHYSICAL DATA

	Caernarvon	Davis Pond
Lands and Damages	2,092 acres	10,213 acres
Relocations		
Roads/Bridges	1,600 linear feet	2,920 linear feet
Railroads	2,500 linear feet	3,600 linear feet
Utilities	4,600 linear feet	7,980 linear feet
Fish & Wildlife Facilities		
Structures	5 box culverts 15 feet by 15 feet	4 box culverts 14 feet by 14 feet
	8,000 cubic feet per second	10,650 cubic feet per second

Mississippi River Commission

New Orleans District  
7 May 2009

Mississippi Delta Region, LA

	Caernarvon	Davis Pond
Pumping Stations		1 pumping station, 570 cfs capacity
Channels	1.7 miles	2.2 miles
Levees	3.7 miles	16.9 miles

JUSTIFICATION: The project diverts freshwater from the Mississippi River to coastal bays and marshes for fish and wildlife restoration. Benefits include restoration of former ecological conditions by controlling salinity and supplementing nutrients. The bays are important to oyster production and as breeding areas for shrimp and food fishes, while the marsh areas produce natural food for fur-bearing animals and migratory waterfowl. A total of 643,000 acres at Davis Pond will be benefited. The Davis Pond marsh acres enhanced are estimated at 281,000 and the water acres enhanced are estimated at 362,000. A total of 77,000 acres at Caernarvon will be benefited. The diversions take place under regulated conditions developed from monitoring the impact on the environment and the fish and wildlife. Average annual benefits are as follows:

Annual Benefits	Amount
Fish and Wildlife	
Caernarvon	\$8,706,000
Davis Pond	\$15,000,000
Recreation	
Caernarvon	\$449,000
Davis Pond	\$300,000
Total	\$24,455,000

FISCAL YEAR 2009: Current year funds are being used for making additional cuts through the cypress lumber canal levee to improve drainage in the western side of the ponding area and into Lake Cataouatche and Barataria Bay and monitoring of stage, flow, and salinity.

Davis Pond	
Construction Contracts	
Cypress Lumber Canal cuts and existing breach (contract 1)	1,600,000
I-wall reinforcement at MRL tie-in	250,000
Planning, Environmental, Engineering, and Design	600,000
West Guide Levee re-evaluation , repairs and upgrades	1,318,000
Total	\$ 3,768,000

Mississippi River Commission

New Orleans District  
7 May 2009

Mississippi Delta Region, LA

FISCAL YEAR 2010: The requested amount will be applied as follows:

Davis Pond Project Closeout (Construction)	2,250,000
Total	\$2,250,000

NON-FEDERAL COST: Based on the cost sharing concept adopted for the Caernarvon Structure, the non-Federal sponsor will voluntarily contribute 25 percent of the first cost of the project as well as the required 25 percent of the cost of operating, maintaining, repairing, rehabilitating, and replacing the project after completion.

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation and Replacement Costs
Contribute 25 percent of the costs allocated to fish and wildlife restoration and pay 25 percent of the costs of operation, maintenance, repair, rehabilitation, and replacement of fish and wildlife facilities.		
Davis Pond	\$32,162,181	\$337,500
Caernarvon	5,850,000	71,277
Total Non-Federal Costs	\$38,012,181	\$ 71,271

The non-Federal sponsor for the Caernarvon and Davis Pond Structures has also agreed to make all required payments concurrently with project construction.

**STATUS OF LOCAL COOPERATION:** The Project Cooperation Agreement for the Caernarvon Structure was signed by the State of Louisiana on 2 June 1987 and by the Assistant Secretary of the Army for Civil Works on 10 June 1987. The current non-Federal cost estimate of \$5,850,000, which includes a cash contribution of \$5,850,000, is a decrease of \$275,000 from the non-Federal cost estimate of \$6,125,000 noted in the Project Cooperation Agreement, which included a cash contribution of \$6,125,000. Our analysis of the non-Federal sponsor's financial capability to participate in the project affirms that the sponsor has a reasonable and implementable plan for meeting its financial commitment. The State of Louisiana has provided cash contributions of \$5,850,000 for the Caernarvon Structure. The State has also performed biological monitoring, with an estimated value of \$1,044,000. The Project Cooperation Agreement for the Davis Pond Structure was signed 17 April 1993 by the State of Louisiana and the Acting Assistant Secretary of the Army. The Water Resources Development Act of 1996 authorized the Corps to credit the State of Louisiana up to \$7,500,000 in oyster relocation costs. We are currently preparing an amendment to the Davis Pond PCA to incorporate these requirements. We anticipate execution of the amendment in June 2009. The State of Louisiana is funding both the construction and the operations and maintenance of the project through the Wetlands Conservation and Restoration Trust Fund. Our recent analysis of the non-Federal sponsor's financial capability affirms that the sponsor has a reasonable and implementable plan for meeting its financial commitment.

**COMPARISON OF FEDERAL COST ESTIMATES:** The current Federal cost estimate of \$118,576,542 is an increase of \$2,329,000 from the latest estimate (\$116,247,542) presented to Congress (Fiscal Year 2009). This change includes the following item:

Item	Amount
Price Escalation on Construction Features	\$ 2,329,000
Total	\$ 2,329,000

**STATUS OF ENVIRONMENTAL IMPACT STATEMENT:** The final Environmental Impact Statement for the Louisiana Coastal Area Study was filed with the Environmental Protection Agency on 5 April 1985. This statement is adequate for the Caernarvon and Davis Pond structures. An environmental assessment was completed November 19, 2004 and addressed changes, in the Davis Pond gabion weir structure, required to improve the efficiency of the ponding area. An environmental assessment was also completed March 2009 to discuss the construction of cuts through the Cypress Lumber Canal levee. It is scheduled for completion in FY 2010.

**OTHER INFORMATION:** Local interests, during the period 1954-1970, spent an estimated \$420,000 for construction and maintenance of freshwater diversion structures and channel improvements on the east bank of the Mississippi River in the vicinity of Bohemia and Bayou Lamoque.

Funds to initiate preconstruction engineering and design were appropriated in Fiscal Year 1969 and funds to initiate construction were appropriated in Fiscal Year 1987.

SUMMARIZED FINANCIAL DATA

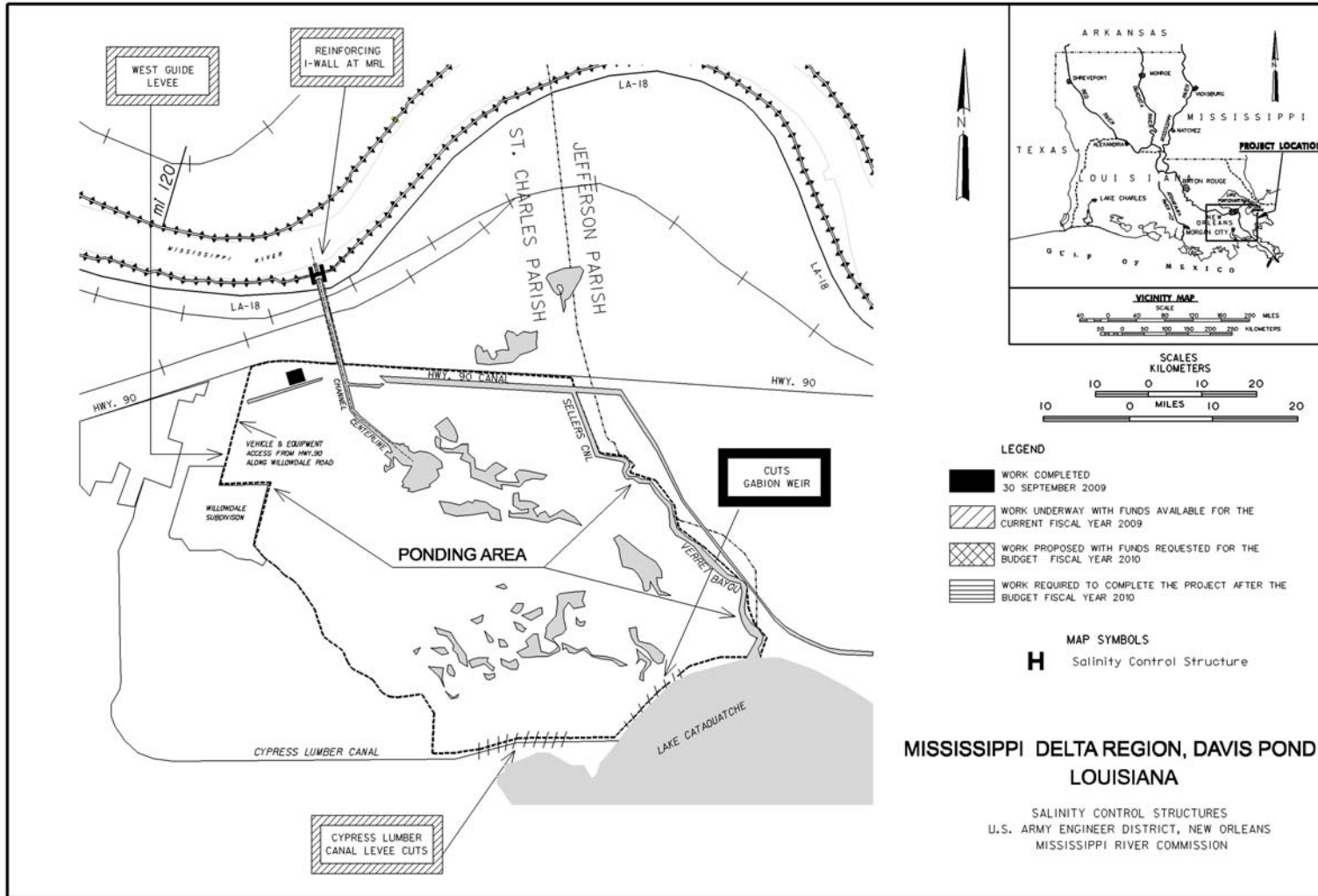
Davis Pond:		
Estimated Federal Cost		\$101,026,542
Estimated Non-Federal Cost		33,675,514
Cash Contributions	\$21,912,000	
Other Costs	\$11,763,514	
Total Estimated Cost		\$134,702,056
Caernarvon:		
Estimated Federal Cost		\$17,550,000
Estimated Non-Federal Cost		5,850,000
Cash Contributions	\$5,850,000	
Other Costs	0	
Total Estimated Cost		\$23,400,000

REMAINING BENEFIT - REMAINING COST RATIO:

Davis Pond: 19.3 to 1 at 8-7/8 percent.  
Caernarvon: Not applicable because construction is complete.

TOTAL BENEFIT - COST RATIO:

Davis Pond: 2.4 to 1 at 8-7/8 percent.  
Caernarvon: Not applicable because construction is complete.



# NORTH ATLANTIC DIVISION



# NORTH ATLANTIC DIVISION

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# FLOOD AND COASTAL STORM DAMAGE PROTECTION

# INVESTIGATIONS

APPROPRIATION TITLE: Investigations, Fiscal Year 2010

Division: North Atlantic

Study	Total Estimated Federal Cost \$	Allocation Prior to FY 2007 \$	Allocation FY 2007 \$	Allocation FY 2008 \$	Allocation FY 2009 \$	Tentative Allocation FY 2010 \$	Additional to Complete After FY 2010 \$
SURVEYS – (Flood and Coastal Storm Damage Reduction) NEW JERSEY							
Delaware River Comprehensive, NJ Philadelphia District	2,400,000	124,000	350,000	247,000	277,000	290,000	1,112,000

The Delaware River basin is located in 42 counties in portions of New York, New Jersey, Delaware and Pennsylvania, draining an approximate 13,539 square mile area. The river basin has experienced considerable degradation over the past two hundred years due to urbanization and industrialization. In addition, the river basin includes the Atlantic Flyway, the final stopover for millions of migratory birds. The river basin is divided into the upper and lower basins. The upper basin area includes small rural and agricultural communities, some heavily populated and industrialized areas, and abandoned mining complexes, which are experiencing developmental, recreational, and environmental pressures; and acid mine drainage problems from over twenty locations. The lower basin, which includes the area from Trenton to Philadelphia through Delaware Bay is heavily urbanized and industrialized, and includes commercial navigation projects. These deep draft navigation projects place millions of cubic yards of sediments annually into numerous upland disposal sites that has degraded thousands of acres of wetlands and terrestrial habitat.

The study will investigate and recommend solutions to problem watershed problems, which include, flood damage reduction, floodplain management, aquatic ecosystem restoration, dredged material disposal, water quality control, and acid mine drainage abatement with dredged material. The study will be coordinated with ongoing initiatives be conducted by the State of New Jersey Division of Watershed Management. The sponsor for the feasibility phase of the study is the New Jersey Department of Environmental Protection, who understands the cost-sharing requirements to the feasibility phase of the study. The feasibility cost-sharing agreement was executed in July 2006.

Fiscal Year 2008 funds were used to continue feasibility study, including the plan formulation and alternative plan identification

Fiscal Year 2009 funds are being used to continue the feasibility study, including alternative plan identification and data collection.

Fiscal Year 2010 funds will be used to continue the feasibility study, including alternative plan identification and data collection. The estimated cost of the feasibility phase is \$4,800,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. A summary of the study cost sharing is as follows:

Total Estimated Study Cost	\$4,800,000
Reconnaissance Phase (Federal)	0
Feasibility Phase (Federal)	2,400,000
Feasibility Phase (Non-Federal)	2,400,000

The reconnaissance phase was completed under the Delaware River Basin Comprehensive, NY, NJ, PA, and DE in September 2005. The feasibility study is scheduled to be completed in September 2014.

APPROPRIATION TITLE: Investigations, Fiscal Year 2010

Division: North Atlantic

Study	Total Estimated Federal Cost \$	Allocation Prior to FY 2007 \$	Allocation FY 2007 \$	Allocation FY 2008 \$	Allocation FY 2009 \$	Tentative Allocation FY 2010 \$	Additional to Complete After FY 2010 \$
SURVEYS – (Flood and Coastal Storm Damage Reduction)							
NEW JERSEY							
Shrewsbury River & Tributaries, NJ New York District	1,784,000	821,000	70,000	191,000	191,000	511,000	0

The Shrewsbury River and its tributaries, located in northern Monmouth County, New Jersey, drains into the Raritan and Sandy Hook Bays about 35 miles southwest of the battery New York City. The tidal estuary is protected by the Sandy Hook peninsula and nearby barrier beaches. This area is urban to suburban in nature with several heavily populated towns.

Frequent storms, hurricanes, and northeasters produce storm surges that back up the normal river flow causing damages to residential, commercial, and municipal buildings. Monmouth Beach and Seabright, New Jersey, are major damage centers, where buildings have sustained serious damages from flooding caused by storms in December 1992 and October 1996. Some buildings were flooded to the first floor levels and above. Furthermore, the aquatic ecosystem productivity of the coastline and riverine wetlands are degrading along the Shrewsbury River and its tributaries due to development, streambank erosion, and dredging activities.

The reconnaissance study, completed in August 2001, found there was Federal interest to proceed to the feasibility study. The feasibility phase is evaluating potential flood control measures in Sea Bright and Monmouth Beach, New Jersey, as well as opportunities for aquatic ecosystem restoration to protect coastline and riverine wetlands along the islands in the Shrewsbury River, the Navesink delta, and Little Sliver Creek. The feasibility cost-sharing agreement was executed in August 2001 with the New Jersey Department of Environmental Protection.

Fiscal Year 2008 funds were used to continue the feasibility phase of the study, including economic, hydraulic, and environmental analyses.

Fiscal Year 2009 funds are being used to continue the feasibility phase of the study, including economic, hydraulic, and environmental analyses.

The funds requested for fiscal year 2010 will be used to complete the feasibility phase of the study. The estimated cost of the feasibility phase is \$3,368,000, which is being shared on a 50-50 percent basis by Federal and non-Federal interests. A summary of study cost sharing is as follows:

Total Estimated Study Cost	\$3,468,000
Reconnaissance Phase (Federal)	100,000
Feasibility Phase (Federal)	1,684,000
Feasibility Phase (Non-Federal)	1,684,000

The reconnaissance phase was completed in August 2001. The feasibility study is scheduled for completion in September 2010.

7 May 2009

7 May 2009

NAD-7

# CONSTRUCTION

APPROPRIATION TITLE: Construction, General - Flood and Coastal Storm Damage Reduction

PROJECT: Atlantic Coast of NYC, Rockaway Inlet to Norton Point, NY (continuing)

LOCATION: The project is located on the South shore of Long Island in Brooklyn (Kings County), New York, approximately nine miles south of the Battery, New York City.

DESCRIPTION: Programmed work consists of construction of a 100-foot-wide berm at an elevation of 13 feet above mean low water, a groin at the western end of the restored beach, and a fillet of beachfill extending westward from the groin at West 37<sup>th</sup> Street. Also included is the construction of T-groins with beachfill westward of the groin at West 37<sup>th</sup> Street. Unprogrammed work includes construction of comfort and lifeguard stations, construction of a groin at east end of project and extending beach seaward of historic shoreline.

AUTHORIZATION: Water Resources Development Act of 1986 as modified by the Intermodal Surface Transportation and Efficiency Act of 1991, amended by WRDA 2000, Section 329.

REMAINING BENEFIT-REMAINING COST RATIO: 9.1 to 1 at 7 percent

TOTAL BENEFIT-COST RATIO: 3.2 to 1 at 7 percent.

INITIAL BENEFIT-COST RATIO: 2.7 to 1 at 8 7/8 percent (FY 1992).

BASIS OF BENEFIT-COST RATIO: Final General Design Memorandum entitled Atlantic Coast of New York City, Rockaway Inlet to Norton Point (Coney Island Area), New York, dated April 1992, at October 1990 price levels.

STATUS (1 Jan 2009)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Programmed Work		
Initial Construction	85	TBD
Periodic Nourishment	0	TBD
Entire Project	20	TBD
Unprogrammed Work		
Comfort and Lifeguard Stations	0	Indefinite
Groin and additional Beach Berm	0	Indefinite

1/ For programmed work only; remaining work is indefinite pending a decision to construct these features.

Division: North Atlantic

District: New York

Atlantic Coast of NYC Rockaway Inlet to  
Norton Point, NY



SUMMARIZED FINANCIAL DATA:

ACCUM.  
PCT. OF EST.  
FED COST

Estimated Federal Cost		105,800,000
Programmed Construction		71,900,000
Initial Construction	21,700,000	
Periodic Nourishment	47,700,000	
Comfort and Lifeguard Stations	2,500,000	
Unprogrammed Construction		33,900,000
Initial Construction	15,900,000	
Periodic Nourishment	0	
Comfort and Lifeguard Stations	18,000,000	
Estimated Non-Federal Cost		53,200,000
Programmed Construction		37,300,000
Initial Construction	11,700,000	
Cash Contribution	11,700,000	
Other Costs	0	
Periodic Nourishment	25,600,000	
Cash Contributions	25,600,000	
Other Costs	0	
Unprogrammed Construction		15,900,000
Initial Construction	15,900,000	
Cash Contribution	15,900,000	
Other Costs	0	
Periodic Nourishment	0	
Cash Contributions	0	
Other Costs	0	
Comfort and Lifeguard Stations	0	

PHYSICAL DATA

Berm 100 feet wide at 13 feet NGVD  
 Extended berm 165 feet wide at  
 8 feet NGVD.  
 Groins and beachfill westward  
 from groin West 37<sup>th</sup> St.  
 Relocation and/or reconstruction  
 of existing comfort and lifeguard  
 stations.

Division: North Atlantic

District: New York

Atlantic Coast of NYC, Rockaway Inlet to  
 Norton Point, NY

SUMMARIZED FINANCIAL DATA: (Continued)		ACCUM. PCT. OF EST. FED COST
Total Estimated Programmed Construction Cost		109,200,000
Initial Construction	33,400,000	
Periodic Nourishment	73,300,000	
Comfort and Lifeguard Stations	2,500,000	
Total Estimated Unprogrammed Construction Cost		49,800,000
Initial Construction	31,800,000	
Periodic Nourishment	0	
Comfort and Lifeguard Stations	18,000,000	
Total Estimated Project Cost		159,000,000
Initial Construction	65,200,000	
Periodic Nourishment	73,300,000	
Comfort and Lifeguard Stations	20,500,000	
Allocation to 30 September 2006	16,327,000	
Allocation for FY 2007	75,000	
Allocation for FY 2008	7,904,000	
Conference allowance for FY 2009	3,800,000	
Allocation for FY 2009	3,924,000	
Allocations through FY 2009	28,230,000	26
Allocation Requested for FY 2010	3,000,000	29
Programmed Balance to Complete after FY 2010	TBD	
Unprogrammed Balance to Complete after FY 2010	TBD	

JUSTIFICATION: Erosion had caused serious damage to the shoreline extending through the communities of Coney Island, Brighton Beach, and Sea Gate, New York. Due to this erosion, residential and commercial developments had become increasingly susceptible to storm damage from wave attack and inundation. In March 1962, a severe northeast storm caused breaching and failure of the breach and shore protection structures with damages estimated at \$18,000,000. A recurrence of the March 1962 storm would have caused damages of approximating \$56,000,000 (October 1989 price levels) without the project in place. A 100 year event would cause storm damage by wave attack in excess of \$156,000,000 at October 1993 prices. Project implementation has eliminated these damages.

Division: North Atlantic

District: New York

Atlantic Coast of NYC, Rockaway Inlet  
to Norton Point, NY

7 May 2009

NAD-11

Fiscal Year 2009: The requested amount will be applied as follows:

Initiate T-Groins Construction Sea Gate Area in FY2010	\$ 3,824,000
Planning, Engineering and Design	\$ 100,000
Total	\$ 3,924,000

Fiscal Year 2010: The requested amount will be applied as follows:

Fully Fund T-Groins Construction Sea Gate Area	\$ 2,600,000
Planning, Engineering and Design	\$ 100,000
Construction Management	\$ 300,000
Total	\$ 3,000,000

NON-FEDERAL COSTS: In accordance with the cost sharing and financial concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the Requirements listed below:

	Payments During Construction and Reimbursement	Annual Operation, Maintenance, and Replacement Costs
Requirement of Local Cooperation		
Pay 35 percent of the costs of periodic nourishment allocated to storm damage reduction and 50 percent of the costs allocated to recreation, bear all costs of operation, maintenance and replacement of storm reduction facilities	\$ 53,200,000	\$950,000
Total Non-Federal Costs	\$ 53,200,000	\$950,000

STATUS OF LOCAL COOPERATION: The non-Federal sponsor for this project is the New York State Department of Environmental Conservation. The Local Cooperation Agreement for this project was executed in October 1993. The original PCA will be modified in December 2009.

COMPARISON OF FEDERAL COST ESTIMATE: The current Federal cost estimate of \$105,800,000 is the same as the latest estimate (105,800,000) presented to Congress (FY 2009).

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: A final Supplemental Environmental Impact Statement was filed with the United States Environmental Protection Agency on 5 June 1992.

Division: North Atlantic

District: New York

Atlantic Coast of NYC, Rockaway Inlet  
to Norton Point, NY

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in FY 1988 and funds to initiate construction were appropriated in FY 1992. The budget funds the initial construction phase of beach nourishment projects that reduce storm damages, but does not support follow-up work for such projects, except to the extent that the operation and maintenance of Federal navigation projects contributed to the erosion of the shoreline.

Division: North Atlantic

District: New York

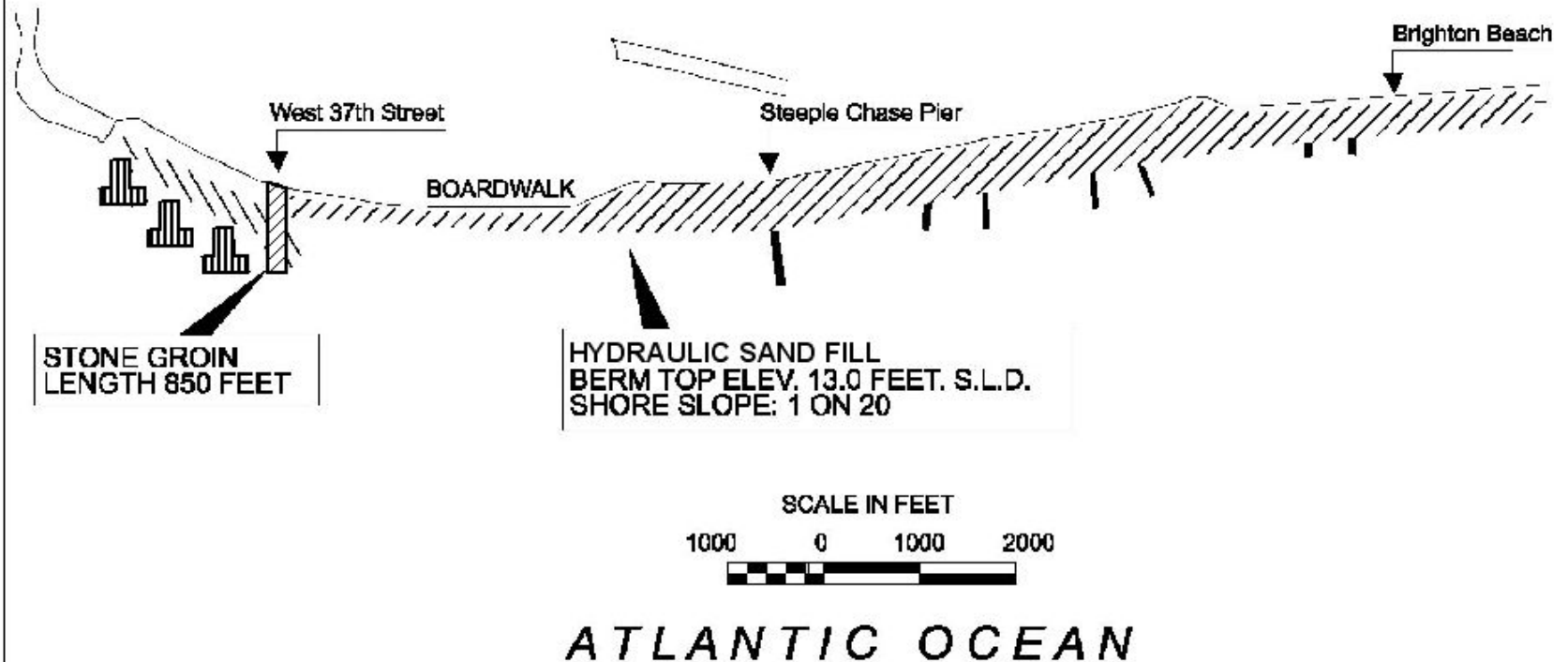
Atlantic Coast of NYC, Rockaway Inlet  
to Norton Point, NY





7 May 2009

NAD-13



# CONEY ISLAND



-  Work Completed As of 30 September 2008
-  Work Proposed with Funds Available for FY 2009
-  Work Proposed with Funds Recommended for FY 2010
-  Work Required to Complete the Project after 30 September 2010

Atlantic Coast of New York City  
Rockaway Inlet to Norton Point, New York  
**CONEY ISLAND AREA**  
New York District  
North Atlantic Division  
1 January 2009

APPROPRIATION TITLE: Construction, General – Flood and Coastal Storm Damage Reduction

PROJECT: Fire Island Inlet to Montauk Point, New York (continuing)

LOCATION: The overall project area extends from Fire Island Inlet easterly to Montauk Point along the Atlantic Coast of Suffolk County. The project is about 83 miles long and comprises about 70 percent of the total ocean frontage of Long Island. Fire Island Inlet is located about 50 miles by water East of the Battery, New York City.

DESCRIPTION: The project provides for beach erosion control and hurricane protection along five reaches of the Atlantic Coast of New York from Fire Island Inlet to Montauk Point. Work includes widening the beaches along the developed areas to a minimum width of 100 feet at an elevation of 14 feet above mean sea level and by raising dunes to an elevation of 20 feet above mean sea level from Fire Island Inlet to Hither Hills State Park and at Montauk and opposite Lake Montauk Harbor, supplemented by grass planting on the dunes, interior drainage structures, construction of up to 50 groins, and subsequent periodic beach nourishment. A reformulation study is underway to evaluate storm damage protection measures. An interim project at Westhampton Beach has been constructed prior to completion of an ongoing overall project reformulation effort. This interim project provides for 30 years of periodic nourishment to maintain a beach berm extending westwardly from Groin 15 to Moriches Inlet at an elevation of 9.5 feet above mean sea level backed by a dune with a height of +15 feet above msl. The Westhampton Beach Interim project also includes tapering of the existing westernmost two groins, construction of a new groin between groins 14 and 15, and beachfill as necessary within the existing groinfield to promote sand transport. A Breach Contingency Plan has been developed which permits closing of breaches of the barrier island with use of a pre-approved Project Cooperation Agreement format, provided that estimated breach costs are no greater than \$5 million. A Decision document was finalized and approved in July 2002 for an interim project to protect the area west of Shinnecock Inlet. This interim project provides for initial beachfill which was initiated in September 2004, in conjunction with the second nourishment of the Westhampton Interim Project. The study for an interim project along Fire Island has been discontinued due to lack of a Non-Federal sponsor.

AUTHORIZATION: River and Harbor Act 14 July 1960, modified by the Water Resources Development Act of 1974, the Water Resources Development Act of 1986, and the Water Resources Development Act of 1992.

REMAINING BENEFIT-REMAINING COST RATIO: 1.7 to 1 at 7 percent.

TOTAL BENEFIT-COST RATIO: 1.3 to 1 at 7 percent.

INITIAL BENEFIT-COST RATIO: 2.6 to 1 at 2 5/8 percent (FY 1963).

SUMMARIZED FINANCIAL DATA

Estimated Federal Cost		591,100,000
Programmed Construction		201,600,000
Initial Construction	67,000,000	
Periodic Nourishment	134,600,000	
Unprogrammed Construction		389,500,000
Initial Construction	113,400,000	
Periodic Nourishment	276,100,000	
Estimated Non-Federal Cost		295,200,000
Programmed Construction		83,200,000
Initial Construction	19,500,000	
Cash Contributions	18,800,000	
Other Costs	700,000	
Periodic Nourishment	63,700,000	
Cash Contribution	63,700,000	
Other Costs	0	
Unprogrammed Construction		212,000,000
Initial Construction	59,200,000	
Cash Contributions	48,850,000	
Other Costs	10,350,000	
Periodic Nourishment	152,800,000	
Cash Contribution	152,800,000	
Other Costs	0	
Total Estimated Programmed Construction		284,800,000
Initial Construction	86,500,000	
Periodic Nourishment	198,300,000	
Total Estimated Unprogrammed Construction Cost		601,500,000
Initial Construction	172,600,000	
Periodic Nourishment	428,900,000	
Total Estimated Project Cost		886,300,000
Initial Construction	259,100,000	
Periodic Nourishment	627,200,000	

STATUS: (1 Jan 2009)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Reach 2		
11 groins	100	Oct 1966
4 groins	100	Nov 1970
8 groins	0	1/
Westhampton Interim	40	— TBD
Initial Construction	100	— Dec 1997
Periodic Nourishment	0	TBD
West of Shinnecock Interim		
Initial Construction	100	Mar 2005
Periodic Nourishment	0	TBD
Balance of Reach	0	1/
Reach 4		
2 groins	100	— Sep 1965
Beach Fill-18.4 mi.	0	1/
Balance of Project		
Dune/Beach Fill-39.7 mi	0	— 1/
27 groins	0	— 1/
Reformulation Study	90	— TBD
Studies for Interim Projects		
Fire Island	90	2/
West of Shinnecock	100	— Dec 2002
Beach Contingency Plan	100	— Jan 1996
1/ Schedule is dependent on the outcome of the Reformulation effort.		
2/ Study terminated due to lack of a non-federal sponsor and environmental issues that will be addressed in the overall reformulation effort		

PHYSICAL DATA

Dunes and beach replenishment: 73,5 miles  
Dunes: raise to elevation 20 feet above msl Beaches: widen to a minimum of 100 ft Interior drainage structures: 3 gated culverts  
Groins: 52  
Periodic nourishment: 480,000 cubic yards/yr

Division: North Atlantic

District: New York

Fire Island Inlet to Montauk Point, NY

ACCUM.  
PCT. OF EST.  
FED. COST

SUMMARIZED FINANCIAL DATA (continued)

Allocations to 30 September 2006	77,540,000	
Allocation for FY 2007	2,500,000	
Allocation for FY 2008	6,888,000	
Conference Allowance for FY 2009	2,010,000	
Allocation for FY 2009	2,010,000	
Allocations Through FY 2009	88,938,000	15
Allocation Requested for FY 2010	5,800,000	16
Programmed Balance to Complete After FY 2010	TBD	
Unprogrammed Balance to Complete After FY 2010	TBD	

JUSTIFICATION: Erosion has seriously reduced the width of the shoreline in the study area with consequent exposure of the shore and the mainland to wave attack and inundation damages. A recurrence of the hurricane tide of record (September 1938) when 45 lives were lost, would cause inundation and wave damage estimated at \$717,000,000 (April 1996 price levels). As a result of the 11 December 1992 storm, in the Westhampton area (Section 1B of Reach 2), over 200 residential structures were destroyed and two breaches of the barrier island occurred. Closure costs for these breaches in 1992 was approximately \$6,600,000.

FISCAL YEAR 2009: The appropriated amount will be applied as follows:

Continue West of Shinnecock (Required Monitoring)	\$ 400,000
Continue Westhampton Beach(Required Monitoring)	400,000
Continue 3 <sup>rd</sup> cycle of Periodic Nourishment for Westhampton Interim Project	710,000
Continue Reformulation Study	500,000
Total	\$ 2,010,000

FISCAL YEAR 2010: The requested amount will be applied as follows:

Continue West of Shinnecock (Required Monitoring)	\$ 300,000
Continue Westhampton Beach(Required Monitoring)	300,000
Continue Reformulation Study	200,000
Continue 3 <sup>rd</sup> cycle of Periodic Nourishment for Westhampton Interim Project	5,000,000
Total	\$ 5,800,000



NON-FEDERAL COSTS: Local interests are required to bear 30 percent of the total project cost including periodic nourishment for the Westhampton Interim project and 35 percent of the total project cost for the rest of the project, which includes the value of lands, easements, and rights-of-way.

Requirements of Local Cooperation:	Payments During Construction and Reimbursements	Annual Operation Maintenance and Replacement Costs
Provide all lands, easements, and rights-of-way, and relocations.	\$ 11,050,000	
Pay 30 percent of the first costs for the Westhampton Interim project and 35 percent of the first costs for the remainder of the project including creditable lands and easements and rights of way, and bear all costs of operation and maintenance and replacement of storm damage reduction facilities.	67,650,000	\$0
Pay 30 percent of the periodic nourishment costs for the Westhampton Interim project and 35 percent of the periodic nourishment cost for the remainder of the project.	216,500,000	
<b>Total Non-Federal Costs</b>	<b>\$ 295,200,000</b>	<b>\$0</b>

STATUS OF LOCAL COOPERATION: The agency responsible for local cooperation is the New York State Department of Environmental Conservation (NYSDEC). Assurances of local cooperation were executed by the NYSDEC on 14 August 1963 and accepted by the Federal Government on 20 August 1963. A project cooperation agreement (PCA) for the Westhampton Interim project was executed in February 1996. A PCA for the West of Shinnecock project was executed in December 2003.

COMPARISON OF FEDERAL COST ESTIMATE: The current Federal cost estimate of \$591,100,000 is the same as the latest estimate (\$591,100,000) presented to Congress (FY 2009).

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement (EIS) was filed with the Environmental Protection Agency (USEPA) on 28 January 1978. On 7 March 1978, the Department of the Interior (DOI), supported by other agencies referred the EIS to the Council on Environmental Quality (CEQ) as unacceptable. Subsequent to the strong objections on the projects final environmental impact statement, meetings were held between September 1978 and January 1980 with DOI, USEPA, U.S. Department of Commerce, and NYSDEC. Two public scoping meetings were held in October 1979. Subsequently, the Federal agencies agreed to a basis for the reformulation of the Fire Island to Montauk Point project, including a general agreement on the studies necessary to answer the outstanding concerns. The reformulation is underway and is 90 percent complete.

OTHER INFORMATION: Initial planning and construction funds were appropriated in FY 1963. The work remaining to be done is completion of construction of Reach 2-Moriches Inlet to Shinnecock Inlet, Reach 4-Southampton to Beach Hampton, initiation of construction of Reach 1-Fire Island Inlet to Moriches Inlet, Reach 3-Shinnecock to Southampton, and Reach 5-Beach Hampton to Montauk, as well as the completion of the reformulation effort. The Corps of Engineers initially constructed 11 groins (Reach 2), and 2 groins (Reach 4) with beach fill to be added as necessary but not sooner than 3 years after groin completion. In recognition of the critical condition of the beaches due to earlier storms, the Corps recommended to the State in June 1967 that the 3 year observation period be waived and that construction of urgent hurricane protection be resumed. The State concurred and requested that work be undertaken on additional groins, replacement of beach fill and dunes in Reach 2, as well as construction of groins, drainage structures and dune fill in Reach 4. Suffolk County, however, did not endorse the placement of beach and dune fills. Continuing negotiations during FY 1969 resulted in agreement on a plan for construction for certain groins, drainage structures, beach fill, and dunes to an interim height of 16 feet in Reaches 2 and 4. In December 1973, the State requested planning for Reach 2 (Section 1b), (Westhampton Beach) and Reach 4 (Georgica Pond), indicating that it would provide funds. Planning resumed and assurances were requested from the State in October 1974. However, strong opposition developed with Suffolk County and the county legislature refusing to provide support. Subsequently, erosion of the shoreline downdrift of the groin field at Westhampton Beach accelerated to the point where Dune Road, the only access to the homes in this area, was under water during normal high tide. In 1984, a lawsuit was brought against Suffolk County, the State of New York and the United States of America, which claimed that the groinfield constructed in the early 1960's caused erosion and damage to downdrift properties. In October 1994, the Village of West Hampton Dunes intervened and a settlement agreement was reached between the plaintiffs and the county, state and Federal governments to provide for storm damage protection as described in the Corps 1995 Decision Document for the Westhampton Interim project which includes periodic nourishment for a period of 30 years and coastal and environmental monitoring to insure project sustainability and minimize impacts to threatened and endangered species. In December 1992, two breaches occurred in the barrier island near Westhampton Beach, which were subsequently closed. The USEPA and DOI agreed in concept to the interim plan for Westhampton, provided that a full environmental assessment and/or environmental impact study was completed, and the reformulation of the overall project was reinstated. At the direction of Congress, in 1993, the reformulation was reinstated and evaluations for interim projects began. An interim plan for the severely eroded Westhampton Beach area was prepared in June 1994, which provides for a lower level of protection than that provided in the original authorization. This interim plan has been designed such that it could be modified based on future recommendations in the to-be-completed Reformulation study. The planning engineering and design has been completed for an interim project to address the severely eroded shoreline west of Shinnecock Inlet. The initial construction contract for the West of Shinnecock Interim project was awarded in September 2004 and completed in March 2005. The West of Shinnecock Inlet interim project includes beach fill with periodic nourishment for 6 years, and associated coastal and environmental monitoring as prescribed by the New York State permit. An interim plan for Fire Island barrier island has been discontinued due to the lack of a non-federal sponsor and environmental concerns which will be addressed during the reformulation study. The cost of these interim studies is \$4 million. Additionally, a Breach Contingency Plan was approved in January 1996 to provide for rapid response to breaches along the islands while awaiting completion of the reformulation study. The scope of the reformulation study has been modified over the years to capture agencies' concerns and ensure agreement in evaluating alternatives in light of changed conditions, new requirements, and a comprehensive vision for the project.



APPROPRIATION TITLE: Construction, General – Flood and Coastal Storm Damage Reduction

PROJECT: Great Egg Harbor Inlet and Peck Beach, New Jersey (Continuing)

LOCATION: The project is located in Cape May County, New Jersey. Great Egg Harbor Inlet provides a tidal connection from the Atlantic Ocean to Great Egg Harbor Bay and the NJIWW. Peck Beach is occupied in its entirety by the City of Ocean City and extends from Great Egg Harbor Inlet southwest to Corson Inlet, a distance of about 8 miles.

DESCRIPTION: The project consists of providing initial beachfill, with subsequent periodic nourishment, with a minimum berm width of 100 feet at an elevation of +8.0 National Geodetic Vertical Datum (NGVD). The beachfill extends from Surf Road southwest to 34th Street with a 1,000-foot taper south of 34th Street. This plan required the initial placement of approximately 6.2 million cubic yards of material and subsequent periodic nourishment of approximately 1.1 million cubic yards every 3 years. The material for the initial construction and periodic nourishment is being taken from the ebb shoal area located approximately 5,000 feet offshore of the Great Egg Harbor Inlet. This periodic dredging of the ebb shoal area will help alleviate the navigation difficulties in the inlet. Additionally, the initial construction of the project required the extension of 38 storm drain pipes.

AUTHORIZATION: Committee Resolution on December 15, 1970 under the provisions of Section 201 of P.L. 89-298. Project reauthorized with provisions for construction of separable elements under Section 831(1) of the Water Resources Development Act of 1986, P.L. 99-662.

REMAINING BENEFIT-REMAINING COST RATIO: 6.8 to 1 at 7 percent

TOTAL BENEFIT-COST RATIO: 5.1 to 1 at 7 percent

INITIAL BENEFIT-COST RATIO: 2.0 to 1 at 8 5/8 percent (FY 1990).

BASIS OF BENEFIT-COST RATIO: The April 1989 General Design Memorandum approved on 2 May 1990 at September 1988 price levels.

SUMMARIZED FINANCIAL DATA:		PHYSICAL STATUS: (1 Jan 2009)	PERCENT COMPLETE	COMPLETION SCHEDULE
Estimated Federal Cost	\$ 321,700,000	Initial Beachfill (Phase 1)	100	Oct 1992
Initial Construction	\$ 20,556,000	Initial Beachfill (Phase 2)	100	Mar 1993
Periodic Nourishment	\$ 301,144,000	Entire Project	19	TBD
Estimated Non-Federal Costs	\$ 183,534,400			
Initial Construction	\$11,151,000			
Cash Contributions	\$ 11,151,000			
Other Costs	\$ 0			
Periodic Nourishment	\$172,383,400			
Cash Contributions	\$172,383,400			
Other Costs	0			
Total Estimated Project Cost	\$ 505,234,400			
Initial Construction	\$ 31,707,000			
Periodic Nourishment	\$473,527,400			

PHYSICAL DATA:  
Beachfill: Elevation +8 feet (NGVD); 100-Foot Width  
Periodic Nourishment: 1.1 million cy every three years

Division: North Atlantic

District: Philadelphia

Great Egg Harbor Inlet and Peck Beach, NJ

		ACCUM. PCT. OF EST FED COST
Allocations to 30 September 2006	\$ 44,632,000	
Allocation FY 2007	\$ 0	
Allocation FY 2008	\$ 2,808,000	
Conference Allowance for FY 2009	\$ 2,967,000	
Allocation for FY 2009	\$ 2,967,000	
Allocations through FY 2009	\$ 50,407,000	19
Allocation Requested for FY 2010	\$ 6,500,000	2
Programmed Balance to Complete after FY 2010	\$ TBD	
Unprogrammed Balance to Complete after FY 2010	\$ TBD	

JUSTIFICATION: The instability of Great Egg Harbor Inlet and the shoreline along Peck Beach is a significant problem. Peck Beach, a 9-mile-long barrier island along New Jersey's southern coastline contains the entire City of Ocean City. The primary problem at Ocean City is the vulnerability of the beach and the adjacent highly urbanized development to erosion and direct wave attack during major storms. Historical erosion rates for the beaches have averaged five feet per year with severe erosion rates up to 35 feet per year in some locations. In March 1962, a severe storm caused breaching and failing of bulkheads and dunes, and resulted in about \$15,000,000 damages of which \$4,000,000 was attributed to direct wave attack. It was noted that the area fronting the existing Federal shore protection for Ocean City sustained less damage than other locations. The storm of 28 to 30 March 1984 caused extensive damage to the beach, boardwalk, properties and buildings due to the vulnerable condition of the beaches. More recently, the storms of 30 and 31 October 1991 and 3 to 5 January 1992 caused extensive damages to the beach, boardwalk, properties and buildings. Since initial construction of the project was completed in March 1993, approximately \$20,000,000 worth of damages to the area were prevented during the 3-5 January 1992 storm, \$4,000,000 in damages to the boardwalk during Hurricane Felix in August 1995, and \$1,000,000 during the storm of 7-8 January 1996.

Beach erosion and loss of protective dunes have left Ocean City extremely vulnerable to inundations and direct wave attack from even minor storm events. The instability and shoaling of Great Egg Harbor Inlet also creates navigation difficulties for commercial and recreation craft, particularly those associated with low tides and ground swells and damages due to running aground. Unsafe navigation conditions due to excessive shoals at Great Egg Harbor Inlet required the State of New Jersey to commence emergency dredging operations in October 1989.

FISCAL YEAR 2009: The current amount of \$2,967,000 is accomplishing a portion of the 5<sup>th</sup> Nourishment cycle.

FISCAL YEAR 2010: The requested amount will be applied as follows:

Complete 5 <sup>th</sup> Nourishment Cycle	\$6,300,000
Project Monitoring	\$ 200,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, as amended, the non-Federal sponsor must comply with the requirements listed below:

	Payments during Construction and Reimbursement	Annual Operation, Maintenance, and Replacement Costs
Provide 35 percent of the initial construction costs assigned to project for flood and coastal storm damage reduction	\$ 11,151,000	
Provide during construction 35 percent of each periodic nourishment costs assigned to the project for flood and coastal storm damage reduction	\$172,383,400	
Bear all costs of operation, maintenance, repair, replacement, and rehabilitation of the completed project.		\$32,900
<b>Total Non-Federal Cost</b>	<b>\$183,534,400</b>	<b>\$32,900</b>

STATUS OF LOCAL COOPERATION: The state of New Jersey (New Jersey Department of Environmental Protection) is the non-Federal sponsor for the project. In a letter dated 28 September 1990, the state identified a funding source for the non-Federal costs and indicated that it was prepared to proceed with the final negotiations to sign the Local Cooperation Agreement. The state's financing plan was provided by letter dated 28 February 1991. The local cooperation agreement was executed in September 1991. The State has provided the required cost sharing for the initial construction and previous periodic nourishment cycles. They have also indicated that they are prepared to provide the required cost share for the currently scheduled periodic nourishment cycle.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of \$321,700,000 is a decrease of \$84,300,000 from the latest estimate (\$444,000,000) presented to Congress (FY 2004). This change includes the following items:

Price De-escalation on Construction Features	\$-122,300,000
<b>Total</b>	<b>\$-84,300,000</b>

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement was filed with the Council on Environmental Quality on 13 November 1970 and a Final Supplemental Environmental Impact Statement (FSEIS) was filed with the Environmental Protection Agency (EPA) in August 1990. The Piping Plover (*Charadrius melodus*) was listed as an endangered bird species in January 1986 and a determination that the species nests in the project area necessitated informal consultation in accordance with Section 7 of the Endangered Species Act of 1973. A letter from the US Fish and Wildlife Service, dated 9 January 1989 directed the Corps to minimize impacts to the Piping Plover in the project area. A detailed plan to protect the Piping Plover was included in the FSEIS. On 31 August 1990, the Advisory Council on Historic Preservation informed the District that it did not concur with the Finding of No Effect issued by the New Jersey State Historic Preservation Office on 12 April 1989. A process Memorandum of Agreement to address cultural resources concerns relating to project effects on the shipwreck *Sindia* was executed on 4 April 1991.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in FY 1973. Funds to initiate construction were appropriated in FY 1990.

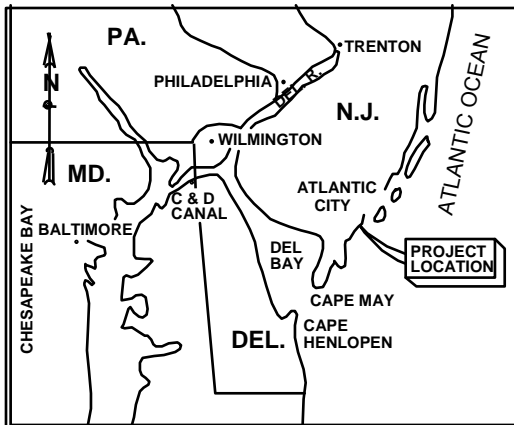
Division: North Atlantic

District: Philadelphia

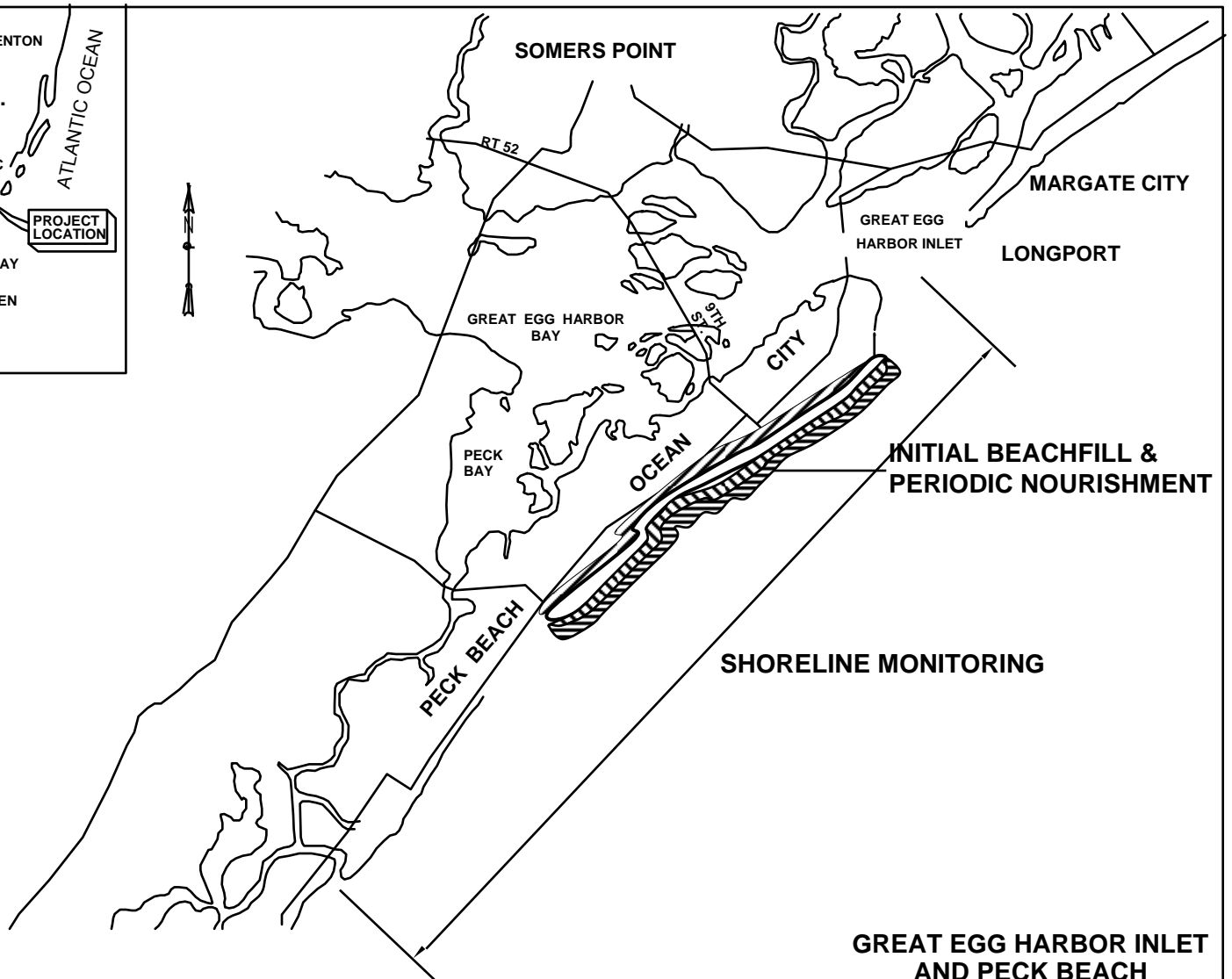
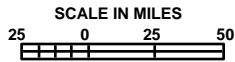
Great Egg Harbor Inlet and Peck Beach, NJ





7 May 2009

NAD-23



**VICINITY MAP**



- LEGEND**
-  WORK COMPLETED AS OF 30 SEP2008
  -  WORK PROPOSED WITH FUNDS AVAILABLE FOR FY 2009
  -  WORK PROPOSED WITH FUNDS REQUESTED FOR FY 2010
  -  WORK REQUIRED TO COMPLETE THE PROJECT AFTER FY 2010



**GREAT EGG HARBOR INLET  
 AND PECK BEACH  
 OCEAN CITY, NEW JERSEY**

**1 JANUARY 2009  
 SCALE AS SHOWN**

U.S. ARMY ENGINEER DISTRICT, PHILA.

APPROPRIATION TITLE: Construction, General – Flood and Coastal Storm Damage Reduction

PROJECT: Long Beach Island, New York (Continuing)

LOCATION: The project area, which is comprised of 9 miles of oceanfront, is located on the Atlantic Coast of Long Island, New York, between Jones Inlet to the east and East Rockaway Inlet to the west. The area lies within Nassau County, New York.

DESCRIPTION: The plan includes a 110-foot wide beach berm at an elevation of +10 feet NGVD, dune system at an elevation of +15 feet NGVD with a crest width of 25 feet, rehabilitation of 16 of the existing groins, construction of 6 new groins in the most critical erosion area along the island, dune grass, dune fencing, beachfill, and periodic nourishment. All work is programmed.

AUTHORIZATION: Water Resources Development Act of 1996.

REMAINING BENEFITS-REMAINING COST RATIO: 2.5 to 1 at 7 percent.

TOTAL BENEFIT-COST RATIO: 2.5 to 1 at 7 percent.

INITIAL BENEFIT-COST RATIO: 1.9 to 1 at 8 percent (FY 1998).

BASIS OF BENEFITS-COST RATIO: Benefits and Costs are from the Feasibility Report dated February 1995 at June 1994 price levels.

Division: North Atlantic

District: New York

Long Beach Island, New York

7 May 2009

NAD-25



SUMMARIZED FINANCIAL DATA:

ACCUM.  
PCT. OF EST.  
FED. COST

STATUS  
(1 Jan 2009)

PERCENT  
COMPLETE

PHYSICAL  
COMPLETION  
SCHEDULE

Estimated Federal Cost		\$120,900,000	
Initial Construction	45,431,000		
Periodic Nourishment	75,469,000		

Initial Construction	0	TBD
Groins	0	TBD
Periodic Nourishment	0	TBD
Entire Project	0	TBD

Estimated Non-Federal Cost		\$65,100,000	
Initial Construction	24,463,000		
Cash Contributions	24,463,000		
Other Costs	0		
Periodic Nourishment	40,637,000		
Cash Contributions	40,637,000		
Other Costs	0		

PHYSICAL DATA

Beach Berm 110 ft wide, elev. +10ft NGVD  
Dune: 25 ft wide, elev. +15ft NGVD  
Groins: Rehabilitation of 16 groins  
construct 2 groins  
Periodic Nourishment: 2.1 million cy every  
5 years

Total Estimated Project Cost		\$186,000,000	
Initial Construction	69,894,000		
Periodic Nourishment	116,106,000		

Allocations to 30 September 2006	2,529,000	
Allocations for FY 2007	350,000	
Allocations for FY 2008	77,033	
Conference Allowance for FY 200\	96,000	
Allocations for FY 2009	96,000	
Allocation through FY 2009	3,052,033	2
Allocation Requested for FY 2010	700,000	3
Programmed Balance to Complete after FY 2010		TBD
Unprogrammed Balance to Complete after FY 2010		TBD

Division: North Atlantic

District: New York

Long Beach Island, New York

JUSTIFICATION: The area has been subjected to major flooding during storms, causing damage to structures along the barrier island. Over the years, continued erosion has resulted in a reduction in the height and width of the beach front and accelerated deterioration of the locally constructed stone groins, which has made the densely populated communities along the barrier island increasingly susceptible to storm damage. Coastal storms have been a continuing source of damage and economic loss within the project area. Damaging storms occurred in 1950, 1953, 1960, 1962, 1984, 1991, and 1992. In September 1960, Hurricane Donna forced the evacuation of over 300 families. A recurrence of this storm would result in approximately \$21,100,000 in damages based on October 1995 price levels and conditions. downdrift beaches against continued shoreline erosion.

FISCAL YEAR 2009: The requested amount will be applied as follows

Continue LRR Effort	\$ 96,000
Total	\$ 96,000

FISCAL YEAR 2010: The requested amount will be applied as follows:

Complete LRR	\$ 100,000
P&S for the 1st Construction Element	\$ 600,000
Total	\$ 700,000

NON-FEDERAL COSTS: In accordance with the cost sharing and financial concepts reflected in the authorizing legislation, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance and Replacement Costs
Provide all lands, easements, rights Of way, and relocations.	\$ 396,000	
Pay 35 percent of the cost of Construction, excluding non-creditable Lands, easements, and rights of way, And bear all costs of operations and Maintenance of storm damage reduction Facilities.	12,804,000	
Pay 35 percent of periodic nourishment	51,900,000	
Total Non-Federal Costs	\$ 65,100,000	\$ 0

Division: North Atlantic

District: New York

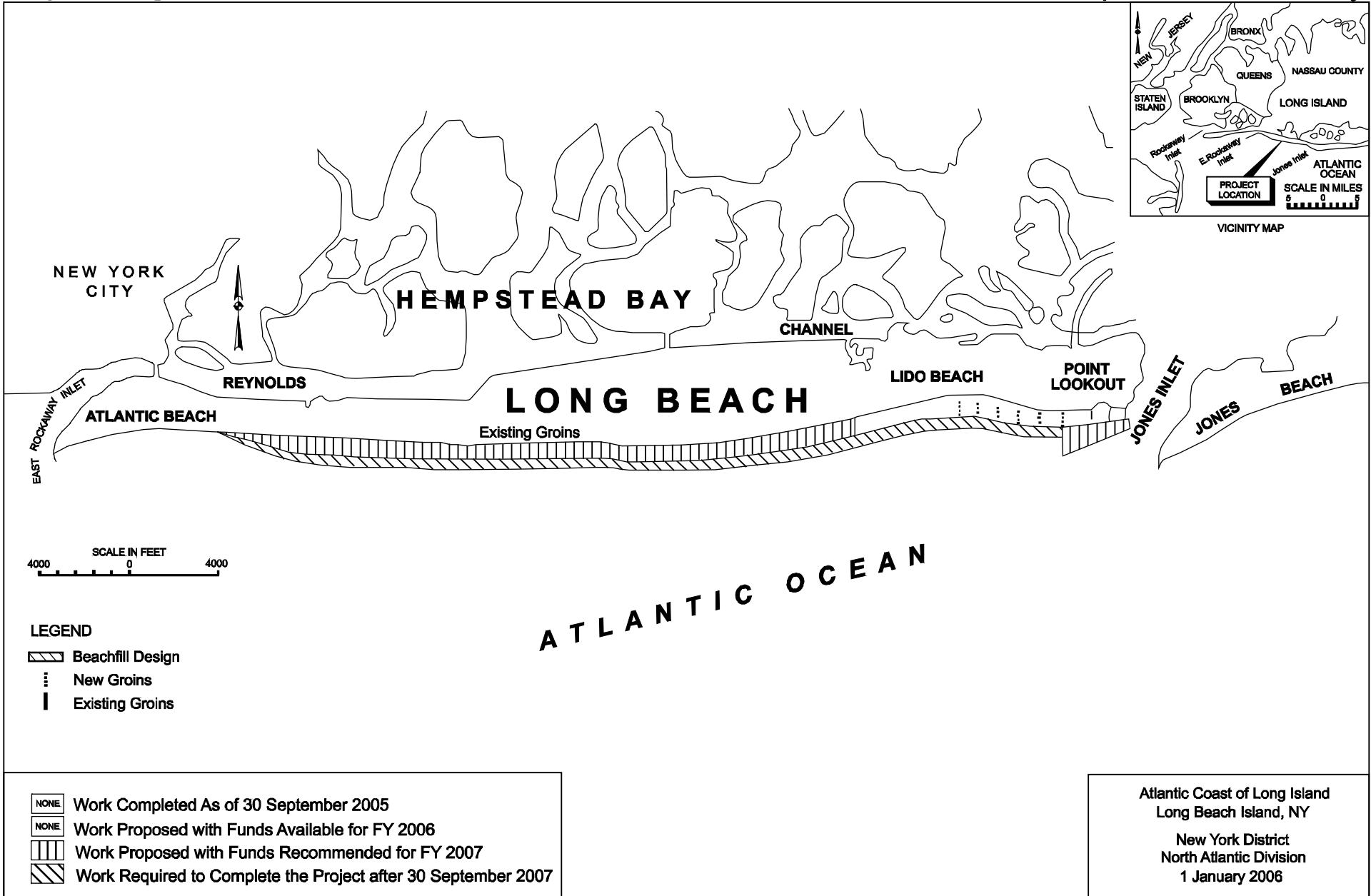
Long Beach Island, New York

STATUS OF LOCAL COOPERATION: The local sponsor, the New York State Department of Environmental Conservation, has indicated their support for the selected plan and are willing to enter into a Project Partnership Agreement with the Federal Government for the implementation of the plan. Local municipalities along the barrier island will cost share the non-Federal cost with the State. These municipalities, which include the City of Long Beach, the Town of Hempstead and Nassau County, support for the selected plan. The village of Atlantic Beach, which encompasses the western 2 miles of the barrier island, has asked not to be included in the project and is not affected by the proposed plan. A Limited Reevaluation Report is being finalized to document any changes since the feasibility study and ensure local participation. The PPA is scheduled to be executed in September 2010.

COMPARISON OF FEDERAL COST ESTIMATE: The current Federal cost estimate of \$120,900,000 is the first estimate presented to Congress.

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: A Statement was included with the Final Feasibility Report dated February 1995. The Record of Decision (ROD) for the final Environmental Impact Statement was issued on 23 December 1998.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in FY 1995 and funds to initiate construction in FY 1998.



APPROPRIATION TITLE: Construction, General - Flood and Coastal Storm Damage Reduction and Ecosystem Restoration

PROJECT: Muddy River, Massachusetts (Continuing)

LOCATION: The Muddy River is a 3.5 mile urban waterway located in eastern Massachusetts in the communities of Boston, Brookline and Newton. The Muddy River originates at Jamaica Pond and flows through the heart of Frederick Law Olmsted's famed "Emerald Necklace", one of the most carefully crafted park systems in America. The park is located next to several residential neighborhoods and some of the area's most prominent businesses and institutions such as the Museum of Fine Arts, Longwood Medical Center, Northeastern University and Wentworth, Simmons and Emmanuel Colleges.

DESCRIPTION: The flood risk management portion of the project involves dredging approximately 65,000 cubic yards of sediment to deepen the Muddy River, removal or replacement of undersized culverts and streambank protection which will provide flood damage reduction against the recurrence of a 20-year event. The ecosystem restoration portion of the project involves dredging approximately 135,000 cubic yards of sediment and restoration of riparian vegetation to improve water quality, enhance aquatic and riparian habitat, and promote recreational use of the river and surrounding parklands. Only flood risk management work is programmed. The project would be constructed in two phases. Phase I involves replacement of two undersized culverts, day-lighting two sections of the river and modification of a bridge and culvert headwall for flood risk management. Phase II involves dredging of the river for both flood risk management and ecosystem restoration.

AUTHORIZATION: Section 552 of the Water Resources Development Act of 2000.

REMAINING BENEFIT-REMAINING COST RATIO: The remaining benefit-remaining cost ratio for the flood risk management portion of the project is 3.8 to 1 at 7 percent. The remaining benefit-remaining cost ratio for the ecosystem restoration portion of the project is not applicable.

TOTAL BENEFIT-COST RATIO: The total benefit to cost ratio for the flood risk management portion of the project is 2.5 to 1 at 7 percent. The total benefit to cost ratio for the ecosystem restoration portion of the project is not applicable.

INITIAL BENEFIT-COST RATIO: The initial benefit to cost ratio for the flood risk management portion of the project is 2.5 to 1 at 5 7/8 percent (FY 2003). The initial benefit to cost ratio for the ecosystem restoration portion of the project is not applicable.

BASIS OF BENEFIT-COST RATIO: Flood risk management benefits are based on the economic evaluation contained in the Revised Draft Muddy River Decision Document, dated September 2003. Benefits are expressed at June 2001 price levels.

Division: North Atlantic

District: New England

Muddy River, MA

7 May 2009

NAD-30

SUMMARIZED FINANCIAL DATA		ACCUMULATED PCT. OF EST. FED COST	STATUS (1 Jan 2009)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost	\$ 49,010,000		Flood Risk Management	0	TBD
Estimated Non-Federal Cost	29,390,000		Ecosystem Restoration	0	Unprogrammed
Cash Contribution	\$ 29,300,000		Entire Project	0	Unprogrammed
Other Costs	90,000				
 Total Estimated Project Cost	 \$78,400,000				
Allocations to 30 September 2006	\$ 2,816,000		PHYSICAL DATA		
Allocation for FY 2007	1,000,000		Flood Risk Management		
Allocation for FY 2008	9,362,000		Dredging. . . . .		.65,000 cubic yards
Conference Allowance for FY 2009	4,785,000		Daylighting River. . . . .		.700 linear feet
Allocation for FY 2009	4,785,000		Replace/Install Culverts. . . . .		.530 linear feet
Allocations through FY 2009	17,963,000	35			
Allocation Requested for FY 2010	4,000,000	43	Ecosystem Restoration		
Programmed Balance to Complete			Dredging. . . . .		135,000 cubic yards
After FY 2010	TBD		Planting Emergent Vegetation. . . . .		3.5 acres
Unprogrammed Balance to Complete					
After FY 2010	TBD				

JUSTIFICATION: During the past century the Muddy River watershed has experienced the effects of gradual urbanization and is now over 70 percent developed. Flooding has worsened because there is little natural storage remaining in the watershed and the carrying capacity of the river has been restricted by undersized culverts, accumulated sediment, vegetation and debris. Several residential neighborhoods and some of the area's most prominent businesses and institutions are subject to frequent flood damage. In October 1996 a 20 to 25-year storm, caused widespread flooding along the Muddy River. The Kenmore Square Subway Station, part of the Massachusetts Bay Transportation Authority's Green Line, was flooded with over 30 feet of water causing \$51 million in damages and disrupting service for about 6 months. Average annual damages for the Muddy River are estimated at about \$7 million. The proposed project would protect against damages from all floods up to an average recurrence frequency of once in 20 years, as well as reducing damages from larger, more infrequent floods. The average annual benefits, all flood risk management, are estimated at \$6,299,500 at June 2001 prices.

The Muddy River is the only remaining small urban stream in Boston or Brookline that still provides significant aquatic habitat. Its location within one of the nation's premier historic park systems and close proximity to internationally known medical, cultural and educational institutions further adds to its significance. Accumulated sediment from urban runoff has contributed to poor water quality, loss of aquatic habitat, and proliferation of invasive aquatic and emergent wetland vegetation. Removal of nutrient rich sediment and invasive plant species will significantly improve water quality, restore 8 acres of open water habitat, create more diverse emergent and riparian habitat, and restore the aesthetic quality of the Muddy River.

Division: North Atlantic

District: New England

Muddy River, MA

FISCAL YEAR 2009: Funds are being used to complete design of Phase I work and execute a Project Partnership Agreement with the Commonwealth of Massachusetts. These funds will also be used to initiate design of the flood risk management elements of Phase II work.

FISCAL YEAR 2010: The requested amount will be applied as follows:

Complete Construction of Phase I	\$ 3,600,000
Construction Management	350,000
Planning, Engineering and Design	50,000
<b>Total</b>	<b>\$ 4,000,000</b>

NON-FEDERAL COSTS: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation and Replacement Costs
Provide lands, easements, rights-of-way, and suitable borrow and dredged or excavated material disposal areas, and perform all relocations determined by the Federal Government to be necessary for the construction, operation and maintenance of the project.	\$ 90,000	
Pay 34.9 percent of the costs allocated to flood risk management and ecosystem restoration to bring the total non-Federal share of these costs to 35 percent, and bear all costs of operation, maintenance, repair, rehabilitation and replacement of flood risk management and ecosystem restoration facilities.	26,300,000	\$ 200,000
Pay all additional costs for the locally preferred plan to dredge Wards Pond instead of the Federally implementable plan of aeration.	3,000,000	
<b>Total Non-Federal Costs</b>	<b>\$ 29,390,000</b>	<b>\$ 200,000</b>

Division: North Atlantic

District: New England

Muddy River, MA

STATUS OF LOCAL COOPERATION: The City of Boston, Town of Brookline and Massachusetts Executive Office of Environmental Affairs (EOEA) are the local sponsors for the project. The City of Boston signed an agreement for design of the entire project on 13 June 2005. The sponsors understand the requirements of local cooperation and are prepared to enter into a Project Partnership Agreement with the Corps in November 2009. The City of Boston, in conjunction with the Town of Brookline and Massachusetts EOEA, will obtain all state and local permits, as well as acquire all lands, easements, rights-of-way, and dredged material disposal areas necessary for project construction.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of \$49,010,000 is an increase of \$45,000 from the latest estimate (\$48,965,000) presented to Congress (FY 2009). This change includes the following items:

Item	Amount
Price Escalation on Construction Features	\$ 45,000
Total	\$ 45,000

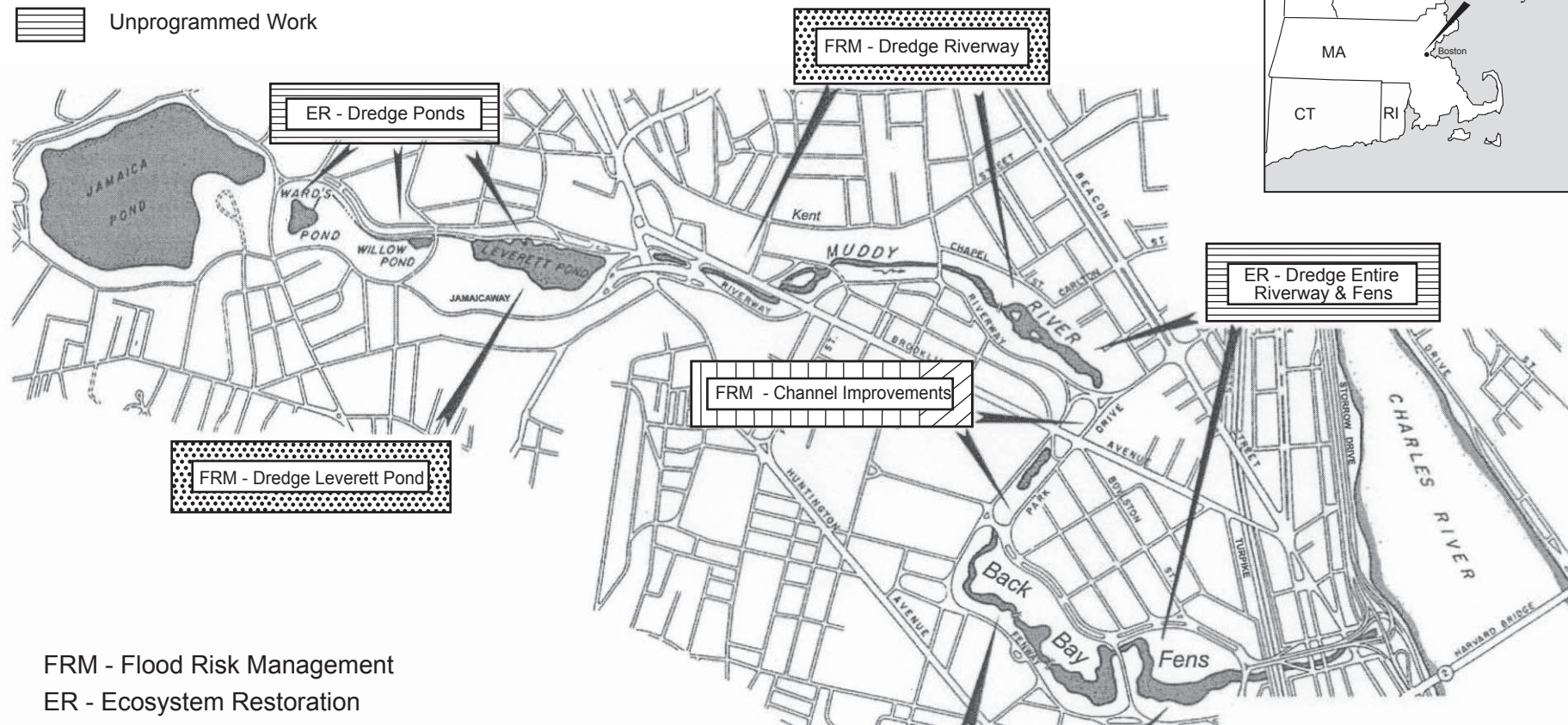
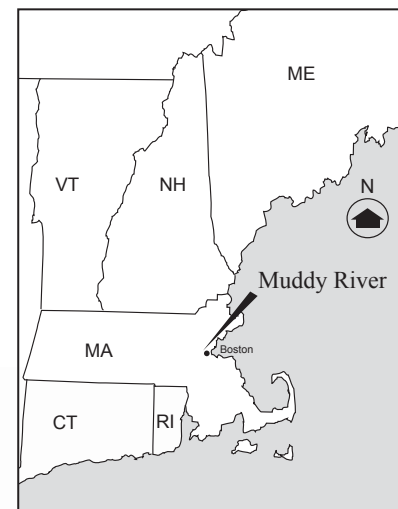
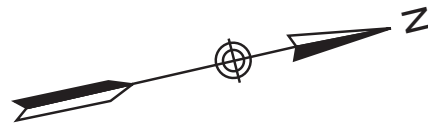
STATUS OF ENVIRONMENTAL IMPACT STATEMENT: An Environmental Assessment and Finding of No Significant Impact was completed on 1 October 2003.

OTHER INFORMATION: Funds to initiate Preconstruction Engineering and Design (PED) were appropriated in FY 2001. The design agreement was signed on 13 June 2005 with the City of Boston. Funds to initiate construction of the project were first appropriated in FY 2003. In a letter dated 5 July 2004, the Assistant Secretary for the Army (Civil Works) expressed support for the flood risk management elements of the project, but determined that the ecosystem restoration elements do not demonstrate environmental significance and are therefore not justified.

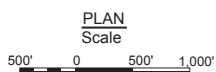


**LEGEND**

- (none) Work Completed as of 30 September 2008
- Work Underway with Funds available for FY 2009
- Work Proposed with Funds Requested for FY 2010
- Work Required to Complete the Project after FY 2010
- Unprogrammed Work



FRM - Flood Risk Management  
 ER - Ecosystem Restoration



**MUDDY RIVER, MA**  
 Flood Risk Management  
 and Ecosystem Restoration  
 1 January 2009

North Atlantic Division  
 New England District, Corps of Engineers

APPROPRIATION TITLE: Construction, General - Flood and Coastal Storm Damage Reduction

PROJECT: Raritan River Basin, Green Brook Sub-Basin, New Jersey (Continuing)

LOCATION: The Green Brook Sub-Basin project area is located within the Raritan River Basin in north-central New Jersey in Middlesex, Somerset and Union Counties. It drains approximately 65 square miles of primarily urban and industrialized area. It includes the following communities: Dunellen, Middlesex Borough, Piscataway, South Plainfield, Bound Brook, Bridgewater, Green Brook, North Plainfield, Warren, Watchung, Berkeley Heights, Plainfield, and Scotch Plains. The project area is divided into three sub-areas: the lower, upper and Stony Brook portions of the sub-basin.

DESCRIPTION: The Project plan consists of a system of levees and floodwalls in the lower portion of the basin, channel modifications and dry detention basins in the upper portion of the basin, and channel modifications in the Stony Brook portion of the sub-basin. The upper portion of the sub-basin has been deferred.

AUTHORIZATION: Water Development Act of 1986.

REMAINING BENEFITS-REMAINING COST RATIO: 2.6 to 1 at 7 percent.

TOTAL BENEFIT-COST RATIO: 1.4 to 1 at 7 percent.

INITIAL BENEFIT-COST RATIO: 1.4 to 1 at 7 1/8 percent (FY 1998).

BASIS OF BENEFIT-COST RATIO: Benefits are from the analysis contained in the Final General Reevaluation Report dated May 1997 at April 1996 price levels.

SUMMARIZED FINANCIAL DATA:		ACCUM. PCT. OF EST. FED. COST
Estimated Federal Cost		309,400,000
Programmed Construction	263,200,000	
Unprogrammed Construction	46,200,000	
Estimated Non-Federal Cost		104,000,000
Programmed Construction	87,700,000	
Cash Contributions	25,500,000	
Other Costs	62,200,000	
Unprogrammed Construction	16,300,000	
Cash Contributions	3,100,000	
Other Costs	13,200,000	
Total Estimated Programmed Construction Cost		350,900,000
Total Estimated Unprogrammed Construction Cost		62,500,000
Total Estimated Project Cost		413,400,000
Allocations thru 30 September 2006		64,724,000
Allocations to 30 September 2007		10,229,000
Allocations to 30 September 2008		10,001,000
Conference Allowance for FY 2009		10,000,000
Allocation for FY 2009		10,000,000
Allocations through FY 2009		94,954,000
Allocation Requested for 2010		7,000,000
Programmed Balance to complete after FY 2010		TBD
Unprogrammed Balance to complete after FY 2010		TBD

STATUS (1 Jan 2009)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Element 1	75	TBD
Element 2,	0	Indefinite
Elements 3	3	TBD
Entire Project	33	Indefinite

PHYSICAL DATA

Element 1 is lower portion of the basin. It consists of levees, floodwalls, closure structures interior drainage facilities, a bridge reconstruction and non-structural measures including flood proofing and buyouts

Element 2(Unprogrammed) is the Upper portion of the basin consists of channel modifications and two dry detention basins.

Elements 3 is the Stony Brook Portion of the basin.

JUSTIFICATION: The project area suffers annual flood damages of \$41,000,000 (Apr 96 P.L.) without the project. Most recently, the April 15-17, 2007 Nor'easter and September 16-18, 1999 Tropical Storm Floyd flooding were so extensive that the area was designated a Major Disaster Area. Eight deaths have been attributed to floods in the basin. This project, in addition to preventing damages to property, is effective in reducing a high risk to life for the populations in the project area. That risk must be considered in evaluating the project justification in addition to economic analyses. Risk is created by both hydrologic factors (flood depth, velocity, and short warning time) and cultural factors (size of population and available routes of egress from the flood plain). In the recent April 2007 Nor'easter, thirty four people were injured and there were more than 1,000 people evacuated from their residences. In Bound Brook, five homes caught fire and burned to the ground the night of April the 16th when high water prevented emergency personnel from reaching them. On April 23, after surveying the areas, acting Gov. Codey estimated total damages in New Jersey at \$180 million. After the flood FEMA and the SBA spent about \$16.5 million on loans and grants for individuals and businesses statewide; and another \$3.3 million was provided by FEMA as public assistance to help repair infrastructure and pay for police overtime. National Flood Insurance claims paid in Bound Brook totaled around \$19.8 million. Beyond the federal dollars, the April flood cost private insurers \$160 million statewide for homeowners', auto, and other claims according to Insurance Services Office, an industry group.

FISCAL YEAR 2009: The appropriated amount will be applied as follows:

Continue Segment R2 Levee Contract	\$ 8,000,000
Construction Management/ Engineering and Design	\$ 2,000,000
Total	\$ 10,000,000

FISCAL YEAR 2010: The requested amount will be applied as follows:

Award Basic of base plus option "Seg D" Levee Contract	\$ 5,000,000
Construction Management/ Engineering and Design	\$ 2,000,000
Total	\$ 7,000,000

NON-FEDERAL COSTS: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below:

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair Rehabilitation, and Replacement Costs
Provide lands, easements, rights of way, relocations and borrow excavated or dredged material disposal areas.	\$ 62,200,000	
Pay 25 percent of cost associated with non-structural flood protection	16,300,000	
Pay 6 percent of the costs allocated to flood control, to bring the total non-Federal share of flood control costs to 25 percent, as determined under Section 103 (m) of the Water Resources Development Act of 1986, and bear all costs of operation, maintenance, repair, rehabilitation and replacement of flood control facilities.	25,500,000	\$1,157,000
<b>Total Non-Federal Costs</b>	<b>\$104,000,000</b>	<b>\$1,157,000</b>

The non-Federal sponsor has also agreed to make all required payments concurrently with project construction.

Division: North Atlantic

District: New York

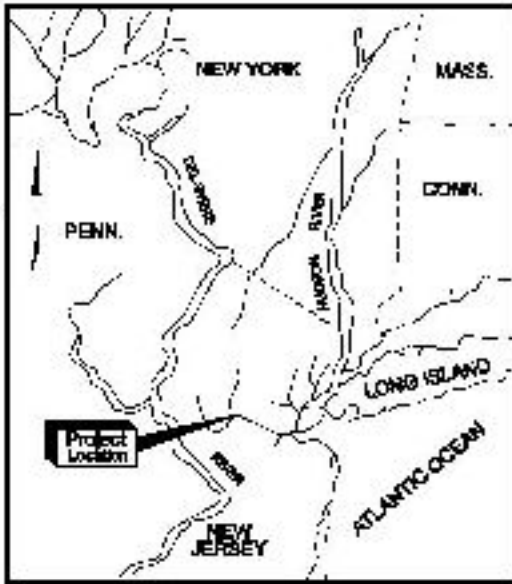
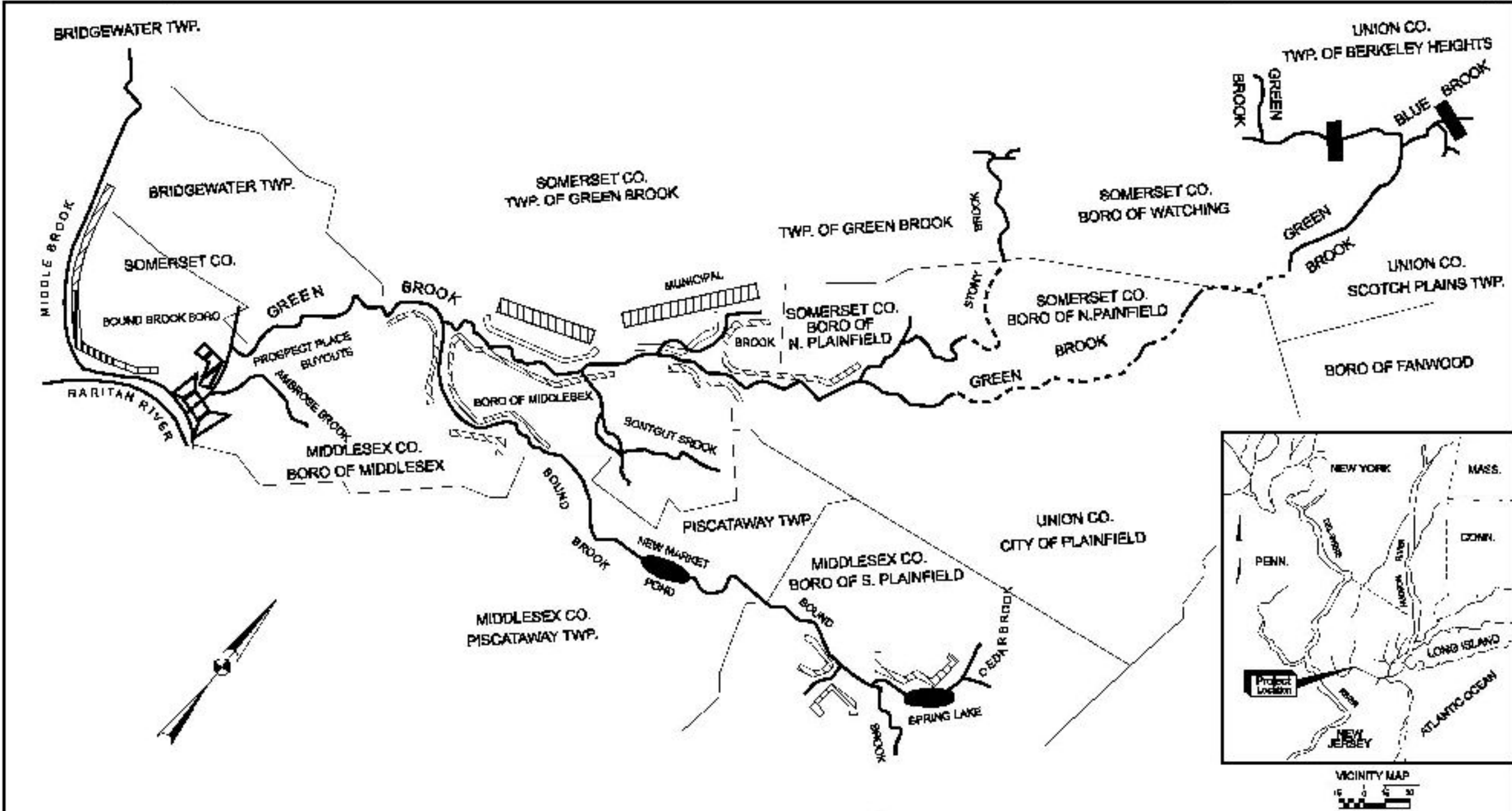
Raritan River Basin, Green Brook Sub-Basin, NJ

STATUS OF LOCAL COOPERATION: The State of New Jersey Department of Environmental Protection, provided a letter dated 17 April 1997 stating their support and endorsement of the project. Governor Whitman also provided a letter of support on 26 February 1998. The Green Brook Flood Control Commission has stated their strong support for the project in a letter dated 4 October 1995. Also, several counties and municipalities have adopted resolutions endorsing and supporting the project. The Project Cooperation Agreement was executed in June 1999.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of \$309,400,000 is the same as the latest estimate (\$309,400,000) presented to Congress (FY 2009):

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement (EIS) was filed in August 1980. A Supplemental Environmental Impact Statement with the Final General Reevaluation Report was released in May 1997 and the Record of Decision was issued in July 1998.

OTHER INFORMATION: None



VICINITY MAP  
SCALE IN MILES  
0 5 10 20

	Work Completed As of 30 September 2008
	Work Proposed with Funds Available for FY 2009
	Work Proposed with Funds Recommended for FY 2010
	Work Required to Complete the Project after 30 September 2010

**LEGEND**

	LEVEES WITH LIMITED FLOODWALL SECTIONS
	CHANNEL MODIFICATIONS
	DRY DETENTION BASIN (deferred)
	Bridge
FP FP	Flood Proofing

**Green Brook Sub-Basin**  
**Raritan River, NJ**  
**New York District**  
**North Atlantic Division**  
**1 January 2009**

APPROPRIATION TITLE: Construction, General - Flood and Coastal Storm Damage Reduction

PROJECT: Washington, DC & Vicinity (New)

LOCATION: Washington, DC at the confluence of the Anacostia and Potomac Rivers.

DESCRIPTION: The existing flood protection project for downtown Washington, D.C., was authorized by the Flood Control Act of 1936 and consists of a levee between the Lincoln Memorial and Washington Monument, a raised section of P Street, SW, adjacent to Fort McNair, and three temporary closures. The project provides protection for a significant portion of downtown, extending from Pennsylvania Avenue on the north, through a significant portion of the Mall, and south to Fort McNair. The authorized modifications will eliminate the temporary closures at 23rd Street and Constitution Avenue, NW, and 2nd and P Streets, SW. The temporary closure at 17th Street, NW, has been redesigned to improve its reliability and minimize the time required for construction. The authorized modifications will bring the top of the existing levee along the Reflecting Pool between 23rd and 17th Streets to a uniform elevation and increase the level of freeboard protection provided. Three drainage control structures have also been added to prevent backflow through the storm sewer system. All work is programmed.

AUTHORIZATION: Flood Control Act of 1946 and Water Resources Development Act of 1996. The project was reauthorized in the Water Resources Development Act of 1999.

REMAINING BENEFIT - REMAINING COST RATIO: 7.6 to 1 at 7 percent.

TOTAL BENEFIT - COST RATIO: 4.3 to 1 at 7 percent.

BASIS OF BENEFIT-COST RATIO: Benefits are from the Post Authorization Change Report dated February 1998 at October 1997 price levels. Benefits will be updated once funds are appropriated before project is physically constructed.

SUMMARIZED FINANCIAL DATA		ACCUM. PCT. OF EST. FED COST	STATUS (1 Jan 2009)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost	\$9,912,000				
Estimated Non-Federal Cost:	0		Entire Project	0	Sep 2010
Cash Contributions	\$0				
Other Costs	0				
Total Estimated Project Cost	\$9,912,000				

Division: North Atlantic

District: Baltimore

Washington, DC & Vicinity

SUMMARIZED FINANCIAL DATA: (continued)

Allocations to 30 September 2006	3,097,000			PHYSICAL DATA
Allocation for FY 2007	0			
Allocation for FY 2008	25,000		23 <sup>rd</sup> Street, NW	-3 foot earth embankment, 1 drainage control structure
Conference Allowance for FY 2008	0			
Allocation for FY 2009	0		Reflecting Pool Level	Fill at low spots
Allocations through FY 2009	3,122,000	31	17 <sup>th</sup> Street, NW	-8 foot high, 150 foot post & panel structure with earth embankment on sides of road, 1 drainage control structure
Allocation Requested for FY 2010	6,790,000	100		
Programmed Balance to Complete after FY 2010	TBD			
Unprogrammed Balance to Complete after FY 2010	TBD		2 <sup>nd</sup> & P Streets, SW	-2 foot earth berm, 1 drainage control structure

JUSTIFICATION: The temporary closure at 17<sup>th</sup> Street is unreliable and does not meet USACE new levee safety criteria and FEMA certification requirements. The new criteria were developed in response to the devastation in New Orleans caused by Hurricane Katrina. In January 2007, the Baltimore District issued the National Park Service (which operates and maintains the project), an unacceptable inspection rating, which prompted FEMA to de-certify the levee. FEMA is required by law to revise the Flood Insurance Rate Map (FIRM) to show the current risk of flooding. In the absence of an acceptable inspection rating, FEMA will not accredit the levee as safely containing the 100-year flood event. In May 2008, FEMA sent a letter to the District of Columbia stating that it would immediately issue a revised FIRM if significant progress was not being made by November 2009 to replace the temporary closure with a permanent closure. If the FIRM is revised it will have a profound impact on federal operations, future development, businesses, and the health, safety, and quality of life for residents. Most notably, flood insurance is a requirement for federally backed mortgages. In addition, a number of local building projects that are in development would need to be revised and could be delayed in order to comply with more stringent building codes. Additionally, due to the experience of the 1942 flood, the Flood Control Act of 1946 also authorized improvements to restore the design level of protection and improve the operation of the project. The total effectiveness of the project depends on implementation of the improvements authorized in 1946. At present, project operation continues to require implementation of emergency measures such that the ability of the project to provide the design level of protection is questionable. The estimated average annual benefits, all flood control, are \$2,100,000 based on the Post Authorization Change Report dated February 1998 at October 1997 price levels.

FISCAL YEAR 2009: No funds were budgeted.



FISCAL YEAR 2010: The requested amount will be applied as follows:

Initiate and complete Levee & Closure construction	5,190,000
Planning, Engineering & Design	1,250,000
Construction Management	<u>350,000</u>
Total	\$6,790,000

NON-FEDERAL COSTS: None.

STATUS OF LOCAL COOPERATION: The local assurers for the project modification are the National Park Service, Ft. McNair, and the District of Columbia. These agencies will be responsible for providing lands, easements, and rights-of-way and operating and maintaining the project including making emergency closures during flood events. Letters of intent to provide local cooperation have been secured from each agency. A Memorandum of Understanding with the Park Service and Ft. McNair and a Memorandum of Agreement with the District of Columbia are scheduled for execution by January 2010.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of \$9,912,000 is an increase of \$2,912,000 from the latest estimate (\$7,000,000) presented to Congress (FY 2006). This change includes the following items

Item	Amount
Price Escalation on Construction Features	\$ 1,260,000
Design Changes	\$ 1,652,000
Total	\$ 2,912,000

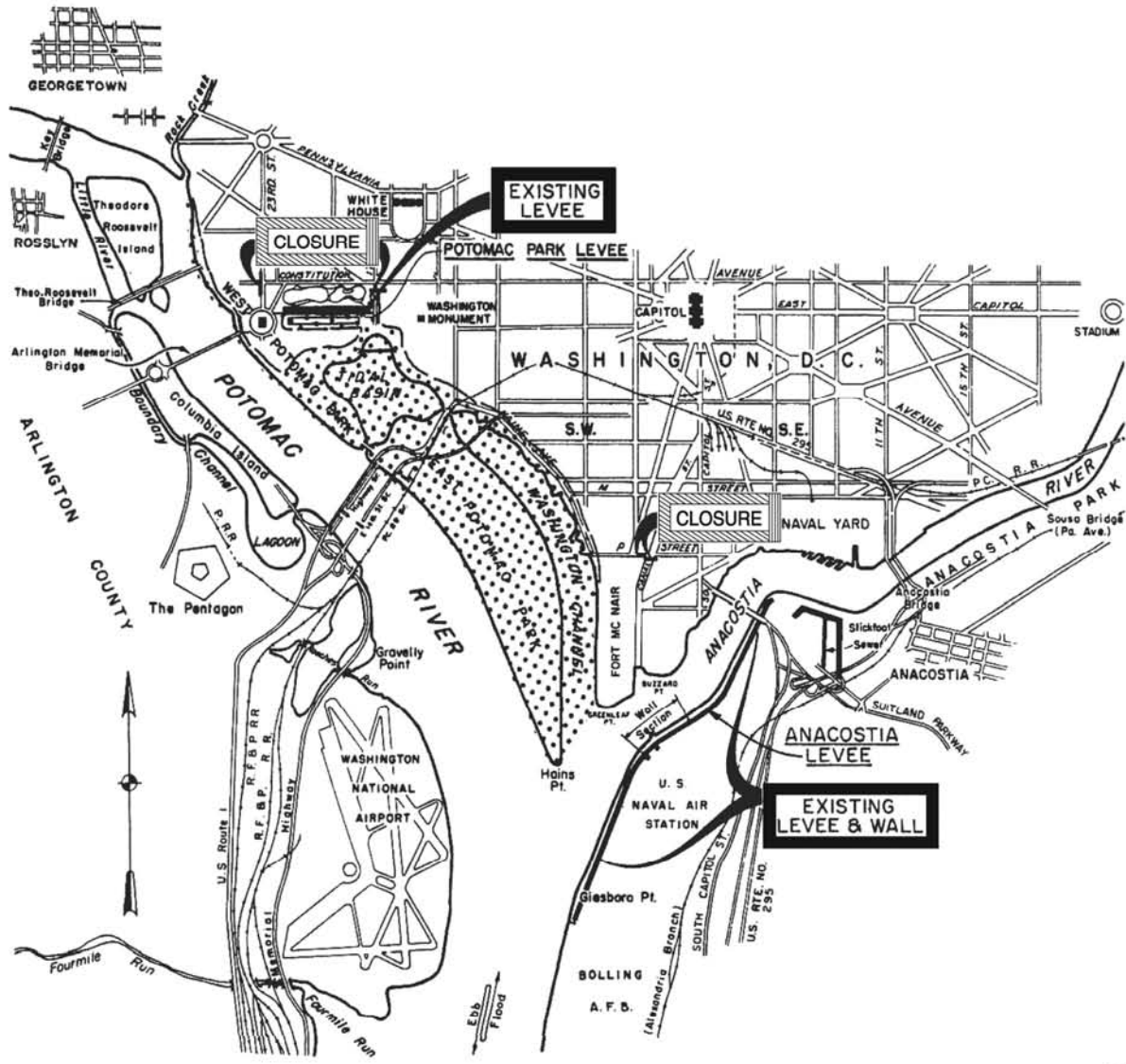
STATUS OF ENVIRONMENTAL IMPACT STATEMENT: An environmental assessment including Finding of No Significant Impact is included in the final General Design Memorandum dated May 1992. The Supplement to the GDM dated June 1996 also included an environmental assessment and Finding of No Significant Impact addressing changes since the GDM.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in FY 1986. FY 2009 Economic recovery Investigation funds are being pursued to complete Plans & Specs, Limited Reevaluation Report, and NPS MOA in order to award 17th Street Closure Structure in October 2009 pending FY 2010 appropriations.

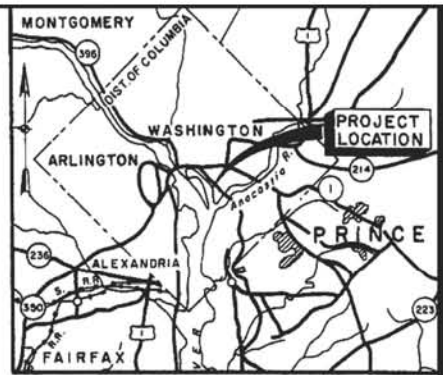
Division: North Atlantic

District: Baltimore

Washington, DC & Vicinity









**GENERAL PLAN**  
SCALE OF FEET  
2000 0 2000 4000



**VICINITY MAP**  
SCALE OF MILES  
0 4 8

**LEGEND**

-  AREA FLOODED BY FLOOD OF RECORD OCTOBER 1942
-  WORK COMPLETED AS OF 30 SEPTEMBER 2004
-  NONE
-  WORK PROPOSED WITH FUNDS AVAILABLE FOR F.Y. 2005
-  WORK PROPOSED WITH FUNDS RECOMMENDED FOR F.Y. 2006
-  WORK REQUIRED TO COMPLETE THE PROJECT AFTER F.Y. 2006

NOTE: BLACK BOXES INDICATE CONSTRUCTION UNDER FC ACT OF 1936

**WASHINGTON, D.C., AND VICINITY**

1 JANUARY 2005

BALTIMORE DISTRICT NORTH ATLANTIC DIVISION

# NAVIGATION

# INVESTIGATIONS

APPROPRIATION TITLE: Investigations, Fiscal Year 2010

Division: North Atlantic

Study	Total Estimated Federal Cost \$	Allocation Prior to FY 2007 \$	Allocation FY 2007 \$	Allocation FY 2008 \$	Allocation FY 2009 \$	Tentative Allocation FY 2010 \$	Additional to Complete After FY 2010 \$
PRECONSTRUCTION ENGINEERING AND DESIGN – (Navigation) MASSACHUSETTS							
Boston Harbor (45-Foot Channel), MA New England District	3,750,000	0	0	0	0	500,000	3,250,000

Boston Harbor is located along the eastern shoreline of Massachusetts and is New England's largest port serving as the principal distribution point for the commerce of Massachusetts, New Hampshire and Vermont. In 2006, waterborne commerce totaled 21.9 million tons, of which approximately 78 percent were liquid petroleum products. The inner harbor is comprised of the Main Ship, Reserved, Chelsea River and Mystic River Channels. The Massachusetts Port Authority (Massport) has been upgrading facilities at Conley Terminal, which is located along the southerly side of the Reserved Channel. In addition, Massport has plans to expand Conley Terminal onto the adjacent Coastal Oil Terminal property and to develop a bulk cargo terminal at nearby Massport Marine Terminal, increasing the number of berths that would benefit from deeper channels. Ships drawing 45-foot drafts now make 3 calls a week to Boston Harbor. The recommended project, estimated to cost \$308,000,000, with an estimated Federal cost of \$206,750,000 and an estimated Non-Federal cost of \$101,250,000, would deepen the Broad Sound North Entrance Channel to 50 feet and the President's Roads, Main Ship and Lower Reserved Channels and Turning Area to 48 feet. The average annual benefits amount to \$28,372,000 all for commercial navigation. The benefit-to-cost ratio is 1.7 to 1 based upon the latest economic analysis dated January 2008. Massport understands the requirements of local cooperation for preconstruction engineering and design requirements and is expected to be the Non-Federal sponsor for this effort. Preconstruction engineering and design (PED) will ultimately be cost shared at the rate for the project to be constructed, but will be financed through the PED period at 25 percent non-Federal. Any adjustments that may be necessary to bring the non-Federal contribution in line with the project cost sharing will be accomplished in the first year of construction.

Total Estimated Preconstruction Engineering and Design Costs	\$ 5,000,000	Total Estimated Preconstruction Engineering and Design Costs	\$ 5,000,000
Initial Federal Share	3,750,000	Ultimate Federal Share	3,250,000
Initial Non-Federal Share	1,250,000	Ultimate Non-Federal Share	1,750,000

Consistent with the cost-sharing and financing concepts enacted by the Water Resources Development Act of 1986 and 1996 as amended, local interests are required to provide all lands, easements, right-of-way, and relocations (LERR) determined by the Federal Government to be necessary for the construction, operation and maintenance of the project; pay 25 percent of all costs allocated to General Navigation Features (GNF) for that portion of the project which has a depth in excess of 20 feet but not more than 45 feet during project construction; pay 50 percent of all GNF costs for that portion of the project which has a depth in excess of 45 feet during project construction; and pay an additional 10 percent of all GNF costs, less a credit for the cost of LERR, over a period not to exceed 30 years after project construction.

Funds requested for Fiscal Year 2010 will be used to negotiate and execute the design agreement and initiate preconstruction engineering and design efforts, including preparation of project plans and specifications. Design efforts are scheduled to be completed in April 2012.

# CONSTRUCTION

APPROPRIATION TITLE: Construction – Channels and Harbors, Navigation

PROJECT: AIWW, Bridges at Deep Creek, VA (New)

LOCATION: The Deep Creek Bridge is part of U.S. Route 17 and crosses the Dismal Swamp Canal (DSC) segment of the Atlantic Intracoastal Waterway (AIWW) in Chesapeake, VA. Chesapeake is located in southeastern Virginia, approximately 150 miles southeast of Washington, D.C. and directly south of Norfolk, VA.

DESCRIPTION: The final 2001 feasibility report indicates that the National Economic Development Plan consists of replacing the existing 2-lane bridge with a 5-lane low-level bascule bridge. The bridge will be located south of and parallel to the existing bridge and would be constructed at 100% Federal cost. The City of Chesapeake (project Sponsor) will take ownership of the new bridge and assume future operation, maintenance, repair, rehabilitation, and replacement costs for the bridge, thus reducing the Corps future expenditures and removing the bridge from Corps inventory and reducing risk.

AUTHORIZATION: Section 1001(44) of the Water Resources Development Act of 2007 (Public Law 110-114), dated November 8, 2007.

REMAINING BENEFIT-REMAINING COST RATIO: 6.9 at 7 percent.

TOTAL BENEFIT-COST RATIO: 6.9 at 7 percent.

BASIS OF BENEFIT-COST RATIO: Benefit cost ratios are based on benefits from the latest available evaluation approved in November 2003 at FY 2004 price levels.

SUMMARIZED FINANCIAL DATA	ACCUM PCT OF EST FED COST	STATUS (1 January 2009)	PCT CMPL	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost	46,224,000	Entire Project	0	TBD
Estimated Non-Federal Cost	0			
Cash Contributions	0			
Other Costs	0			
Total Estimated Project Cost	46,224,000			

Division: North Atlantic

District: Norfolk

AIWW, Bridges at Deep Creek, VA

7 May 2009

NAD-48

SUMMARIZED FINANCIAL DATA: (continued)

Allocations to 30 September 2006	2,355,000	
Allocation for FY 2007	289,000	
Allocation for FY 2008	45,000	
Allocation for FY 2009	478,000	
Conference Allowance for FY 2009	478,000	
Allocations through FY 2009	3,167,000	7
Allocation Requested for FY 2010	1,500,000	10
Programmed Balance to Complete after FY 2010	TBD	

PHYSICAL DATA

This project would consist of replacing the obsolete structure with a split leaf eastbound 2-lane with sidewalk and westbound 3-lane, low-level, fast acting, pit bascule bridge located south of and parallel to the existing bridge's centerline. The approach roads include all transportation network tie-ins on either side of the bridge, including intersections. The existing bridge will be demolished.

JUSTIFICATION: The existing 2-lane plus sidewalk pit-bascule bridge was constructed in 1933-34 and is presently 74 years old. This bridge is also on the hurricane evacuation route for the City and for regions south of the City and its present 2-lane configuration is inadequate for the effort. The bridge must be replaced, along with making associated roadway improvements. Also, as agreed upon during the Feasibility Study phase of the project, the City has made all required roadway improvements north, south, east, and west to tie into the proposed bridge and roadway. The existing bridge has now become more of a bottleneck than previously. Removing bridges from Corps inventory reduces overhead, reduces future Corps O&M, and buys down risk. The local sponsor, the City of Chesapeake, VA, has indicated a willingness to take over operations and maintenance of the new bridge; however, cannot take on the heavier O&M responsibilities for this currently, inadequate bridge.

Annual Benefits	Amount
Travel Cost Reduction	\$13,444,000
Total	\$13,444,000

FISCAL YEAR 2009: No funds were budgeted.

FISCAL YEAR 2010: The requested amount will be applied as follows:

Initiate Real Estate Acquisition	\$1,188,000
Complete Planning, Engineering and Design	\$ 312,000
Total	\$1,500,000

NON-FEDERAL COST: In accordance with the Report of the Chief of Engineers dated March 3, 2003, the Deep Creek bridge replacement would be constructed at 100% Federal cost and the local sponsor would agree to accept full ownership of the replacement bridge, with ownership rights subordinate to the Federal government's need to operate, maintain, repair and rehabilitate the Dismal Swamp Canal. In addition, the local sponsor will assume responsibility for the operation, maintenance, repair, rehabilitation and placement (OMRR&R) of the completed bridge replacement project, currently estimated at \$209,000 annually.

Division: North Atlantic

District: Norfolk

AIWW, Bridges at Deep Creek, VA



NON-FEDERAL COST: (continued)

	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation, and Replacement Costs
Requirements of Local Cooperation		
Accept full ownership of the replacement bridge.	\$0	\$209,000

STATUS OF LOCAL COOPERATION: The City of Chesapeake is the local sponsor for this project. They have recently executed a similar PPA for the replacement of the Great Bridge, Bridge, over another section of the AIWW and are currently conducting O&M for that bridge. They are briefed quarterly, at a minimum, on the status of this project and have expressed a great deal of interest in moving forward as is evident by the roadway construction they have already completed up to the existing bridge approaches, which will eventually open the evacuation route to heavier flows. The District is currently awaiting authorization to negotiate and execute PPA. If funds are appropriated in FY09, both District and Sponsor would be ready to execute an agreement by March 2010.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of \$46,224,000 is an increase of \$26,224,000 from the latest estimate (\$22,000,000) presented to Congress (FY 2004). This change includes the following items:

Item	Amount
Price Escalation of Construction Features	\$19,204,000
Price Escalation on Real Estate	\$5,020,000
<b>Total</b>	<b>\$24,224,000</b>

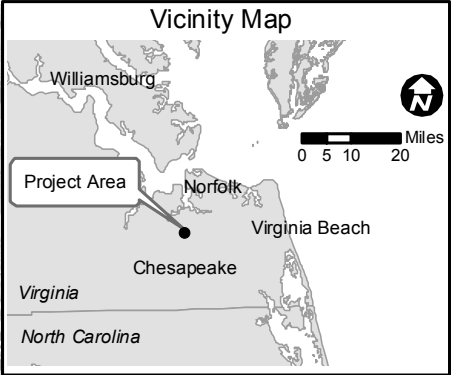
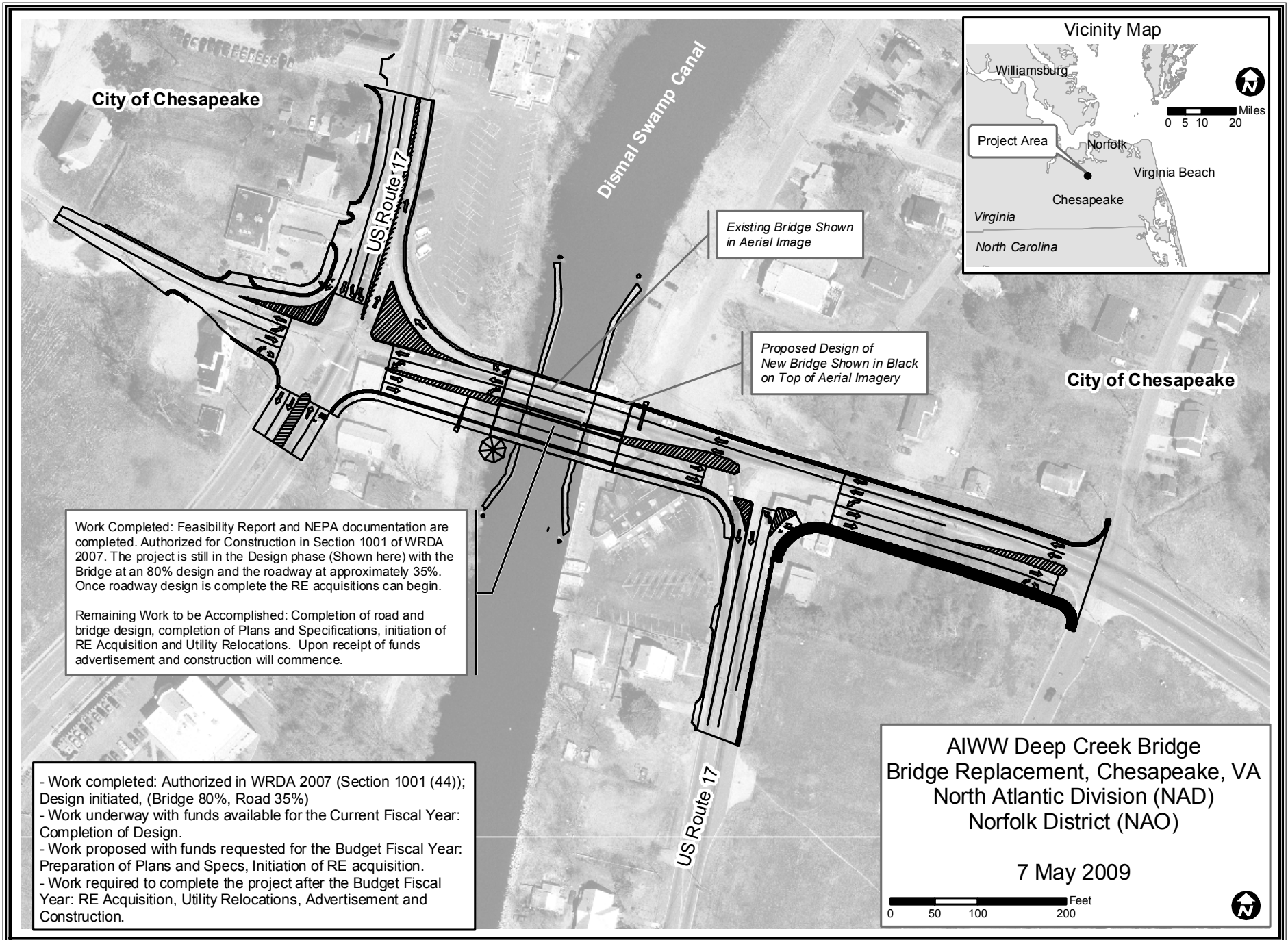
STATUS OF ENVIRONMENTAL IMPACT STATEMENT: All NEPA compliance requirements for this project have been completed. The Environmental Assessment was completed in April 2001 with the signing of a Finding of No Significant Impact. A reporting only-general permit was issued on February 26, 2004, and does not expire. No permits are required from the Virginia Marine Resources Commission (Nov. 30, 2000 letter of confirmation) or the Chesapeake Wetlands Board (Dec. 5, 2000 letter).

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in FY 2001.

Division: North Atlantic

District: Norfolk

AIWW, Bridges at Deep Creek, VA



Work Completed: Feasibility Report and NEPA documentation are completed. Authorized for Construction in Section 1001 of WRDA 2007. The project is still in the Design phase (Shown here) with the Bridge at an 80% design and the roadway at approximately 35%. Once roadway design is complete the RE acquisitions can begin.

Remaining Work to be Accomplished: Completion of road and bridge design, completion of Plans and Specifications, initiation of RE Acquisition and Utility Relocations. Upon receipt of funds advertisement and construction will commence.

- Work completed: Authorized in WRDA 2007 (Section 1001 (44)); Design initiated, (Bridge 80%, Road 35%)
- Work underway with funds available for the Current Fiscal Year: Completion of Design.
- Work proposed with funds requested for the Budget Fiscal Year: Preparation of Plans and Specs, Initiation of RE acquisition.
- Work required to complete the project after the Budget Fiscal Year: RE Acquisition, Utility Relocations, Advertisement and Construction.

**AIWW Deep Creek Bridge  
 Bridge Replacement, Chesapeake, VA  
 North Atlantic Division (NAD)  
 Norfolk District (NAO)**

**7 May 2009**



APPROPRIATION TITLE: Construction, General - Channels and Harbors (Navigation)

PROJECT: New York & New Jersey Harbor, New York and New Jersey (Continuing)

LOCATION: The Port of New York and New Jersey is located within the bi-state NY/NJ Harbor Estuary. The Federal navigation channels within the NY & NJ Harbor project include: Ambrose Channel; Anchorage Channel; Kill Van Kull and Newark Bay Channel; Arthur Kill Channel; Port Jersey Channel; and Bay Ridge Channel.

DESCRIPTION: This project consists of four separately authorized Federal navigation projects.

- 1.) The Kill Van Kull and Newark Bay Channels, NY and NJ project consists of deepening existing 40-foot project to 45 feet MLW. Unprogrammed work includes dredging of Pierhead Channel and Port Newark in the vicinity of Port Newark and Port Elizabeth.
- 2.) The New York Harbor and Adjacent Channels, Port Jersey Channel, NJ project consists of deepening the non-Federal access channel to 41 feet MLW from the Federal Anchorage Channel to its head of navigation. All work is programmed.
- 3.) The Arthur Kill, Howland Hook Marine Terminal, NY and NJ project consists of deepening the existing Federal 35-foot Arthur Kill Channel to 41 feet MLW from its confluence with the Kill Van Kull Channel to Howland Hook Marine Terminal in Staten Island, New York, and to 40 feet MLW from the Howland Hook Marine Terminal to the Tosco Oil Terminal oil facilities, New Jersey and New York, respectively. Also included within the Arthur Kill Channel are selected widenings and realignments. The Arthur Kill Project also provides for mitigation consisting of restoration and enhancement of approximately 23 acres of intertidal salt marsh. All work is programmed.
- 4.) The New York and New Jersey Harbor, NY and NJ, project consists of deepening the Ambrose Channel to 53 feet MLW; the Anchorage Channel, Kill Van Kull, Newark Bay, Port Jersey Channel, Bay Ridge Channel, and the Arthur Kill Channel to Howland Hook to 50 feet MLW or 52 feet MLW, if in rock or otherwise hard material. The project also includes mitigation for project impacts, and selective bulkheading. All work is programmed.

AUTHORIZATION: Supplemental Appropriations Act of 1985, Water Resources Development Acts of 1986, 1996, 1999, and 2000.

REMAINING BENEFIT - REMAINING COST RATIO: 7.1 to 1 at 7 percent.

TOTAL BENEFIT - COST RATIO: 2.7 to 1 at 7 percent.

INITIAL BENEFIT - COST RATIO: 2.8 to 1 at 6 5/8 percent (FY 2002).

BASIS OF BENEFIT - COST RATIO: The benefit-to-cost ratio shown above applies to the consolidation of the four authorized projects. The analysis reflects annualized costs and benefits, adjusted to October 2001 price levels.

Division: North Atlantic

District: New York

New York & New Jersey Harbor, NY and NJ

7 May 2009

NAD-52

SUMMARIZED FINANCIAL DATA		ACCUM. PCT of EST FED. COST	STATUS (1 Jan 2009)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Appropriation Requirement (CoE)		\$1,399,800,000	Programmed work:		
Programmed Construction	\$1,325,300,000		KVK (a)		
Unprogrammed Construction	74,500,000		Phase I 40 ft.	100	Sep 1995
			Phase II 45 ft.	100	Dec 2004
Estimated Appropriation Requirement (USCG)	4,050,000		Port Jersey Channel (b)	95	Aug 2009
Estimated Total Appropriation Requirement	1,403,850,000		Arthur Kill Channel (c)	80	TBD
			NY & NJ Harbor (50 ft) (d)	0	Indefinite
			S-AM-1	100	Sep 2007
			S-KVK-2	100	Mar 2008
Unprogrammed work:			KVK	0	Indefinite
Future Non-Federal Reimbursement	234,362,800		Entire Project:		
Programmed Construction	225,990,800			59	Indefinite
Unprogrammed Construction	8,372,000		PHYSICAL DATA		
			a. Deepen the Kill Van Kill and Newark Bay from 35 ft to 40 ft then to 45 ft		
Estimated Federal Cost (Ultimate) (CoE)	1,165,437,200		b. Deepen the Port Jersey Channel from to 41 ft.		
Programmed Construction	1,099,309,200		c. Deepen the Arthur Kill Channel from its confluence with the Newark Bay to the Howland Hook Marine Terminal from 35 ft. to 40 ft and then from 35 ft to 40 ft to the TOSCO Terminal.		
Unprogrammed Construction	66,128,000		d. NY & NJ Harbor: Deepen the above channels from their depths to 50 ft., deepen the Ambrose Channel from 45 ft. to 53 ft. the Anchorage Channel from 45 ft. to 50 ft. and the Bay Ridge Channel from 40 ft. to 50 ft. Turning areas are provided for the Bay Ridge, Arthur Kill and Port Jersey Channels, along with mitigation for loss of benthic habitat and air quality.		
Estimated Non-Federal Cost	1,314,698,800				
Programmed Construction	1,289,906,800				
Cash Contribution	739,541,000				
Other Costs	324,375,000				
Reimbursements:	225,990,800				
Unprogrammed Construction	24,792,000				
Cash Contribution	16,420,000				
Other Costs	0				
Reimbursements	8,372,000				
Total Estimated Programmed Construction Costs	\$2,619,256,800				
Total Estimated Unprogrammed Construction Costs	99,292,000				
Total Estimated Project Cost	\$2,718,548,800				

Division: North Atlantic

District: New York

New York & New Jersey Harbor, NY and NJ

SUMMARIZED FINANCIAL DATA: (continued)

		ACCUM PCT OF EST FED. COST
Allocations thru 30 September 2006	\$693,592,000	
Allocation for FY2007	90,000,000	
Allocation for FY 2008	85,192,000	
Conference Allowance for FY 2009	90,000,000	
Allocation for FY 2009	86,127,000	
Allocation through FY 2009	954,911,000	68
Allocation Requested for FY 2010	64,716,000	72
Programmed Balance to Complete after FY 2010	TBD	
Unprogrammed Balance to Complete after FY 2010	TBD	

JUSTIFICATION: The Port of New York-New Jersey is the largest port on the East Coast, providing more than 228,000 port related jobs, \$12 billion in economic activity, and serves more than 17 million consumers in the States of New York and New Jersey. Through its intermodal links, the Port provides second day access to another 80 million consumers in the northeast and mid-western states (35% of the nation). The Port annually receives and ships over \$82 Billion (110 million long tons) of waterborne general cargo to all parts of the United States and throughout the world and receives petroleum and related products from ports in the Atlantic, and Gulf Coasts, the Caribbean, Africa, and the Persian Gulf.

FISCAL YEAR 2009: The appropriated amount will be applied as follows:

Initiate "base plus options" construction contracts		\$41,227,000
NY & NJ Harbor Deepening (50 Feet) Area S-AN-1B	10,600,000	
NY & NJ Harbor Deepening (50 Feet) Area S-E-1	26,927,000	
NY & NJ Harbor Deepening, Beneficial Reuse of Dredged Material, Jamaica Bay - Elders Point West	3,700,000	
Continue construction contracts		\$38,000,000
NY & NJ Harbor Deepening (50 Feet) Area S-KVK-1	18,000,000	
NY & NJ Harbor Deepening (50 Feet) Area S-NB-1	20,000,000	
NY & NJ Harbor Deepening (50 Feet) Area PJ-3	10,000,000	
Planning, engineering, and design and Construction management		6,900,000
TOTAL		\$86,127,000

Division: North Atlantic

District: New York

New York & New Jersey Harbor, NY and NJ

FISCAL YEAR 2010: The requested amount will be applied as follows:

Initiate "base plus options" construction contracts		\$43,700,000
NY & NJ Harbor Deepening (50 Feet) Area S-AN-2	21,000,000	
NY & NJ Harbor Deepening (50 Feet) Area S-NB-2	22,700,000	
Continue construction contracts		12,300,000
NY & NJ Harbor Deepening (50 Feet) Area S-KVK-1	12,300,000	
Planning, engineering, and design and Construction management		8,716,000
TOTAL		\$64,716,000

NON-FEDERAL COSTS: In accordance with the cost sharing and financial concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsors must comply with the Requirements listed below:

REQUIREMENTS OF LOCAL COOPERATION:	Payments during Construction and Reimbursement	Annual Operation, Maintenance and Replacement Costs
Pay 100 percent of costs to modify local service facilities, where necessary, for the construction of the project.	\$278,195,000	\$205,000
Pay 25-50 percent of the costs allocated to deep draft navigation during construction. <u>1/</u>	755,961,000	
Pay for all lands, easements, rights of way and relocations	46,180,000	
Pay an additional 10 percent of the costs allocated to deep draft navigation within a period of 30 years following completion of construction which is partially offset by a credit allowed for the value of lands, easements, rights of way, and relocation.	234,362,800	

Division: North Atlantic

District: New York

New York & New Jersey Harbor, NY and NJ

NON-FEDERAL COSTS (continued):

Contribute 50 percent of the annual charges for interest and amortization of the Federal first cost of the Port Jersey 41-foot project and 50 percent of the operations and maintenance until the improvement is serving/benefiting multiple owners/properties. (Approximately \$3 million annually.) This condition is currently planned to be met by non-federal interests by fall 2009. If multiple owners are not established, the contribution could range to a maximum of \$145,629,000.

Total Non-Federal Costs	\$1,314,698,800	\$205,000
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1/ The cost sharing percentage of this project includes the cost sharing of the general navigation features deepening to 45 feet at 25 percent and deepening of those features from 45 feet to 50 feet at 50%.

STATUS OF LOCAL COOPERATION:

(1) On the Kill Van Kull and Newark Bay Channels element, a Project Cooperation Agreement for the 45-foot deepening project was executed for the Phase II deepening on 13 January 1999.

(2) On the NY Harbor and Adjacent Channels, Port Jersey Channel element, the State of New Jersey and the Port Authority of New York and New Jersey (for the limited purpose of indemnification only) are the Non-Federal sponsors of the project. The project cooperation agreement was executed on 23 July 2002 with a modification of the agreement executed in July 11, 2007.

(3) On the Arthur Kill, Howland Hook Marine Terminal element, The Port Authority of New York and New Jersey is the non-Federal sponsor for the project. The PCA was executed on 25 July 2002.

(4) On New York and New Jersey Harbor element, the Port Authority of NY & NJ is the Non-Federal sponsor for the project. The project cooperation agreement was executed on 28 May 2004.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal (Corps of Engineers) cost estimate of \$1,399,800,000 is the same as the latest estimate presented to Congress (FY 2009).

#### STATUS OF ENVIRONMENTAL IMPACT STATEMENT:

(1) On the Kill Van Kull and Newark Bay Channels element, the Final Environmental Impact Statement (EIS) was filed with the Environmental Protection Agency (EPA) on 31 July 1981. A Supplemental EIS was filed with EPA on 14 February 1986. The Final Supplement to the EIS was filed with EPA on 13 February 1987. The Record of Decision was executed on 1 April 1987. An Environmental Assessment and Finding of No Significant Impact was issued on 30 April 1997 as part of the LRR for the Phase II deepening.

(2) On NY Harbor and Adjacent Channels, Port Jersey Channel element, the final EIS was filed with the Environmental Protection Agency (EPA) on 29 April 1988, and a final Environmental Assessment and Finding of No Significant Impact was issued June 2000. A Record-of-Decision was executed on 23 October 2000.

(3) On the Arthur Kill, Howland Hook Marine Terminal element, the Final Supplemental Environmental Impact Statement was filed with the Environmental Protection Agency on 16 September 1998. A Final Environmental Assessment for mitigation was issued in May 2001. The Record of Decision was executed on 29 August 2001.

(4) On the 50-foot project, New York and New Jersey Harbor Deepening element, the final Environmental Impact Statement (EIS) was filed with the Environmental Protection Agency (EPA) on 29 December 1999. The Record-of-Decision was signed on 6 June 2002. An Environmental Assessment and Finding of No Significant Impact was issued in January 2004.

(5) An Environmental Assessment (EA) and Finding of No Significant Impact (FONSI) was signed June 19, 2007 for the purpose of addressing impacts of Newark Bay Study Area (NBSA) instituted by USEPA in February 2004.

#### OTHER INFORMATION:

(1) All project elements were being funded separately prior to FY 2002. Congressional direction provided to the Secretary of the Army in the Energy and Water Development Appropriations, FY 2002, Conference Report consolidated the four project elements with the 50-foot deepening project authorized by the Water Resources Development Act of 2000. An updated Project Management Plan for the consolidated project was prepared in January 2003. This plan lays out the construction activities to consolidate ongoing interim depth construction with the overall deepening project. Critical to this analysis is the ongoing extensive close coordination with the States of New York and New Jersey, Port Authority of New York and New Jersey, the Environmental Protection Agency, US Coast Guard, and other interested agencies and public. Additional engineering and environmental analyses will be completed before extensive dredging of the 50-foot channels are undertaken. Individual opportunities to advance work, such as consolidated drilling and blasting in the Kill Van Kull channel which began in FY 2002 will be implemented

(2) On the Kill Van Kull and Newark Bay Channels element, funds to initiate construction were appropriated in FY 1985.

(3) On the NY Harbor and Adjacent Channels, Port Jersey Channel element, funds to initiate preconstruction engineering and design were appropriated in FY 1988 and funds to initiate construction were appropriated in FY 1994.

(4) On the Arthur Kill, Howland Hook Marine Terminal element, funds for preconstruction engineering and design were appropriated in FY 1986 and funds to initiate construction were appropriated in FY 2001.

(5) On the 50-foot New York and New Jersey Harbor Deepening element, funds to initiate preconstruction engineering and design were appropriated in FY 2000 and funds to initiate construction were appropriated in FY 2002.

(6) The Port Jersey Channel PCA was modified on 17 July 2007 to facilitate consolidated implementation of the cost-shared 41' channel with the State of New Jersey's advancement of the 50' channel.

Division: North Atlantic

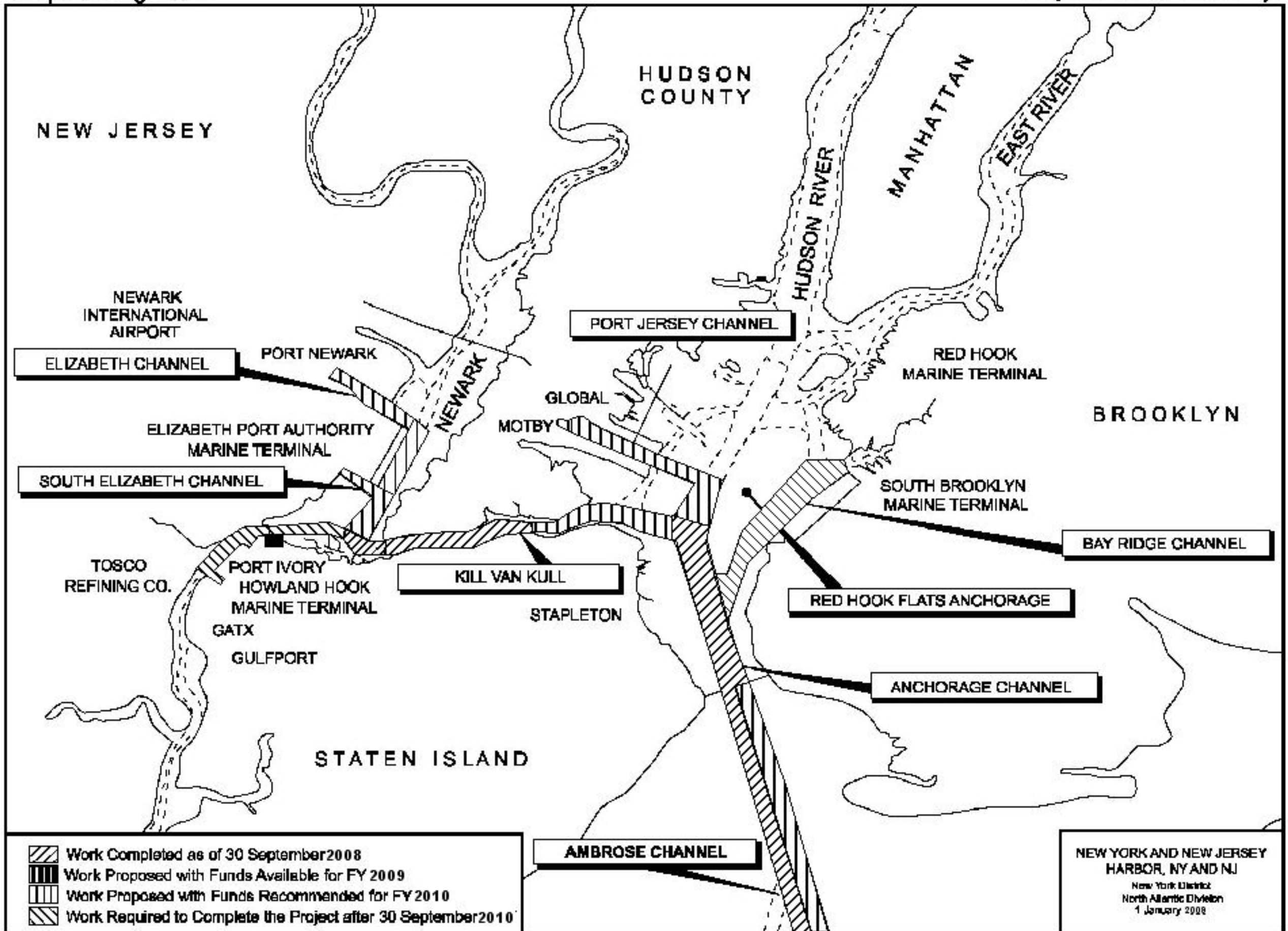
District: New York

New York & New Jersey Harbor, NY and NJ

7 May 2009

NAD-57





APPROPRIATION TITLE: Construction— Channels and Harbors (Navigation)

PROJECT: Norfolk Harbor, Craney Island, VA (New)

LOCATION: Craney Island Dredged Material Management Area (CIDMMA) is a 2,500 acre man-made containment area located along the south bank of the James River in Portsmouth, VA.

DESCRIPTION: CIDMMA is federally owned and operated and is used by private interests, local municipalities, and Federal and Commonwealth Government agencies for disposal of dredged material from Norfolk Harbor and adjacent waterways. Virginia Port Authority (VPA) has expressed interest in expanding the containment area to the east. The expansion would provide additional dredge material storage capacity for the Federal Government and create land for a new port facility adjacent to the Norfolk Harbor Channel. VPA is the non-Federal sponsor and signed a design agreement in September 2007.

AUTHORIZATION: The original CIDMMA was authorized by the River and Harbor Act of 1946 and constructed from 1956 through 1958. The expansion is authorized by the Water Resources Development Act of 2007 (Public Law 110-114), Section 1001 (45).

REMAINING BENEFIT – COST RATIO: 3.6 at 7 percent.

TOTAL BENEFIT – COST RATIO: 3.6 at 7 percent.

BASIS OF BENEFIT – COST RATIO: Benefits are from the report of the Chief of Engineers dated October 24, 2006 at 2007 price level.

SUMMARIZED FINANCIAL DATA		ACCUM. PCT OF EST FED COST	STATUS (1JAN 2009)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost	\$34,440,000		Entire Project	0	TBD
Estimated non-Federal Cost	\$716,154,000				
Cash Contribution	\$716,154,000				
Other Costs	0				
Reimbursements	0				
Total Estimated Project Cost	\$750,594,000				

Division: North Atlantic

District: Norfolk

Norfolk Harbor, Craney Island, VA

7 May 2009

NAD-59

SUMMARIZED FINANCIAL DATA: (continued)

Allocations to September 2006	\$	0
Allocations for FY 2007	\$	3,175,000
Allocations for FY 2008	\$	2,765,000
Conference Allowance for FY 2009	\$	0
Allocation for FY 2009	\$	0
Allocation through FY 2009	\$	5,940,000
Allocation Requested for FY 2010	\$	28,500,000
Programmed Balance to Complete after FY2010	\$	0

PHYSICAL DATA

Increase dredged material capacity of Craney Island and expand the containment area to the east to facilitate construction for a new port facility adjacent to the Norfolk Harbor Channel.

JUSTIFICATION: The Craney Island Dredged Material Management Area serves Norfolk Harbor, one of the busiest ports in the Nation and the center of substantial industrial, commercial and military activity. The Port is the eighth largest container port in the nation, and the third largest on the East Coast in terms of container volume. More than 55 percent of the containerized cargo handled at Norfolk Harbor originates in or is destined for locations outside Virginia. The Craney Island expansion area is a dual purpose project which (1) Extends the useful life of Craney Island & (2) creates land for port development. Lack of funding will create a loss of economic efficiency as disposal of material would have to utilize more expensive ocean disposal sooner and cargo would be shipped along more expensive routes. The Craney Island Dredged Material Management Area serves all the port facilities in Hampton Roads and the Elizabeth River (averaging 48 million tons annually) including the Norfolk Naval Station, several container terminals and the Nations largest coal loading facility at Lambert Point. The project will generate 54,000 jobs.

Annual Benefits	Amount
Navigation	\$258,000,000

FISCAL YEAR 2009: The current amount is being used for the development of plans and specifications.

FISCAL YEAR 2010: The requested amount will be applied as follows:

Initiate construction	\$ 26,180,000
Planning, Engineering and Design	\$ 500,000
Supervision and Administration	\$ 1,820,000
Total	\$ 28,500,000

NON-FEDERAL COSTS: In accordance with the cost sharing and financial concepts reflected in the Water Resources Development Act of 1986, as amended, the report of the Chief of Engineers dated October 24, 2006 and the Water Resources Development Act of 2007, the non-Federal sponsors must comply with the requirements listed below:

Division: North Atlantic

District: Norfolk

Norfolk Harbor, Craney Island, VA

	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation, and Replacement costs
Requirements of Local Corporation		
Pay the balance of the total project cost above the Federal share, to include costs to relocate utilities, roads and other facilities, where necessary for the construction of the project.	\$716,154,000	
Provide all lands, easements and rights of way and perform, or assure the performance of any relocations determined to be necessary for the initial construction and subsequent operation and maintenance of the project.	0	
With regard to the access channels, pay 50 percent of the costs of incremental maintenance below 45 feet below mean low water.		\$209,000
.		
Total Non-Federal Costs	\$716,154,000	\$209,000

STATUS OF LOCAL COOPERATION:

The Virginia Port Authority is the local sponsor for this project. They are currently designing portions of the project in anticipation of executing a contract to begin construction in July 2010. Weekly meetings are held with the VPA and their consultants, the Craney Island Design Partners, on the status of this project and the VPA is eager to move forward to meet the 2019 schedule for completion of the port infrastructure construction. The Sponsor will be raising \$150 million through bonds in late 2009. The District is currently awaiting authorization to negotiate and execute a Project Partnership Agreement (PPA). If funds are appropriated in FY10, both District and Sponsor would be ready to negotiate and execute a PPA.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of \$34,440,000 is an increase of \$7,640,000 from the latest estimate (\$26,800,000) presented to Congress (FY 2008). This change includes the following items:.

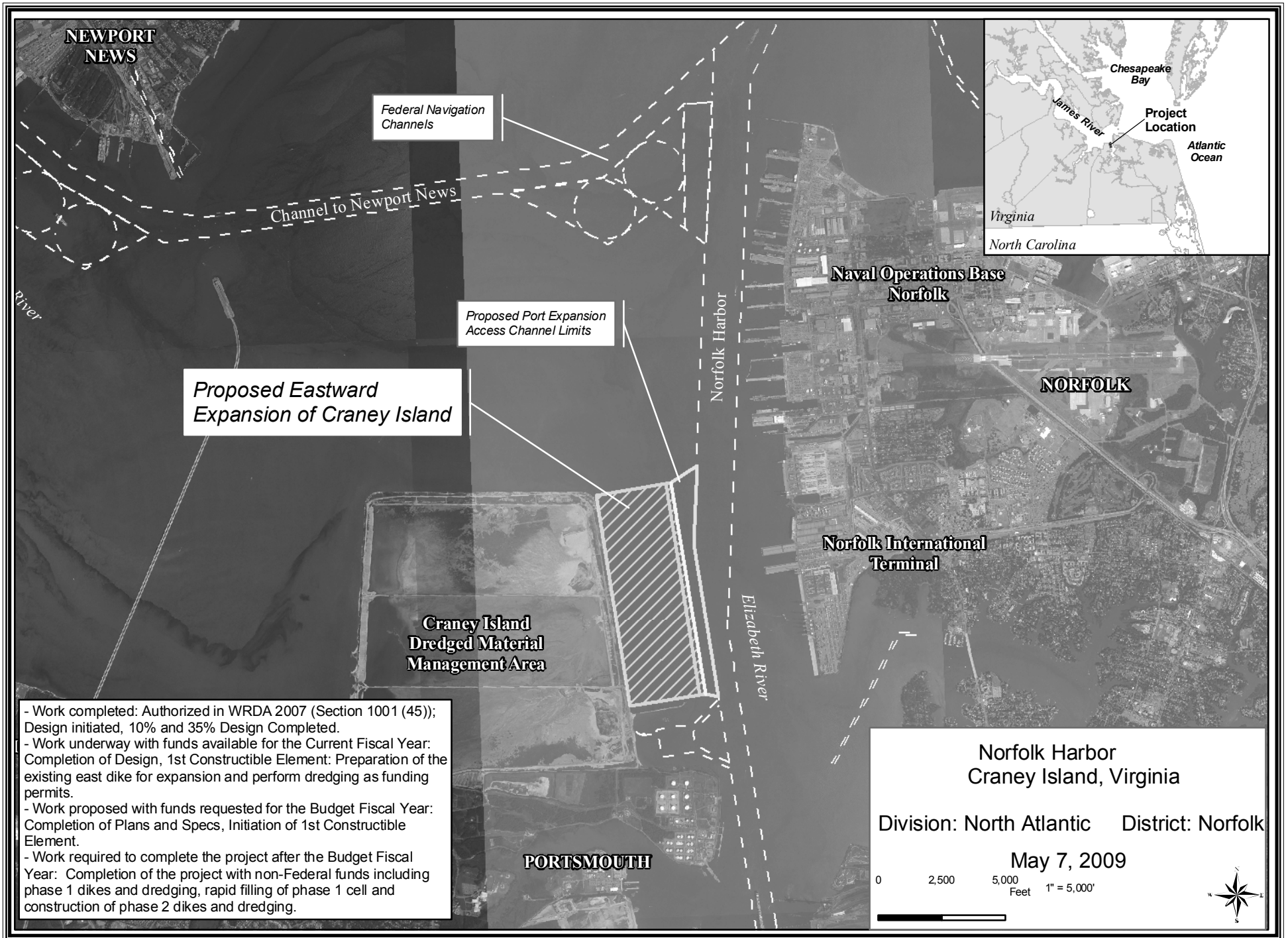
This change includes the following items:

Item	Amount
Price Escalation of Construction Features	\$7,640,000
Total	\$7,640,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT:

The final Environmental Impact Statement (EIS) was filed with the Environmental Protection Agency (EPA) on May 26, 2006. Clean Water Act, Coastal Zone Management Act, cultural resources, and Endangered Species Act compliance is complete.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were allocated in FY 2007. Cost sharing for the project is based upon the recommendations of the report of the Chief of Engineers dated October 24, 2006 (4 percent Federal and 96 percent non-Federal). Section 1001(45) of WRDA 2007 authorizes the project at a Federal cost share of 50 percent.



**NEWPORT NEWS**

Federal Navigation Channels

Channel to Newport News

Proposed Port Expansion Access Channel Limits

Proposed Eastward Expansion of Craney Island

Craney Island Dredged Material Management Area

**PORTSMOUTH**

Norfolk Harbor

Elizabeth River

**Naval Operations Base Norfolk**

**NORFOLK**

**Norfolk International Terminal**



- Work completed: Authorized in WRDA 2007 (Section 1001 (45)); Design initiated, 10% and 35% Design Completed.
- Work underway with funds available for the Current Fiscal Year: Completion of Design, 1st Constructible Element: Preparation of the existing east dike for expansion and perform dredging as funding permits.
- Work proposed with funds requested for the Budget Fiscal Year: Completion of Plans and Specs, Initiation of 1st Constructible Element.
- Work required to complete the project after the Budget Fiscal Year: Completion of the project with non-Federal funds including phase 1 dikes and dredging, rapid filling of phase 1 cell and construction of phase 2 dikes and dredging.

**Norfolk Harbor  
Craney Island, Virginia**

Division: North Atlantic    District: Norfolk

May 7, 2009

0    2,500    5,000  
Feet    1" = 5,000'

# AQUATIC ECOSYSTEM RESTORATION

# INVESTIGATIONS



APPROPRIATION TITLE: Investigations, Fiscal Year 2010

Division: North Atlantic

Study	Total Estimated Federal Cost \$	Allocation Prior to FY 2007 \$	Allocation FY 2007 \$	Allocation FY 2008 \$	Allocation FY 2009 \$	Tentative Allocation FY 2010 \$	Additional to Complete After FY 2010 \$
PRECONSTRUCTION ENGINEERING AND DESIGN – (Aquatic Ecosystem Restoration)							
MARYLAND							
Eastern Shore, Mid-Chesapeake Bay Island, MD Baltimore District	6,818,000	0	52,000	312,000	167,000	250,000	6,037,000

The project area for the Eastern Shore – Mid Chesapeake Bay Island, Maryland, project, is located on two islands in the Chesapeake Bay in Dorchester County, Maryland. The project will reclaim two islands, one at James Island and the second at Barren Island and restore lost wetlands on both islands. James Island, an uninhabited island one mile offshore from Taylor’s Island, consists of three eroding island remnants totaling less than 100 acres. Barren Island, also an uninhabited island, consists of three eroding island remnants totaling about 180 acres.

The feasibility study, completed in April 2009, recommended an aquatic ecosystem restoration project to reclaim about 2,070 acres on James and Barren Islands, including restored wetlands. The recommended project, estimated to costs \$2,807,000,000, with an estimated Federal cost of \$1,825,000,000 and an estimated non-Federal cost of \$982,000,000, would restore both islands to their historical dimensions and restore lost wetlands and habitats. No benefit-cost ratio has been computed for this project because aquatic ecosystem restoration project benefits are not quantifiable in monetary terms. The Maryland Port Administration understands the requirements of local cooperation for preconstruction engineering and design requirements and is expected to be the non-Federal sponsor for this effort. The design agreement is scheduled for execution in November 2009. Preconstruction engineering and design (PED) will ultimately be cost-shared at the rate for the project to be constructed, but will be financed through the PED period at 25 percent non-Federal. Any adjustments that may be necessary to bring the non-Federal construction in line with the project cost sharing will be accomplished in the first year of construction.

Total Estimated Preconstruction Engineering and Design Effort Costs	\$6,818,000	Total Estimated Preconstruction Engineering and Design Costs	\$6,818,000
Initial Federal Share	5,114,000	Ultimate Federal Share	4,432,000
Initial Non-Federal Cost	1,704,000	Ultimate Non-Federal Cost	2,386,000

Consistent with the cost-sharing and financing concepts enacted by the Water Resources Development Acts of 1986 and 1996, as amended, local interest are required to provide all lands, easements, right-of-ways, relocations, and disposal areas; and pay 35% of all costs allocated to aquatic ecosystem restoration.

The funds requested for fiscal year 2010 will be used to negotiate and execute the design agreement and initiate the preconstruction engineering and design. The design effort is scheduled to be completed in September 2011.

APPROPRIATION TITLE: Investigations, Fiscal Year 2010

Division: North Atlantic

Study	Total Estimated Federal Cost \$	Allocation Prior to FY 2007 \$	Allocation FY 2007 \$	Allocation FY 2008 \$	Allocation FY 2009 \$	Tentative Allocation FY 2010 \$	Additional to Complete After FY 2010 \$
SURVEYS – (Aquatic Ecosystem Restoration)							
NEW JERSEY							
Hudson-Raritan Estuary, Hackensack Meadowlands, NJ New York District	2,850,000	1,446,000	450,000	497,000	195,000	200,000	62,000

The study area encompasses approximately 8,450 acres of tidal wetlands in the Hackensack River Basin located in Bergen Essex and Hudson Counties, New Jersey. The Hackensack Meadowlands the largest remaining brackish tidal wetland complex in the Greater New York area. The area, about five miles west of Manhattan Island, is urban to suburban and has been heavily industrialized since the mid-nineteenth century. Since the 1890's, deforesting of the cedar stands, channel modifications, levee construction, and damming of the Hackensack River and its tributaries for irrigation and water supply purposes, has changed the estuary. Furthermore, the industrial activities, effluents discharges from local sources and highway stormwater systems, and leachates from former garbage dumps within the estuary, have contaminated portions of the meadowlands and further degraded the wetlands producing an unfavorable environment for fish and wildlife, including wading birds, shorebirds, raptors, anadromous fish, estuarine fish, and terrapins.

The reconnaissance report for the Hudson-Raritan Estuary, approved in July 2000, found there is a Federal interest for further studies for the Hackensack Meadowlands. The interim feasibility study for the Hackensack Meadowlands is assessing items that have a Federal interest for ecosystem restoration, including contaminant reduction measures, enhancement of wetlands, water quality improvements, and alteration of hydrology/hydraulics to improve water movement and quality with in the Hackensack Meadowlands. The New Jersey Meadowlands Commission executed a cost-sharing agreement in April 2003.

Fiscal Year 2008 funds were used to continue the feasibility phase, including geotechnical and biological baseline data collection, plan formulation for selected sites, and conceptual plans for the remaining sites.

Fiscal Year 2009 funds are being used to continue the feasibility phase, including coordination with the USFWS, and preparation of the feasibility report and environmental impact statement for the selected aquatic ecosystem restoration sites.

APPROPRIATION TITLE: Investigations, Fiscal Year 2010

Division: North Atlantic

Study	Total Estimated Federal Cost \$	Allocation Prior to FY 2007 \$	Allocation FY 2007 \$	Allocation FY 2008 \$	Allocation FY 2009 \$	Tentative Allocation FY 2010 \$	Additional to Complete After FY 2010 \$
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SURVEYS – (Aquatic Ecosystem Restoration)  
NEW JERSEY

Hudson-Raritan Estuary, Hackensack Meadowlands, NJ  
New York District

Fiscal Year 2010 funds will be used to continue the feasibility phase, including the draft report and coordination with local interests. The estimated cost of the feasibility phase is \$5,200,000, which is to be cost shared on a 50-50 percent basis by Federal and non-Federal interests. The estimated cost of the external peer review was added to the feasibility phase for \$250,000, which is 100 percent Federal funding. A summary of the study cost sharing is as follows:

Total Estimated Study Cost	\$5,450,000
Reconnaissance Phase (Federal)	0
Feasibility Phase (Federal)	2,850,000
Feasibility Phase (Non-Federal)	2,600,000

The reconnaissance phase was completed in April 2003. The feasibility study is scheduled for completion in December 2010.

APPROPRIATION TITLE: Investigations, Fiscal Year 2010

Division: North Atlantic

Study	Total Estimated Federal Cost \$	Allocation Prior to FY 2007 \$	Allocation FY 2007 \$	Allocation FY 2008 \$	Allocation FY 2009 \$	Tentative Allocation FY 2010 \$	Additional to Complete After FY 2010 \$
SURVEYS – (Aquatic Ecosystem Restoration) NEW JERSEY							
Hudson-Raritan Estuary, Lower Passaic River, NJ New York District	4,500,000	1,429,000	675,000	492,000	717,000	200,000	987,000

The study area is located in Essex County, New Jersey, about five miles west of Battery of New York City and encompasses the Lower Passaic River Basin from the river's confluence with Newark Bay to Dundee Dam. The area is urban to suburban and has been heavily industrialized since the mid-nineteenth century. This industrial activity has resulted in the degradation of the wetlands: discharges of effluents into the river, and dumping of refuse resulting in contaminated sediments in the river that is unfavorable for fish and wildlife habitat.

The reconnaissance report for the Hudson-Raritan Estuary, approved in July 2000, found there is a Federal interest for further studies in the Lower Passaic River Basin. The feasibility study for the Lower Passaic River Basin will assess items that have a Federal interest for ecosystem restoration, including contaminant reduction measures, creation of wetlands, water quality improvements, and alteration of hydrology/hydraulics to improve water movement and quality with in the Lower Passaic River and sections of Newark Bay. The non-Federal sponsor is the New Jersey Department of Transportation, Office of Maritime Resources, who executed cost-sharing agreement in June 2003. The restoration feasibility study is integrated with a CERCLA Superfund Remedial Investigation/Feasibility Study via the Urban Rivers Restoration Initiative with US Environmental Protection Agency.

Fiscal Year 2008 funds were used to continue the feasibility phase, including field data collection and development of aquatic ecosystem restoration plans.

Fiscal Year 2009 funds are being used to continue the feasibility phase, including biological data collection, and development of the aquatic ecosystem restoration plan for the lower 8.3 miles of the Lower Passaic River.

Fiscal Year 2010 funds will be used to continue the feasibility phase, including additional biological data collection within the surrounding watershed, and initiation of the Comprehensive Restoration Plan for the watershed. The estimated cost of the feasibility phase is \$9,000,000, which is to be cost shared on a 50-50 percent basis by Federal and non-Federal interests. A summary of the study cost sharing is as follows:

Total Estimated Study Cost	\$9,000,000
Reconnaissance Phase (Federal)	0
Feasibility Phase (Federal)	4,500,000
Feasibility Phase (Non-Federal)	4,500,000

The reconnaissance phase was completed in June 2003. The feasibility study is scheduled for completion in 2014.

APPROPRIATION TITLE: Investigations, Fiscal Year 2010

Division: North Atlantic

Study	Total Estimated Federal Cost \$	Allocation Prior to FY 2007 \$	Allocation FY 2007 \$	Allocation FY 2008 \$	Allocation FY 2009 \$	Tentative Allocation FY 2010 \$	Additional to Complete After FY 2010 \$
SURVEYS – (Aquatic Ecosystem Restoration)							
NEW YORK							
Hudson-Raritan Estuary, NY and NJ New York District	9,740,000	5,094,000	600,000	313,000	956,000	200,000	2,577,000

The study area includes the Port of New York and New Jersey and includes the Ambrose and Anchorage Channel; New York and New Jersey Channels; Newark Bay Channel; Port Jersey Channel; Claremont Channel; Bay Ridge and Red Hook Channel; and Buttermilk Channel, the Upper and Lower New York Bays, the Raritan Bay and Jamaica Bay. The Port of New York-New Jersey is the largest port on the East coast with channels depths ranging from 35 to 50 feet. These waters and the surrounding shoreline, mudflats, intertidal marshes, and adjacent upland areas provide valuable habitat for fish, plant and wildlife resources, and accommodate migrating birds along the Atlantic flyway. The area is also utilized by a number of Federally threatened/endangered species including the shortnosed sturgeon, five species of sea turtles, peregrine falcons, piping plovers and rosette terns.

The reconnaissance report for the Hudson-Raritan Estuary, approved in July 2000, found there is a Federal interest for further studies. The feasibility study is assessing the viability of restoring balance to overall ecological functions and values within the Hudson-Raritan Estuary through the development of a Comprehensive Restoration Plan (CRP). The CRP was developed in partnership with the NY-NJ Hudson-Raritan Estuary Program and regional stakeholders to set forth a consensus vision and strategy for future restoration opportunities including restoration of degraded habitat for coastal wetlands, oyster reefs, and waterbirds, contaminant reduction measures, and water quality improvements. The feasibility cost-sharing agreement was executed in July 2001 with the Port Authority of New York and New Jersey.

Fiscal Year 2008 funds were used to continue the feasibility phase, including developing the Comprehensive Restoration Plan (CRP) and coordination.

Fiscal Year 2009 funds are being used to continue the feasibility phase, including the draft CRP, public coordination, and initiation of the environmental impact statement.

APPROPRIATION TITLE: Investigations, Fiscal Year 2010

Division: North Atlantic

Study	Total Estimated Federal Cost \$	Allocation Prior to FY 2007 \$	Allocation FY 2007 \$	Allocation FY 2008 \$	Allocation FY 2009 \$	Tentative Allocation FY 2010 \$	Additional to Complete After FY 2010 \$
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SURVEYS – (Aquatic Ecosystem Restoration)  
NEW YORK

Hudson-Raritan Estuary, NY & NJ  
New York District

Fiscal Year 2010 funds will be used to continue the feasibility phase, including completion of the environmental impact statement, plan selection and completion of the draft feasibility report. The estimated cost of the feasibility phase is \$19,000,000, which is to be cost shared on a 50-50 percent basis by Federal and non-Federal interests. A summary of the study cost sharing is as follows:

Total Estimated Study Cost	\$19,240,000
Reconnaissance Phase (Federal)	240,000
Feasibility Phase (Federal)	9,500,000
Feasibility Phase (Non-Federal)	9,500,000

The reconnaissance phase was completed in July 2001. The feasibility study is scheduled for completion in September 2012.

APPROPRIATION TITLE: Investigations, Fiscal Year 2010

Division: North Atlantic

Study	Total Estimated Federal Cost \$	Allocation Prior to FY 2007 \$	Allocation FY 2007 \$	Allocation FY 2008 \$	Allocation FY 2009 \$	Tentative Allocation FY 2010 \$	Additional to Complete After FY 2010 \$
SURVEYS – (Aquatic Ecosystem Restoration)							
NEW YORK							
Jamaica Bay, Marine Park and Plumb Beach, NY New York District	3,046,000	2,460,000	0	89,000	297,000	200,000	0

Jamaica Bay is located in the Boroughs of Queens and Brooklyn in New York City and is about 8 miles long and 4 miles wide covers 26 square miles, and opens to the Atlantic Ocean via Rockaway Inlet. Marine Park and Plumb Beach are located on the north side of Rockaway Inlet.

The study area constitutes a vital link in this regions coastal ecology. Over 300 species of birds utilize the bay, which represents a primary junction along Atlantic Flyway, a major migratory route for east coast waterfowl. Various parts of the bay have been declared critical or important habitat for Federally protected species including piping plovers, sea turtles, and short nose sturgeons. The bay also serves as a spawning and nursery habitat for many species of anadromous and estuarine fish, including striped bass and bluefish. Jamaica Bay has undergone habitat degradation related to past and present Federal dredging and filling activities. Impacts to Jamaica Bay include extensive wetland/aquatic habitat losses, shoreline and bathymetry alterations and water quality degradation from adverse hydrological changes. The combination of degraded flushing and hydrology, and loss of pristine habitat has resulted in a decline in habitat diversity within the region. As a result, Jamaica Bay has been identified for significant environmental restoration.

The reconnaissance study for the interim environmental initiatives was completed in January 1994. Potential plans and goals to be considered in subsequent phases for aquatic ecosystem restoration at Jamaica Bay including wetland restoration for aquatic and terrestrial habitats, circulation and flushing pattern alterations and bay recontouring. Project costs will be refined in the feasibility phase and will vary depending upon site-specific restoration measures.

The purpose of this feasibility study of the overall Jamaica Bay, Marine Park and Plumb Beach study area, is to determine the feasibility of aquatic ecosystem restoration projects to improve the native habitat and circulation patterns in Jamaica Bay. The feasibility cost sharing agreement for the aquatic ecosystem restoration portion of the Jamaica Bay feasibility effort was executed with the New York City Department of Environmental Protection on 16 February 1996.

Fiscal Year 2008 funds were used to continue the feasibility phase of the study, including independent technical review of the feasibility report and environmental impact statement.

Fiscal Year 2009 funds are being used to continue the feasibility phase of the study, including independent technical review of the feasibility report and environmental impact statement.

APPROPRIATION TITLE: Investigations, Fiscal Year 2010

Division: North Atlantic

Study	Total Estimated Federal Cost \$	Allocation Prior to FY 2007 \$	Allocation FY 2007 \$	Allocation FY 2008 \$	Allocation FY 2009 \$	Tentative Allocation FY 2010 \$	Additional to Complete After FY 2010 \$
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SURVEYS – (Aquatic Ecosystem Restoration)  
NEW YORK

Jamaica Bay, Marine Park and Plumb Beach, NY  
New York District

The funds requested for fiscal year 2010 funds are being used to complete the independent technical review of the feasibility report and environmental impact statement. The estimated cost of the feasibility phase is \$4,020,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. The estimated cost of the external peer review was added to the feasibility phase for \$546,000, which is 100 percent Federal funding. A summary of the study cost sharing is as follows:

Total Estimated Study Cost	\$4,970,000
Reconnaissance Phase (Federal)	500,000
Feasibility Phase (Federal)	2,546,000
Feasibility Phase (Non-Federal)	2,010,000

The reconnaissance phase for the interim aquatic ecosystem initiatives was completed in February 1996. The feasibility study is scheduled for completion in September 2010



APPROPRIATION TITLE: Investigations, Fiscal Year 2010

Division: North Atlantic

Study	Total Estimated Federal Cost \$	Allocation Prior to FY 2007 \$	Allocation FY 2007 \$	Allocation FY 2008 \$	Tentative Allocation FY 2009 \$	Tentative Allocation FY 2010 \$	Additional to Complete After FY 2010 \$
SURVEYS – (Aquatic Ecosystem Restoration) VIRGINIA							
Lynnhaven River Basin, VA Norfolk District	1,700,000	787,000	349,000	277,000	167,000	112,000	8,000

Lynnhaven River Basin is located in Virginia Beach, Virginia, on the south shore of the Chesapeake Bay. The river drains approximately 50 square miles of watershed in southeastern Virginia and flows northerly emptying into the Chesapeake Bay. A Federal navigation project is maintained within the upper reaches of the river. The project depth varies from 10 feet deep at the river's entrance to Chesapeake Bay, to a 6 feet deep channel at the narrows between Broad Bay and Linkhorn Bay. In addition, the river basin was once a highly productive ecosystem, producing the world famous Lynnhaven oyster. However, residential and commercial development, and the loss of wetlands and forested buffers have increased sedimentation, which degraded the ecosystem and water quality, causing the oyster population to decline to essentially no marketable production today. Only 900 acres of wetlands exist today, half of the acreage present 30 years ago.

The Section 905 (b) analysis, certified in January 2004, found there was a Federal interest for further feasibility phase studies for six areas of concern within the Lynnhaven River Basin. The feasibility study will evaluate ecosystem restoration measures to improve water quality, restore wetlands, submerged aquatic vegetation, and fish and wildlife habitats, and improve the river bottom material by dredging or other methods. The sponsor for the feasibility phase is the City of Virginia Beach, Virginia, who executed the feasibility cost sharing agreement in September 2004.

Fiscal Year 2008 funds are being used to continue the feasibility phase of the study, including completion of the river basin modeling efforts, public involvement, alternative plan formulation, economic and benefit analyses, environmental analysis, and local coordination.

Fiscal Year 2009 funds will be used to continue the feasibility phase of the study, including public involvement and plan selection.

Fiscal Year 2010 funds will be used to complete the alternative plan formulation and complete the draft feasibility report. The estimated cost of feasibility phase is \$3,300,000, which is to be cost-shared on a 50-50 percent basis by Federal and non-Federal interests. The estimated cost of feasibility phase is \$3,200,000, which is to be cost shared on a 50-50 percent basis by Federal and non-Federal interests. A summary of the study cost sharing is as follows:

Total Estimated Study Cost	\$3,300,000
Reconnaissance Phase (Federal)	100,000
Feasibility Phase (Federal)	1,600,000
Feasibility Phase (Non-Federal)	1,600,000

The reconnaissance phase was completed in September 2004. The feasibility study is scheduled to be completed September 2011.

APPROPRIATION TITLE: Investigations, Fiscal Year 2010

Division: North Atlantic

Study	Total Estimated Federal Cost \$	Allocation Prior to FY 2007 \$	Allocation FY 2007 \$	Allocation FY 2008 \$	Allocation FY 2009 \$	Tentative Allocation FY 2010 \$	Additional to Complete After FY 2010 \$
SURVEYS – (Aquatic Ecosystem Restoration)							
MASSACHUSETTS							
Merrimack River Watershed Study, NH & MA New England District	5,550,000	1,299,000	102,000	233,000	215,000	200,000	3,501,000

The Merrimack River originates in Franklin, New Hampshire at the confluence of the Pemigewasset and Winnepesaukee Rivers and flows southerly towards the Massachusetts border then easterly towards the coast. The Merrimack River basin encompasses approximately 5,010 square miles and is the fourth largest watershed in New England. The main stem of the river is about 116 miles in length with about 74 miles in New Hampshire and 42 miles in Massachusetts. The headwaters are located in the White Mountain National Forest. The estuary includes 2,500 acres of coastal wetlands and is bordered by the Plum Island National Wildlife Refuge. Existing uses include aquatic habitat for fish and wildlife, water supply, recreation, hydropower production and commercial shell fishing. The Merrimack River supports anadromous fisheries and endangered species. Although significant improvements have been made to the overall quality of the Merrimack River, many problems exist including lack of fish passage, loss of habitat, degraded wetlands and poor water quality. The Corps study will help define the overall condition of the watershed and allow for science-based decisions on prioritized investments to improve water quality and ecosystem restoration. The Section 905(b) analysis was certified on 25 January 2002, which found there was a Federal interest to pursue comprehensive studies in the Merrimack River Watershed. A cost-sharing agreement was executed with the City of Lowell, representing the Merrimack Community Coalition, on 20 February 2002 for the Lower Merrimack River Basin (LMRB) study, which was completed in August 2006. A second cost-sharing agreement was signed with the New Hampshire Department of Environmental Services on 25 August 2006 to begin investigations of the Upper Merrimack River Basin (UMRB).

Fiscal Year 2008 funds were used to continue investigation of the UMRB, including water quality sampling, data collection, river studies and computer modeling.

Fiscal Year 2009 funds are being used to continue UMRB investigations, including additional computer modeling between Manchester and Lincoln, New Hampshire. Stream flow analysis will be added to the model to analyze competing water uses during low flow conditions.

Funds requested for Fiscal Year 2010 will be used to continue UMRB investigations, including additional watershed modeling, data collection and analysis of restoration alternatives.

APPROPRIATION TITLE: Investigations, Fiscal Year 2010

Division: North Atlantic

Study	Total Estimated Federal Cost \$	Allocation Prior to FY 2007 \$	Allocation FY 2007 \$	Allocation FY 2008 \$	Allocation FY 2009 \$	Tentative Allocation FY 2010 \$	Additional to Complete After FY 2010 \$
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SURVEYS – (Aquatic Ecosystem Restoration)  
MASSACHUSETTS

Merrimack River Watershed Study, MA and NH  
New England District

The estimated cost of the feasibility study is \$7,200,000, which is to be cost shared on a 75-25 percent basis by Federal and non-Federal interests. The 50-50 cost sharing percent bases by the Federal and non-Federal interest was modified by Section 2010 of WRDA 2007. A summary of study cost sharing is as follows:

	Original	Revised
Total Estimated Study Cost	\$7,350,000	7,350,000
Reconnaissance Phase (Federal)	150,000	150,000
Feasibility Phase (Federal)	3,600,000	5,400,000
Feasibility Phase (Non-Federal)	3,600,000	1,800,000

The reconnaissance phase was completed in February 2002. The feasibility study is scheduled to be completed in September 2015.

APPROPRIATION TITLE: Investigations, Fiscal Year 2010

Division: North Atlantic

Study	Total Estimated Federal Cost \$	Allocation Prior to FY 2007 \$	Allocation FY 2007 \$	Allocation FY 2008 \$	Allocation FY 2009 \$	Tentative Allocation FY 2010 \$	Additional to Complete After FY 2010 \$
SURVEYS – (Aquatic Ecosystem Restoration) MASSACHUSETTS							
Pilgrim Lake, Truro & Provincetown, MA New England District	758,000	358,000	10,000	98,000	92,000	100,000	100,000

The study area encompasses the Massachusetts and Cape Cod Bays (MCCB) coastal shoreline and associated waters within the Commonwealth of Massachusetts, including the EPA designated national estuary of MCCB. The biologically diverse ecosystem created by the many natural salt marshes along the Massachusetts coast has historically provided exceptionally productive fish and wildlife habitat. Salt marshes provide significant economic and environmental benefits for the region by providing flood storage, filtering pollutants, and supporting commercial fisheries as well as recreational fishing and tourism. Over the past century, many of these natural salt marshes have been lost or degraded by the construction of transportation facilities and other coastal development. There are 25 navigation and 11 beach erosion control projects in this region of Massachusetts. Several of these projects involved the disposal of dredged material in coastal wetlands or salt marshes such as the Green Harbor project. Dredged material was disposed of in Town Marsh filling approximately 35 acres of productive salt marsh above mean high tide, resulting in a relatively unproductive upland habitat. Studies will evaluate this and other sites to determine measures to restore the ecological productivity of the MCCB coastline. This study is consistent with the objectives of Coastal America to restore all degraded salt marshes in the Commonwealth and is supported by the Executive Office of Environmental Affairs, Department of Transportation and numerous Federal agencies, as evidenced by their signing a Memorandum of Understanding to restore Massachusetts wetlands. A feasibility cost-sharing agreement was executed with the Mystic Valley Development Commission on 15 October 2002 to study environmental restoration measures along the Malden River in the communities of Malden, Medford and Everett, Massachusetts. A second feasibility cost-sharing agreement was executed on 1 April 2005 with the Massachusetts Department of Coastal Zone Management for study of environmental restoration measures at Pilgrim Lake in Truro and Provincetown, Massachusetts.

The reconnaissance report, certified in August 2001, recommended feasibility phase studies to identify potential solutions to restore lost or degraded salt marshes by restoring the natural tidal exchange and ecological productivity of these areas. Tidal flow into Pilgrim Lake was blocked by the construction of the railroad and Route 6 Highway. Tidal exchange is now limited to a single 4-foot diameter culvert. Feasibility studies will evaluate alternatives to restore the natural tidal exchange and ecological productivity of the 490-acre lake and surrounding salt marsh. The project sponsor has expressed interest in expanding the Pilgrim Lake Feasibility Study to include investigation of the adjacent Herring River.

Fiscal Year 2008 funds were used to continue the Malden River and Pilgrim Lake Interim Feasibility Studies.

APPROPRIATION TITLE: Investigations, Fiscal Year 2010

Division: North Atlantic

Study	Total Estimated Federal Cost \$	Allocation Prior to FY 2007 \$	Allocation FY 2007 \$	Allocation FY 2008 \$	Allocation FY 2009 \$	Tentative Allocation FY 2010 \$	Additional to Complete After FY 2010 \$
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SURVEYS – (Aquatic Ecosystem Restoration)  
MASSACHUSETTS

Pilgrim Lake, Truro & Provincetown, MA  
New England District

Fiscal Year 2009 funds were used to complete the Malden River Interim Feasibility Study in November 2008 and continue the feasibility study of Pilgrim Lake; including development of various restoration alternatives, environmental analysis and cost estimating as well as to expand the study scope to include the Herring River.

Funds requested for Fiscal Year 2010 will be used to continue the Pilgrim Lake and Herring River Interim Feasibility Study, including development of restoration alternatives for the Herring River and preparation of the draft Feasibility Report and Environmental Assessment.

The estimated cost of the feasibility phase is \$1,232,000, which is to be shared on a 50-50 percent basis by the Federal and non-Federal interests. A summary of the study cost sharing is as follows:

Total Estimated Study Cost	\$1,374,000
Reconnaissance Phase (Federal)	142,000
Feasibility Phase (Federal)	616,000
Feasibility Phase (Non-Federal)	616,000

The reconnaissance phase was completed in October 2002. The feasibility study is scheduled to be completed in December 2011.

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# FLOOD AND COASTAL STORM DAMAGE REDUCTION



# INVESTIGATIONS

APPROPRIATION TITLE: Investigations, Flood Damage Reduction, Fiscal Year 2010

Division: Northwestern

Study	Total Estimated Federal Cost	Allocation Prior to FY 2007	Allocation FY 2007	Allocation FY 2008	Allocation FY 2009	Tentative Allocation FY 2010	Additional to Complete After FY 2010
	\$	\$	\$	\$	\$	\$	\$
Kansas Citys, Missouri Kansas City District	5,958,000	3,994,000	425,000	579,000	262,000	224,000	TBD

The feasibility study and decision documents for this project are organized into an interim and final feasibility report. The interim report established implementation milestones for Argentine Unit, Fairfax/Jersey Creek Unit, North Kansas City Unit, and the East Bottoms Unit. The final feasibility report will establish implementation milestones for the remaining work.

The existing Kansas Citys, Missouri and Kansas Local Protection Project consist of seven levee units along both banks of the Missouri and Kansas Rivers in the Kansas City Metropolitan area. The units extend over 50 miles in length along the rivers. The units have been complete and operating for 30 to 50 years. The Kansas Citys levee system protects about 32 square miles of mostly urban industrial, commercial and residential areas. More than 94,000 persons work in the protected area. The project protects approximately 4,800 significant structures and investment estimated at approximately \$16 billion. The protected area is vital to the entire Midwest economy and is a central rail, highway, and warehousing hub for the entire nation.

In July 1993, floodwaters from both the Missouri and Kansas Rivers were near overtopping several of the levee units. Underseepage concerns were also noted during this event. People, equipment, and aircraft were evacuated from areas behind the levee units. The project has prevented approximately \$8.5 billion in damages through 1996, of which \$3.9 billion was prevented in 1993 alone.

The project currently recommends under seepage, retaining wall, and floodwall modifications to improve the reliability of Missouri River units, and a levee raise and reliability improvements on the Argentine unit located on the Kansas River. The final feasibility report will continue with analysis and recommendations for the Armourdale and Central Industrial District units respective to a lower Kansas River system solution and other minor improvements in various units. The feasibility study is conducted under the authority of Sec 216 of the 1970 Flood Control Act for review of existing civil works. The local sponsors are the City of Kansas City, Missouri, the North Kansas City Levee District, the Kaw Valley Drainage District, and the Fairfax Drainage District. A Feasibility Cost Sharing Agreement/Project Management Plan was executed on 18 Sep 2000.

Fiscal Year 2009 funds are being used to conduct Peer Review as required by Water Resources Development Act 2007.

Fiscal Year 2010 funds will be used to complete work on the feasibility report. The estimated cost of the feasibility phase is \$9,416,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. All or part of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	\$10,266,000
Reconnaissance Phase (Federal)	850,000
Feasibility Phase (Federal)	5,108,000 (\$400,000 Federal Funded Peer Review)
Feasibility Phase (Non-Federal)	4,708,000

The Interim feasibility study was completed Dec 2006. The final feasibility study completion date is to be determined.

APPROPRIATION TITLE: Investigations, Flood Damage Reduction, Fiscal Year 2010

Division: Northwestern

Study	Total Estimated Federal Cost \$	Allocation Prior to FY 2007 \$	Allocation FY 2007 \$	Allocation FY 2008 \$	Allocation FY 2009 \$	Tentative Allocation FY 2010 \$	Additional to Complete After FY 2010 \$
Puyallup River, WA Ecosystem Restoration, WA Seattle District	2,597,000	0	0	43,000	150,000	250,000	TBD

The Puyallup and White rivers are located in western Washington State near the city of Tacoma, lying mostly within Pierce County. The White River is a major tributary to the Puyallup. The Puyallup River watershed drains the western and northeastern slopes of Mount Rainier into the Puget Sound. The Puyallup Tribe and Muckleshoot Tribe have reservations within the watershed.

The Puyallup and White rivers have experienced extensive flooding in recent years and have inflicted damage to nearby rural and urban communities. Additionally, historical environmental degradation has resulted in the loss of valuable habitat. FEMA mapping for the lower Puyallup River has resulted in a decertification of the levee system. However, the scale and intensity of recent flooding warrants a basin wide solution. The Puyallup and White rivers have long suffered the consequences of human intervention. The rivers are now subject to significantly degraded habitat and highly manipulated hydraulic and hydrologic regimes. Multiple species that reside within the basin (Bull Trout, Puget Sound Spring Chinook, and several wildlife species) have been listed under the Endangered Species Act. In addition, recent flooding events have caused wide scale damage to flood damage reduction structures. The combination of these flooding and environmental issues has increased the importance of undertaking a comprehensive effort addressing watershed issues.

Recognizing this need, Pierce County, the local sponsor, has supported the initiation of a basin-wide study. The study will identify and recommend alternatives to provide flood risk management and restore ecosystem functions and processes to support critical fish and wildlife habitat.

The study is authorized by Section 209 of the Flood Control Act of 1962 (PL84-874).

Fiscal Year 2009 funds are being used to complete reconnaissance and initiate feasibility phase.

Fiscal Year 2010 funds will be used to continue the feasibility phase.

A summary of study cost sharing is as follows:

Total Estimated Study Cost	\$5,097,000
Reconnaissance Phase (Federal)	97,000
Feasibility Phase (Federal)	2,500,000
Feasibility Phase (Non-Federal)	2,500,000

The feasibility study completion date is to be determined.

APPROPRIATION TITLE: Investigations, Flood Damage Reduction, Fiscal Year 2010

Division: Northwestern

Study	Total Estimated Federal Cost \$	Allocation Prior to FY 2007 \$	Allocation FY 2007 \$	Allocation FY 2008 \$	Allocation FY 2009 \$	Tentative Allocation FY 2010 \$	Additional to Complete After FY 2010 \$
Topeka, Kansas Kansas City District	2,008,000	0	75,000	197,000	191,000	100,000	TBD

Construction of a flood protection project at Topeka was completed in Fiscal Year 1974 at a total Federal cost of \$21,175,000. The project has prevented an estimated \$229,280,000 in flood damages through December 1994, with an estimated \$57,792,000 prevented in July and August 1993. A Feasibility Study was completed and approved by the Civil Works Review Board on 30 Jan 2009.

The recommended project to increase the reliability of the levee system is estimated to cost \$21.16 million, with an estimated Federal cost of \$13.75 million and an estimated non-Federal cost of \$7.41 million. The project includes floodwall, underseepage, foundation, and pump station modifications. Raising the levees is not included in the proposal. The average annual benefits are \$15.43 million, all for flood control. The benefit-cost ratio is 13.2:1 based upon the latest economic analysis, October 2008. The City of Topeka and the North Topeka Drainage District are the local sponsors. In an updated letter of support agreement dated December 2008, the local sponsor expressed support for the project. The sponsor has assured that they understand and are ready to sign a design agreement and have funds available to finance the PED portion of the design of the project. Preconstruction Engineering and Design will ultimately be cost shared at the rate for the project to be constructed but will be financed through the Preconstruction Engineering and Design period at 25 percent non-Federal. Any adjustments that may be necessary to bring the Non-Federal contribution in line with the project cost sharing will be accomplished in the first year of construction. The cost sharing for the project will be 65 percent Federal and 35 percent non-Federal in accordance with the Water Resources Development Act of 1986.

Fiscal Year 2009 funds are being used to continue PED phase activities including geotechnical, structural, civil engineering, and environmental design analyses.

Fiscal Year 2010 funds will be used to continue PED activities.

Total Estimated Preconstruction Engineering and Design Costs	\$2,008,000	Total Estimated Preconstruction Engineering and Design Costs	\$2,008,000
Initial Federal Share	1,506,000	Ultimate Federal Share	1,305,200
Initial Non-Federal Share	502,000	Ultimate Non-Federal Share	702,800

The PED phase completion date is to be determined.

# CONSTRUCTION

APPROPRIATION TITLE: Construction, Flood and Coastal Storm Damage Reduction, Fiscal Year 2010

PROJECT: Antelope Creek, Lincoln, Nebraska (Continuing)

LOCATION: Antelope Creek is a right bank tributary of Salt Creek and is located in the city of Lincoln, which is in Lancaster County, Nebraska.

DESCRIPTION: The flood protection project consists of channel improvements upstream and downstream of an existing 4,060 foot long concrete conduit, construction of a channel west of the existing conduit (from the conduit entrance to the railroad bridge), railroad bridge modifications and bridge improvements. The project provides a recreation multipurpose trail to be constructed within the flood protection project limits.

AUTHORIZATION: Sec 101 of WRDA 2000, Sec 3111 of WRDA 2007

REMAINING BENEFIT-REMAINING COST RATIO: Not applicable because project construction is substantially complete

TOTAL BENEFIT-COST RATIO: 1.34 to 1 at 7 percent

INITIAL BENEFIT-COST RATIO: 1.35 to 1 at 6.625 percent.

BASIS OF BENEFIT-COST RATIO: Benefits are from the Chief of Engineers Report (December 2000) based on May 2000 price levels.

SUMMARIZED FINANCIAL DATA:

		ACCUM PCT OF EST FED COST	STATUS (1 Jan 2009)	PCT CMPL	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost	\$34,083,000				
Estimated Non-Federal Cost	\$34,083,000				
Cash Contribution	\$ 4,047,000		Entire Project	90	FY 2010
Other Costs	\$30,036,000				
Total Estimated Project Cost	\$68,166,000				
Allocations through 30 September 2006	7,840,000				
Allocations for FY 2007	7,500,000				
Allocations for FY 2008	8,426,000				
Allocations for FY 2009	4,620,000				
Allocations through FY 2009	28,386,000	83			
Allocations Requested for FY 2010	5,697,000	100			
Programmed Balance to Complete after FY 2010	0				
Unprogrammed Balance to Complete after FY 2010	0				

Division: Northwestern

District: Omaha

Antelope Creek, Lincoln, Nebraska

7 May 2009

NWD-9

PHYSICAL DATA

Relocations:

- 101 utilities,
- 2 streets (bridge replacements)
- 5 streets (new bridges),
- 46 structures (buildings)

Control Structure:

- 1 labyrinth weir structure

Channel:

- Length: 2.1 miles
- Contains 100-year flood plain

Multipurpose Trail (Recreation):

- Length: 2.3 miles
- 3 trail bridges

Bridges:

- 5 new bridges for streets
- 2 existing bridge replacements
- 1 existing street bridge modification
- 1 existing railroad bridge modification

JUSTIFICATION: The flood control project will reduce flood damages and the threat to human life along Antelope Creek. The project will confine the 100-year flood within the channel banks and conduit by constructing a channel segment west of the existing conduit which will also restore an open water feature on Antelope Creek that was obliterated when the conduit was constructed in 1915. The existing conduit currently has a capacity of less than a 5-year event. The residential, downtown urban and University of Nebraska-Lincoln city campus areas are subject to frequent flooding when the conduit capacity is exceeded above the 5-year event. Significant flooding recently occurred in the Antelope Creek project area in June 2003. Flood damages in excess of \$1.5 million occurred as the result of an approximate 5-year rainfall event. Any funding delays in constructing the remainder of the project will subject a major portion of the Lincoln downtown urban and residential area and the University of Nebraska-Lincoln campus to prolonged exposure to potentially devastating flood damages. The flood control project will provide annual net benefits of \$4,710,000 and total recreation benefits of \$176,000. The project would remove 219 commercial, industrial, and public structures, and 202 residential structures out of the existing regulatory 100-year flood plain.

FISCAL YEAR 2009: Funds are being applied as follows:

Reimbursement to Sponsor per PCA and WRDA 2007 provisions	<u>4,620,000</u>
Total	\$4,620,000

FISCAL YEAR 2010: The requested amount will be applied as follows:

Reimbursement to Sponsor per PCA and WRDA 2007 provisions, and project closeout activities	<u>5,697,000</u>
Total	\$5,697,000

Division: Northwestern

District: Omaha

Antelope Creek, Lincoln, Nebraska

7 May 2009

NON-FEDERAL TOTAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986 and the project authorization, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payments during Construction and Reimbursements	Annual Operation Maintenance, Repair, Rehabilitation and Replacement Costs
Provide all lands, easements, right-of-ways, and Dredged material disposal areas.	\$12,038,000	
Relocate utilities, buildings, roads, bridges (except railroad bridges), and other facilities required for construction of the project.	\$24,853,000	
Pay 5 percent of the cost allocated to flood control, and bear all cost of operation, maintenance, repair, rehabilitation and replacement of flood control facilities.	\$ 3,337,000	\$28,000
Pay 50 percent of costs allocated to recreation, and bear all cost of operation, maintenance, repair, rehabilitation and replacement of recreation facilities.	\$ 710,000	\$19,000
Total Non-Federal Costs	\$40,938,000	
Federal reimbursement of costs in excess of 50 percent of all flood control project costs.	\$ 6,855,000	
Ultimate Non-Federal cost	\$34,083,000	

Communities must agree to adopt additional flood plain management activities, beyond the requirement to participate in the National Flood Insurance Program, to qualify for Federal participation in a structural flood damage reduction project. These activities include public information and education on flood hazards within the community, flood plain regulation to promote sound use and reduce future flood damages, control of storm water runoff, and preservation of open space.

STATUS OF LOCAL COOPERATION: The City of Lincoln, the University of Nebraska-Lincoln, and the Lower Platte South Natural Resources District are the non-Federal sponsors. The sponsors formed a Joint Antelope Valley Authority (JAVA) that is sponsoring the project. The sponsors strongly support the project and are proceeding with project implementation. The Project Cooperation Agreement (PCA) with JAVA to sponsor the Antelope Creek flood control project was signed on 21 October 2002.

Division: Northwestern

District: Omaha

Antelope Creek, Lincoln, Nebraska

7 May 2009

NWD-11



COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of \$34,083,000 is an increase of \$5,489,000 from the latest estimate (\$28,594,000) presented to Congress (FY 2009). This change includes the following items:

Item	Amount
Price Escalation on Construction Features and Changes in Projected Inflation Rates	\$ 0
Increased LERRD Reimbursements	3,489,000
Increased Section 221 Reimbursements	2,972,000
Other Estimating Adjustments	<u>-972,000</u>
Total	\$5,489,000

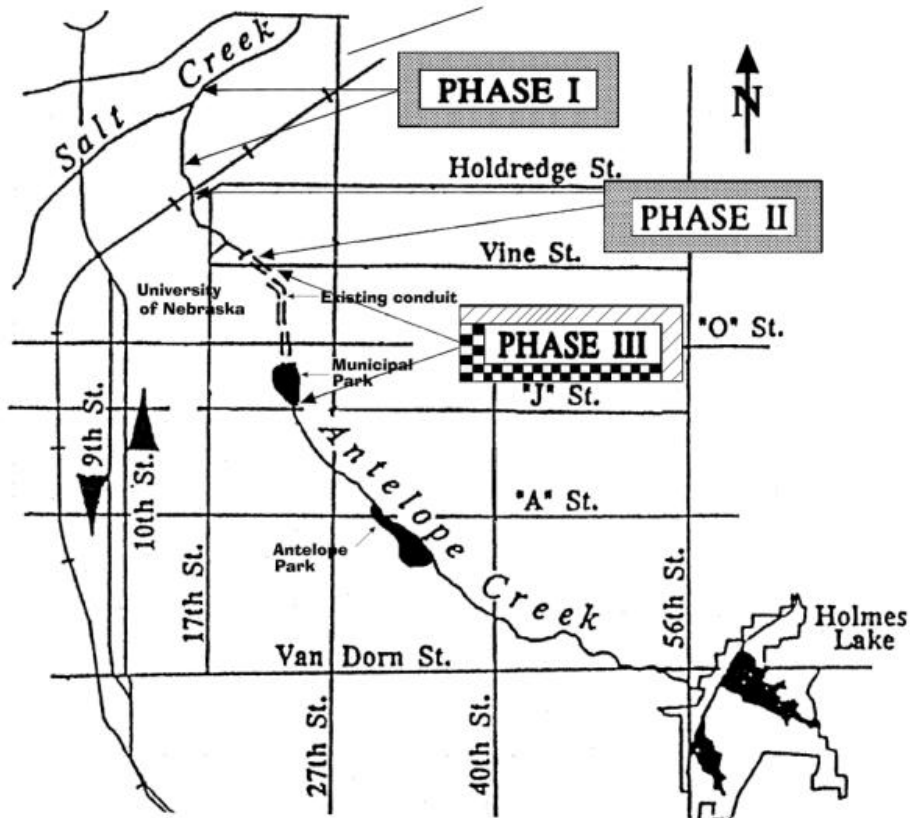
STATUS OF ENVIRONMENTAL IMPACT STATEMENT: An Environment Assessment was prepared and included in the Feasibility Report released to the public for review in June 2000. The Environmental Assessment and the Findings of No Significant Impact was filed with the Environmental Protection Agency on 10 October 2000.

OTHER INFORMATION: Initial funds were appropriated for Pre-construction, engineering and design in Fiscal Year 2000. Congress in the FY02 Energy and Water Appropriations Act added initial construction funding. A construction contract for the downstream ½ mile channel of the 2-mile project was awarded 13 December 2002. The project was not included in the President's Budget request for FY03, FY04, FY05, or FY06 due to budget priorities and constraints.





The Transportation Act passed by Congress in 1998 included \$5.6 million for work associated with a major component (overpass) of the roadway project proposed parallel to the flood control project. The flood control project and the roadway project involve joint right-of-way acquisition and easement actions that benefits both Federal projects.

The sponsor has initiated over \$90 million of financial investments (acquisitions, relocation projects, and construction projects compatible with the flood control project). The sponsors \$90 million (of a planned \$230 million) of financial investments are dependent upon completion of the flood control project. Sponsor projects also involve Federal Highway Administration funding and coordination. Any delays will impact the successful completion of projects that coordinate the use of Federal funding from multiple Federal agencies.

# ANTELOPE CREEK LINCOLN, NEBRASKA



VICINITY MAP

-  WORK COMPLETED
-  WORK UNDERWAY WITH FUNDS AVAILABLE FOR THE CURRENT FISCAL YEAR
-  WORK PROPOSED WITH FUNDS REQUESTED FOR THE BUDGET FISCAL YEAR
-  WORK REQUIRED TO COMPLETE THE PROJECT AFTER THE BUDGET FISCAL YEAR

**ANTELOPE CREEK  
AT LINCOLN, NEBRASKA**  
U.S. Army Engineer District, Omaha  
Northwestern Division

APPROPRIATION TITLE: Construction, Flood and Coastal Storm Damage Reduction, Fiscal Year 2010

PROJECT: Blue River Channel, Kansas City, Missouri – (Continuing)

LOCATION: The project is located along the Blue River and tributaries in Kansas City, Jackson County, Missouri, and extends from near its mouth (located at Missouri river mile 358.0) to 63rd Street, channel mile 12.5.

DESCRIPTION: The project plan consists of a channel modification along 12.5 miles of the Blue River channel providing flood protection for a once in 30-year flood and reducing flooding for less frequent events.

AUTHORIZATION: 1970 Flood Control Act

REMAINING BENEFIT - REMAINING COST RATIO: 3.9 to 1 at 7 percent.

TOTAL BENEFIT-COST RATIO: 2.7 to 1 at 7 percent.

INITIAL BENEFIT-COST RATIO: 1.6 to 1 at 6 5/8 percent (FY 1979).

BASIS OF BENEFIT-COST RATIO: Economic update of FY 2008, approved July 2008.

SUMMARIZED FINANCIAL DATA:

		STATUS (1 Jan 09)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost	\$259,558,000			
Estimated Non-Federal Other Costs	35,372,000	Entire Project	92	TBD
Cash Contribution	0			
Other Costs	35,372,000			
Total Estimated Project Cost	\$294,930,000			
Allocations to 30 September 2006	\$206,459,000			PHYSICAL DATA
Allocation for FY 2007	9,750,000	ACCUM		Bridge Alterations at Federal Cost:
Allocation for FY 2008	3,277,000	PCT OF EST		Railroad Bridges - Modify - 15 \$23,868,000
		FED COST		
Allocation for FY 2009	1,627,000			Bridge Alterations at Non-Federal Cost:
Allocations to 30 September 2009	221,113,000	85%		Highway Bridges - Modify - 4 \$7,502,000
Allocation Requested for FY 2010	5,600,000	87%		
Programmed Balance to Complete after FY 2010	TBD			Channel Improvement Length
Unprogrammed Balance to Complete after FY	0			Main Stem, Blue River Channel 12.5 miles

Division: Northwestern

District: Kansas City

Blue River Channel, Kansas City, Missouri

7 May 2009

JUSTIFICATION: The Blue River basin lies completely in the Kansas City Metropolitan Region, with a 2000 population of 1,776,000 persons. The basin drains an area of 272 square miles and is subject to cloudbursts, prolonged rainstorms, floods, and extended drought periods. The maximum flood of record in the basin occurred in September 1961 and caused an estimated \$8 million in damages. An August 1982 flood caused an estimated \$3.3 million in damages, and an October 1986 flood along the Brush Creek tributary of the river caused an estimated \$209,000 in damages in the lower flood plain. A major flood occurred on the lower portion of the river in May 1990 and caused damages estimated at \$100.8 million. The July 1993 flood was not severe in this basin, causing damages estimated at \$60,000. The authorized project would have prevented all but minor damages caused by the 1961 event, and all damages caused by the later events. The channel project provides for about a 30-year level of protection to 3,400 acres in the lower basin, including the Blue River Valley Industrial District. Estimated annual average benefits, all flood control, based on 1 October 1990 prices, are \$57.3 million, of which \$53.7 million are existing benefits and \$3.6 million are future benefits.

FISCAL YEAR 2009: Funds are being applied as follows:

Item	Amount
Continue Brush Creek to 53 <sup>rd</sup> Street Contract	\$ 1,300,000
Engineering and Design	147,000
Construction Management	<u>180,000</u>
Total	1,627,000

FISCAL YEAR 2010: The requested amount will be applied as follows:

Item	Amount
Initiate design build 53 <sup>rd</sup> to 63 <sup>rd</sup> Street Contract	4,980,000
Engineering and Design	330,000
Construction Management	<u>290,000</u>
Total	5,600,000

NON-FEDERAL COSTS: Local interests are required to furnish without cost to the United States all lands, easements, and rights-of-way required for construction and subsequent maintenance of the project; hold and save the United States free from damages due to construction; perform without cost to the United States necessary highway, highway bridge, and utility alterations required in connection with this project; maintain and operate the project after completion in accordance with regulations prescribed by the Secretary of the Army; and adequately inform all affected persons, at least annually, that the project will not provide complete flood protection. The investment is broken down as follows:

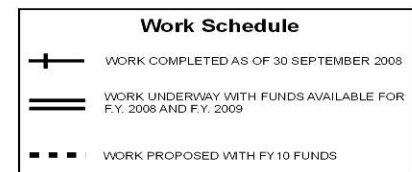
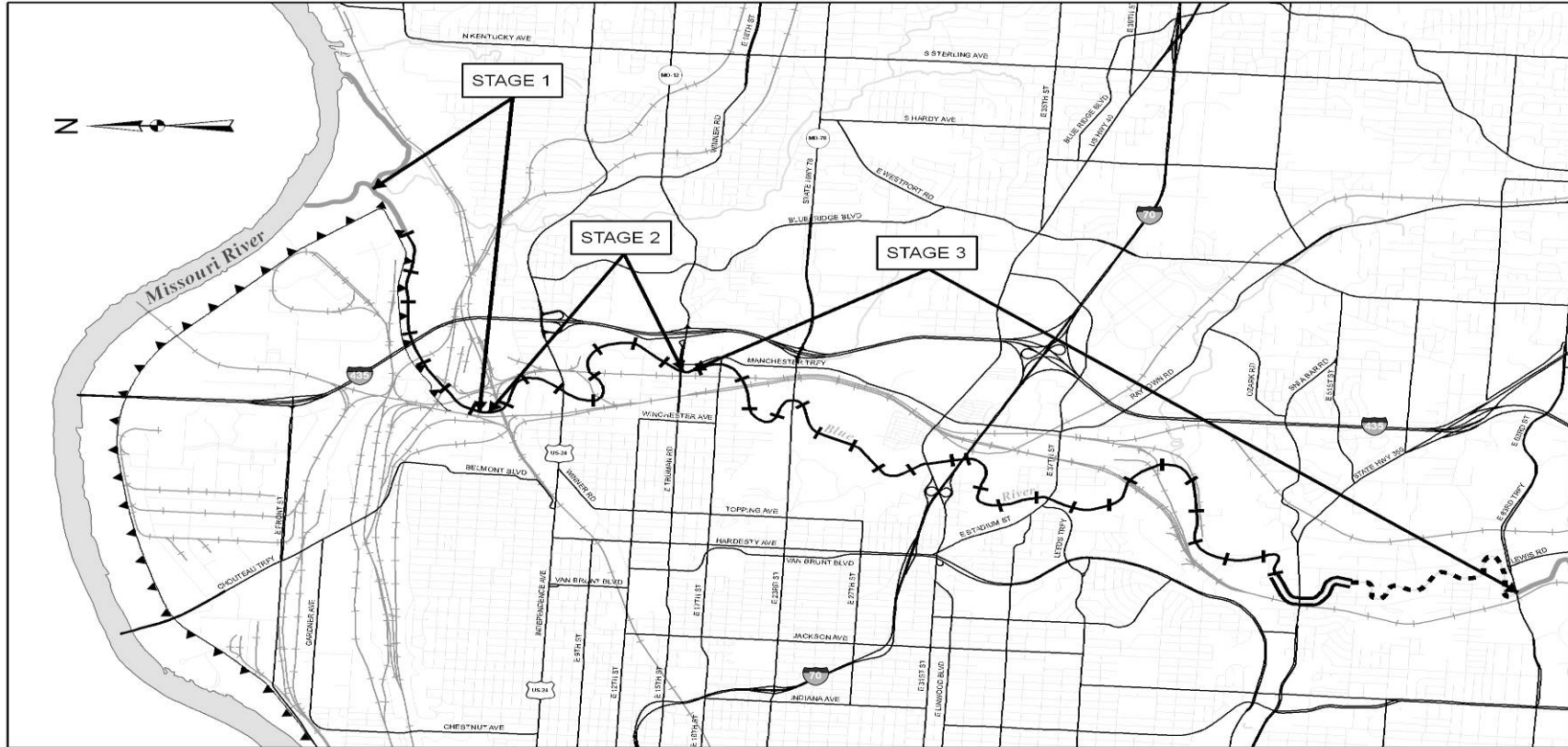
	Payments During Construction Costs	Annual Operation, Maintenance and Replacement
Requirements of Local Cooperation:		
Provide lands, easements, rights of way, and borrow and excavated or dredged material disposal areas.	\$20,786,000	\$50,000
Modify or relocate utilities, roads, bridges (except railroad bridges), and other facilities.	\$14,586,000	\$32,000
Total Non-Federal Costs	\$35,372,000	\$82,000

STATUS OF LOCAL COOPERATION: The Section 221 Local Cooperation Agreement (LCA) was signed by the Kansas City District Engineer on 8 September 1983. The City of Kansas City, Missouri provided all the rights-of-way for Stages 1 and 2 construction, that have been completed. Acquisitions for Stage 3 construction are substantially complete.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of \$259,558,000 is unchanged from that last presented to Congress (FY 2009).

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: Final statement on Blue River Basin plan made in connection with preauthorization studies was filed with the Council on Environmental Quality (CEQ) on 13 November 1970. A more complete draft statement on the Blue River Basin plan, including specific information on the impacts of the Blue River Channel, was filed with the CEQ on 11 April 1974. The final statement was forwarded to HQUSACE on 24 October 1974, and was filed with the CEQ on 8 September 1975.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in FY 1973, and funds to initiate construction were appropriated in FY 1979.



1 January 2009

Blue River Channel, Kansas City, Missouri

APPROPRIATION TITLE: Construction, Flood and Coastal Storm Damage Reduction, Fiscal Year 2010

PROJECT: Elk Creek Lake, Oregon (Continuing)

LOCATION: In Jackson County, on Elk Creek, a tributary of Rogue River, at river mile 1.7 about 26.5 miles north of Medford, Oregon.

DESCRIPTION: The Elk Creek Lake Project was authorized as one of three multiple-purpose dams in the Rogue River Basin. The three dams were designed to operate as a system to reduce flooding and to accomplish additional purposes of water supply, irrigation, fish and wildlife enhancement, hydropower, and recreation. Two of the three dams are complete and operating. Authorized features of the Elk Creek Lake project include a 249-foot high, roller-compacted concrete gravity dam, a gate controlled concrete chute spillway, regulating outlet conduits, a diversion for power penstock, and a multiple use intake tower attached to the upstream face of the dam. Based on the selected alternative described in final EIS Supplement Number 2, filed 1 May 1991, the project would be redesigned for interim operation with no conservation pool and with fish passage.

Elk Creek Dam was partially completed prior to a court injunction halting construction. Fish passage through the partially completed facility remains an issue. The Corps' analysis determined that removing a section of the dam to provide a fish passage corridor through the project is the most cost effective and biologically sound method to provide fish passage with the partially completed project. See the Other Information paragraph below.

AUTHORIZATION: 1962 Flood Control Act

REMAINING BENEFIT - REMAINING COST RATIO: The remaining benefit-remaining cost ratio has not been calculated because the project was enjoined and the agency decided not to complete dam construction. The portion of the project funded in FY 2010 is for mitigation purposes.

TOTAL BENEFIT - COST RATIO: The total benefit-cost ratio has not been calculated because the project was enjoined and the agency decided not to complete dam construction. The portion of the project funded in FY 2010 is for mitigation purposes.

INITIAL BENEFIT - COST RATIO: The benefit-cost ratio for the fiscal year for which Congress appropriated initial construction funds (FY 1971) was 1.01 to 1 at a 3 1/4% rate and was based on allocating a share of the system benefits to this project.

BASIS OF BENEFIT - COST RATIO: Not applicable. The portion of the project funded in FY 2010 is for mitigation purposes

SUMMARIZED FINANCIAL DATA:

		ACCUM		PERCENT	PHYSICAL
		PCT OF EST	STATUS	COMPLETE	COMPLETION
		FED COST	(1 Jan 2009)		SCHEDULE
			Entire Project	99%	30 Sep 2010
Estimated Federal Cost		\$126,782,000			PHYSICAL DATA (authorized)
Programmed Construction	\$126,782,000				Dam: Type - Roller compacted concrete
Unprogrammed Construction	\$ 0				Height - 249 feet; Length - 2,580;
Estimated Non-Federal Cost		\$ 0			Concrete Volume - 1,100,000 cubic yards
Total Estimated Project Cost		\$126,782,000			Spillway: Type - Concrete gravity
					Gate Ogee Section: Design discharge- 68,400 cfs;
Allocations to 30 September 2006		112,444,000			Gates - 3 (33 feet x 34 feet) tainter
Allocation for FY 2007		720,000			Lands and Damages: Acres - 3,570
Allocation for FY 2008		9,998,000			Land Use: Irrigated - 130 acres;
Allocation for FY 2009		3,120,000			Pasture - 182 acres; Wooded - 3,151 acres (of which 841
Allocations through FY 2009		126,282,000	99%		acres are Government owned); Lesser Interests- 67 acres;
Allocation Requested for FY 2010		500,000	100%		Building Sites - 40 acres
Programmed Balance to Complete after FY 2010		0			Relocations: County Road - 7.9 miles;
Unprogrammed Balance to Complete after FY 2010		0			Power and Telephone lines - 15 miles, Cemetery Reservoir
					Capacity: Total storage at elev 1,726 - 101,000 acre feet
					Usable Storage - 95,000 acre feet
					Flood Control Storage (elev 1726- 1665) - 60,000 acre feet
					Conservation Storage (elev 1665 - 1581) - 35,000 acre feet
					Inactive Storage (elev 1581-1500) - 6,000 acre feet

JUSTIFICATION: Passage through the existing diversion tunnel and continued operation of the existing temporary trap and haul facility is not a viable long-term solution to address the threatened species concerns in the watershed. The Corps biological assessment and NOAA-Fisheries biological opinion found that a fish passage corridor would be a better option in the long-term, from a biological perspective. The current Biological Opinion concludes that the temporary trap and haul facility can be operated without jeopardy through 30 September 2008. It is unlikely that NOAA Fisheries will extend a no jeopardy opinion beyond that date. Elk Creek Lake could be operated without conservation storage on an interim basis together with Lost Creek and Applegate Lakes as the three-dam Rogue River Basin system to provide flood control. The project would control run-off from about 132-square miles upstream from Elk Creek site. The flood problems occur principally in discontinuous areas in the 50-mile reach of the Rogue River from the junction of Elk Creek downstream to about ten miles past Grants Pass and in scattered areas in the lower 100-mile reach of the Rogue River. The major flood plain comprises some 7,400 acres of hay, alfalfa, pasture orchards (peaches, pears), and hops and affects a population of 14,560. Damages from past floods include agricultural crop losses and land damage due to inundation and erosion, and destruction of industrial, residential, commercial, and recreation developments. A total of 95,000 acre-feet of usable storage would be available at Elk Creek for flood control. The maximum flood that could be completely controlled at the Elk Creek site would have a peak flow of about 19,200 cubic feet per second and a frequency of occurrence of once in about 40 years. During the flood of 1964, the most severe flood since 1861, damages to the area downstream from Elk Creek and Lost Creek Lakes amounted to \$13,161,000 of which about \$2,350,000 would have been prevented by Elk Creek Lake. The peak stage of a flood such as that of 1964 would be reduced about 5.6 feet at Grants Pass by Lost Creek, and 7.4 feet by Lost Creek and Elk Creek Lakes combined.

Division: Northwestern

District: Portland

Elk Creek Lake, OR

7 May 2009

NWD-19



FISCAL YEAR 2009: The current amount is being applied as follows:

Perform O&M during construction .....	\$ 500,000
Complete construction of the fish passage notch .....	\$ <u>2,620,000</u>
	\$ 3,120,000

FISCAL YEAR 2010: The requested amount will be applied as follows:

Perform O&M during construction and post-construction actions .....	\$ 500,000
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NON-FEDERAL COST: N/A

STATUS OF LOCAL COOPERATION: N/A

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of \$126,782,000 is a \$52,618,000 decrease from the latest estimate submitted to Congress (FY 2009). Decrease is due to change in scope from dam construction to notching the dam for fish passage.

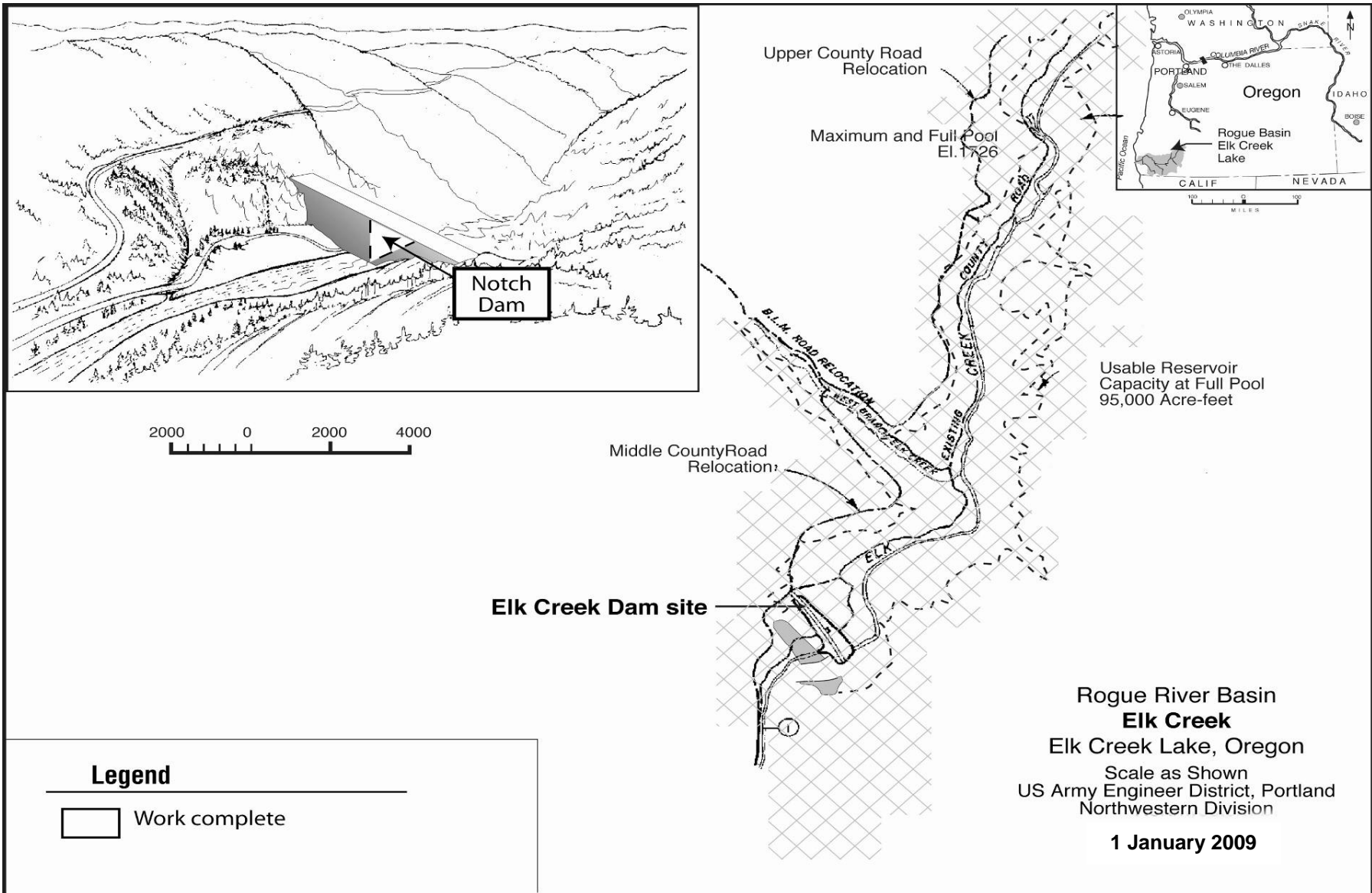
STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The Final Statement was filed with CEQ on September 17, 1971. Supplement No. 1, addressing water quality effects, was filed with EPA on December 24, 1980, and a Record of Decision was filed with EPA in February 1982. An environmental assessment addressing design changes (such as roller compacted concrete instead of embankment dam) was completed on October 11, 1983. Supplemental Information Reports dated September 23, 1985 and January 14, 1986 were provided to the public. These reports described the findings of the 1983 environmental assessment and other new information that had become available since the 1980 EIS Supplement. Another EIS supplement was prepared as a result of litigation. This Supplement was completed and filed with the EPA on May 1, 1991. A Record of Decision, selecting the no conservation pool as the interim operating alternative, was signed on January 24, 1992.

OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in FY 1965, and for construction in FY 1971. After initiation of construction, an injunction was placed against completion of the project. Construction of the project was terminated with the project at 83 feet, one-third its design height. After completion of the final EISS #2, the Department of Justice filed a motion with the Court to remove the injunction. The Ninth Circuit Court of Appeals issued a ruling on April 21, 1995. In a decision, the Court also reversed the District Court decision that EISS #2 met the requirements of the earlier Ninth Circuit opinion and awarded attorneys fees to the plaintiffs. The case was remanded with instructions to prepare a third supplement adequately addressing all issues raised under the NEPA process.

Due to the Ninth Circuit Court of Appeals decision and status of local support, the Corps did not perform the environmental studies under the National Environmental Policy Act (NEPA) necessary to remove the Federal court injunction against completion of the project. Therefore, an evaluation of the requirements for long-term management of the project in its partially completed state was required. The Division Engineer notified the Congressional Appropriations Committees on 6 November 1995 of the Corps' intention to study options for long-term management of the project in its partially completed state. Temporary fish passage was initiated until a long-term fish passage solution is implemented.

Consultation began with the National Marine Fisheries Service (NMFS) concerning alternatives for long-term fish passage at Elk Creek under the Endangered Species Act. Four potential upstream fish passage alternatives were evaluated in the Corps biological assessment. Based on this analysis, it was determined that passage through the existing diversion tunnel and continued operation of the existing temporary trap and haul facility would result in jeopardy to the continued existence of coho salmon in Elk Creek over a ten to fifty year period. The assessment found that construction of a new trap and haul facility designed to function effectively with the partially completed project or removal of a section of the dam to provide a fish passage corridor would not impact the continued existence of the species. Removing a section of the dam would provide long-term passive fish passage and was the most cost-effective method to provide fish passage over the long term with the project in an partially completed state, even when including the cost to replace the removed section of the dam if it is completed in the future.

NMFS issued a biological opinion in January 2001. The opinion concurred with the Corps' assessment that passage through the existing diversion tunnel and continued operation of the existing temporary trap and haul facility would result in jeopardy. They also concurred with the Corps' assessment that the fish passage corridor would not result in jeopardy, and would be the best alternative from a biological perspective. Their opinion stated that a new trap and haul facility could result in jeopardy, but stated that impacts of a new trap and haul facility could potentially be reduced to an acceptable level. The opinion recognized the need to operate the existing trap and haul facility in the interim until an acceptable, long-term solution is implemented. In FY 2003, 2004, 2005, and 2006 Congress included language that specifically prohibited use of project funding for the fish passage corridor (notch). In FY 2007, USACE again reviewed alternatives and concluded that the fish passage corridor (notch) was the preferred alternative. In FY 2008, a contract was awarded for the fish passage corridor (notch). Upstream channel realignment was initiated in FY 2009.



APPROPRIATION TITLE: Construction, Flood and Coastal Storm Damage Reduction, Fiscal Year 2010

PROJECT: Kansas Citys, Missouri and Kansas (Deficiency Correction) – (New)

LOCATION: The existing Kansas City, Missouri and Kansas Local Protection Project consists of seven levee units along both banks of the Missouri and Kansas Rivers in the Kansas City Metropolitan area.

DESCRIPTION: The North Kansas City (NKC) Levee Unit is located along the left bank of the Missouri River and is one unit within the Kansas City metropolitan seven levee system. This unit is cooperatively operated as two sections owned and maintained by either the North Kansas City Levee District (NKCLD) or the City of Kansas City, Missouri (City of KCMO). The portion of this unit identified with the design deficiencies is owned by the NKCLD and is often called the "lower section". The City of KCMO owns the other major portion (the "Airport" section). The existing unit consists of 6.2 miles of levee, 310 feet of floodwalls, riprap slope protection; Rock Creek channel relocation, underseepage berms, pumping plants, drainage structures, and stoplog gaps.

The Fairfax-Jersey Creek Unit is located on the left bank of the Kansas River (Kansas River mile 0.3) downstream to the mouth of the Kansas River and along the right bank of the Missouri River. The Fairfax Drainage District (FDD) owns and provides operation and maintenance for most of the overall unit, starting from upstream of the Jersey Creek area (levee Sta. 31+50) northward all the way to the bluff at the upstream end of unit. The Kaw Valley Drainage District (KVDD) owns and provides operation and maintenance for a smaller segment starting at the Jersey Creek area and continuing around the Kansas River confluence to the lower termination. The portion of this unit identified with the design deficiencies is Fairfax Board of Public Utilities (BPU) floodwall which is owned by the FDD. The existing unit consists of about 5.3 miles of levees, 4,040 feet of floodwall, riprap and levee toe protection, closure gaps, drainage structures, relief wells, pumping plants.

These units are a portion of multiple levee units making up the overall project of Kansas Citys, MO & KS that originally cost \$68,000,000 including all modifications made during the years of 1940 through 1980.

AUTHORIZATION: Section 216 of the 1970 Flood Control Act (PL 91-611); 1936 and 1941 Flood Control Acts; Sec 1001 (28) Water Resources Development Act 2007.

REMAINING BENEFIT – REMAINING COST RATIO: 6.5 to 1 at 7 percent.

TOTAL BENEFIT-COST RATIO: 6.5 to 1 at 7 percent.

BASIS OF BENEFIT-COST RATIO: Benefits are from the Chief's Report dated 19 Dec 2006.

SUMMARIZED FINANCIAL DATA:			ACCUM PCT. OF EST. FED COST	STATUS (1 Jan 09)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost		\$11,423,100				
Estimated Non-Federal Cost		6,150,900				
Cash Contribution	878,700			Entire Project	5%	TBD
Other Costs	5,272,200					
Total Estimated Project Cost		17,574,000				
Allocations to 30 September FY 2006		0				
Allocation for FY 2007		163,000	1/			PHYSICAL DATA
Allocation for FY 2008		307,000	1/			-NKC levee: underseepage control
Allocation for FY 2009		831,000	1/			improvements in 2 areas (Harlem and
Allocations through FY 2009		1,301,000	11%			National Starch sites)
Allocation Requested for FY 2010		700,000	18%			-- Fairfax-Jersey Creek levee unit: 1,446 LF
Programmed Balance to Complete after FY 2010		TBD				of Floodwall strengthening
Unprogrammed Balance to Complete after FY 2010		0				

1/ Preconstruction, Engineering and Design funded under the Investigations account

**JUSTIFICATION:** Fairfax Board of Public Utilities (BPU) floodwall foundation design deficiency (Fairfax-Jersey Creek Levee Unit): Major Life Safety and property damage issues. This site poses a risk of floodwall failure which will affect entire Fairfax-Jersey Creek protected area under extreme flood conditions. Structural risk evaluation indicates the need for strengthening this wall located along the upstream end of the unit directly behind the BPU Power Plant. The design deficiencies are present within an inadequate pile foundation supporting the floodwall. The BPU power plant which serves much of Kansas City, Kansas is adjacent to the floodwall. Overall, the Fairfax Industrial District is a huge manufacturing hub including large GM plant and several other Fortune 500 corporations, along with many smaller businesses. Approximately \$3 Billion total investment and 11,000 employees are protected by this unit. There is broad local and congressional support.

North Kansas City levee under-seepage control design deficiency (NKC Levee Unit): Major Life Safety and property damage issues. This project addresses design deficiencies which pose a risk of under-seepage failure for the NKC levee unit under major flood events. High under-seepage pressures are not properly controlled along certain portions of the levee unit which can lead to substantial transport of levee foundation materials during rare flood events. This project will provide added under-seepage control keeping pressures within appropriate design criteria. NKC unit provides protection to a wide range of small and medium size businesses plus RR yards, Kansas City Missouri drinking water supply facilities, and the entire downtown Kansas City airport. The unit protects approx \$3 Billion total investment and over 25,000 employees and 5,000 residents. Almost all of the North Kansas City community is located within the unit. There is broad local and congressional support.

Division: Northwestern

District: Kansas City

Kansas City, Missouri and Kansas  
(Deficiency Correction)

7 May 2009

NWD-24

FISCAL YEAR 2009: Funds in the Investigations account are being used to continue Pre-construction, Engineering and Design for the NKC Levee and the Fairfax-Jersey Creek Levee Deficiency Corrections.

FISCAL YEAR 2010: The requested amount will be applied as follows:

Continue Pre-construction Engineering and Design for the NKC Levee and the Fairfax-Jersey Creek Levee Deficiency Corrections	\$700,000
Total	\$700,000

NON-FEDERAL COSTS: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, as amended, the non-Federal sponsor must comply with the requirements listed below.

	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation, and Replacement
Requirements of Local Cooperation: Provide lands, easements, rights of way, and borrow and excavated material disposal areas which may be reduced for credit allowed based on prior work after reductions for such credit have been made in the required cash payments.	TBD	
Modify or relocate utilities, roads, bridges (except railroad bridges), and other facilities, where necessary for the construction of the project.	TBD	
Pay for Plans and Specifications for Relocations of utilities and roads	TBD	
Pay percent of the costs allocated to flood control to bring the non-Federal share of flood control costs to 25 percent, as determined under Section 103 (m) of the Water Resources Development Act of 1986, as amended, to reflect non-Federal sponsor's ability to pay as reduced for credit allowed based on prior work, or pay 5 percent of the costs allocated to flood control, and bear all costs of operation, maintenance, repair, rehabilitation and replacement of flood control facilities.	TBD	TBD
Total Non-Federal Costs	\$5,617,150	TBD

STATUS OF LOCAL COOPERATION: The Design Agreement with the North Kansas City Levee District was executed on 3 August 2007. The Design Agreement with the Fairfax Drainage District was executed 12 August 2008. Both sponsors have necessary funds available to finance the non-Federal portion of the design work.

Division: Northwestern

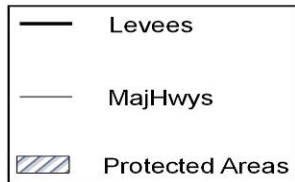
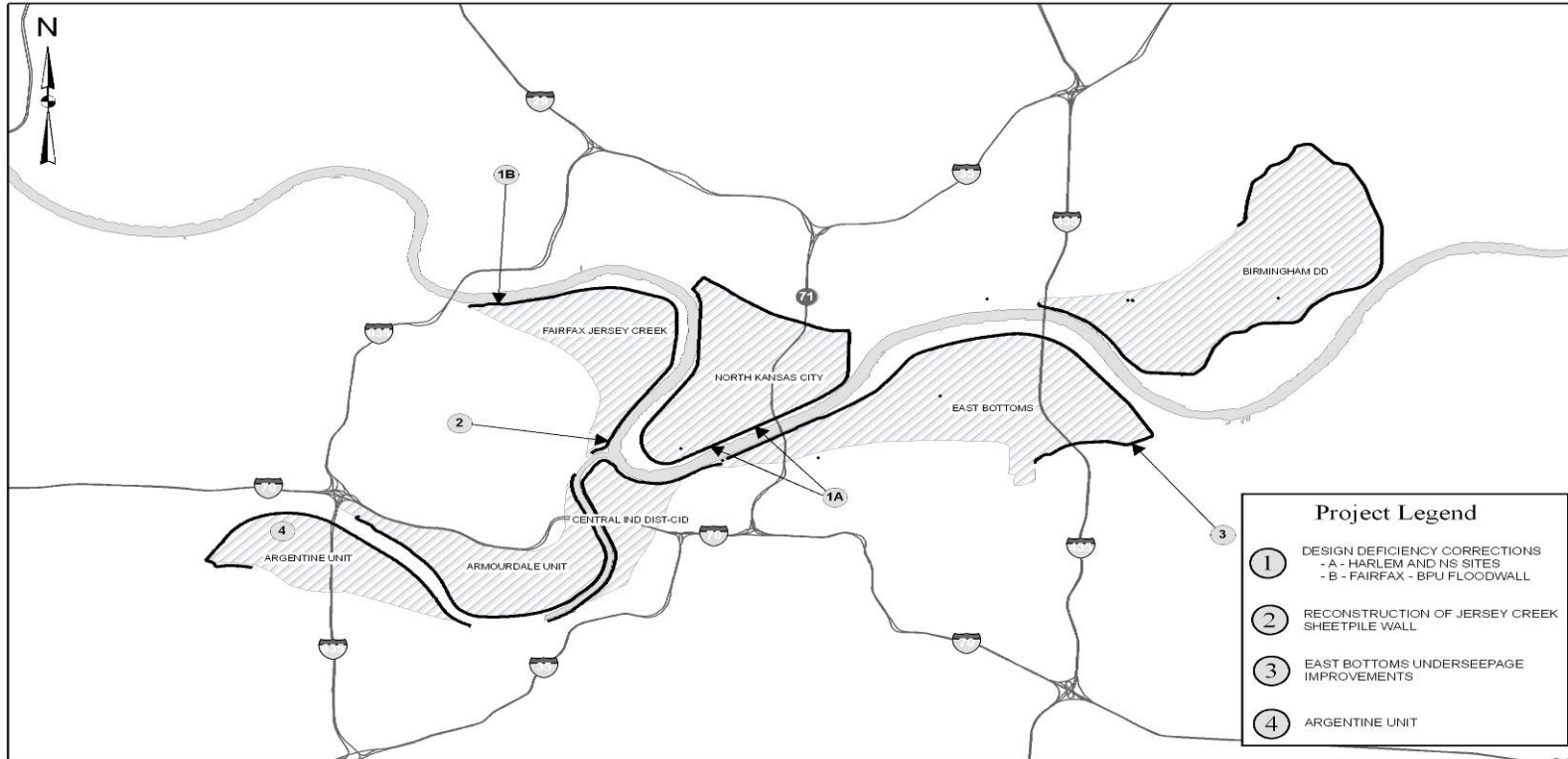
District: Kansas City

Kansas City, Missouri and Kansas (Deficiency Correction)

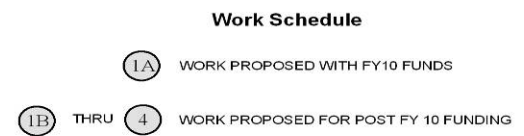
COMPARISON OF FEDERAL COST ESTIMATE: The current Federal cost estimate is \$11,423,100 and is the initial estimate presented to Congress.

STATUS OF ENVIRONMENTAL IMPACT STATEMENT COMPLIANCE: The Interim Feasibility Report and Environmental Impact Statement (EIS), dated August 2006 with Addendum dated December 2006 addresses opportunities for flood risk reduction for the Argentine, East Bottoms, Fairfax-Jersey Creek, Birmingham and North Kansas City levee units of the Kansas Citys Local Flood Damage Reduction Project. The recommended plan has relatively minor impacts to the natural environment with overall positive benefits to the socio-economic environment. Impacts to the natural environment are minor because the project is located within a previously disturbed environment that is highly industrial and urbanized. All practicable means to avoid and/or minimize adverse environmental effects have been incorporated into the recommended plan. The Record of Decision for this project was signed by the ASACW on 21 Nov 2007.

OTHER INFORMATION: This Deficiency Correction project is currently in the design phase.



1 January 2009



**Kansas City Flood Risk Management Project**



APPROPRIATION TITLE: Construction, Flood and Coastal Storm Damage Reduction, Fiscal Year 2010

PROJECT: Mount St. Helens Sediment Control, Washington (Continuing)

LOCATION: A sediment retention structure on the North Fork Toutle River, 3 miles upstream from its confluence with the Green River; a Fish Collection Facility located on the North Fork Toutle River, 8,500 feet downstream of the Sediment Retention Structure; levee improvements at Kelso, Washington on the Cowlitz river (river mile 3 to river mile 8); and dredging in the Cowlitz River (river mile 0 - to river mile 20); all located in Cowlitz County, southwest Washington. The river systems impacted by the project include the Toutle, Cowlitz and a portion of the Coweeman River. Most of the population affected by the problems resides in the communities of Longview, Kelso, Lexington and Castle Rock, Washington.

DESCRIPTION: An earth and rock fill sediment retention structure with a spillway height of 125 feet, length of 1,800 feet and a retention capacity of 258 million cubic yards of sediment; a barrier type fish trap facility with a length of 300 feet and a 210 foot fish ladder; levee raise and improvements on the Cowlitz River at Kelso, WA; dredging in the Cowlitz River from the mouth to river mile 20; and provide system-wide flood protection throughout the fifty year life cycle (1985-2035) at congressionally authorized levels.

AUTHORIZATION: Supplemental Appropriations Act, 1985, PL 99-88.

REMAINING BENEFIT - REMAINING COST RATIO: 5.2 to 1 at 7 percent.

TOTAL BENEFIT - COST RATIO: 3.8 to 1 at 7 percent.

INITIAL BENEFIT - COST RATIO: 3.0 to 1 at 8-5/8 percent. The benefit to cost ratio is based on the project functioning independently.

BASIS OF BENEFIT - COST RATIO: Benefits were updated in June 2007 based on the evaluation reported in the April 1985 Chief of Engineers Report.

SUMMARIZED FINANCIAL DATA	ACCUM PCT OF EST FED COST	STATUS (1 Jan 2009)	PCT CMPL	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost	\$234,947,000			
Programmed Construction	234,947,000	Sediment Retention		
Unprogrammed Construction	0	Structure	100	Feb 90
		Dredging	100	Mar 90
Estimated Non-Federal Cost	\$ 25,215,000	Future Dredging	0	To Be Determined
Programmed Construction	25,215,000	Entire Project	55	To Be Determined
Cash Contribution	4,215,000			
Other	21,000,000			
Unprogrammed Construction	0			

Division: Northwestern

District: Portland

Mount St. Helens Sediment Control, Washington

7 May 2009

NWD-28

SUMMARIZED FINANCIAL DATA (Continued)

Total Estimated Programmed Construction Cost	\$260,162,000	
Total Estimated Unprogrammed Construction Cost	0	
Total Estimated Project Cost	\$260,162,000	
Allocations to 30 September 2006	118,208,000	
Allocation for FY 2007	632,000	
Allocation for FY 2008	9,247,000	
Allocation for FY 2009	2,670,000	
Allocations through FY 2009	130,757,000	55%
Allocation Requested for FY 2010	1,500,000	56%
Programmed Balance to Complete after FY 2010	TBD	
Unprogrammed Balance to Complete after FY 2010	0	

PHYSICAL DATA

Dam: Type - Earth and Rockfill  
 Spillway Height - 125 feet  
 Length - 1,800 feet  
 Spillway Width - 400 feet  
 Fish Facility: 300 feet long, concrete  
 with stilling basin  
 Fish Ladder: 210 feet long by  
 6 feet wide, concrete  
 Lands and Damages: Acres -  
 5,374 (Sediment Retention Structure)  
 1,300 (Disposal Sites for Dredging)  
 25 (Levee Improvements)  
 Ultimate Sediment Capacity:  
 258 million cubic yards

JUSTIFICATION: The eruption of Mount St. Helens dramatically altered the hydraulic and hydrologic regimes of the Cowlitz and Toutle River Valleys. The Supplemental Appropriation Act, 1985 authorized the Corps to construct, operate and maintain a sediment retention structure (SRS) with such design features and associated downstream actions necessary to provide flood protection to the communities of Longview, Kelso, Castle Rock and Lexington. About 50,000 people and their property are at risk if the flood protection is not maintained.

Changing hydraulic and hydrologic conditions impact downstream deposition of sediment that is now infringing on the congressionally authorized levels of flood protection. Without dredging and other actions in the Cowlitz River the authorized level of flood protection will not be maintained; Currently, the level of flood protection in the Castle Rock reach is less than 100-year level.

The ongoing data collection and sediment management analysis work is a critical step in determining what additional measures should be implemented to maintain long-term flood protection for these communities. Potential alternatives to regain/maintain the authorized levels of protection through 2035 include: dredging, improving levee integrity, increasing flood control storage, develop sediment storage sump, establish a main channel above the SRS to reduce sediment delivery.

This project, in addition to preventing damage to property, is effective in reducing a high risk to life for the populations in the project area. That risk must be considered in evaluating the project justification in addition to economic analyses. Risk is created by both hydrologic factors (flood depth, velocity, and short warning time) and cultural factors (size of population and available routes of egress from the floodplain)".

FISCAL YEAR 2009: Funds are being applied as follows: Continue annual sediment monitoring and gradation analysis to track sediment migration and flood protection levels; analyze and develop follow-on long-term alternative plan for system-wide flood and navigation protection; and complete evaluation of long-term fish passage alternatives at the sediment retention structure.....\$2,670,000

FISCAL YEAR 2010: The requested amount will be applied as follows: Continue annual sediment monitoring and complete analysis of long-term alternatives for system-wide flood and navigation protection.....\$1,500,000

NON-FEDERAL COST: In accordance with the agreement between the United States of America and the State of Washington for local cooperation at, along and near the Cowlitz and Toutle Rivers, Cowlitz County, State of Washington, the total estimated non-federal cost for construction is \$25,215,000 including allowances for inflation. The non-Federal sponsor must comply with the requirements listed below:

Requirements of Local Cooperation	Payments During Construction	Annual Operation Maintenance and Replacement Costs
Provide lands, easements, rights-of-way, and dredged material disposal areas.	\$16,815,000	
Modify or relocate buildings, utilities, roads, bridges (except railroad bridges), and other facilities, where necessary in the construction of the project.	400,000	
Mitigation for dredging operations	4,400,000	\$846,000
Sales & Use Tax Offset from the State of Washington	3,600,000	
<b>Total Non-Federal Payments During Construction</b>	<b>\$25,215,000</b>	

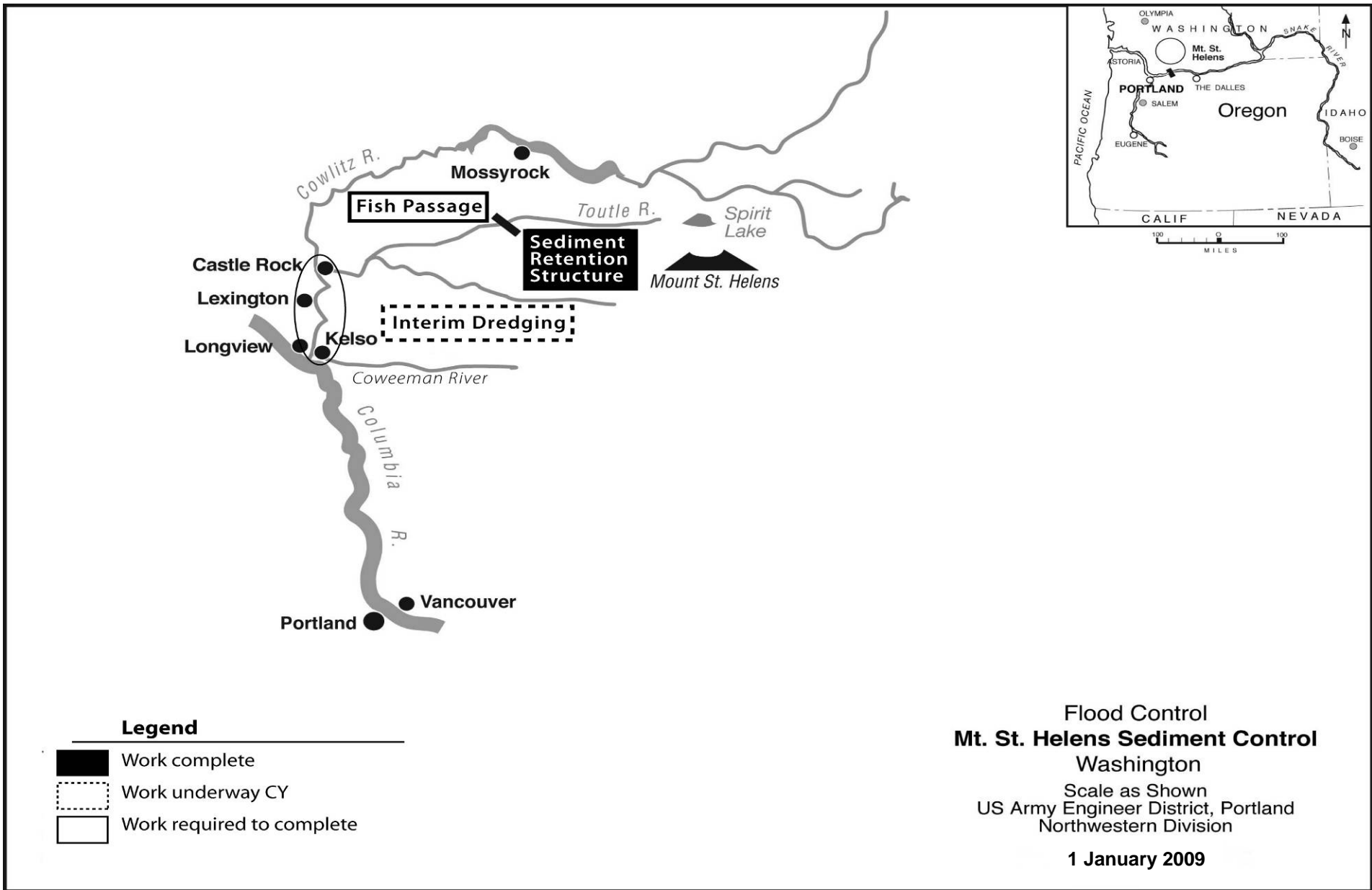
STATUS OF LOCAL COOPERATION: A local cooperation agreement (LCA) for the Sediment Control project was signed on 26 April 1986. The State of Washington is the sponsor for the Sediment Retention Structure (SRS) and dredging portions of the project. Consolidated Diking Improvement District No. 3 and Drainage Improvement District No. 1 are sponsors for the Kelso levee improvement.

Land rights have been obtained by the State over the lands required for initial construction of the SRS. All persons residing within the SRS acquisition boundary have been relocated. The Diking and Drainage Districts have been furnished right-of-way requirements and are continuing their acquisition program. The State is continuing to acquire rights-of-way for additional dredge disposal areas should future dredging be required to preserve authorized flood protection levels.

COMPARISON OF FEDERAL COST ESTIMATE: The current Federal cost estimate of \$234,947,000 is a \$32,447,000 increase from the latest estimate submitted to Congress (FY 2009). The increase is due to price leveling from time of "natural construction pause".

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement was filed with the Environmental Protection Agency (EPA) in December, 1984.

OTHER INFORMATION: Funds to initiate preconstruction planning were allotted in FY 1985 and construction in FY 1986. The project remains open because of the unique circumstances created by the eruption of Mt. St. Helens. Since the small explosive eruption that occurred 1 October 2004, there have been several larger eruptions of steam and ash, with some additional growth of the lava dome within the mountain's existing crater. Sediment deposition in the lower Cowlitz River is beginning to infringe on the authorized level of flood protection. As a result, the project is at the end of the "natural pause" in construction work. Resumption of physical construction is appropriate.



APPROPRIATION TITLE: Construction, Flood and Coastal Storm Damage Reduction, Fiscal Year 2010

PROJECT: Mud Mountain Dam, Washington (Fish Passage Facilities) (Continuing)

LOCATION: Mud Mountain Dam is located at river mile 29.6 on the White River, 6 miles upstream and southeast of Enumclaw, WA and 38 miles southeast of Tacoma, WA in western Washington State.

DESCRIPTION: The fish collection facility currently sorts and collects salmon to be trucked upstream around Mud Mountain Dam. The current facility is deteriorated and unsafe. Replacement will allow the Corps to continue meeting mitigation requirements for the Mud Mountain Dam Project.

AUTHORIZATION: Flood Control Act of 1936 authorized the Mud Mountain Dam and reservoir on the White River as the main unit of the Puyallup River flood control project.

REMAINING BENEFIT - REMAINING COST RATIO: Not applicable

TOTAL BENEFIT-COST RATIO: THE INITIAL BENEFIT - COST RATIO: Not applicable

BASIS OF BENEFIT-COST RATIO: Not applicable

SUMMARIZED FINANCIAL DATA:

		Accumulated Percent of Estimated Federal Cost	Status (1 Jan 2009) Entire Project	Percent Complete 8%	Physical Completion Schedule To be determined
Estimated Federal Cost	\$52,636,000				
Estimated Non-Federal Cost	0				
Total Estimated Project Cost	\$52,636,000				
Allocations to 30 September 2006	\$2,947,000				
Allocation for FY 2007	1,070,000				
Allocation for FY 2008	2,340,000				
Allocation for FY 2009	957,000				
Allocations through FY 2009	7,314,000	14%			
Allocation requested for FY 2010	400,000	15%			
Programmed Balance to Complete after FY 2010	TBD				
Unprogrammed Balance to Complete after FY 2010	0				

Division: Northwestern

District: Seattle

Mud Mountain Dam, Washington

7 May 2009

PHYSICAL DATA:

Fish Trap and Haul Facilities Improvements

JUSTIFICATION: Upstream migratory fish passage is currently provided at the fish collection facility located at Buckley, WA which is co-located with a privately owned barrier dam 6 miles downstream of Mud Mountain Dam. The barrier dam is also used to divert water to a recreational lake and a future regional water supply facility and is in need of replacement. The current owner of the diversion dam, Puget Sound Energy, is terminating operations at the project and the Corps is taking possession of the facility. Since 2002, funds have been provided to plan and design a replacement facility to meet ESA requirements.

FISCAL YEAR 2009: Funds are being applied as follows:

FISH PASSAGE:

Award contract for the Cofferdam 65% design	\$ 827,000
Complete review of the Cofferdam 65% design	85,000
Complete the value engineering study	45,000
Total	\$957,000

FISCAL YEAR 2010: The requested amount will be applied as follows:

FISH PASSAGE:

Initiate Real Estate Acquisition	400,000
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NON-FEDERAL COSTS: N/A. Fish passage improvements are a Federal cost.

STATUS OF LOCAL COOPERATION: N/A.

COMPARISON OF FEDERAL COST ESTIMATE: The current Federal cost estimate of \$52,636,000 is an increase of \$4,898,000 from the last estimate presented to Congress (FY 2009). This change includes the following items:

Item	Amount
Price Escalation or De-escalation on Construction Features	\$ 4,898,000
Total	\$ 4,898,000

Division: Northwestern

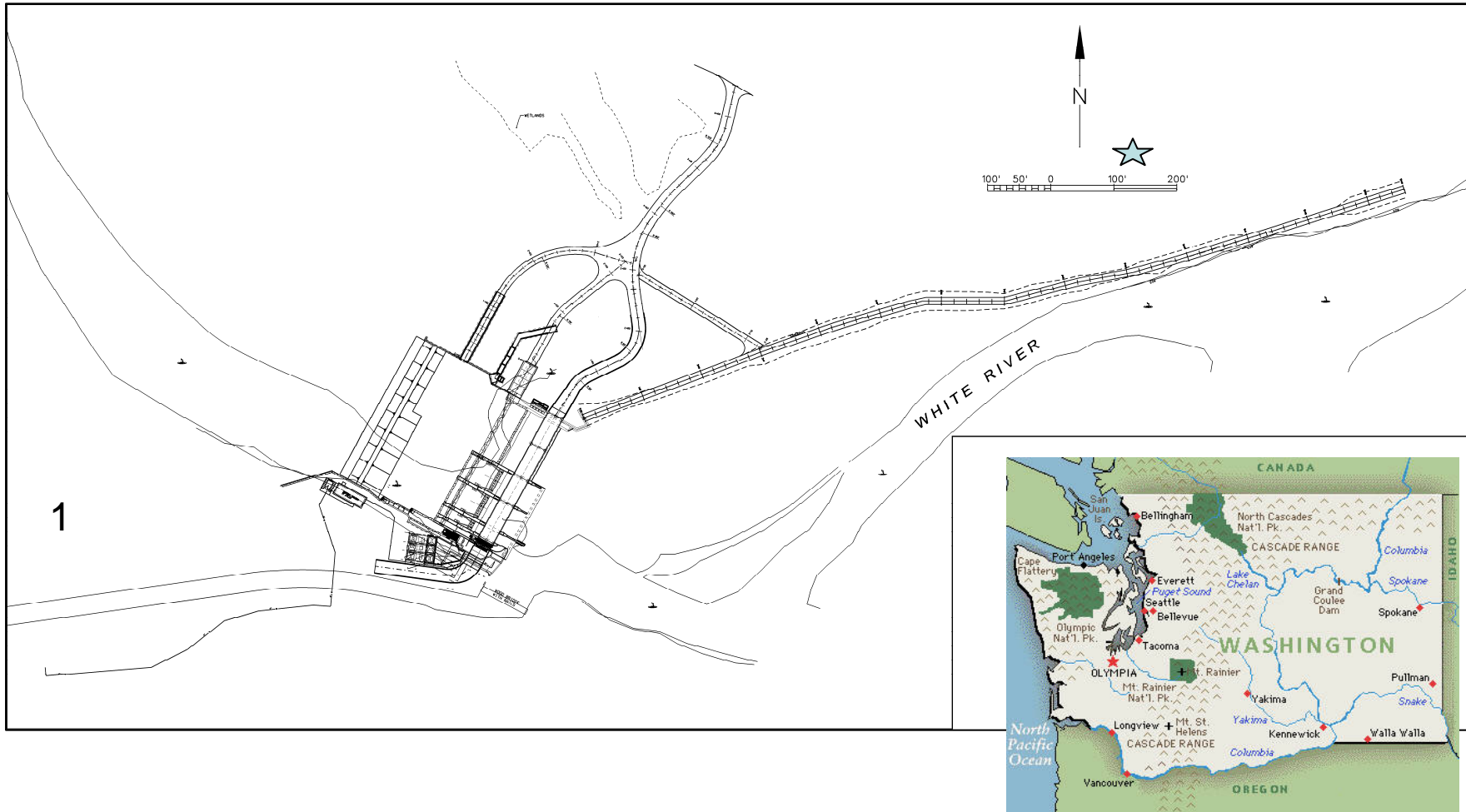
District: Seattle

Mud Mountain Dam, Washington

7 May 2009

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: An Environmental Assessment for the Dam Safety Assurance Program was completed in June 1986 with an additional Environmental assessment and Finding of No Significant Impact completed in June 1999. An Environmental Assessment and draft Finding of No Significant Impact for the replacement of the barrier dam was completed in October 2007. A programmatic biological assessment under ESA for the Operations and Maintenance of MMD as well as the replacement of the barrier dam was completed in June 2005.

OTHER INFORMATION: Congress added \$500,000 to the project in FY 2002 for “the design of fish passage facilities”. In FY 2003, Congress also “provided \$2,500,000 to continue work on dam safety measures and the fish passage facility.” Funding for FY 2004 and FY 2005 included appropriations for the fish passage facility but no specific language. FY 2006 funding included specific language for the fish passage facility.



**Mud Mountain Dam, Washington  
Fish Passage Facility**  
U.S. Army Engineer District, Seattle District  
Northwestern Division

Division: Northwestern

District: Seattle

Mud Mountain Dam, Washington

7 May 2009

NWD-35



APPROPRIATION TITLE: Construction, Flood and Coastal Storm Damage Reduction, Fiscal Year 2010

PROJECT: Turkey Creek Basin, Kansas City, Kansas and Missouri – (Continuing)

LOCATION: The 23 square mile urban Turkey Creek basin drains Johnson and Wyandotte Counties in Kansas, and a portion of Kansas City, Missouri. Turkey Creek parallels Interstate Highway 35 for much of its length and flows through a tunnel into the Kansas River approximately three miles upstream of its confluence with the Missouri River.

DESCRIPTION: The plan of improvement consists of approximately ten thousand feet of urban channel modification, a levee section, the raising of two railroad bridges, 12.7 acres of riparian planting and four large drainage interceptor pipelines. A dual flood threat exists in the affected area, which consists of Turkey Creek over-bank flow and localized hillside runoff. Either flood source can cause considerable damage. The channel modification addresses the channel flooding threat, and the interceptors address the hillside component.

AUTHORIZATION: Section 101 of the Water Resources Development Act of 1999 and Section 123 of the Consolidated Appropriations Act of 2003.

REMAINING BENEFIT – REMAINING COST RATIO: 2.0 to 1 at 7 percent.

TOTAL BENEFIT-COST RATIO: 1.3 to 1 at 7 percent.

INITIAL BENEFIT-COST RATIO: 1.4 to 1 at 6.125 percent (FY 2001 GRR)

BASIS OF BENEFIT-COST RATIO: Economic update of FY 2008, approved July 2008.

SUMMARIZED FINANCIAL DATA:	ACCUM PCT. OF EST. FED COST	STATUS (1 Jan 09)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost	\$56,852,000			
Estimated Non-Federal Cost	35,695,000			
Cash Contribution	23,956,000	Entire Project	40	TBD
Other Costs	11,739,000			
Total Estimated Project Cost	92,547,000			
Allocations to 30 September 2006	5,488,000			
Allocation for FY 2007	5,500,000			
Allocation for FY 2008	8,856,000			
Allocation for FY 2009	9,570,000			
Allocations through 30 September FY 2009	29,414,000	52%		
Allocation Requested for FY 2010	2,500,000	56%		
			PHYSICAL DATA	
			Channel Modification: 10,000 feet	
			Levee: 2,800 feet	
			Tunnel: 1,300 feet	
			Railroad Bridge Raises: 2 each	
			Interceptors: 16,000 feet	
Division: Northwestern		District: Kansas City		Turkey Creek Basin KS & MO

7 May 2009

SUMMARIZED FINANCIAL DATA (continued):

Programmed Balance to Complete after FY 2010	TBD	Riparian Planting: 12.7 Acres
Unprogrammed Balance to Complete after FY 2010	0	

JUSTIFICATION: The Turkey Creek basin is a 23-square-mile area within Kansas City, Kansas and suburbs in Johnson and Wyandotte Counties. The basin is nearly 100 percent urbanized, and a significant amount exists within the flood plain. Commercial and industrial investment, valued at over \$139 million, along with residential and other property valued at approximately \$9 million are subject to flood damage. There are almost 500 businesses within the project area accounting for more than 6,000 jobs. Phasing of channel construction to coincide with widening of Interstate Highway 35 by the Kansas Department of Transportation (KDOT) resulted in significant project cost savings. KDOT's work on the channel is complete. A dual flood threat exists in the study area that consists of Turkey Creek over-bank flows and localized hillside runoff. Either flood source can cause considerable damage. Average annual damages without the project are estimated at \$11.7 million and with the project at \$3.2 million. Six damaging floods have occurred since 1977 and at least two of those directly resulted in loss of life. The flood of record occurred in July 1993 causing one fatality and damages estimated at \$20 million in 1993 or \$28 million at current price level. Another flood of similar magnitude to the 1993 event occurred in October of 1998. The recent severe floods have occurred at night and on weekends when the commercial industrial corridor was inactive. A flood of similar magnitude occurring during normal business hours has the potential to result in multiple fatalities. Flooding on Turkey Creek is flashy with only a few hours warning that the creek will flood. With this limited warning, loss of life will continue to occur on Turkey Creek without this project. This project, in addition to preventing damages to property, is effective in reducing a high risk to life for the populations in the project area. That risk must be considered in evaluating the project justification in addition to economic analyses. Risk is created by both hydrologic factors (flood depth, velocity, and short warning time) and cultural factors (size of population and available routes of egress from the floodplain)". The authorized project includes construction of channel modifications with a one-percent level of protection and tributary floodwater diversion. Average annual benefits are \$8,487,000.

FISCAL YEAR 2009: Funds are being applied as follows:

Award Downstream Levee/ Environmental Enhancement	\$ 2,000,000
Walled Channel Construction	2,570,000
Continued Tunnel Construction	3,000,000
Engineering and Design	1,000,000
Construction Management	<u>1,000,000</u>
Total	\$9,570,000

FISCAL YEAR 2010: The requested amount will be applied as follows:

Walled Channel Construction	\$1,000,000
Engineering and Design	1,000,000
Construction Management	<u>500,000</u>
Total	\$2,500,000

Division: Northwestern

District: Kansas City

Turkey Creek Basin KS & MO

7 May 2009

NON-FEDERAL COSTS: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, as amended, the non-Federal sponsor must comply with the requirements listed below.

	Payments During Construction And Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation, and Replacement Costs
Requirements of Local Cooperation		
Provide lands, easements, rights of way, and borrow and excavated material disposal areas.	4,976,000	
Modify or relocate utilities, roads, bridges (except railroad bridges), and other facilities, where necessary for the construction of the project.	6,763,000	
Pay 100% of the cost allocated to the Mission Road Interceptor and increasing the level of protection of the Missouri Interceptor from 10 years to 15 years (Locally Preferred Plan).	4,587,000	
Credit allowed based on prior work.	5,082,000	
Pay 22 percent of the costs allocated to flood control to bring the non-Federal share of flood control costs to 35 percent, as determined under Section 103 (m) of the Water Resources Development Act of 1986, as amended, to reflect non-Federal sponsor's ability to pay as reduced for credit allowed based on prior work, or pay 5 percent of the costs allocated to flood control, and bear all costs of operation, maintenance, repair, rehabilitation and replacement of flood control facilities.	14,287,000	112,000
<b>Total Non-Federal Costs</b>	<b>35,695,000</b>	<b>112,000</b>

STATUS OF LOCAL COOPERATION: The City of Kansas City, Missouri and the Unified Government of Wyandotte County and Kansas City, Kansas expressed their intent to sponsor the project and a statement of financial capabilities in letters provided in January 2003 and November 2002 respectively. The Project Cooperation Agreement (PCA) was signed 17 July 2006, following completion of tunnel work initiated by the Sponsor.

COMPARISON OF FEDERAL COST ESTIMATE: The current Federal cost estimate of \$56,852,000 is unchanged from that last presented to Congress (FY 2009).

Division: Northwestern

District: Kansas City

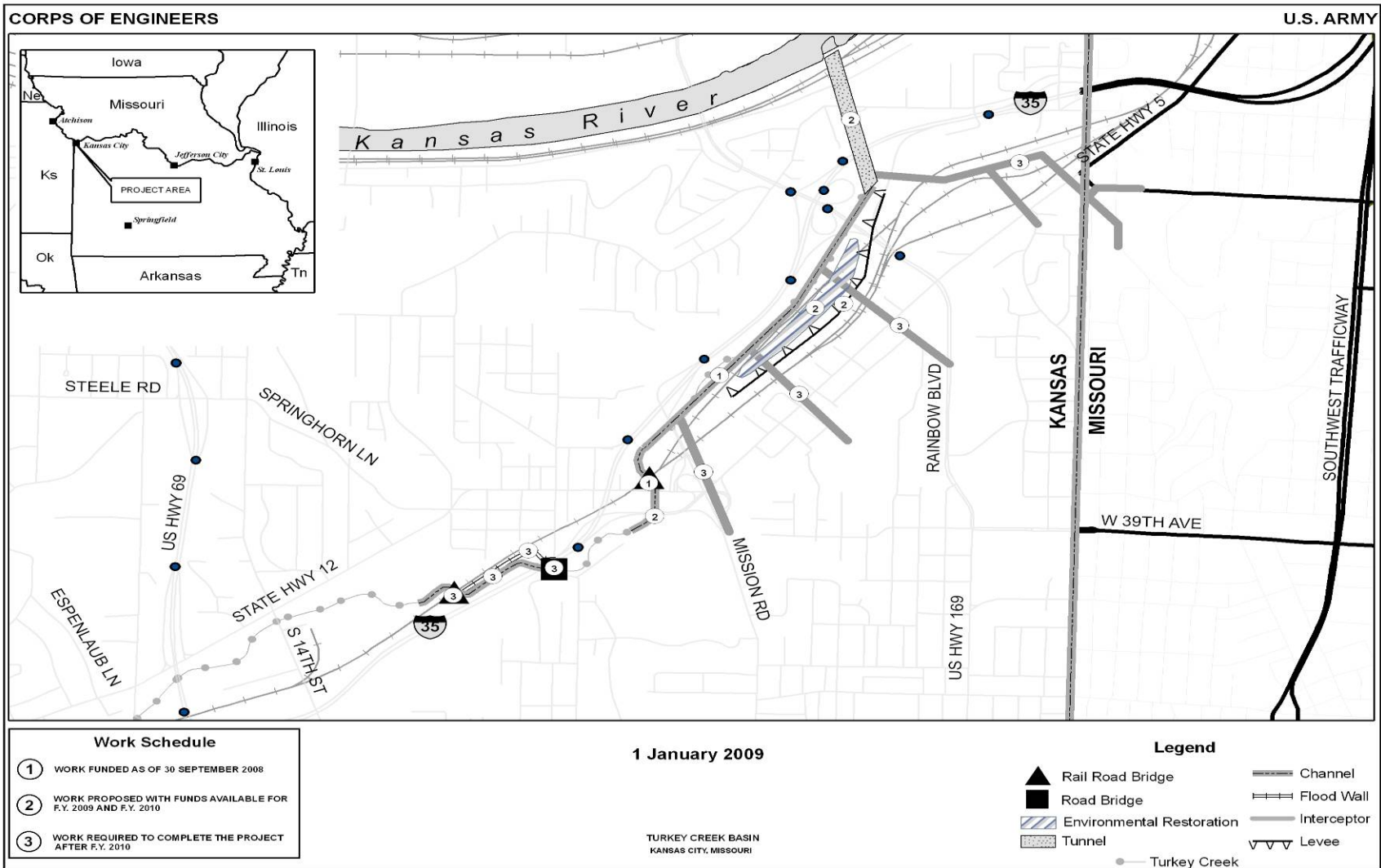
Turkey Creek Basin KS & MO

7 May 2009

NWD-38

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: A Revised Environmental Assessment, dated January 2003, concluded that no significant impacts, which would adversely affect the quality of the environment, were identified for the plan for flood protection measures for the lower Turkey Creek Basin. The District Commander signed a Finding of No Significant Impact February 4, 2003.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in FY 1998. Preconstruction Engineering and Design (PED) was completed in September 2004. Funds to initiate construction were first appropriated in FY04. The project cost estimate is being updated in FY 2009. A sponsor requested change has initiated preparation of a Limited Reevaluation Report (LRR) which will delay the 4.4 railroad bridge relocation until FY 2011.



# NAVIGATION

# INVESTIGATIONS

APPROPRIATION TITLE: Investigations, Navigation, Fiscal Year 2010

Division: Northwestern

Study	Total Estimated Federal Cost \$	Allocation Prior to FY 2007 \$	Allocation FY 2008 \$	Allocation FY 2009 \$	Tentative Allocation FY 2010 \$	Additional to Complete After FY 2010 \$
Missouri River Degradation, MO Rulo, NE to mouth Kansas City District	1,845,000	0	295,000	84,000	600,000	TBD

The Missouri River between miles 340 and 400 in the Kansas City reach has exhibited significant degradation or downcutting of the riverbed. This phenomenon has been observed by evaluation of Missouri River gage data collected over a long period of time. In other reaches of the Missouri River from Rulo, Nebraska to St. Louis, MO, data indicates that the river bed is relatively stable. Local entities has expressed concerns that continued degradation within this reach could destabilize the navigation structures, the bank stability, and impact local intake/discharge infrastructure (i.e., water supply intake structures, power supply intake structures, and other critical infrastructure along the river). Continued degradation could also impact Federal interest in the existing Kansas City's Metropolitan Flood Protection System. The City of Kansas City, Missouri has expressed concern regarding the impacts to local and Federal interests along the metropolitan reach of the river and expressed support for a study on bed degradation and potential methods to control or eliminate future impacts.

Fiscal Year 2009 funds are being used to complete the reconnaissance phase at full Federal expense. If the reconnaissance report is certified to be in accord with policy the funds requested for Fiscal Year 2010 will be used to continue into the feasibility phase of the study. Feasibility study will include detailed economic, technical and environmental assessments of potential corrective measures. Because of the dynamic nature of the river system, detailed physical modeling would likely be required to evaluate solution strategies. The Engineering Research and Development Center (ERDC), the USGS, and other agencies and nationally recognized experts would be engaged to implement the needed modeling to fill data gaps identified in the reconnaissance study and to model future conditions based on implementation of measures. Detailed economic, engineering, technical, and environmental assessments of potential corrective measures would be used to identify a preferred alternative.

The preliminary estimated cost of the feasibility phase is \$3,000,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. A summary of study cost sharing is as follows:

Total Estimated Study Cost	\$3,345,000
Reconnaissance Phase (Federal)	345,000
Feasibility Phase (Federal)	1,500,000
Feasibility Phase (Non-Federal)	1,500,000

The reconnaissance phase is scheduled for completion in August 2009. The feasibility study completion date is to be determined.

Division: Northwestern

District: Kansas City

Missouri River Degrad, MO  
Rulo, NE to Mouth

7 May 2009

NWD-43



# ENVIRONMENTAL

# AQUATIC ECOSYSTEM RESTORATION

# INVESTIGATIONS

APPROPRIATION TITLE: Investigations, Environment Restoration, Fiscal Year 2010

Division: Northwestern

Study	Total Estimated Federal Cost \$	Allocation Prior to FY 2007 \$	Allocation FY 2007 \$	Allocation FY 2008 \$	Allocation FY 2009 \$	Tentative Allocation FY2010 \$	Additional to Complete After FY 2009 \$
Lower Columbia River Ecosystem Restoration, OR & WA Portland District	3,191,000	618,000	290,000	98,000	96,000	300,000	TBD

The Lower Columbia River Ecosystem Restoration study extends from the mouth of the Columbia River to river mile (RM) 145 at Bonneville Lock and Dam; its estuary is classified as nationally significant under the National Estuary Program (NEP). The river divides the states of Oregon and Washington throughout this area. The study area includes a 40-foot deep-draft federal navigation channel from the mouth of the river to the Portland metropolitan area about RM 105 and a shallow draft channel upstream to RM 145. The Corps of Engineers' 125-year involvement with the Lower Columbia Basin system includes flood damage reduction, navigation, fish and wildlife, environmental restoration, hydropower, bank protection, recreation and water supply improvements.

Competing water resource requirements and significant environmental degradation has occurred within the Lower Columbia Basin system. Modification of the system by human activities has led to a marked change in the hydrologic regime, and caused pollution and substantial losses of instream, riparian and wetland habitats, and a concomitant reduction in fish and wildlife resources. Flood control, water quality, navigation, water-related infrastructure, and ecosystem restoration needs have all been evaluated on a case-by-case basis. Twelve different populations of anadromous salmonids that reproduce in the Columbia River Basin have been listed as threatened or endangered and they all use the estuary to some extent. Such listings have broad implications to existing water resource uses, and future developments. The updated proposed action for the Columbia River Federal Power System includes calling for planning and restoration efforts in the Columbia River estuary to help avoid jeopardy for these listed species. Historic losses of 52,000 acres of wetland/marsh habitats, 13,800 acres of riparian forest habitat and 27,000 acres of forested wetland habitat downstream of Portland have significantly impacted this ecosystem's ability to produce and sustain fish and wildlife resources. Much of this wetland loss can be attributed to the 84,000 acres encompassed by diking districts and the 20,000-acre increase in urban development that has occurred along the lower Columbia River.

The purpose of this ongoing study is to investigate and recommend appropriate solutions to accomplish a comprehensive ecosystem approach for addressing restoration and water resource opportunities in the Lower Columbia River Basin and is not limited to the tidally influenced areas but is ecosystem-wide in scope. A comprehensive, long-range approach to address water resource problems and opportunities for the Lower Columbia River is needed. Some of the key areas to be addressed in this comprehensive study include wetland/riparian habitat restoration and stream and fisheries habitat improvement. It is imperative that reversals of these impactful trends occur now before further growth causes irreparable impairment of current water uses and ecosystem functions, and while regional interest and financial support is high. This comprehensive watershed study would serve as the catalyst to bring together and implement current efforts by a number of governmental and private organizations including the NEP, six state agencies from Oregon and Washington, four Federal agencies, recreation, ports, industry, agriculture, labor, commercial fishing, environmental interests and citizens. The states of Washington and Oregon have jointly sponsored the study. The project has the potential to add up to 10,000 acres of Estuarine / Riverine emergent and forested wetland, consistent with the Lower Columbia River Estuary Partnerships Comprehensive Conservation Management Plan and Washington State recovery plans.

7 May 2009

The Fiscal Year 2009 funds are being used to continue the feasibility phase. Specific actions include continuing coordination of the Pile Structure Removal study and the Shallow Water Habitat study, elements for developing benefit metrics to fish and wildlife.

The Fiscal Year 2010 funds will be used to continue the feasibility phase. Specific actions include initiating hydraulic model development to aid in habitat site evaluation.

The estimated cost of the feasibility phase is \$6,000,000, which will be shared on a 50-50 percent basis by the Corps and the non-Federal sponsor. All or part of the non-Federal share may be in-kind services. Sponsors have provided documentation totaling \$1,261,456 of work-in-kind to date. A summary of study cost sharing is as follows:

Total Estimated Study Cost	\$6,191,000
Reconnaissance Phase (Federal)	191,000
Feasibility Phase (Federal)	3,000,000
Feasibility Phase (Non-Federal)	3,000,000

The reconnaissance study was completed in Aug 2001. The states of Oregon and Washington are jointly sponsoring the study and understand the cost sharing provisions associated with the feasibility phase of the study. The Feasibility Cost Sharing Agreement was executed 16 December 2003. The feasibility study completion date is to be determined.

7 May 2009

APPROPRIATION TITLE: Investigations, Environment, Fiscal Year 2010

Division: Northwestern

Study	Total Estimated Federal Cost	Allocation Prior to FY 2007	Allocation FY 2007	Allocation FY 2008	Allocation FY 2009	Tentative Allocation FY 2010	Additional to Complete After FY 2010
	\$	\$	\$	\$	\$	\$	\$
Puget Sound Nearshore Marine Habitat Restoration, WA Seattle District	9,673,000	2,919,000	1,527,000	1,329,000	1,434,000	400,000	TBD

The Puget Sound Nearshore study area is located along the marine shorelines and waters of Puget Sound, WA. Over the years a significant amount of estuary wetlands, marsh, river delta, and marine shoreline habitat in Puget Sound has been destroyed or degraded through development, including a 70% loss of estuarine wetlands and 60% beach degradation. The degradation has contributed to a severe reduction in the number of fish and wildlife being produced or residing in the nearshore area. Numerous Endangered Species Act (ESA) listed species use the nearshore for forage, nesting, and/or migration. These include southern resident Orca whale, marbled murrelet, stellar sea lion, sea otter, brown pelican, short-tailed albatross, Puget Sound bull trout, Puget Sound chinook, Hood Canal summer chum, and steelhead trout.

The study is identifying ways to restore nearshore habitat for fish and wildlife within the Puget Sound Basin, including all the major sub-basins - Hood Canal, South, Central and North Puget Sound, and the Straits of Georgia and Juan De Fuca. Twenty management measures, such as dike and seawall removal, beach restoration, and tidal marsh nutrient recycling, have been identified that address the fundamental causes of declining Puget Sound ecological health. This study is strongly supported by multiple local, state, and Federal agencies, and is part of an ongoing multi-agency effort to restore and improve habitat throughout Puget Sound. The Governor of the State of Washington reaffirmed this project as a priority restoration initiative for the state, including naming 11 Nearshore team members to her Puget Sound partnership and science committee, acknowledged the project's role in her "Puget Sound Action Agenda" report, and, once signed into law, provides an additional \$40M to implement Puget Sound marine protection and restoration measures during the upcoming state biennium period..

Fiscal Year 2009 funds will be used to complete investigation of physical changes which effect marine nearshore conditions since early U.S. territorial settlement and examine future scenarios of population growth and climate changes. Document significance of physical changes on ecological functions, goods and services and develop strategic priorities to begin formulating solutions. The non-federal sponsor and Corps signed an amended Feasibility Cost Share Agreement on 20-Mar-09.

Fiscal Year 2010 funds will be used to begin to formulate feasible solutions. Investigation team will formulate alternative restoration and protection plans, for \$200,000 the team will prepare technical analysis to evaluate and compare the alternative plans and for \$200,000 the team will coordinate environmental compliance with federal agencies.

A summary of study cost sharing is as follows:

Total Estimated Study Cost	\$19,223,000
Reconnaissance Phase (Federal)	123,000
Feasibility Phase (Federal)	9,550,000
Feasibility Phase (Non-Federal)	9,550,000

The reconnaissance phase was completed in December, 2000. The study is currently in the feasibility phase and the completion date is to be determined.

7 May 2009

APPROPRIATION TITLE: Investigations, Environment, Fiscal Year 2010

Division: Northwestern

Study	Total Estimated Federal Cost \$	Allocation Prior to FY 2007 \$	Allocation FY 2007 \$	Allocation FY 2008 \$	Allocation FY 2009 \$	Tentative Allocation FY 2010 \$	Additional to Complete After FY 2010 \$
Walla Walla River Watershed, OR & WA (Columbia River Basin) Walla Walla District	4,472,000	3,169,000	797,000	197,000	295,000	14,000	0

The Walla Walla River is a tributary of the Columbia River. It is located in southeastern Washington and northeastern Oregon in Walla Walla, Columbia, and Umatilla Counties. Much local interest has been focused on river uses from private irrigated agricultural, grazing and logging interests, local irrigation and soil conservation Districts, planning commissions from all three counties, Washington and Oregon Departments of Fish and Wildlife, U.S. Fish and Wildlife Service, and National Marine Fisheries Service.

The Confederated Tribes of the Umatilla Indian Reservation (CTUIR), the local sponsor, signed the Feasibility Cost Sharing Agreement in May 2002. The purpose of this study is environmental restoration. The study will concentrate on the restoration of fish habitat. One key factor that will be addressed under this study is lack of adequate instream flows for salmon, steelhead, and trout species including species listed under Endangered Species Act. Water has been diverted from the streams of this basin for many years, and is the reason historic salmon are extirpated from this watershed. This is the primary limiting factor for environmental restoration in the basin. Effort will look at five measures to restore instream flows 1) off-stream storage (dams) 2) Water exchange with the Columbia River 3) Irrigation efficiency, 4) Purchasing water rights from willing sellers and 5) Shallow aquifer recharge. This project has the potential to add 49 miles of emergent wetland and shore bottom riverine habitat restoration along the Walla Walla River. The total projected ecosystem restoration cost is estimated to be \$250,000,000.

Fiscal Year 2009 funds are being used to continue feasibility study work with the CTUIR. The estimated cost of the feasibility phase is \$7,820,000 which is to be shared on a 50-50 percent basis by Federal and non-Federal interests; with the exception of the peer review costs, \$50,000 which will be 100% federal. The CTUIR's cost-share will be paid for thru the use of work-in-kind and cash (\$488,000).

Fiscal Year 2010 funds will be used to conduct Alternative Formulation Briefing, issue draft report/Environmental Impact Statement for public review, complete Agency Technical Review and Independent External Peer Review, and submit final report to HQUSACE for policy review and approval. A summary of the cost-sharing is as follows:

Total Estimated Study Cost	\$8,357,000
Reconnaissance Phase (Federal)	537,000
Feasibility Phase (Federal)	3,935,000
Feasibility Phase (Non-Federal)	3,885,000

The reconnaissance phase was completed in 1997. The feasibility study is scheduled for completion in Fiscal Year 2010.

7 May 2009

APPROPRIATION TITLE: Investigations, Environment, Fiscal Year 2010

Division: Northwestern

Study	Total Estimated Federal Cost \$	Allocation Prior to FY 2007 \$	Allocation FY 2007 \$	Allocation FY 2008 \$	Allocation FY 2009 \$	Tentative Allocation FY 2010 \$	Additional to Complete After FY 2010 \$
Walla Walla River Watershed, OR & WA (Columbia River Basin) Walla Walla District	3,000,000	0	0	0	0	189,000	TBD

The Walla Walla River is a tributary of the Columbia River. It is located in southeastern Washington and northeastern Oregon in Walla Walla, Columbia, and Umatilla Counties. Much local interest has been focused on river uses from private irrigated agricultural, grazing and logging interests, local irrigation and soil conservation Districts, planning commissions from all three counties, Washington and Oregon Departments of Fish and Wildlife, U.S. Fish and Wildlife Service, and National Marine Fisheries Service.

The Confederated Tribes of the Umatilla Indian Reservation (CTUIR), local sponsor, signed the Feasibility Cost Sharing Agreement in May 2002. The feasibility study is scheduled for completion in Fiscal Year 2010.

Fiscal Year 2010 funds will be used to initiate the preconstruction engineering and design work (PED) with the CTUIR. The focus is on the restoration and management of a viable aquatic ecosystem within the Walla Walla River Basin. Efforts will include the initiation of project designs (P&S), additional Hazard and Toxic Waste investigations, complete real estate evaluation and continued coordination with local stakeholders. The PED estimated cost is \$4,000,000, which is to be shared on a 75-25 percent basis by Federal and non-Federal interests. A summary of the cost-sharing is as follows:

Total Estimated Preconstruction Engineering and Design Costs	\$4,000,000
Initial Federal Share	3,000,000
Initial Non-Federal Share	1,000,000

The PED completion date is to be determined.

7 May 2009



APPROPRIATION TITLE: Investigations, Environment, Fiscal Year 2010

Division: Northwestern

Study	Total Estimated Federal Cost \$	Allocation Prior to FY 2007 \$	Allocation FY 2007 \$	Allocation FY 2008 \$	Allocation FY 2009 \$	Tentative Allocation FY 2010 \$	Additional to Complete After FY 2010 \$
Willamette River Flood Plain Restoration, Oregon Portland District	2,086,000	1,393,000	400,000	83,000	57,000	240,000	0

The Willamette River is a major tributary of the Columbia River and the tenth largest river in the United States based on average annual flow. The Basin comprises an area of approximately 11,741 square miles, or about 12 percent of the state of Oregon (USGS, 1991). In February 1996, flooding occurred in the Willamette River Basin. Flood frequencies ranged from a 2- to 200-year event. Twenty-three counties were declared disaster areas. Cities suffering major damage included Portland, Tualatin, Lake Oswego, Salem, Keizer, Oregon City as well as many other communities. Damages throughout the state are estimated in excess of \$286 million dollars, including about \$40 million in housing losses, \$30 million in business losses, \$28 million in agricultural losses, and \$188 million in local government facility losses. The existing Willamette reservoir system only controls about 27 percent of the basin runoff. The 1996 flood emphasizes a need for additional flood damage reduction measures within the Willamette Basin. Traditional measures, such as large storage projects, are no longer practical or environmentally feasible.

In addition to flooding, there is an important need to address ecosystem restoration. NOAA's Biological Opinion (BIOP) issued on 11 July 2008 concludes that project operations jeopardize Upper Willamette Chinook salmon and winter steelhead, listed as Threatened under Endangered Species Act. Loss of aquatic habitat due to reservoir operations and historic bank protection measures undertaken by the Corps is seen as a critical factor in decline of populations of those species. Reasonable and Prudent Alternatives (RPAs) in the BIOP call for the Corps to undertake efforts to restore degraded downstream habitat in the floodplain. USFWS' Biological Opinion includes Reasonable and Prudent Measures (RPMs) to minimize impacts for resident fish species Oregon Chub and Bull Trout. The Willamette River also does not meet Clean Water Act standards for temperature, in part due to reservoir operations. River temperatures are another limiting factor for endangered salmonids. The Corps is working cooperatively with Oregon Department of Environmental Quality to develop temperature Total Maximum Daily Loads (TMDLs) for the Willamette River. Shading associated with restored riparian forests and increased groundwater flows resulting from increased floodplain connectivity are viewed as important measures for helping reduce river temperatures. The feasibility study and potential projects resulting from it are viewed as an important vehicle for implementing such measures. The Willamette is designated as an American Heritage River (AHR). Section 202 of the Water Resources Development Act of 2000 (P.L. 106-541, 11 December 2000) authorized the Secretary of the Army to assess the water resources needs of river basins and watersheds of the United States. The Willamette River Basin was identified as one of five priority watersheds.

The recommended plan from the Feasibility Study will provide opportunities to modify existing floodplain features in the Willamette Valley to restore natural wetlands, promote ecosystem restoration, and reduce flood damages. The initial target area evaluated includes the Middle Fork and Coast Fork of the Willamette River. There is potential to restore up to 70 miles along these rivers, including riverine aquatic bed, forested wetland and riparian woodland habitat.

The Fiscal Year 2009 funds are being used to continue the Feasibility phase. Specific actions include completion of hydrographic surveys and existing condition hydraulic modeling for final river reach, composite hydraulic modeling, documentation and calibration, habitat evaluation modeling, cost effectiveness and incremental cost analysis, with-and-without HEC-RAS modeling, and selection of the recommended plan.

7 May 2009

A portion of the Fiscal Year 2010 allocation totaling \$153,000 will be used to fully fund the Feasibility phase. Specific actions include oversight and review of NEPA documents, Real Estate plan, alternatives analysis, cost analysis, design, and Feasibility Report, prepare draft Project Partnering Agreement (PPA), coordinate/participate in public outreach, and coordinate Washington Level Review. Due to the Sponsor's funding timelines for accomplishment of their portion of the study, the Feasibility Phase will not be completed until 2011. The remaining FY 10 funds totaling \$87,000 would be used to initiate the PED phase in 2011.

Total Estimated Study Cost	\$2,086,000
Reconnaissance Phase (Federal)	392,000
Feasibility Phase (Federal)	1,694,000
Feasibility Phase (Non-Federal)	1,694,000

The Feasibility Cost-Sharing Agreement was executed in January 2004. The feasibility study is scheduled for completion in June 2011.

7 May 2009

APPROPRIATION TITLE: Investigations, Environment, Fiscal Year 2010

Division: Northwestern

Study	Total Estimated Federal Cost \$	Allocation Prior to FY 2007 \$	Allocation FY 2007 \$	Allocation FY 2008 \$	Allocation FY 2009 \$	Tentative Allocation FY 2010 \$	Additional After FY 2010 \$
Yellowstone River Corridor, Montana Omaha District	4,759,000	1,135,000	1,100,000	313,000	430,000	200,000	TBD

A comprehensive study of the Yellowstone River corridor from Gardiner, Montana, to the confluence of the Missouri River to determine the hydrologic, biological and socioeconomic cumulative impacts as authorized by Section 431 of Water Resources Development Act of 1999. The Yellowstone River corridor, defined linearly as approximately 600 river miles in Montana and North Dakota and laterally from the channel as the upper riverine terrace formed from historic fluvial processes, has been subject to natural and human interactive factors affecting sustainable use and conservation of resources. Flooding in 1996 and 1997 caused damage to private landowners and public facilities with a subsequent increase in requests for regulatory approvals under Section 10 of the Rivers and Harbors Act/Section 404 of the Clean Water Act as well as for Corps of Engineers emergency technical assistance. Given the natural and historic heritage of this river corridor, issues regarding the long-term effects of bank stabilization and the potential for significant adverse cumulative impacts have been raised by public and private sector and environmental interests. In contrast, issues regarding an individuals right to protect personal property and more local control of floodplain/riverine activities have been evident from the landowner and local government interest groups. The primary goal of this study is to develop a set of publicly supported river corridor management recommendations that address effects of channel modifications on the human community and riparian ecosystem along the Yellowstone River corridor. The corridor study will be used to 1) develop the formulation of management and protection objectives; 2) evaluate trade-offs among objectives; 3) assess environmental impacts as a factor in determining the acceptability of management objectives as contrasted with potential long-term riparian deterioration.

A related Upper Yellowstone River Study was directed by the FY 99 Energy and Water Development Appropriation Bill, Senate Report 105-206. This special area management plan study from Gardiner to Springdale, MT, a reach of about 85 miles, is assessing the long-term effects of streambank stabilization on that reach of the river. The Yellowstone River Corridor Study will incorporate results from the ongoing Upper Yellowstone River technical studies. The Upper Yellowstone Study should be finalized prior to completion of the entire corridor study.

The remaining 515 miles of the corridor will be subdivided into representative river reaches (totaling approximately 250 miles), which will be studied in detail. The sub-reaches will be based on hydrogeomorphic characteristics and comparative analyses of altered vs. unaltered reaches will be conducted. These comparison studies will form the basis for analyzing the cumulative effect of past, present, and potential future land use changes. The cumulative effects analysis will form the basis for formulation of management and protection objectives in concert with the local public/private sector interest groups. The Yellowstone Corridor Study has strong potential to lead into future ecosystem restoration projects and sustainable flood damage reduction projects that could be pursued under existing Corps authorities.

The Feasibility Cost Sharing Agreement (FCSA) was signed in January 2004. The local sponsor is Custer County Conservation District, the fiscal agent for the Yellowstone River Conservation District Council (YRCDR). The sponsor has provided \$1,000,000 in in-kind services through Fiscal Year 2008.

7 May 2009

Fiscal Year 2009 funds are being used to continue the feasibility study. The funds requested for Fiscal Year 2010 will be used to continue the feasibility phase of the study. The preliminary estimated cost of the feasibility phase is \$5,800,000, which is to be shared on a 75-25 percent basis by Federal and non-Federal interests. All of part of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	\$ 6,209,000
Reconnaissance Phase (Federal)	409,000
Feasibility Phase (Federal)	4,350,000
Feasibility Phase (Non-Federal)	1,450,000

In accordance with Section 431 of P.L. 106-53, this study is to be performed in consultation with the United States Fish and Wildlife Service (USFWS), United States Geological Survey (USGS), Natural Resources Conservation Services (NRCS) and with full participation of the State of Montana, and the tribal and local entities, and provide for public participation. Funding for the consultation efforts of the USFWS and NRCS during the study should be obtained by each respective agency.

The reconnaissance phase was completed in January 2004. The feasibility study completion date is to be determined.

7 May 2009

# CONSTRUCTION

APPROPRIATION TITLE: Construction, Environment, Fiscal Year 2010

PROJECT: Chief Joseph Dam Dissolved Gas Abatement, Washington (Continuing)

LOCATION: Chief Joseph Dam is located on the Columbia River, 545 miles upstream of the mouth, 51 miles downstream of Grand Coulee Dam, 1-1/2 miles upstream from the town of Bridgeport, Washington, between Douglas and Okanogan Counties.

DESCRIPTION: The project will add flow deflectors to the spillway and implement operational changes, such as spill patterns and volumes to reduce dissolved gas levels. The flow deflectors will reduce total dissolved gas (TDG) for a given spill volume. Work was initiated in response to the 2000 NMFS Biological Opinion (BiOp) on the Federal Columbia River Power System (FCRPS) operations which states: "The Corps shall continue to develop and construct spillway deflectors at Chief Joseph Dam by 2004 to minimize total dissolved gas levels associated with system spill." Completion of this work was carried over into the 2004 BiOp for the FCRPS.

AUTHORIZATION: 1946 River and Harbor Act and the 1958 Fish and Wildlife Coordination Act.

REMAINING BENEFIT - REMAINING COST RATIO: Not applicable. Environmental restoration costs are not subject to formal benefit calculations.

TOTAL BENEFIT – COST RATIO: NA

INITIAL BENEFIT-COST RATIO: NA

BASIS OF BENEFIT – COST RATIO: NA

SUMMARIZED FINANCIAL DATA:

		Accumulate Percent of Estimated Federal Cost	Status (1 Jan 2009)	Percent Complete	Physical Completion Schedule
Estimated Federal Cost	\$28,298,020		Entire Project	40%	To be determined
Estimated Non-Federal Cost	\$0				
Cash Contributions					
Other Costs					
Total Estimated Project Cost	\$28,298,020				

Division: Northwestern

District: Seattle

Chief Joseph Dam Dissolved Gas Abatement, Washington

7 May 2009

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SUMMARIZED FINANCIAL DATA:

		Accumulate Percent of Estimated Federal Cost	Status (1 Jan 2009)	Percent Complete	Physical Completion Schedule
Allocations to 30 September 2006	\$ 10,933,020				
Allocation for FY 2007	8,163,000				
Allocation for FY 2008	4,952,000				
Allocation for FY 2009	2,871,000				
Allocations through FY 2009	26,919,020	95%			
Allocation requested for FY 2010	1,000,000	99%			
Programmed Balance to Complete after FY 2010	TBD				
Unprogrammed Balance to Complete after FY 2010	0				

PHYSICAL DATA:

Existing Project - Concrete gravity dam 240 feet high  
Powerhouse has 27 generators

Reservoir Capacity –  
Gross capacity, 593,000 acre-feet  
Power pondage, 38,800 acre-feet

Power Installation	Power Plant Nameplate Capacity Rating	Power Plant Maximum Capacity Rating
Original Units 1-16	1,024,000 KW	N/A
Additional 11 units	1,045,000 KW	1,201,750 KW
Uprate Units 1-16	204,160 KW	1,412,384 KW
Total Units 1-27	2,273,160 KW	2,614,134 KW (Maximum power plant output is limited to 2,525,000 KW by hydraulic factors.)

Division: Northwestern

District: Seattle

Chief Joseph Dam Dissolved Gas Abatement, Washington

7 May 2009

**JUSTIFICATION:** In recent years, the combination of higher than average flow conditions requiring flood control spills and Endangered Species Act (ESA) efforts requiring spill for fish passage have magnified the dissolved gas supersaturation issue throughout the Columbia River system. Dissolved gas is toxic to fish, producing symptoms similar to “the bends” in humans, and can be fatal. Current state and federal water quality standards for total dissolved gas (TDG) concentrations have frequently been exceeded downstream of Chief Joseph Dam. In particular, very high levels of TDG supersaturation were observed below Chief Joseph and Grand Coulee Dams in 1996, 1997 and 2002. High levels of TDG produced at one dam tend to persist far downstream. Chief Joseph Dam is the upper boundary for the geographic range of the Upper Columbia River Evolutionary Significant Unit, where Steelhead (August 18, 1997) and Spring Chinook (March 16, 1999) have been listed as endangered. The construction of deflectors on the dam spillway monoliths in tandem with system operational changes for spill is expected to solve the problem.

**FISCAL YEAR 2009:** Funds are being applied as follows:

Conducting the final spill test for evaluation of the spillway deflectors	\$271,000
Construct tailwater surface seal joint on all 19 monolith joints	\$2,600,000
	\$2,871,000

**FISCAL YEAR 2010:** The requested amount will be applied as follows:

Complete surge avoidance testing and develop spillway operating plan	\$205,000
Resolve spray issues on the right and left banks	\$100,000
Conduct a post deflector construction topographic survey of the stilling basin and tailrace and complete the uplift after-action report	\$20,000
Complete the design documentation report	\$190,000
Remove stilling basin debris resulting from deflectors	\$485,000
	\$1,000,000

**NON-FEDERAL COST:** This project is a part of the Federal Columbia River Power System. Bonneville Power Administration (BPA), the Pacific Northwest Federal power marketing agency, is required to establish system rate levels adequate to recover all capital investment costs for Federal generating projects (including Corps generating projects) within a 50-year period and to repay annual OM&R and interest expenses. Costs allocated to power are reimbursable. BPA submits annual financial statements to Congress on repayment status and periodically recommends rate adjustments for meeting repayment obligations.

**STATUS OF LOCAL COOPERATION:** None required. Chief Joseph Dam is an operational Federal project with no local sponsorship. The dissolved gas abatement work is supported by the downstream power producing agencies, the Regional Fish Managers, the System Configuration Team, and other public and private resource organizations.

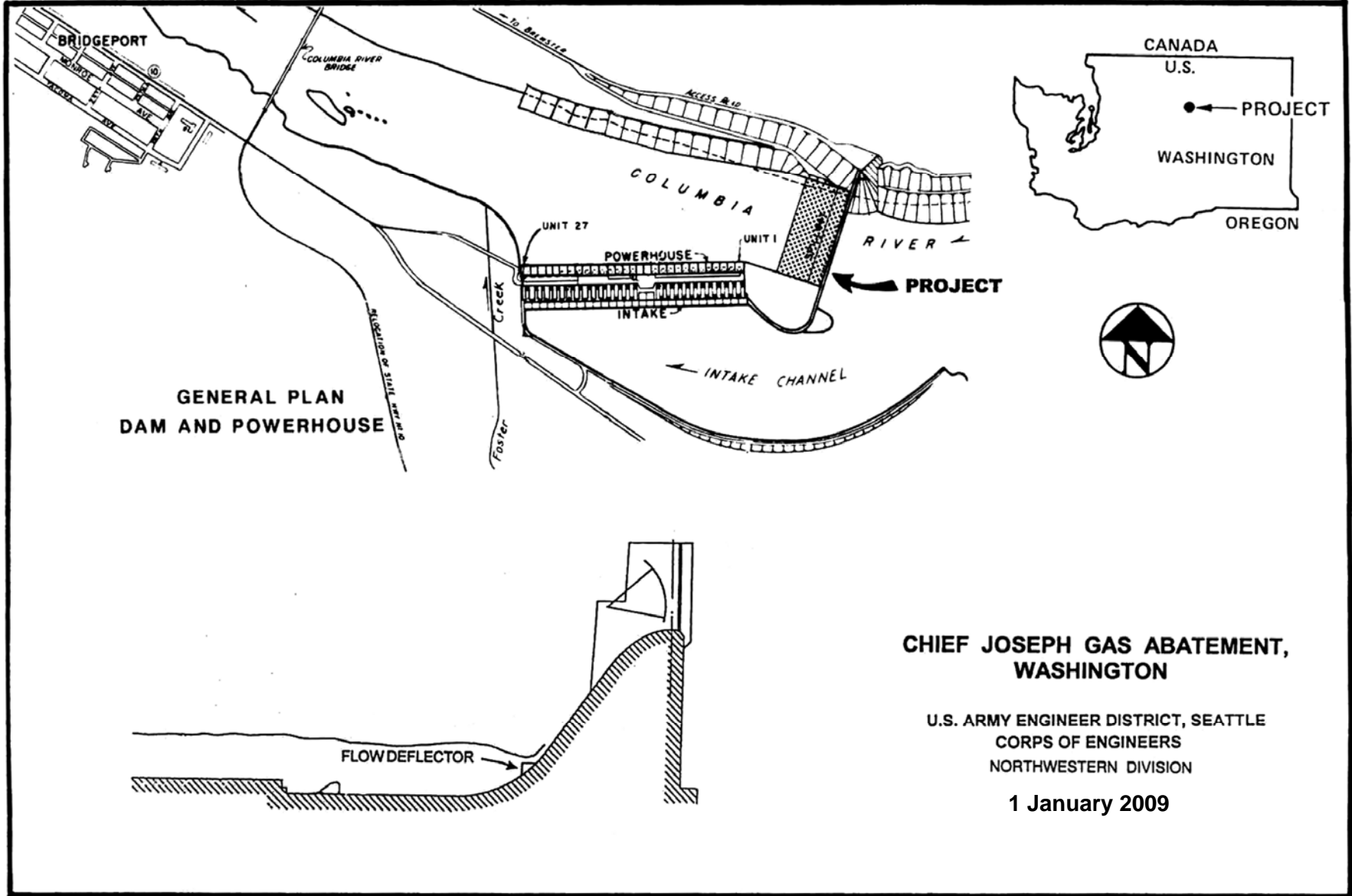
**COMPARISON OF FEDERAL COST ESTIMATE:** The current Federal cost estimate of \$26,548,020 is a reduction of \$6,351,980 from the last estimate presented to Congress (FY2004) due to construction costs being less than originally estimated.



STATUS OF ENVIRONMENTAL IMPACT STATEMENT: An Environmental Impact Statement for the original project was filed with the Council of Environmental Quality on 2 February 1972. A Supplemental Environmental Impact Statement for the additional units was filed on 17 July 1975. Environmental restoration is generally identified by existing Environmental Impact Statements. An EA/FONSI has been completed for the gas abatement project and was signed on 5 December 2000, along with a Planning Aid Letter from USFWS. Additional environmental documentation pursuant to NEPA will be accomplished as necessary to cover the construction of the spillway flow deflectors.

OTHER INFORMATION: \$1,440,000 in O&M funds were expended from FY 1998 through FY 2000 to investigate alternatives to lower the Total Dissolved Gasses, and to prepare the General Reevaluation Report which was approved on 12 September 2000. These costs are not part of the project.

The project is listed as "Action 136" in the NMFS 2000 Biological Opinion and was reviewed in the 3-year checkpoint evaluation of the Biological-Opinion in 2003.



APPROPRIATION TITLE: Construction, Environment, Fiscal Year 2010

PROJECT: Columbia River Fish Mitigation, Washington, Oregon, & Idaho (Continuing)

LOCATION: Lower Columbia, Snake, and Willamette Rivers.

DESCRIPTION: The mitigation consists of: (1) Adult and juvenile fish bypass improvements at Lower Granite, Little Goose, Lower Monumental, and Ice Harbor on the Snake River; McNary, John Day, The Dalles, and Bonneville on the Columbia River, avian predation controls, and salmon survival research and development in the Lower Columbia River estuary and near-ocean environments, (2) A mitigation analysis, prepared in cooperation with regional interests, to evaluate additional measures to increase fish survival in the Columbia and Snake Rivers. The mitigation analysis provides the analytical process for consideration and implementation of Federal actions necessary to support regional initiatives and Federal salmon and resident fish Endangered Species Act (ESA) requirements. (3) Beginning in FY2008, evaluations, design and construction of measures to address the impacts on ESA-listed species of salmon and steelhead of construction and operation of 13 dams on the Willamette River. (4) Increased efforts to improve juvenile and adult pacific lamprey passage to boost recovery and avoid additional ESA listings will be initiated in FY 2009.

AUTHORIZATION: 1933 Federal Emergency Administration of Public Works; 1935, 1945 and 1950 River and Harbor Acts; 1937 Bonneville Project Act; 1938, 1948, 1950 and 1954 Flood Control Acts; WRDA 1986, Section 906(b)(1); WRDA 1996, Section 511, as amended by WRDA 1999, Sec.582 and WRDA 2007, Sec. 5025.

REMAINING BENEFIT-REMAINING COST RATIO: Not applicable. Mitigation is incrementally justified through consideration of costs and non-monetary and monetary benefits; accordingly, a benefit-cost ratio is not computed.

TOTAL BENEFIT-COST RATIO: Not applicable

INITIAL BENEFIT-COST RATIO: Not applicable

BASIS OF BENEFIT-COST RATIO: Not applicable

SUMMARIZED FINANCIAL DATA		ACCUM %	STATUS	PERCENT	COMPLETION
		OF EST	(1 Jan 09)	COMPLETE	SCHEDULE
Estimated Appropriation Requirement (Corps of Engineers)	\$ 2,100,000,000	FED COST	Entire Project	60%	2023
Estimated Other Federal Costs (Bonneville Power Administration)	\$9,670,000				
Total Initial Federal Cost	\$2,109,670,000				
Future Non-Federal Reimbursement	\$1,719,000,000	<u>1/</u> <u>2/</u>			
Estimated Federal Cost (Ultimate)	\$381,000,000				

Division: Northwestern

District(s): Portland / Walla Walla

Columbia River Fish Mitigation,  
Washington, Oregon, & Idaho

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SUMMARIZED FINANCIAL DATA (Continued)

Estimated Non Federal Cost	\$1,719,000,000	
Cash Contributions	0	
Other Costs	0	
Reimbursements, Power	\$1,719,000,000	
Total Estimated Project Cost	\$2,109,670,000	
Allocations thru 30 September 2006	\$1,085,470,000	
Allocation for FY 2007	\$95,000,000	
Allocation for FY 2008	\$82,164,000	
Allocation for FY 2009	\$83,256,000	
Allocations thru FY 2009	\$1,345,890,702	64%
Allocation Requested for FY 2010	\$95,800,000	69%
Programmed Balance to Complete after FY 2010	TBD	
Unprogrammed Balance to Complete after FY 2010	TBD	

1/ Allocation for actual reimbursement by the Bonneville Power Administration is made as each element is placed in service.

2/ Includes an estimate of the non-Federal share for Willamette program, based on preliminary cost estimate and potential project locations and actions. Will be updated following feasibility evaluations and actual implementation decisions and costs.

PHYSICAL DATA

Lower Granite Lock & Dam

- Juvenile fish bypass system
- Extended length screens
- Juvenile fish transport facilities
- Barge moorage
- Fish transport barges
- Spillway flow deflectors
- Removable spillway weir
- Juvenile passage monitoring facilities
- Adult fish ladders
- Adult passage monitoring facilities

McNary Lock & Dam

- Juvenile fish bypass system
- Extended length screens
- Juvenile fish transport facilities
- Juvenile passage monitoring facilities
- Spillway flow deflectors
- Spillway surface bypass weirs
- Adult fish ladders
- Adult passage monitoring facilities

Bonneville Lock and Dam

- Juvenile fish bypass system
- Independent station service
- Juvenile fish monitoring facilities
- Corner collector surface bypass
- Spillway flow deflectors
- Sea lion barriers
- Adult fish ladders
- Adult passage laboratory
- Adult passage monitoring facilities
- Lamprey passage facilities
- Forebay guidance curtain

Division: Northwestern

District(s): Portland / Walla Walla

Columbia River Fish Mitigation,  
Washington, Oregon, & Idaho

7 May 2009

PHYSICAL DATA (Continued)

Little Goose Lock & Dam

Juvenile fish bypass system  
Extended length screens  
Spillway flow deflectors  
Spillway surface bypass weir  
Juvenile fish transport facilities  
Adult fish ladders

Lower Monumental Lock & Dam

Juvenile fish bypass system  
Juvenile fish transport facilities  
Spillway flow deflectors  
Removable spillway weir  
Juvenile passage monitoring facilities  
Adult fish ladders

Ice Harbor Lock & Dam

Juvenile fish bypass system  
Spillway flow deflectors  
Removable spillway weir  
Juvenile passage monitoring facilities  
Adult fish ladders

John Day Lock & Dam

Juvenile fish bypass system  
Juvenile passage monitoring facilities  
Spillway flow deflectors  
Spillway surface bypass weirs  
Adult fish ladders  
Mitigation hatcheries

The Dalles Lock & Dam

Tailrace spill wall  
Spillway improvements  
Sluiceway passage  
Adult fish ladders

Lower Columbia River estuary

Avian Predation Reduction  
Estuary Studies

Mitigation Analysis

Gas abatement  
Adult passage  
Turbine Passage  
Project passage efficiency and survival studies  
Prototype facility studies  
Delayed & multiple bypass mortality studies  
Temperature impacts

Willamette Valley Projects

Evaluations (Mitigation Analysis)  
Adult trap and hold facilities  
Temperature control facilities  
Juvenile passage facilities

JUSTIFICATION: Columbia River Fish Mitigation provides mitigation for the impact of Corps' dams on migrating salmon. Completed and scheduled mitigation measures are based on analyses completed to date. Mitigation measures are being considered as a result of the Northwest Power Planning Council's regional rebuilding efforts for upriver salmon stocks, the National Marine Fisheries Service (NMFS) listing of salmon as threatened/endangered, the NMFS Biological Opinions (BiOp) on operation of the Federal Columbia River Power System (FCRPS) issued 1995, 1998, 2000, 2004 and 2008, the 2008 Columbia Basin Fish Accords, and the 2008 USFWS and NMFS Willamette River Basin BiOp. The current scope of this project has been adjusted to be in accord with biological opinions. The Mitigation Analysis, begun in FY 1991, is contributing to a regionally cooperative process for analyzing potential new measures.

In response to Section 582 of WRDA 1999 and in recognition of the effects of the hydropower system operations on the Columbia River estuary and concomitant impacts on salmonids, efforts began in FY 2001 to address habitat and avian predation issues in the estuary. In FY2008, under the authority of Section 906b of WRDA 1986, the Corps initiated actions to relocate a portion of the Caspian Tern colony in the estuary to reduce predation on migrating juvenile salmonids.

Division: Northwestern

District(s): Portland / Walla Walla

Columbia River Fish Mitigation,  
Washington, Oregon, & Idaho

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In response to ongoing ESA consultation, the Corps proposed to initiate a study to identify impacts, and identify and recommend appropriate structural modifications in the Willamette River Basin to address impacts on listed species resulting from the operation of the 13 dams in the basin beginning in FY2008. A BiOp was issued by NMFS and USFWS in July 2008.

As a result of the May 2008 Columbia Basin Fish Accords, increased efforts to investigate and improve juvenile and adult Pacific lamprey passage and survival will be initiated in FY2009.

FISCAL YEAR 2009: Funds are being applied to address the highest priority actions to comply with the NMFS 2008 BiOp requirements for the FCRPS, the NMFS and USFWS 2008 BiOp for the Willamette River Basin, and the 2008 Columbia Basin Fish Accords. Current execution plans are for funds to be applied on major measures as follows:

Lower Granite	\$775,000	John Day	\$7,725,000
Juvenile bypass facility improvements		Surface bypass	
RSW corrective actions		Adult ladder improvements	
Configuration and Operations Plan			
Little Goose	\$ 5,970,000	The Dalles	\$27,200,000
Surface bypass weir		Spill wall construction	
Juvenile PIT Monitoring		Emergency adult ladder aux water supply	
Spillway deflectors			
Outfall relocation			
Lower Monumental	\$6,300,000	Bonneville	\$ 3,550,000
Outfall relocation		B2 guidance curtain	
Removable spillway weir		B1 surface bypass chain gate	
		Spillway improvements	
		B2 corner collector hoist	
Ice Harbor	\$ 665,000	Lower Columbia River Estuary	\$ 6,370,000
RSW corrective actions		Avian predation reduction	
Configuration and Operations Plan		Estuary Studies	
Spillway chute/deflector modification			

Division: Northwestern

District(s): Portland / Walla Walla

Columbia River Fish Mitigation,  
Washington, Oregon, & Idaho

7 May 2009

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McNary	\$ 8,100,000	Mitigation Analysis	\$12,601,000
Surface bypass		Lamprey passage improvement development,	
Outfall relocation		Tagging studies, Fall Chinook studies,	
Configuration and Operations Plan		PIT tag recovery, Post –FCRPS survival study,	
		Adult passage and survival studies,	
		Delayed mortality, Turbine passage survival	
Willamette Valley Projects	\$ 4,000,000		=====
Mitigation analysis			
Trap and haul facilities			
Fish release sites			
		Total	\$ 83,256,000

FISCAL YEAR 2010: The requested amount will be applied to address the highest priority actions to comply with the NMFS 2008 BiOp requirements for the FCRPS, the NMFS and USFWS 2008 BiOp for the Willamette River Basin, and the 2008 Columbia Basin Fish Accords. Current execution plans are for funds to be applied on major measures as follows (Specific amounts are tentative. See "Other Information" below):

Lower Granite	\$5,050,000	John Day	\$14,250,000
Bypass improvements		Surface bypass	
		Adult ladder improvements	
Little Goose	\$ 4,100,000	The Dalles	\$22,000,000
Surface bypass weir		Emergency adult ladder aux water supply	
Divider wall		Spill wall construction	
Configuration and Operations Plan			
Lower Monumental	\$2,800,000	Bonneville	\$ 4,650,000
Outfall relocation		B2 guidance curtain	
Removable spillway weir		Spillway improvements	
Ice Harbor	\$ 438,000	Lower Columbia River Estuary	\$ 4,985,000
Unit 2 Replacement		Estuary Studies	
Spillway chute/deflector modification			

Division: Northwestern

District(s): Portland / Walla Walla

Columbia River Fish Mitigation,  
Washington, Oregon, & Idaho

7 May 2009

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McNary	\$ 11,500,000	Mitigation Analysis	\$18,027,000
Surface bypass		Lamprey passage improvement development,	
Outfall relocation		Tagging studies, Fall Chinook studies,	
		Adult passage and survival studies	
Willamette Valley Projects	\$ 8,000,000	Delayed mortality, Turbine passage survival	
Mitigation analysis		PIT tag recovery, Post –FCRPS survival study	=====
Trap and haul facilities			
Fish release sites			
			Total \$ 95,800,000

NON-FEDERAL COST: Costs eventually determined to be allocable to power are reimbursable. The dams being modified and analyzed are a part of the Federal Columbia River Power System (FCRPS). Bonneville Power Administration (BPA), the Federal Power Marketing Agency, establishes system rate levels adequate to recover all capital investment costs for generating projects (including Corps generating projects) within a 50-year period and to repay annual OM&R and interest expenses. BPA submits an annual financial statement to Congress, as required by law, on repayment and periodically recommends rate adjustments as required for meeting repayment obligations.

STATUS OF LOCAL COOPERATION: None required.

COMPARISON OF FEDERAL COST ESTIMATE: The current Federal cost estimate of \$2,100,000,000 represents a \$500,000,000 increase from the last estimate presented to Congress (FY2009). This increase is a result of requirements in the 2008 FCRPS Biological Opinion, the 2008 Willamette River Basin Biological Opinion, and the Columbia Basin Fish Accords.

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: Mitigation construction may be covered by existing environmental impact statements. Additional Environmental documentation pursuant to NEPA will be accomplished as necessary. Consultations with the National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS) will be held and biological assessments prepared as necessary to conform with requirements of NEPA and of the Endangered Species Act (ESA).

OTHER INFORMATION: Funds to initiate construction were appropriated in Fiscal Year 1988.

Potential Changes: Salmon rebuilding initiatives for Corps implementation have been adopted by the Northwest Power Planning Council (Council) as part of the amended Columbia River Basin Fish and Wildlife Program and are established through ESA consultation and documented in the NMFS and USFWS Biological Opinions. In response to the biological opinions, the Corps has developed and continues to update implementation plans. The Council, NMFS and USFWS emphasize adaptive management – incorporating changes based on new research, monitoring and regional prioritization decisions. This adaptive management approach is regionally recognized and accepted.

Division: Northwestern

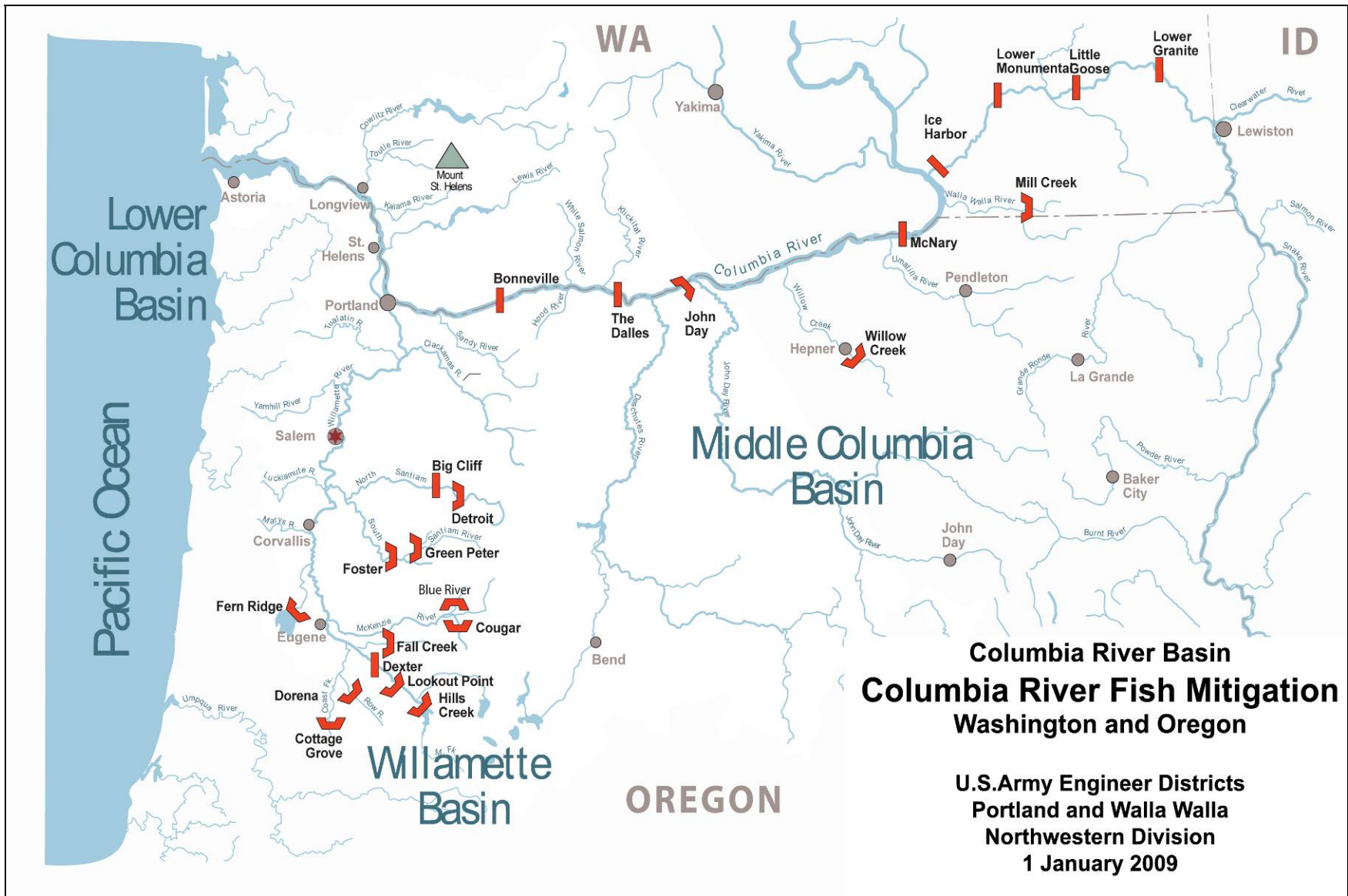
District(s): Portland / Walla Walla

Columbia River Fish Mitigation,  
Washington, Oregon, & Idaho

7 May 2009

NWD-67





APPROPRIATION TITLE: Construction, Environment, Fiscal Year 2010

PROJECT: Duwamish and Green River Basin, WA (Continuing)

LOCATION: The project is located in the Duwamish/Green River Basin, in King County in the Puget Sound Basin in northwestern Washington State.

DESCRIPTION: The Duwamish/Green project will provide substantial ecosystem restoration over 1,900 acres of habitat that will be a major step in restoring the 492 square mile basin, which includes construction at 45 ecosystem restoration sites throughout the entire Duwamish/Green River Basin. The sites range from providing habitat from Elliott Bay in Puget Sound at the lower end of the basin to culvert replacement features high up in the Cascade Mountains. This project would add significant habitat for three Endangered Species Act (ESA) listed species, Bull Trout, Stealhead Trout and Chinook salmon. Habitat improvements will occur over 200 miles of river and streams and create 1900 acres of new habitat. Features include providing wood and gravel for fish habitat in the middle Green; and levee removals to open up adjacent flood plains, stream restoration, reconnection of abandoned side channels and other items throughout the entire basin. Post construction monitoring between 2 and 10 years has been approved for individual sites to insure project is achieving desired environmental outputs. This project is an integral part of the WIRA 9 recovery plan and the Regional Recovery Plan.

AUTHORIZATION: Section 101 (b) (26) of the Water Resources Development Act of 2000

REMAINING BENEFIT - REMAINING COST RATIO: Not applicable.

TOTAL BENEFIT – COST RATIO: Not applicable.

BASIS OF BENEFIT – COST RATIO: Not applicable.

SUMMARIZED FINANCIAL DATA:

		Accumulate Percent of Estimated Federal Cost	Status (1 Jan 2009) Entire Project	Percent Complete	Physical Completion Schedule
Estimated Federal Cost	\$142,885,676			3%	TBD
Estimated Non-Federal Cost	68,517,000				
Cash Contributions	3,300,000				
Other Costs	65,217,000				
Total Estimated Project Cost	\$211,202,676				
Allocations to 30 September 2006	\$ 3,265,000				

Division: Northwestern

District: Seattle

Duwamish/Green, Washington

7 May 2009

		Accumulate Percent of Estimated Federal Cost	Status (1 Jan 2009)	Percent Complete	Physical Completion Schedule
Allocation for FY 2007	950,000				
Allocation for FY 2008	1,626,000				
Allocation for FY 2009	1,914,000				
Allocations through FY 2009	7,755,000	5%			
Allocation requested for FY 2010	2,600,000	7%			
Programmed Balance to Complete after FY 2010	TBD				
Unprogrammed Balance to Complete after FY 2010	0				

PHYSICAL DATA: Not applicable

JUSTIFICATION: The Green Duwamish Ecosystem Restoration project is critical to restoring habitat for the Chinook salmon and Bull Trout before the issue of their survival becomes even more critical. The Chinook Salmon is the Icon of the Pacific Northwest and the local communities have pledged funding and resources to insure that these beautiful fish remain in our streams and rivers. Original estimate for the restoration of the basin would take 10 years to complete the \$195 million project. The Duwamish/ Green have been designated as one of 12 National Stream Corridor Restoration Showcases. The proposed restoration focuses on improving the overall health of the Duwamish/Green River Basin to over 200 miles of river and streams and 1900 acres of new habitat, enhancing and restoring fish and wildlife while maintaining existing flood protection within the basin. Of special interest are the habitat needs of the listed endangered species Chinook salmon and bull trout. Potential projects were proposed and screened by the Watershed Restoration Group, composed of the local sponsor, stakeholders, scientists, and Corps officials. Projects were scored according to an environmental evaluation criteria: 1) effectiveness of project in addressing one or more limiting factors, including barriers to fish passage, reduction in channel forming flows, loss of channel diversity in the lower river, loss of estuarine and floodplain habitat, reduction in large woody debris, loss of sediment sources, and increase in water temperature; 2) scale, size, and effect; 3) technical and political feasibility; and 4) potential for wildlife benefits. Once potential project sites were determined, 45 sites were evaluated, which incorporated varying levels and degrees of restoration, in an incremental cost analysis. To complement the ecological criteria, local landowners and interested parties provided plan formulation input through a combination of public workshops and field trips. In these informal settings, the Corps received both verbal and written input to incorporate local needs and direction in the development of site-specific restoration criteria supportive to local goals. Assessing and incorporating the desires of stakeholders into the restoration plan will continue throughout project development. Critical restoration features will be selected for construction, maximizing the use of Federal funding, and site effectiveness and efficiencies.

Division: Northwestern

District: Seattle

Duwamish/Green, Washington

7 May 2009

NWD-70

FISCAL YEAR 2009: Funds are being applied as follows:

Award construction contract at Lake Meridian Outlet \$1,914,000

FISCAL YEAR 2010: The requested amount will be applied as follows:

Award construction contract at Big Spring Creek \$2,600,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below:

	Payments During Construction	Annual Operation, Maintenance, and Replacement Costs
Provide lands, easements, rights of way, and relocations	\$ 65,217,000	
Pay 35% of the costs allocated to fish and wildlife enhancement, and pay 100% of the costs of operation, maintenance, repair, rehabilitation, and replacement of fish and wildlife facilities.	3,300,000	TBD
Total Non-Federal Costs	\$68,517,000	TBD

STATUS OF LOCAL COOPERATION: The primary local sponsor of this project has been King County with the full support of local cities; the Muckleshoot Tribe; the Suquamish Tribe; state and local agencies; and Trout Unlimited. The project was developed by a team consisting of the Corps of Engineers; King County; 16 municipal cities; other local, state, and federal resource agencies; the Muckleshoot Tribe; the Suquamish Tribe; and other special interest groups and interested parties. The primary local sponsor and others have been involved throughout the development of the project. The first Project Cooperation Agreement (PCA) was signed by the City of Kent in November 2004 for the Meridian Valley Project. A second PCA was signed 10 August 2006 by the City of Kent for the Lake Meridian Outlet Project.

COMPARISON OF FEDERAL COST ESTIMATE: The current Federal cost estimate of \$142,885,676 is the initial estimate presented to Congress (FY 2010).

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Programmatic Environmental Impact Statement was completed in December 2000.

OTHER INFORMATION: The Feasibility Study was initiated in 1998 and completed in November 2000. The Chief of Engineer's report was signed on 29 December 2000. Funds to initiate preconstruction engineering and design were appropriated in FY2001. Construction funding was appropriated in FY2004.

The project will restore high quality habitat that has been lost. Several of the Puget Sound salmon species have recently been listed under the Endangered Species Act. The project will provide a major component for habitat restoration in the Duwamish/Green River Basin needed to stem further declines and to begin the rebuilding of salmon habitat. The project will complement other local, state, and federal programs for salmon recovery in the Puget Sound Basin.

Division: Northwestern

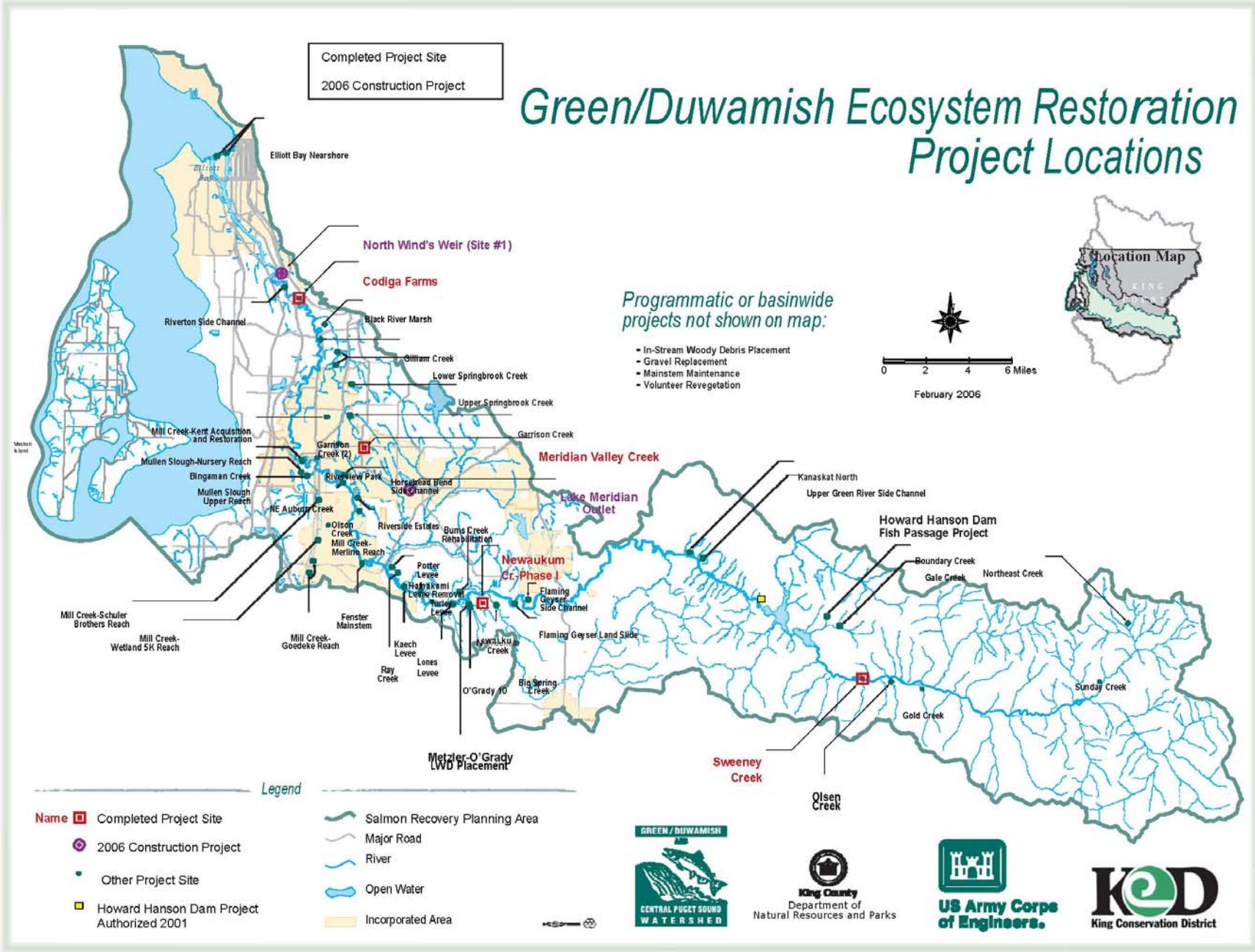
District: Seattle

Duwamish/Green, Washington

7 May 2009

NWD-71

# Green/Duwamish Ecosystem Restoration Project Locations



APPROPRIATION TITLE: Construction, Environment & Water Supply, Fiscal Year 2010

PROJECT: Howard Hanson Dam, Ecosystem Restoration and Additional Water Supply, Washington – (Continuing)

LOCATION: Howard Hanson Dam is located on the Green River, in King County, 23 miles upstream and east of Auburn, WA and about 40 miles southeast of Seattle WA in western Washington.

DESCRIPTION: The project will add ecosystem restoration and municipal and industrial (M&I) water supply to the existing flood control project and will meet Endangered Species Act (ESA) requirements necessitated by the listing of the Puget Sound Chinook Salmon and Steelhead. Phase I of the project will consist of construction of a new full height fish passage facility, reconnection of side channels, downstream gravel nourishment, planting of sedge meadows, and placement of large woody debris at multiple locations. Phase I also includes raising the summer conservation pool 20 feet (from elevation 1,147 feet to elevation 1,167 feet) to increase storage by 20,000 ac-ft for water supply use. Water will be stored in the spring for M&I use in the summer and fall with no changes to the flood storage capacity. This feature has already been implemented. Phase II of the project will proceed with the concurrence of the sponsor, the resource agencies, and the Muckleshoot Tribe. Phase II would consist of raising the pool another 10 feet to elevation 1,177 feet to store an additional 2,400 ac-ft of M&I water, plus 9,600 ac-ft of ecosystem restoration low flow augmentation water, for a total of 32,000 additional ac-ft of storage for Phases I and II. Phase II includes additional habitat construction and raising of access roads adjacent to the dam.

AUTHORIZATION: Section 101(b) 15 of Water Resources Development Act of 1999 (PL 106-53). Flood Control Act of 1950 (PL 81-516) authorized the construction of the original Eagle Gorge Reservoir on the Green River. The project name was changed to Howard A. Hanson Dam in 1958 by P.L.85-592.

REMAINING BENEFIT - REMAINING COST RATIO: Not applicable. Environmental restoration project costs are not subject to formal benefit calculations.

TOTAL BENEFIT – COST RATIO: NA

BASIS OF BENEFIT – COST RATIO: NA

SUMMARIZED FINANCIAL DATA:

		Accumulate Percent of Estimated Federal Cost	Status (1 Jan 2009)	Percent Complete	Physical Completion Schedule
Estimated Federal Cost	\$ 99,032,000		Entire Project	55%	TBD
Estimated Non-Federal Cost	23,000,000				
Cash Contributions	19,000,000				
Other Costs	4,000,000				
Total Estimated Project Cost	\$122,032,000				

Division: Northwestern

District: Seattle

Howard Hanson Dam, Ecosystem Restoration  
and Additional Water Supply, Washington

7 May 2009

SUMMARIZED FINANCIAL DATA: (Contd)

		Accumulate Percent of Estimated Federal Cost	Status (1 Jan 2009)	Percent Complete	Physical Completion Schedule
Allocations to 30 September 2006	\$ 43,801,380				
Allocation for FY 2007	15,128,000				
Allocation for FY 2008	12,504,000				
Allocation for FY 2009	9,570,000				
Allocations through FY 2009	81,003,380	82%			
Allocation requested for FY 2010	13,000,000	95%			
Programmed Balance to Complete after FY 2010	TBD				
Unprogrammed Balance to Complete after FY 2010	0				

PHYSICAL DATA:

Dam: Type: Rolled earth and rock fill	Spillway: Type: Ogee crest with two 45' x 30' tainter gates
Height: 235 feet long	Design Capacity: 106,000 cfs
Crest: 500 feet long	Overtopping Capacity: 19,000 cfs
Width: 960 feet at base, 23 feet at crest	
Outlet Tower:	19 Ft. Tunnel:
Type: Reinforced Concrete	Capacity: 22,000 cfs open channel flow
Free standing section: 107 feet	Normal Release: 10,000 cfs
Base section: 105 feet	Length: 900 feet

JUSTIFICATION: The existing project purposes are flood control and downstream low flow augmentation. The modified project is a multi-purpose project with the additional purposes identified in WRDA 1999 as ecosystem restoration and water supply. Because of the listing of Chinook and Steelhead salmon as threatened under the ESA and a subsequent approved cost reallocation, compliance with ESA initiatives has also become a project purpose.

Division: Northwestern

District: Seattle

Howard Hanson Dam, Ecosystem Restoration  
and Additional Water Supply, Washington

7 May 2009

Restoring self-sustaining runs of anadromous fish to the upper Green River watershed is the number one priority of multi-agency ecosystem restoration planning for the Green River basin. Between 1911 and 1913, the City of Tacoma constructed a 17-foot high water supply diversion dam effectively blocking upstream migration of anadromous fish to the Upper Green River watershed. Howard Hanson Dam was constructed upstream of the diversion dam in the 1960's. The project was constructed with only low-level water conveyance outlets with no provision for fish passage, as there was no anadromous fish in the upper watershed. Recently, Section 7 consultation with the National Marine Fisheries Service (NMFS) and US Fish and Wildlife Service (USFWS) resulted in the requirement that fish passage be provided at Howard Hanson Dam and that mitigation is required for the original project. A state of the art downstream juvenile fish passage facility will be provided in Phase I of this project, to work in tandem with an adult trap and haul facility for upstream fish passage which will be provided by others. The fish passage facility, complimented by increased in-stream low flows and other proposed project fish and wildlife habitat restoration measures provide historic opportunities to restore and maintain self-sustaining runs of salmon and steelhead in the Green River. Low flow augmentation in the summer months, part of Phase II, is expected to improve spawning habitat and survival success rates downstream of the project. The phased implementation and adaptive management measures proposed for the project allow for the flexibility to make adjustments to ensure the protection and recovery of both the fish and the associated wildlife.

The availability and quality of water is an increasing concern in the South Puget Sound Region and the Seattle-Tacoma metropolitan area. Recent droughts have led to water rationing. The region's continuing growth and development and expanding population depend upon a reliable supply of water. The Project Phase I water storage is a crucial part of the regional water supply plan. The storage of additional M&I water will provide a stable, cost effective water supply for the region.

FISCAL YEAR 2009: Funds are being applied as follows:

Award electrical upgrade contract	4,000,000
Award ecosystem restoration contract	2,120,000
Award water supply components	414,000
Continue preparation of Post Authorization Change (PAC) report	500,000
Complete fish passage facility construction bid package	2,000,000
Construction management	536,000
	9,570,000

FISCAL YEAR 2010: The requested amount will be applied as follows:

Award foundation contract for fish passage facility	10,000,000
Award contract for first two lifts of concrete structure	1,500,000
Award radial and emergency gates contract	1,500,000
	13,000,000

Division: Northwestern

District: Seattle

Howard Hanson Dam, Ecosystem Restoration  
and Additional Water Supply, Washington

7 May 2009

NWD-75



NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986 as amended, the non-Federal sponsor must comply with the requirements listed below:

	Payments During Construction	Annual Operation and Maintenance Costs
Provide lands, easements, rights of way, and relocations	\$ 4,000,000	
Pay all costs allocated to municipal and industrial water supply and bear all costs of operation, maintenance, repair, rehabilitation and replacement of municipal and industrial water supply facilities.	15,300,000	\$111,000
Pay 35 % of the costs allocated to fish and wildlife enhancement, and pay 100 % of the costs of operation, maintenance, repair, rehabilitation, and replacement of fish and wildlife facilities.	3,700,000	653,000
<b>TOTAL NON-FEDERAL COSTS</b>	<b>\$23,000,000</b>	<b>\$764,000</b>

STATUS OF LOCAL COOPERATION: The non-Federal sponsor is the City of Tacoma Public Utilities who signed the project PCA in July of 2003 and is providing its full share of project funding.

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement was filed with the Environmental Protection Agency and the Record of Decision was signed on July 25, 2001.

COMPARISON OF FEDERAL COST ESTIMATE: The current Federal cost estimate of \$99,032,000 is the same as last presented to Congress (FY 2007). A post authorization change report is being prepared.

OTHER INFORMATION: Howard Hanson Dam provides flood control storage on the Green River. Downstream of the dam is the Auburn-Kent Valley with the cities of Auburn, Kent, Renton, Algona, Pacific, and Tukwila. The dam provides flood protection for residential areas, agricultural lands, and intensively developed industrial and commercial areas. The Boeing Space Center, a major defense contractor, is located in the center of the Kent Valley. The population in the flood plain exceeds 250,000.

Funds to initiate Preconstruction Engineering and Design (PED) were appropriated in FY 1998, and the PED agreement was executed with the City of Tacoma Public Utilities in March 1999. The Final Chief's Report was signed on 13 August 1999. Construction funds were first appropriated in FY 2002.

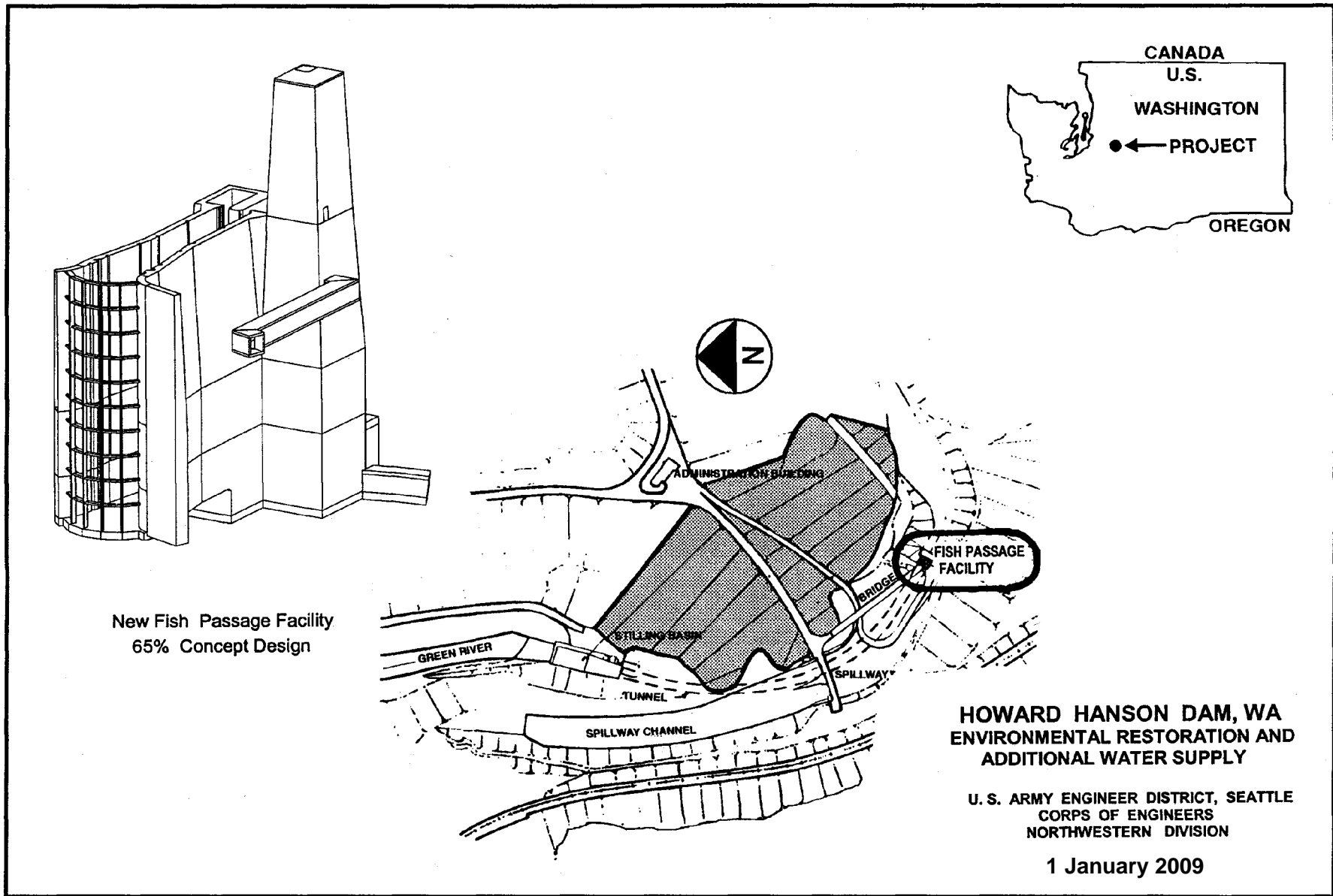
Division: Northwestern

District: Seattle

Howard Hanson Dam, Ecosystem Restoration  
and Additional Water Supply, Washington

7 May 2009

NWD-76



Division: Northwestern

District: Seattle

Howard Hanson Dam, Ecosystem Restoration  
and Additional Water Supply, Washington

7 May 2009

NWD-77

APPROPRIATION TITLE: Construction, Environment, Fiscal Year 2010

PROJECT: Lower Columbia River Ecosystem Restoration, Oregon and Washington (Continuing)

LOCATION: The Lower Columbia River extends from the mouth of the Columbia River to river mile (RM) 145 at Bonneville Lock and Dam. The river divides the states of Oregon and Washington throughout this area.

DESCRIPTION: The study areas include the estuary of the Columbia River and all of the tributaries of the Columbia River that are tidally influenced, which includes the Willamette River up to Willamette Falls. Justification for the project is based on non-monetary quantitative change in fish and wildlife habitat units and other biological benefits. Since benefits are non-monetary, a benefit-to-cost ratio has not been prepared. A comprehensive conservation and management plan was developed for the Lower Columbia River under Section 320 of the Federal Water Pollution Control Act (33 U.S.C. 1330).

AUTHORIZATION: Section 536 of the Water Resources Development Act of 2000 (P. L. 106-541, dated 11 December 2000).

REMAINING BENEFIT - REMAINING COST RATIO: N/A (Environmental restoration project costs are not subject to formal benefit calculations.)

TOTAL BENEFIT-COST RATIO: N/A

BASIS OF BENEFIT-COST RATIO: N/A

SUMMARIZED FINANCIAL DATA:

		ACCUM % OF EST FED COST	STATUS (1 Jan 2009)	PERCENT COMPLETE	COMPLETION SCHEDULE
Estimated Federal Cost	\$20,000,000		Entire Project	53%	To Be Determined
Estimated Non-Federal Cost	4,000,000				
Cash Contributions	TBD				
Total Estimated Project Cost	\$24,000,000				
Allocations to 30 September 2006	5,192,000				
Allocation for FY 2007	2,200,000				
Allocation for FY 2008	1,688,000				
Allocation for FY 2009	1,435,000				
Allocations through FY 2009	10,515,000	53%			
Allocation Requested for FY 2010	1,650,000	60%			
Programmed Balance to Complete after FY 2010	TBD				
Unprogrammed Balance to Complete after FY 2010	0				

PHYSICAL DATA:

Types of projects will include, but not be limited to:  
a) creation and restoration of shallow water habitat;  
b) restoration of wetlands;  
c) improvements to fish passage;  
d) restoration of floodplain functions and other actions to restore the estuary ecosystem

Division: Northwestern

District: Portland

Lower Columbia River Ecosystem Restoration  
Oregon and Washington

7 May 2009

NWD-78

**JUSTIFICATION:** National Oceanic and Atmospheric Administration (NOAA) Fisheries has identified the Columbia River Estuary as playing a vital role in rebuilding the productivity of Columbia River Basin salmon and steelhead listed under the Endangered Species Act. Over time, this basin has experienced considerable changes in water resource needs and uses. In addition, significant environmental degradation has occurred within the lower Columbia system. Modification of the system by human activities has led to a marked change in the hydrologic regime, and caused pollution and substantial losses of in-stream, riparian and wetland habitats, and a concomitant reduction in fish and wildlife resources. Flood control, water quality, navigation, water-related infrastructure, and ecosystem restoration needs have all been evaluated on a case-by-case basis. Thirteen stocks of anadromous salmonids that reproduce in the Columbia River Basin have been listed as threatened or endangered and they all use the estuary to some extent. Such listings have broad implications to existing water resource uses, and future developments. The 2008 Federal Columbia River Power System (FCRPS) Biological Opinion (BiOp) includes reasonable and prudent actions (RPAs) calling for planning and restoration efforts in the Columbia River estuary to help avoid jeopardy for these listed species. Historic losses of 52,000 acres of wetland/marsh habitats, 13,800 acres of riparian forest habitat and 27,000 acres of forested wetland habitat downstream of Portland have significantly impacted this ecosystem's ability to produce and sustain fish and wildlife resources. Much of this wetland loss can be attributed to the 84,000 acres encompassed by diking districts and the 20,000-acre increase in urban development that has occurred along the lower Columbia River.

The implementation of the Lower Columbia River element of this section 536 legislation will serve as the catalyst to bring together and implement current efforts by a number of governmental and private organizations including the National Estuary Program, six state agencies from Oregon and Washington, four Federal agencies, recreation, ports, industry, agriculture, labor, commercial fishing, environmental interests and citizens to identify and cost share restoration projects.

**NON-FEDERAL COSTS:** The authorization provides that studies shall be subject to cost sharing in accordance with Section 105 of WRDA 1986 and that restoration projects shall be cost shared at 35% by non-Federal interests, that nonfederal interests shall provide all lands, easements, rights-of-way, dredged material disposal areas, and relocations necessary for the projects to be carried out and that in-kind contributions can not exceed 50% of the non-Federal share. However, the Federal share of projects carried out on Federal lands shall be 100%.

**STATUS OF LOCAL COOPERATION:** Project Cooperation Agreements for individual restoration sites are prepared/executed as they are identified.

- (1) Crims Island Site: A Memorandum of Agreement was executed in May 2004 with U.S. Fish and Wildlife Service.
- (2) Columbia River Riparian Site: A Memorandum of Understanding was executed in February 2006 with U.S. Dept. of Agriculture (Forest Service).
- (3) Julia Butler Hanson Site: A Memorandum of Agreement was executed in August 2008 with U.S. Fish and Wildlife Service.
- (4) Water Resources Education Center Site: A Project Cooperation Agreement is scheduled to be executed in July 2010 with the City of Vancouver, WA.
- (5) Ramsey Lake Site: A Project Cooperation is scheduled to be executed in December 2009 with the City of Portland.
- (6) Lower Columbia Pile Structure Project: A Project Cooperation Agreement is scheduled to be executed in July 2010 with the Lower Columbia River Estuary Partnership.
- (7) Sandy River Delta Site: A Memorandum of Agreement is scheduled to be executed in October 2010 with U.S. Dept of Agriculture (Forest Service).
- (8) Washington Estuary Sites: A Memorandum of Agreement is scheduled to be executed in June 2009 with Washington State Department of Fish and Wildlife.

FISCAL YEAR 2009: Funds are being applied as follows:

Continue construction of the Julia Butler Hanson Site and planning, engineering and design of projects in pre-construction status.....\$1,435,000

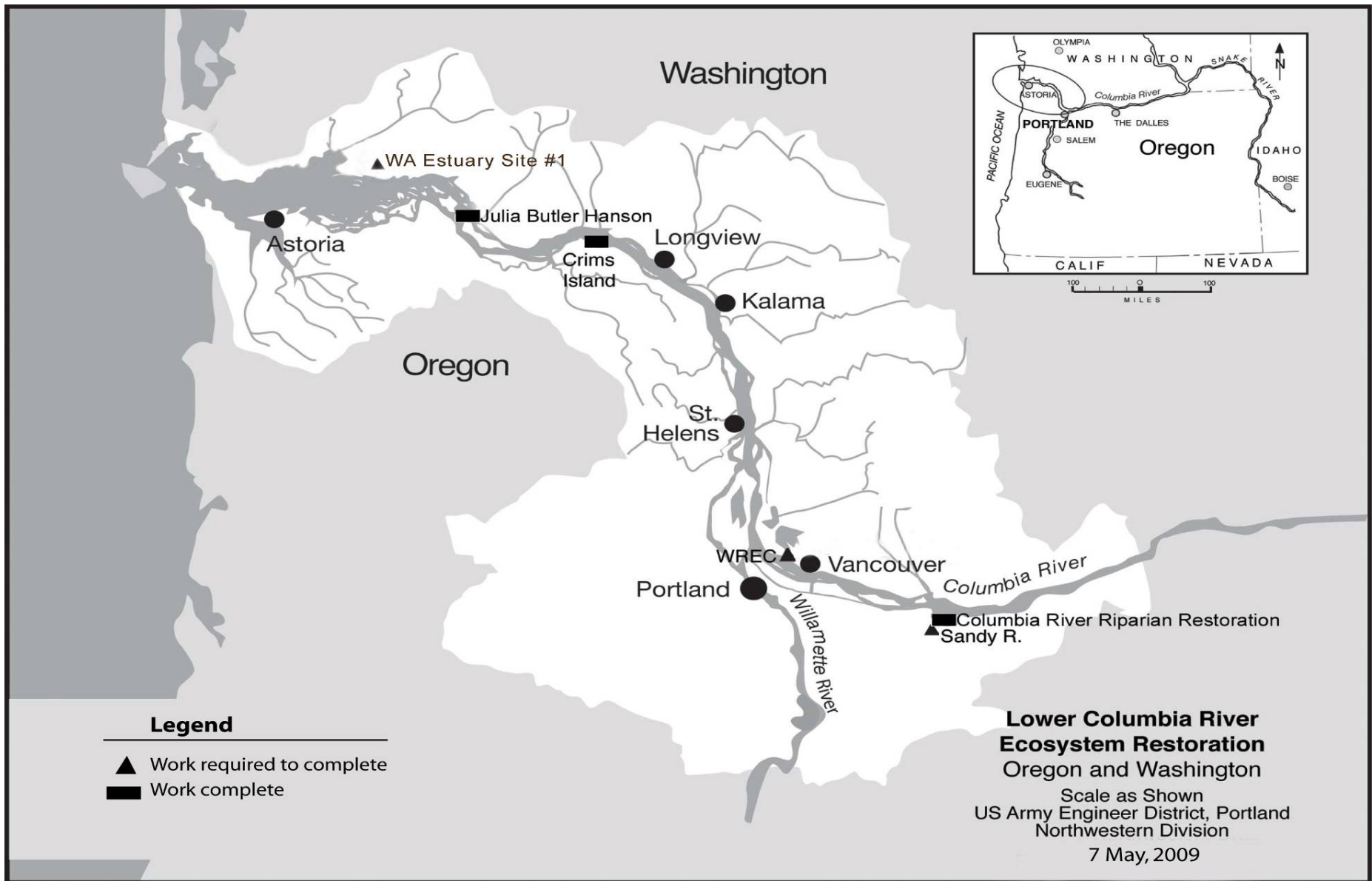
FISCAL YEAR 2010: The requested amount will be applied as follows:

Continue construction of the Julia Butler Hanson Site and planning, engineering and design of projects in pre-construction status.....\$1,650,000

COMPARISON OF FEDERAL COST ESTIMATE: The current Federal cost estimate of \$20,000,000 is unchanged from last presented to Congress (FY 2009).

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: An Environmental Impact Statement has not been prepared. NEPA documentation for individual restoration sites is prepared as they are identified.

OTHER INFORMATION: The Lower Columbia River and Tillamook Bay Ecosystem Restoration, Oregon and Washington authority (Section 536 of WRDA 2000) was created in part to help the Corps meet the needs of listed salmon and steelhead using the Columbia River estuary and is one of the primary authorities for meeting Biological Opinion (BiOp) requirements. Estuary habitat improvement continues to be an important element of the draft proposed action being discussed in the remand process to develop a new BiOp for the FCRPS. Types of projects will include, but not limited to, creation and restoration of shallow water habitat, restoration of wetlands, improvements to fish passage, and restoration of floodplain functions and other actions to restore the estuary ecosystem. Also, the Corps is undertaking a feasibility study, Lower Columbia River Ecosystem Restoration, WA & OR, with a broader geographical scope than this project, and addressing ecosystem issues in addition to salmon recovery.



APPROPRIATION TITLE: Construction – Environment, Fiscal Year 2010

PROJECT: Lower Snake River Fish and Wildlife Compensation, Washington, Oregon, Idaho, (Continuing)

LOCATION: Hatchery sites are located at McCall, Idaho, about 1,500 feet downstream from Payette Lake; Lyons Ferry, Washington, at River Mile 59 on the Snake River; Lookingglass, Oregon, about 10 miles northwest of Elgin, Oregon; Hagerman, Idaho, 10 miles west of Twin Falls, Idaho; Irrigon Hatchery, about 10 miles west of Umatilla, Oregon; Dworshak Expansion, Sawtooth Hatchery about 5 miles south of Stanley, Idaho; Magic Valley Hatchery about 4 miles north of Buhl, Idaho; and Clearwater Hatchery about 5 miles west of Orofino, Idaho. Fishing and hunting access and wildlife habitat lands will be located in Washington and Idaho. The riparian lands are located on the Snake and Columbia River Drainages from the Washington/Oregon border upstream to the confluence with the Clearwater River. This reach includes significant tributaries and their watersheds, including (but not limited to) the Walla Walla, Tucannon, Asotin, Grande Ronde, and Imnaha River basins.

DESCRIPTION: The project consists of a number of Chinook and Steelhead hatcheries that will provide 27,000,000 juvenile salmon and steelhead annually. These fish will be released in streams for migration to the Pacific Ocean. Adult salmon and steelhead resulting from these releases will provide both sport and commercial fishing opportunities with over 4 million pounds of fish going to the commercial fisheries and providing approximately 689,000 additional angler days of sport fishing. An estimated 132,000 adult fish will return to the project area of the Snake River. In addition to the anadromous fish, 93,000 pounds of trout will be reared and released in Eastern Washington which will provide 45,000 additional angler days of sport fishing. There will be an aggregate of 24,150 acres in fee or easement for fisherman access, wildlife habitat and hunting access. Additionally, a program has been implemented with Washington State Department of Game to produce the equivalent of 20,000 game birds per year for 20 years. The 1989 Letter of Agreement (LOA) entered into by the U.S. Fish and Wildlife Service (USFWS), U.S. Army Corps of Engineers (COE) and the Washington Department of Fish and Wildlife (WDFW) states that Lower Snake River Fish and Wildlife Plan mitigation, as authorized by Pub. L. 94-587 and Pub. L. 99-662, will be measured on a habitat basis instead of using “animal number replacement” as a basis for measurement. The “Special Report – Lower Snake River Fish and Wildlife Compensation, Wildlife Habitat Compensation Evaluation for the Lower Snake River Project” submitted in June 1991, concluded that, “Current habitat conditions of project lands do not contribute significantly to meeting compensation goals...” This project will restore 1,916 acres of project forbland; 3,285 acres of project woody riparian land; and 24,271 acres of project grass/shrub steppe land to pre-project conditions. Additional project restoration effort would include creation of small forested islands and shallows which would provide the additional benefit of creating substantial natural salmon spawning and rearing habitat. Consequently, significant consideration and effort will be given to protecting, preserving and perpetuating natural salmon spawning and rearing habitat which is a significant beneficiary of woody riparian lands.

AUTHORIZATION: Water Resources Development Act of 1976 as modified by the Water Resources Development Act of 1986.

REMAINING BENEFIT-REMAINING COST RATIO: Not Applicable. Mitigation is incrementally justified through consideration of costs and non-monetary benefits.

TOTAL BENEFIT-COST RATIO: Not Applicable.

INITIAL BENEFIT-COST RATIO: Not Applicable.

BASIS OF BENEFIT COST RATIO: Not Applicable.

Division: Northwestern

District: Walla Walla

Lower Snake River Fish and Wildlife Compensation,  
Washington, Oregon, Idaho

7 May 2009

NWD-82

SUMMARIZED FINANCIAL DATA

		ACCUM PCT. OF EST FED COST	STATUS: (1 Jan 09)	PERCENT COMPLETE	COMPLETION SCHEDULE
Estimated Appropriation Requirements	\$261,000,000		Entire Project	92	TBD
Future Non-Federal Reimbursement	253,307,000		Wildlife Compensation	100	Sep 2002
Estimated Federal Cost (Ultimate)	7,693,000		Fish Facility	90	TBD
Estimated Non-Federal Cost	253,530,000		Lands	100	Sep 1994
Cash Contributions	\$ 223,000				
Reimbursements	253,307,000				
Power	\$253,307,000				
Total Estimated Project Cost	261,223,000				
Allocations to 30 September 2006	237,009,000				
Allocation for FY 2007	867,000				
Allocation for FY 2008	375,000				
Allocation for FY 2009	1,435,000				
Allocations through FY 2009	239,686,000	92			
Allocation Requested for FY 2010	1,500,000				
Programmed Balance to Complete after FY 2010	TBD				
Unprogrammed Balance to Complete after FY 2010	TBD				

PHYSICAL DATA

Capacity of Hatcheries	Acquisition of 24,150 acres for fisherman access and wildlife compensation and improvement of land for wildlife compensation.
9,160,000 Fall Chinook Smolts - 101,800 lbs.	
6,750,000 Spring and Summer Chinook Smolts - 450,000 lbs.	
11,020,000 Summer Steelhead - 1,377,500 lbs.	Restore 1,916 acres of project forbland, 3,285 acres of project woody riparian land, and 24,271 acres of project grass/shrub steppe land to pre-project conditions.
93,000 lbs. Of Resident Sport Fishery	

Division: Northwestern

District: Walla Walla

Lower Snake River Fish and Wildlife Compensation,  
Washington, Oregon, Idaho

7 May 2009

NWD-83



JUSTIFICATION: The Lower Snake River Fish and Wildlife Project will provide for losses to fish and wildlife resources caused by construction and operation of the four dams (Ice Harbor, Lower Monumental, Little Goose, and Lower Granite) constituting the Lower Snake River Project, authorized by P.L. 79-14, as is required by the Fish and Wildlife Coordination Act (16 U.S.C. 661 et seq.) in accordance with the requirements of the Lower Snake River Fish and Wildlife compensation Plan negotiated in accordance therewith and subsequently authorized by P.L. 94-587 and P.L. 99-662.

FISCAL YEAR 2009: Funds are being applied as follows:

Construction Activities for Asotin Slough HMU	\$659,000
Continue Plans and Specifications of Woody Wetland Riparian Habitat at Hells Gate, Willow Bar, Joso, Skookum, and Swift Bar HMU's	\$776,000
Total	\$1,435,000

FISCAL YEAR 2010: The requested amount will be applied as follows:

Complete Design at several HMU locations and continue construction of Woody Wetland Riparian Habitat	\$1,500,000
Total	\$1,500,000

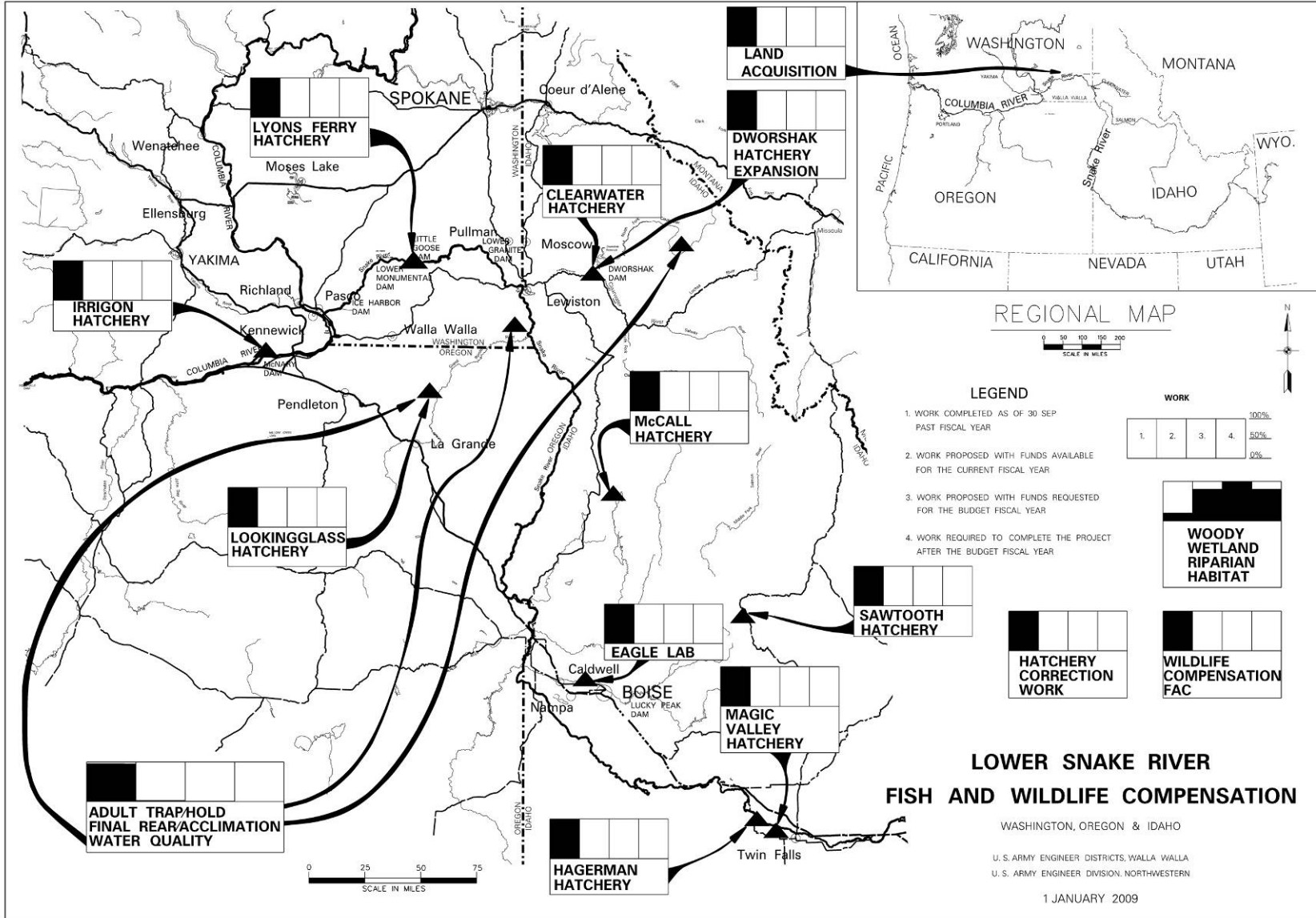
NON-FEDERAL COSTS: Costs allocable to power presently estimated at \$253,307,000 are reimbursable. This project is a part of the Federal Columbia River Power System. Bonneville Power Administration (BPA), the Federal marketing agency, establishes system rate levels adequate to recover all capital investment costs for generating projects (including Corps generating projects) within a 50-year period and to repay annual OM&R and interest expenses. BPA submits an annual financial statement to Congress, as required by law, on repayment and periodically recommends rate adjustments as required for meeting repayment obligations. In addition, a cash contribution to expand the Lyons Ferry Hatchery (\$223,000) has been furnished.

STATUS OF LOCAL COOPERATION: None required for construction.

COMPARISON OF FEDERAL COST ESTIMATE: The current Federal cost estimate of \$261,000,000 is the same estimate last presented to Congress (FY 2006).

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement was filed with the Council on Environmental Quality on 29 October 1977. Additional Environmental documentation pursuant to NEPA will be accomplished as necessary. Consultations with the National Marine Fisheries Service will be held and biological assessments prepared as necessary to conform with requirements of the Endangered Species Act.

OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in Fiscal Year 1978 and for Construction in Fiscal Year 1979. The purpose of the entire project is fish and wildlife compensation for the four mainstem dams on the Snake River.



APPROPRIATION TITLE: Construction, Environment, Fiscal Year 2010

PROJECT: Missouri River Fish and Wildlife Recovery, Iowa, Kansas, Missouri, Montana, Nebraska, North Dakota, South Dakota, and Tributaries (Continuing)

LOCATION: The Missouri River mainstem and its tributaries.

DESCRIPTION: Within the Missouri River basin, planned activities will recover and provide protection to federally listed species under the Endangered Species Act, and the ecosystems on which they depend, to address the effects of the operation of the Missouri River Mainstem Reservoir System, the Missouri River Bank Stabilization and Navigation Project, and the Kansas River Project. Between Sioux City Iowa and the mouth of the Missouri River, planned activities will also provide for mitigation of losses to fish and wildlife habitats specifically resulting from the construction and operation of the Missouri River Bank Stabilization and Navigation Project.

AUTHORIZATION: All existing authorized Corps of Engineers projects along the Missouri River and tributaries - including the Water Resources Development Acts of 1986, 1988, 1999, and 2007; National Industrial Recovery Act of 1933; Flood Control Acts of 1938, 1944, 1954; River and Harbor Act of 1945; as amended.

REMAINING BENEFIT - REMAINING COST RATIO: Not applicable.

TOTAL BENEFIT-COST RATIO: Not applicable.

INITIAL BENEFIT-COST RATIO: Not applicable.

BASIS OF BENEFIT-COST RATIO: Not applicable

SUMMARIZED FINANCIAL DATA:		ACCUM PCT OF EST FED COST	Status (1 Jan 2009)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost	\$3,739,687,000		Entire Project	8	To Be Determined
Estimated Non-Federal Other Costs	0				
Total Estimated Project Cost	3,739,687,000				
Allocations through 30 September 2006	161,715,000				
Allocation for FY 2007	85,000,000				
Allocation for FY 2008	50,184,000				
Allocations for FY 2009	57,418,000				
Allocations through FY 2009	354,317,000	9			
Allocation Requested for FY 2010	70,000,000	11			
Programmed Balance to Complete after FY2010	TBD				
Unprogrammed Balance to Complete after FY2010	0				

Division: Northwestern

District: Omaha/Kans City

Missouri River Fish and Wildlife Recovery,  
IA, KS, MO, MT, NE, ND, SD, and Tributaries

7 May 2009

NWD-86

JUSTIFICATION: The USFWS 2003 Amended Biological Opinion concluded that the Corps' operation of the Missouri River Mainstem Reservoir System, Bank Stabilization and Navigation Project, and Kansas River Project jeopardizes the continued existence of the endangered pallid sturgeon. Funding will be used to implement elements of the Reasonable and Prudent Alternative to Jeopardy for the pallid sturgeon, and actions necessary to preclude jeopardizing the endangered interior least tern and threatened piping plover. These measures to avoid jeopardy to the listed species include enhanced and accelerated shallow water habitat construction and floodplain connection for the pallid sturgeon, enhanced emergent sandbar habitat construction for nesting tern and plover, additional pallid sturgeon propagation support, more comprehensive population assessment for the three species, an intensive research, monitoring and evaluation program for the species, and an adaptive management strategy that includes participation with the USFWS in a Missouri River Recovery Implementation Committee including diverse stakeholder participation.

Below Sioux City, the project will restore and/or preserve natural ecosystem functions of the Missouri River floodplain. Terrestrial habitats will include wetlands, prairie grass and bottomland hardwood plantings. Some existing levees will be relocated away from the river or breached to reconnect the floodplain. Chutes and backwater areas will be excavated or dredged and river banklines modified to increase aquatic habitats and riverine diversity. As originally conceived, the program would establish approximately 120 individual mitigation sites, over time creating a riparian corridor. Lands required for implementation will be acquired from willing sellers to the maximum extent possible.

FISCAL YEAR 2009: Funds are being applied to first address the highest priority efforts to comply with the USFWS BiOp requirements followed by critical mitigation efforts below Sioux City. Selected mitigation sites will also be prioritized to also best respond to overlapping requirements of the BiOp. Design work for the Lower Yellowstone Intake project will continue in FY 2009. Current estimated execution plan includes effort as follows:

Item	Amount
Program Management Activities	\$5,310,000
Lower Yellowstone Intake	3,000,000
Habitat Monitoring	9,540,000
Endangered Species Research and Evaluation	6,498,000
Planning & Design	1,225,000
Shallow Water Habitat Construction	17,911,000
Emergent Sandbar Habitat (terns and plovers)	6,459,000
Real Estate Acquisition	<u>7,475,000</u>
<b>Total</b>	<b>\$57,418,000</b>

FISCAL YEAR 2010: The requested amount will be applied to first address the highest priority efforts to comply with the USFWS BiOp requirements followed by critical mitigation efforts below Sioux City. Selected mitigation sites will also be prioritized to also best respond to overlapping requirements of the BiOp. Construction work for the Lower Yellowstone Intake project will begin in FY 2010. Current estimated execution plan includes effort as follows:

Item	Amount
Program Management Activities	\$ 6,000,000
Lower Yellowstone Intake	18,000,000
Habitat Monitoring	8,000,000
Endangered Species Research and Evaluation	7,000,000
Planning & Design	2,000,000
Shallow Water Habitat Construction	9,000,000
Emergent Sandbar Habitat (terns and plovers)	10,000,000
Real Estate Acquisition	<u>10,000,000</u>
<b>Total</b>	<b>\$70,000,000</b>

NON-FEDERAL COSTS: Not applicable

STATUS OF LOCAL COOPERATION: Endangered Species recovery is a Federal responsibility. The 1986 and 1999 authorizing acts for the mitigation below Sioux City provides that the entire cost of the project, including all lands, easements, rights-of-way, and relocations, and all operation and maintenance costs be borne by the Federal Government with no costs to either local or state governments. Therefore, there is no non-Federal sponsor for the project.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal estimate of \$3,739,687,000 is the same as last presented to Congress (FY 2009).

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The 2003 Amended Biological Opinion was prepared in response to the Corps' proposed revision of the Missouri River Master Water Control Manual as discussed in the supporting NEPA documents. However, the scope of the Amended Biological Opinion is broader than dam operations. Both programmatic and site-specific NEPA documents are being prepared to fulfill NEPA responsibilities for compliance with the 2003 Amended Biological Opinion. The Missouri River Mitigation Project Final Environmental Impact Statement was filed with the U.S. Environmental Protection Agency on 23 December 1982. A supplement to the EIS was completed to allow acquisition and habitat development on the 118,650 acres authorized in WRDA 1999. The Record of Decision was signed 12 Jun 03.

OTHER INFORMATION: Funds to initiate pre-construction engineering and design of the mitigation project (BSNP) were appropriated in FY 1990. Initial construction funds for the mitigation project (BSNP) were appropriated in FY 1992. Funding for the combined ESA and mitigation efforts, Missouri River Fish and Wildlife Recovery, were first appropriated in FY 2005.

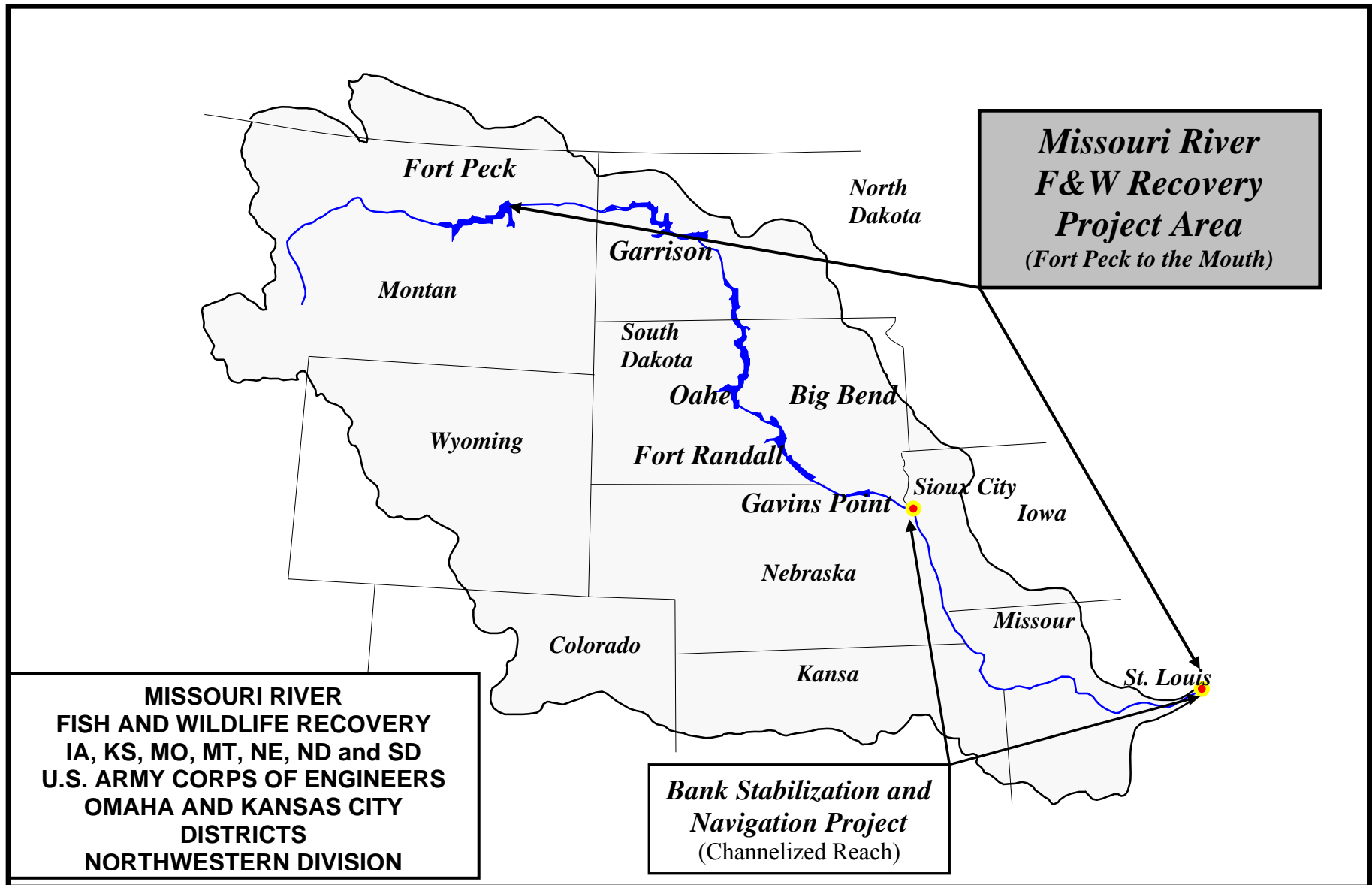
Division: Northwestern

District: Omaha/Kans City

Missouri River Fish and Wildlife Recovery,  
IA, KS, MO, MT, NE, ND, SD, and Tributaries

7 May 2009

NWD-88



APPROPRIATION TITLE: Construction, Environment, Fiscal Year 2010

PROJECT: Willamette River Temperature Control, Oregon (Continuing)

LOCATION: Located in the Willamette River Basin in northwestern Oregon that includes an area of approximately 12,000 square miles.

DESCRIPTION: During the last 40 years, 13 Corps reservoirs have been constructed in the Willamette basin to control floods, generate power and provide water for navigation, irrigation, improving water quality, recreation and fish and wildlife. State and Federal resource agencies including the Northwest Power Planning Council want to modify water temperatures downstream from two reservoirs, Blue River and Cougar, to achieve more beneficial temperatures for anadromous fish under present flow conditions in the McKenzie River sub-basin. Project facilities are intended to restore fish and wildlife habitat by improving downstream water temperatures that may have been degraded by the existing Corps projects at Blue River and Cougar Lakes. Restoring pre-project temperatures will improve survival rates and increase populations of three important native fish species: the wild stock of Willamette spring chinook salmon (a species listed as threatened in March 1999 under the Endangered Species Act, ESA), the bull trout (listed as threatened in July 1998 under the ESA), and the rainbow trout. These fisheries once provided important recreational and commercial benefits to the region. Justification for the project is based on non-monetary fishery and other biological benefits. Since benefits are non-monetary, a benefit-to-cost ratio has not been prepared. A feasibility study was completed in April 1995.

AUTHORIZATION: Water Resources Development Act of 1996 (PL 104-303), October 12, 1996; Water Resources Development Act of 1999 (PL 106-53), August 17, 1999.

REMAINING BENEFIT - REMAINING COST RATIO: N/A. Mitigation is incrementally justified through consideration of costs and monetary and non-monetary benefits. A benefit-cost ratio is not computed.

TOTAL BENEFIT-COST RATIO: N/A

INITIAL BENEFIT-COST RATIO: N/A

BASIS OF BENEFIT-COST RATIO: N/A

#### SUMMARIZED FINANCIAL DATA

			STATUS	PERCENT	COMPLETION
			(1 Jan 09)	COMPLETE	SCHEDULE
Estimated Appropriation Requirement		\$75,323,000			
Future Non-Federal Reimbursement	\$ 9,890,000				
Estimated Federal Cost (Ultimate)	65,433,000		Entire project	80 %	To Be Determined
Estimated Non-Federal Cost		\$ 9,890,000			
Cash Contribution	0				
Other Costs	0				
Reimbursements – Power	\$ 9,890,000				
Total Estimated Project Cost		\$ 75,323,000			

Division: Northwestern

District: Portland

Willamette River Temperature Control, Oregon

7 May 2009

NWD-90

SUMMARIZED FINANCIAL DATA (Continued)

		ACCUM. PCT. OF EST. FED COST	PHYSICAL DATA Improvements: Modifications of the existing intakes towers by adding selective withdrawal
Allocations to 30 September 2006	48,406,000		
Allocation for FY 2007	2,310,000		
Allocation for FY 2008	6,919,000		
Allocation for FY 2009	3,188,000		
Allocations through FY 2009	60,823,000	80%	
Allocation Requested for FY 2010	11,000,000	95%	
Programmed Balance to Complete after FY 2010	TBD		
Unprogrammed Balance to Complete after FY 2010	0		

JUSTIFICATION: The Willamette River spring chinook salmon was listed as threatened in March 1999 under the ESA and the bull trout is listed as threatened (July 98). Both of these species and the native rainbow trout will benefit as a direct result of this project. It is expected that this project will reverse the decline of the once popular fisheries stocks on the McKenzie River and preclude the listing of yet another of the region's highly valued fish species. Construction of Cougar and Blue River reservoirs in the 1960's and subsequent operation altered the temperature regime of the South Fork McKenzie, Blue, and the McKenzie rivers below the projects. Because of reservoir operation for flood control, river temperatures are now warmer in fall and early winter and cooler in spring and summer than they were prior to reservoir construction. The magnitude of impacts to fisheries from change in temperature regimes of the rivers below the dams were not expected at the time of design and construction. These effects are primarily above Leaburg Diversion Dam near Vida. Populations of salmon and resident trout are less than optimal due to failure of the fish to migrate to available habitat on the mainstem McKenzie above Leaburg. Habitats below Leaburg are overcrowded. Fishery resource agencies' studies indicate that the reason for the underutilization of habitat above Leaburg is due to the change in temperature regime. Restoring water temperatures downstream of these projects to general pre-project conditions will benefit native Willamette spring chinook salmon, bull trout, and native rainbow trout. Installation of selective withdrawal at both projects will significantly improve water temperatures in the South Fork and Blue Rivers and provide the best conformance to pre-project water temperatures on the main stem McKenzie downstream to Leaburg Dam.

FISCAL YEAR 2009: Funds are being applied as follows:

Initiate construction of the fish trap.....\$3,188,000

FISCAL YEAR 2010: The requested amount will be applied as follows:

Complete construction of the fish trap.....\$11,000,000

NON-FEDERAL COSTS: This project is initially 100% Federal funded. Cougar Dam costs allocated to power will ultimately be reimbursed by the Federal Power Marketing Agency (Bonneville Power Administration). This reimbursement is currently estimated to be \$9,890,000. See "Other information" below.

STATUS OF LOCAL COOPERATION: N/A

Division: Northwestern

District: Portland

Willamette River Temperature Control, Oregon

7 May 2009

NWD-91

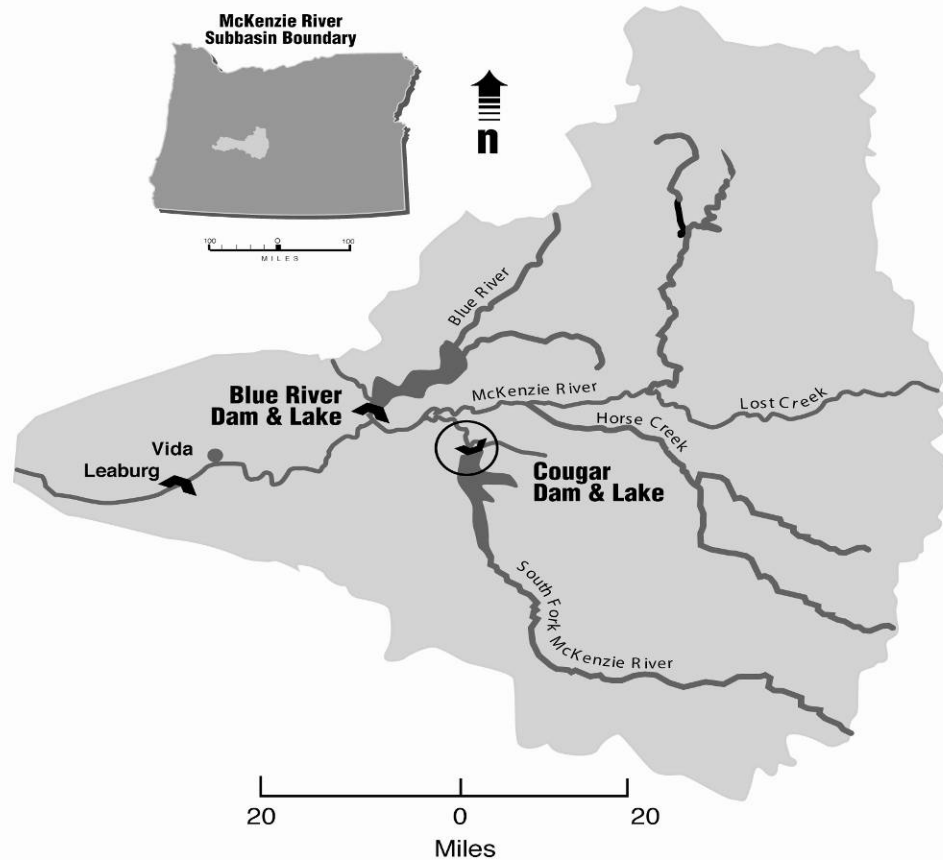
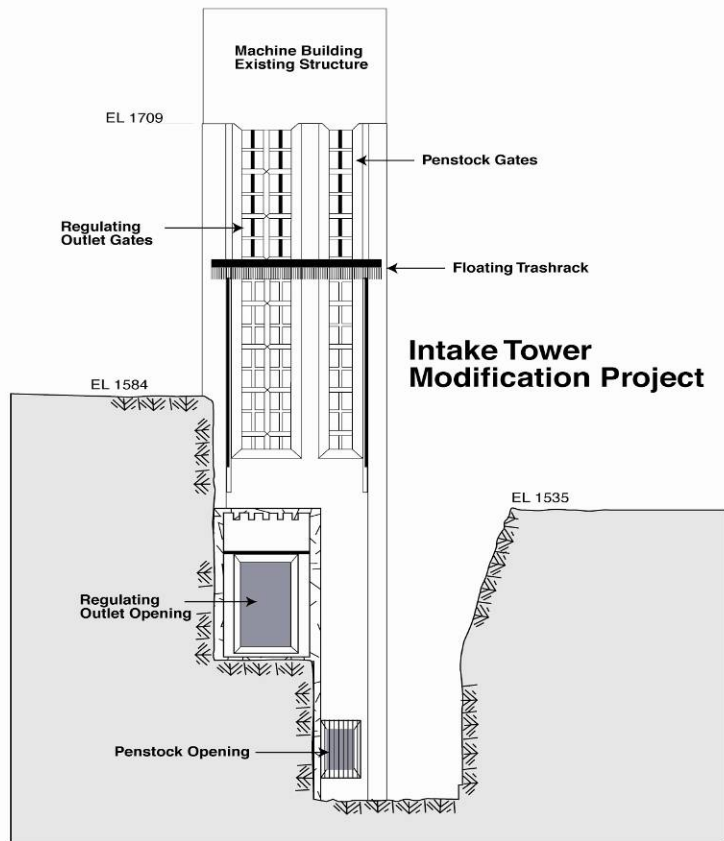


COMPARISON OF FEDERAL COST ESTIMATE: The current Federal cost estimate of \$75,323,000 is a decrease of \$5,277,000 from the last estimate submitted to Congress (FY 2006). The decrease is due to lower cost for construction of the fish trap.

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The Division Commander signed an Environmental Impact Statement (EIS) and Finding of No Significant Impact in April of 1996. An Environmental Assessment Supplement was prepared in 1999 to address design changes. In March of 2000, in compliance with Endangered Species Act, Section 7 consultation requirements, the National Marine Fisheries Service and US Fish and Wildlife Service issued a joint Biological Opinion, which required biological and water quality monitoring before, during, and after construction. As reservoir drawdown proceeded in April of 2002, turbidity exceeded projections in the EIS. As a result, a Supplemental Information Report and Environmental Assessment were prepared in July of 2003 to address turbidity, outline additional monitoring, and present operational changes during construction to minimize turbidity and associated impacts.

OTHER INFORMATION: This project is one of many Corps efforts aimed at enhancing listed salmon species in the Columbia River Basin. The cost of the recommended plan will be repaid based on allocations to the original project purposes of flood control, navigation, and hydropower. Prior to the Willamette River Temperature Control project, twenty-three percent of the Cougar project costs were allocated to hydropower and none of the Blue River project costs were allocated to power. Thus, twenty-three percent of the Willamette River Temperature Control Cougar project modification costs will be allocated to hydropower and will ultimately be repaid to the Federal Treasury through rates established by the Bonneville Power Administration (BPA).

The Cougar Lake FDM, included recommendations to construct a downstream fish trap that would operate until it was confirmed that the upstream population of bull trout had been reestablished to preconstruction levels. As design of the trap progressed, State and Federal resource agencies expressed a need for a permanent fish trap that would support management of both bull trout and spring Chinook that have returned to the base of the dam with the recently improved temperatures. USACE prepared a Post Authorization Change Report to address this project change and recommended a permanent trap and haul.



**Schedule**

**Work completed as of:**

Begin diversion tunnel and continue intake tower modification at Cougar Lake	FY2004
Complete intake tower modification at Cougar Lake	FY2005
Complete PAC Report for Cougar Fish Trap	FY2006
Complete Environmental Monitoring	FY2006
Complete Fish Trap and Haul Facility	Ongoing

Willamette River Basin  
**Willamette River  
 Temperature Control**  
 Oregon

US Army Engineer District, Portland  
 Northwestern Division

**1 January 2009**

# HYDROPOWER

# CONSTRUCTION

APPROPRIATION TITLE: Construction, Hydropower, Fiscal Year 2010

PROJECT: Columbia River Treaty Fishing Access Sites, Oregon and Washington (Continuing)

LOCATION: Thirty-two sites located along the Columbia River on Bonneville Pool, John Day Pool, and The Dalles Pool.

DESCRIPTION: The project includes land acquisition and access facility development on Bonneville, The Dalles and John Day pools and redevelopment of Celilo Village on The Dalles Pool. The intent is to provide "equitable satisfaction" of the United States government's commitment to replace usual and accustomed fishing sites inundated by construction of the Bonneville Dam. In 1855, the Tribes reserved the right to access and fish at usual and accustomed sites through treaties. The United States Supreme Court upheld these rights in 1905 and again in 1919. The improvements will include access roads, camping facilities, boat ramps and docks, sanitation and support facilities. Upon improvement, the land and improvements will be transferred to the U.S. Department of Interior for operation and administration on behalf of the Tribes.

AUTHORIZATION: Public Law 100-581 Title IV, as amended by Public Law 104-109, Public Law 104-303, Public Law 106-541, and Public Law 108-204.

REMAINING BENEFIT - REMAINING COST RATIO: N/A Economic justification is not required. This project is specifically authorized in PL 100-581 to mitigate Bonneville Project impact on the treaty fishing access on the Columbia River.

TOTAL BENEFIT-COST RATIO: N/A

THE INITIAL BENEFIT - COST RATIO: N/A

BASIS OF BENEFIT-COST RATIO: N/A

SUMMARIZED FINANCIAL DATA		STATUS (1 Jan 2009)	PERCENT COMPLETE	COMPLETION SCHEDULE
Estimated Appropriation Requirement	\$114,597,000	Entire Project	70 %	To Be Determined
Future Non-Federal Reimbursement	0			
Estimated Federal Cost (Ultimate)	0			
Estimated Non-Federal Cost	0			
Total Estimated Project Cost	\$114,597,000			
		PHYSICAL DATA: Improvements: Access roads, utilities, and camping facilities.		

Division: Northwestern

District: Portland

Columbia River Treaty Fishing Access Sites,  
Oregon and Washington

7 May 2009

NWD-96

SUMMARIZED FINANCIAL DATA (continued)

			ACCUM % OF EST FED COST
Allocation to 30 September 2006	\$ 62,840,000		
Allocation for FY 2007	14,336,000		
Allocation for FY 2008	1,666,000		
Allocation for FY 2009	5,125,000		
Allocations through FY 2009	83,967,000	<u>1/</u>	73%
Allocation Requested for FY 2010	500,000		74%
Programmed Balance to Complete after FY 2010	TBD		
Unprogrammed Balance to Complete after FY 2010	0		

1/ Includes \$8,339,000 transferred to Department of Interior for operation and maintenance of the completed sites.

JUSTIFICATION: In 1855, Indian Tribes of the Pacific Northwest entered into treaties with the United States. They ceded title to lands in the Columbia Basin and reserved the non-reservation treaty right to access the Columbia River and to take fish at "usual and accustomed" fishing places. In the 1930's, the United States constructed Bonneville Dam which inundated 37 of the treaty protected "usual and accustomed" sites. In accordance with a 1939 agreement between the War Department and the Indian Tribes, the United States was to provide 400 acres of land at six sites from Bonneville Dam to The Dalles, Oregon. Under subsequent authority the United States provided five sites totaling approximately 40 acres. In hearings held by the United States Senate Select Committee on Indian Affairs, Congress acknowledged the inequity and later enacted Public Law 100-581, Title IV - Columbia River Treaty Fishing Access Sites. The project provides "equitable satisfaction" of the United States government's commitment to replace those lands inundated by construction of the Bonneville project in accordance with the authorizing legislation.

NON-FEDERAL COSTS: Fully Federal funded.

STATUS OF LOCAL COOPERATION: N/A

FISCAL YEAR 2009: Funds are being applied as follows:

Continue construction of Celilo Village.....	\$ 2,900,000
Initiate engineering report for Wyeth treaty fishing access site.....	\$ 570,000
Capitalization payment to Dept of Interior for completed sites .....	\$ 255,000
Land acquisition on Bonneville pool .....	\$ 1,400,000

FISCAL YEAR 2010: The requested amount will be applied as follows:

Complete engineering report for Wyeth treaty fishing access site.....	\$500,000
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Division: Northwestern

District: Portland

Columbia River Treaty Fishing Access Sites,  
Oregon and Washington

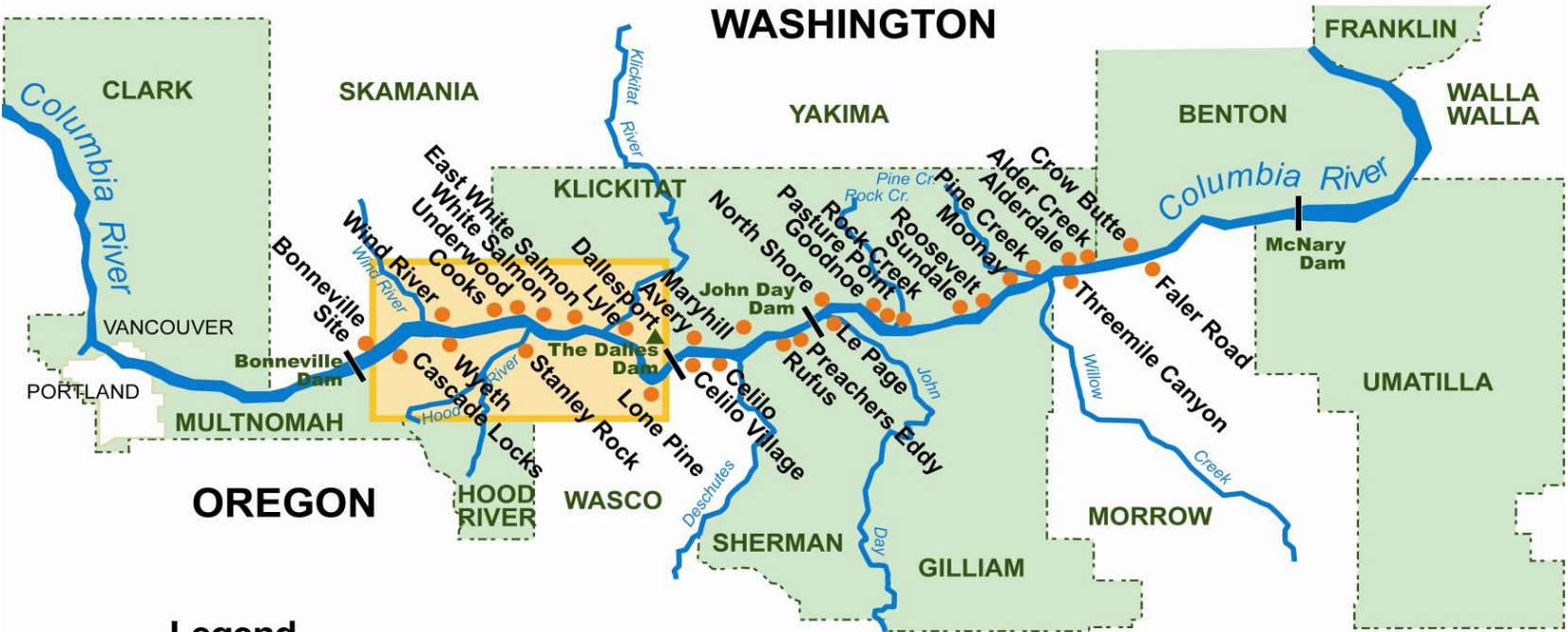
7 May 2009

NWD-97

COMPARISON OF FEDERAL COST ESTIMATE: The current Federal cost estimate of \$115,729,000 is an increase of \$21,453,000 from the latest estimate presented to Congress (FY 2009). The increase is due to price leveling and the addition of Celilo Village Redevelopment to the authorized project.

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The Draft Environmental Assessment indicates the potential environmental impacts from the development are minor. The Environmental Assessment was completed and a Finding of No Significant Impact was signed in April 1995.

OTHER INFORMATION: The four involved Indian tribes include the Nez Perce Tribe of Idaho, the Confederated Tribes of the Umatilla Indian Reservation, the Confederated Tribes of the Warm Springs Reservation of Oregon, and the Confederated Tribes of the Yakima Indian Nation. The Evaluation Report and the Post Authorization Change Report indicated that the recommended project is technically sound, cost effective, environmentally acceptable, and complies with applicable Corps of Engineers' procedures and regulations. However, the Post Authorization Report notified Congress of required changes to the boundaries or locations of 19 sites to improve constructability. Specific legislative language is included in Public Law 104-303. Also, the views of interested parties, including federal, state, and local agencies, have been considered. On 23 June 1995, a Memorandum of Understanding was signed between ASA(CW) and Bureau of Indian Affairs (BIA) for the Corps to fund, in advance, the capitalized costs for long-term O&M for all sites. Public Law 104-109 authorizes transfer of funds to Department of Interior to be used for operation and maintenance of improved sites. In December 2000 Public Law 106-541 amended the project authorization to increase the acquisition limit from \$2 million to \$4 million. In March 2004, Public Law 108-204 amended the project authorization to include rehabilitation of Celilo Indian Village, Oregon.



**Legend**

- Work completed
- ▲ Work required to complete

Columbia River Basin  
**Columbia River  
 Treaty Fishing Access Sites**  
 Oregon and Washington  
 US Army Engineer District, Portland  
 Northwestern Division  
 7 May, 2009



APPROPRIATION TITLE: Construction, Hydropower (Major Rehabilitation), Fiscal Year 2010

PROJECT: Garrison Dam and Power Plant, North Dakota (Continuing)

LOCATION: The Garrison Dam Project is located in McLean and Mercer Counties in North Dakota on the Missouri River approximately 77 river miles upstream of Bismarck near Riverdale, North Dakota.

DESCRIPTION: Garrison Dam and Reservoir is a multi-purpose project consisting of a rolled earth-filled dam with a sheet pile cutoff, a hydroelectric power plant, and a reservoir with storage capacity of 23,821,000 acre feet for flood control, navigation, power, recreation, irrigation, and municipal supply. Five hydraulic turbine-driven generating units with a total plant rated capacity of 518 MW and the operation and maintenance facilities are housed in the powerhouse. The present hydropower benefits directly associated with Garrison Power Plant include (1) clean, non-polluting power generation for the region, and (2) average power generation revenues of about \$33.6 million per year to the U.S. Treasury. This major rehabilitation project will replace the existing turbine runners on all five units with new runners designed to improve reliability and maximize efficiency over a broad range of operating conditions. A Phase II scope was added from an addendum to the major rehabilitation project that was approved on 15 September 2004. The Phase II work will address upgrades to electrical components that will allow the project to maximize the full reliability and efficiencies obtained in the powerhouse upgrades.

AUTHORIZATION: Flood Control Act of 1944, PL 78-534 (existing project)

REMAINING BENEFIT-REMAINING COST RATIO: 4.1 to 1 at 7 percent

TOTAL BENEFIT-COST RATIO: 3.3 to 1 at 7 percent

INITIAL BENEFIT-COST RATIO: 1.9 to 1 at 7 3/4 percent (FY 1997)

BASIS OF BENEFIT-COST RATIO: Benefits are from the Garrison Dam & Power Plant Major Rehabilitation Evaluation Report approved 27 February 1995 at 1994 price levels. Phase II benefits are from the Garrison Dam & Power Plant Major Rehabilitation Evaluation Report Addendum approved 15 September 2004 at 2004 price levels.

SUMMARIZED FINANCIAL DATA:

		ACCUM PCT OF EST FED COST	STATUS (1 Jan 2009)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Appropriation Requirement	\$121,007,000		Entire Project	57	To Be Determined
Estimated Non-Federal Reimbursement	121,007,000		Phase I	100	
Estimated Federal Cost (Ultimate)	0		Phase II	18	
Estimated Non-Federal Cost	121,007,000				
Cash Contributions	\$ 0				
Other Costs	0		PHYSICAL DATA		
Reimbursement, Power	121,007,000		Phase I		
Total Estimated Project Cost	121,007,000		Power Installation:	3 Units at 109,250 KW 2 Units at 95,000 KW	

Division: Northwestern

District: Omaha

Garrison Dam and Power Plant, North Dakota

7 May 2009

NWD-100

SUMMARIZED FINANCIAL DATA (continued)

Allocations through 30 September 2006	\$58,421,000	
Allocations for FY 2007	4,800,000	
Allocations for FY 2008	5,805,000	
Allocations for FY 2009	3,349,000	
Allocations through FY 2009	72,375,000	60
Allocation Requested for FY 2010	8,620,000	67
Programmed Balance to Complete after FY 2010	TBD	
Unprogrammed Balance to Complete after FY 2010	0	

PHYSICAL DATA (continued)

Phase II  
Electrical Reliability Equipment

JUSTIFICATION: All five of the Garrison turbine runners have experienced cracking at the trailing edges of their runner blades near the runner crown. Cracking was first discovered on Unit 3 in 1958 during an annual inspection. Cracking has continued through the years such that occasional repairs of blades in Unit 1 and annual-to-biennial repairs of blades in Units 2 through 5 must be performed. The continued cracking jeopardizes the future reliability of the runners, creating a potential for long outages due to a possible failure requiring complete shutdown of an affected unit. While no failures have occurred, continued weld repairs produce increasingly unfavorable metallurgy and residual stress distribution, increasing the probability of a failure. Studies indicate that without the proposed correction the failure probability will gradually increase until failure occurs. Installation of new improved turbine runners for all five units will avoid such reliability problems, both present and future, by correcting the cyclic loading which causes the turbine runner blade cracking. This will decrease operation and maintenance costs and extend the life of the hydropower plant. Lost plant efficiency will be restored and efficiency will be increased beyond the original 1950's design without an increase in cost over a replacement option using in-kind turbine runners. The addendum work will allow the plant to achieve full efficiencies and reliabilities obtained from the ongoing major rehabilitation work. The generator set-up (GSU) transformers, electrical power train equipment, and switchyard equipment are from the original construction of the project, circa 1950. All are underrated and exhibiting conditions indicating they are nearing the end of productive life. The reliability of the generating power onto the transmission system by the Garrison project is no greater than the least reliable equipment in the electrical power train. Prior to the ongoing rehabilitation, the turbine-generators were capable of producing 98 MW each. As a result of the ongoing rehabilitation, the turbines and generators both are capable of producing 112.5 MW each. The existing electrical power train equipment and systems, along with associated peripheral equipment including GSU transformers and oil-filled pipe cable, and switchyard are rated for the 98 MW capacities of the turbine-generators prior to rehabilitation. Although the capacity of the turbine-generators is significantly increased, their capability is currently limited to 98 MW by this equipment. Average annual benefits are as follows:

Annual Benefits	Amount
Deferred Maintenance Benefits	\$ 3,144,100
Restored Efficiency Benefits	7,903,500
Efficiency Improved Benefits	<u>5,457,400</u>
Total Benefits	\$16,505,000

Division: Northwestern

District: Omaha

Garrison Dam and Power Plant, North Dakota

7 May 2009

NWD-101

FISCAL YEAR 2009: Funds are being applied as follows:

Replace Breakers (including associated E&D and S&A) (new contract)	<u>3,349,000</u>
Total	\$3,349,000

FISCAL YEAR 2010: The requested amount will be applied as follows:

Install two 115kv GSU transformers and seven SF6 high voltage breakers (new contract)	<u>8,620,000</u>
Total	\$8,620,000

NON-FEDERAL COSTS: Garrison Dam is a multi-purpose project, and the cost for the turbine runner modifications will benefit hydropower generation only. The hydropower from Garrison Powerplant is marketed by Western Area Power Administration (WAPA), through which project costs are ultimately repaid to the Treasury. WAPA has provided a letter stating that they "will be able to market any additional power gained through increased efficiency of the turbines."

STATUS OF LOCAL COOPERATION: N/A

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of \$121,007,000 is an increase of \$15,824,000 from the latest estimate (\$105,183,000) presented to Congress (FY 2009). This change includes the following items:

ITEM	AMOUNT
Other estimating adjustments	12,001,500
Price escalation on construction features and changes in projected inflation rates	<u>3,822,500</u>
Total	\$15,824,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The proposed rehabilitation is not a major Federal action that would significantly affect the quality of the human environment, and therefore did not require the preparation of an environmental impact statement. The U.S. Fish and Wildlife Service concurred with the "Finding of no Significant Impact."

OTHER INFORMATION: This project consists of replacing all 5 turbine runners at the Garrison Dam Project. Turbine related work was completed under a furnish and install contract. Machining and painting work were subcontracted. The units removed were dismantled and sold as scrap metal, except for one unit that has become a display for the plant tourists. Additional work consisting of fabricating and installing new wicket gates and replacing existing circuit breakers and transformers was added to the project in FY00. Additional work consisting of removal of the existing generator coils and iron core, re-level and align the stator frame and purchase and install new laminations and coils was added to the project in FY02 as a result of unexpected shaft alignment problems on 3 generator units. There is no requirement to undertake fish and wildlife mitigation measures in conjunction with this rehabilitation project.

Division: Northwestern

District: Omaha

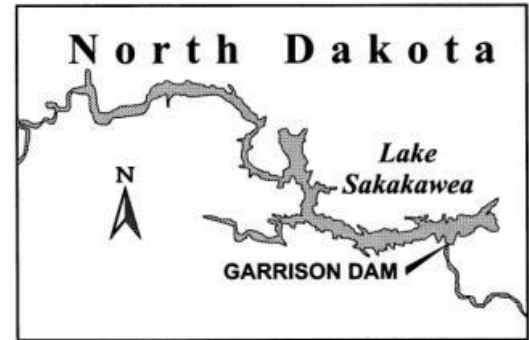
Garrison Dam and Power Plant, North Dakota

7 May 2009

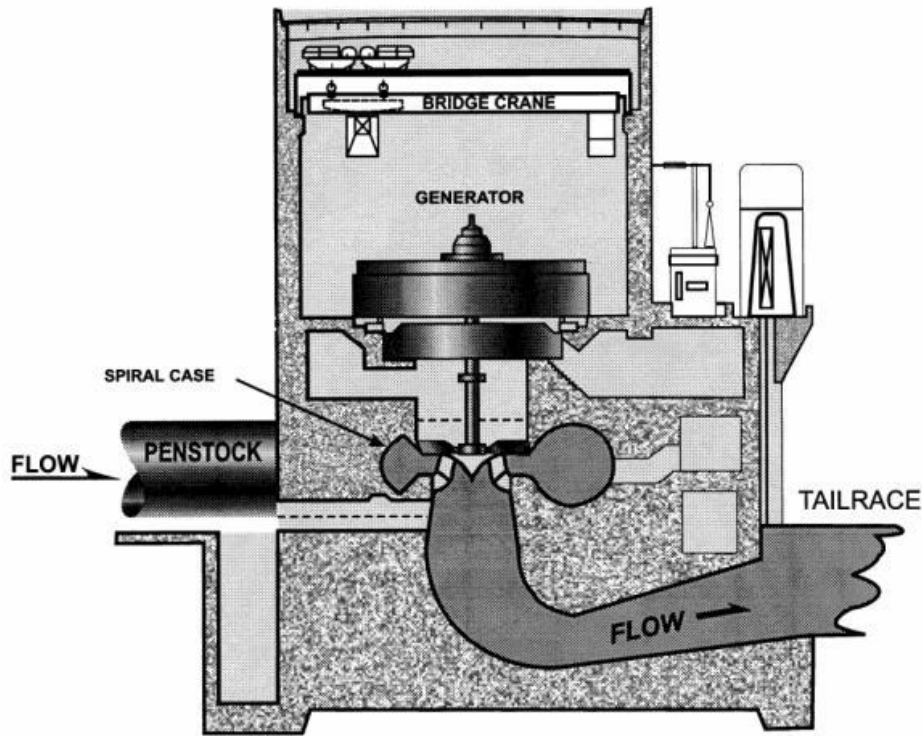
NWD-102

Now that the turbine and generator rehab is complete, the generators have increased capacity and ratings significantly greater than the capability of the existing electrical power train and peripheral equipment. The turbines and generators both are capable of producing 112.5 MW each. The existing electrical power train equipment and systems, along with associated peripheral equipment, are rated for 98 MW capacities of the turbines and generators prior to the rehabilitation. Although the capacity of the turbine generators is significantly increased, their capability is still limited to the 98MW of the existing equipment. Consequently an addendum to the Major Rehab report was prepared and approved on 15 September 2004. The addendum report includes replacement of the existing transformers, electrical power train, peripheral equipment, and switchyard equipment. The additional construction cost was originally estimated at \$51,399,700 with an incremental benefit-to-cost ratio of 2.52. Completion of the approved plan will take approximately three years to award all contracts and 5 years to physically complete the work. The Western Area Power Administration (WAPA), the Federal power marketing agency with marketing jurisdiction over the power produced at Garrison, has provided a letter of support for the recommended plan.

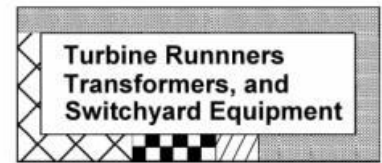
Initial construction of the powerhouse was completed in 1955.







VICINITY MAP



TRANSFER SECTION THRU  
GARRISON DAM POWER PLANT



-  WORK COMPLETED
-  WORK UNDERWAY WITH FUNDS AVAILABLE FOR THE CURRENT FISCAL YEAR
-  WORK PROPOSED WITH FUNDS REQUESTED FOR THE BUDGET FISCAL YEAR
-  WORK REQUIRED TO COMPLETE THE PROJECT AFTER THE BUDGET FISCAL YEAR

**GARRISON DAM & POWER PLANT  
NORTH DAKOTA  
MAJOR REHABILITATION**  
U.S. Army Engineer District, Omaha  
Northwestern Division

# PACIFIC OCEAN DIVISION

7 May 2009

POD-1

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# FLOOD AND COASTAL STORM DAMAGE REDUCTION



# INVESTIGATIONS

APPROPRIATION TITLE: Investigations, Fiscal Year 2010

Pacific Ocean Division

Study	Total Estimated Federal Cost \$	Allocation Prior to FY 2009 \$	Allocation FY 2009 \$	Tentative Allocation FY 2010 \$	Additional to Complete After FY 2010 \$
Hagatna River Flood Damage Reduction, Guam Honolulu District	900,000	285,000	335,000	200,000	80,000

The Territory of Guam is located approximately 3,800 miles west of Honolulu. The Hagatna River drainage basin is situated on the west-central section of the island. The drainage basin is bordered by plateau lands of northern Guam to the east and northeast; the Pago River basin to the south; coastal lowlands to the north; and sloping mountainous lands of the southwest. The basin is drained by the Hagatna River, which flows northerly through the downtown area of Hagatna, the political, commercial and economic center for Guam. Flood damages in the Hagatna River drainage basin result from inadequate channel capacity and flat topography. The flood of record occurred in May 1976 with estimated damages of \$4,000,000. Presently, there are more than 440 structures in the Hagatna River floodplain. Previous investigations completed before 1989 demonstrated that a flood control project, providing a 100-year level of protection, could reduce average annual flood damages by more than \$730,000. The area to be protected comprises about 215 acres with a total estimated value of more than \$145,000,000 for land and improvements. A letter was received in May 2001 from the Government of Guam requesting the Corps assistance in reinvestigating the feasibility of the Hagatna River Flood Damage Reduction project. The project was authorized under the Water Resources Development Act of 1986 (PL 99-662) as Agana River and was subject to deauthorization, as the Government of Guam was not in a position to implement the project at that time. Since then, conditions have changed allowing the Government of Guam to make this project a higher priority. Reinvestigation needs to first identify if there is continued Federal interest and issues associated with the project. The local sponsor fully understands the cost-sharing requirements of the study and is fully committed to active participation with the Corps of Engineers.

Authority to conduct this study is provided under Section 444 of the 1996 Water Resources Development Act (P.L. 104-303), as amended. The feasibility cost sharing agreement (FCSA) was executed in August 2005 and the local sponsor provided the required funds in September 2006 to initiate the study. Section 3179 of WRDA07 (PL 110-114) subsequently reauthorized the project for construction. Fiscal Year 2009 funds will be used to close out the feasibility study activities and initiate reevaluation study activities, pending execution of the design agreement in the latter part of the fiscal year. Preconstruction engineering and design activities are estimated at \$2,300,000, to be cost shared on a 75-25 percent basis. Efforts include conducting initiation of preliminary hydrology analysis and re-evaluation of alternative plans. Fiscal Year 2010 funds will be used to initiate environmental studies, finalize hydrology analysis, perform economic evaluations, initiate preliminary hydraulic design and refine alternative plans. The total estimated cost of the feasibility study is \$1,200,000, to be shared on a 50-50 percent basis by Federal and non-Federal interests. Section 1156 of P.L. 99-662 provides for a waiver of local cost-sharing requirements up to \$200,000. A summary of cost sharing is as follows:

Total Estimated Study Cost	\$1,300,000	
Reconnaissance Phase (Federal)	100,000	
Feasibility Phase (Federal)	800,000	
Feasibility Phase (Non-Federal)	400,000	(Reflects \$200,000 waiver under Sec 1156 of PL 99-662)

The completion date of the feasibility study is to be determined.

Division: Pacific Ocean Division

District: Honolulu  
7 May 2009

Hagatna River FDR, GU  
POD-5

APPROPRIATION TITLE: Investigations, Fiscal Year 2010

Pacific Ocean Division

Study	Total Estimated Federal Cost \$	Allocation Prior to FY 2009 \$	Allocation FY 2009 \$	Tentative Allocation FY 2010 \$	Additional to Complete After FY 2010 \$
Yakutat Flood Damage Reduction, AK Alaska District	5,210,000	920,000	890,000	669,000	450,000 2,281,000

Yakutat is isolated among the lowlands along the Gulf of Alaska, 225 miles northwest of Juneau and 220 miles southeast of Cordova. The reconnaissance study determined that there is a Federal interest in participating in a feasibility study to investigate potential flood damage reduction improvements to protect infrastructure and nearby resources, notably the airport and the world-class fishery resources of the Situk River watershed. Flooding may result from the continued advancement of the nearby Hubbard Glacier, the largest tidewater glacier in North America. The reconnaissance study was initiated in February of 2004. Local interests for this study include the City and Borough of Yakutat and the Alaska Department of Transportation and Public Facilities. Project collaborators include the U. S. Forest Service, the U.S. Geological Service, the Corps Cold Regions Research and Engineering Laboratory, and glaciologists from the University of Alaska Fairbanks and other academia.

The study is being conducted under the Rivers and Harbors in Alaska Resolution, 2 December 1970. The Assistant Secretary of the Army (Civil Works) approved the application of Section 117 cost sharing authority for the Yakutat feasibility study in January 2007 which allows the study to be conducted at full Federal cost. Fiscal Year 2009 funds are being used to evaluate the potential area of damage from flooding, develop models of the Situk River floodway, continue monitoring of Hubbard Glacier, and gather historical data applicable to developing a scenario model of Hubbard Glacier and the ice dams that it produces, and progress the feasibility study to a Feasibility Scoping Meeting. The study is being done in collaboration with the U.S. Forest Service and local and state interests. Fiscal Year 2010 funds will be used to obtain numerical values for the ice processes on Hubbard Glacier and initiate development of a model for the ice dam stability. The watershed feasibility study will be continued into identification of potential alternatives, and gathering of detailed economic, environmental, engineering and regulatory data for analysis of actions that could reduce the impact of a Hubbard Glacier closure on Yakutat. Glaciological data will be collected to develop a model for predicting the potential for a stable ice dam to develop. If a stable ice dam develops and continues, the lake level of Russell Fiord will rise and overflow into the Situk River, causing major environmental and economic losses to the area. The fisheries of the Situk River are the economic lifeline of community.

Total Estimated Study Cost	\$5,210,000
Reconnaissance Phase (Federal)	370,000
Feasibility Phase (Federal)	4,840,000
Feasibility Phase (Local)	0

The completion date of the feasibility study is to be determined.

# NAVIGATION

# CONSTRUCTION

APPROPRIATION TITLE: Construction, Navigation - Channels and Harbors, Fiscal Year 2010

Pacific Ocean Division

PROJECT: Saint Paul Harbor, Alaska (Continuing)

LOCATION: Saint Paul is the northernmost of the Pribilof Islands, located in the southeastern Bering Sea approximately 800 air miles west southwest of Anchorage.

DESCRIPTION: The project consists of a dredged entrance channel at -32 feet MLLW, a maneuvering basin at -29 feet MLLW, a spending beach on the lee side of the existing detached breakwater, three offshore reefs parallel to the existing main breakwater, an environmental restoration feature to increase the flow of water into the Salt Lagoon and a small boat harbor with an entrance channel and maneuvering area dredged to a 20-foot depth and a small breakwater. All of the features except for the small boat harbor have been constructed. The harbor improvements will accommodate increased boat and ship traffic and reduce damage to facilities and vessels from storm waves overtopping the existing main breakwater.

AUTHORIZATION: Section 101(b)(3) of PL 104-303 (Water Resource Development Act of 1996), as modified by Section 303 of PL 106-53 (the Water Resources Development Act of 1999) and Section 105 of PL 108-7 (Consolidated Appropriations Resolution, 2003, Division D, Energy and Water Appropriations)

REMAINING BENEFIT-REMAINING COST RATIO: 1.7 at 7-1/8 percent.

TOTAL BENEFIT-COST RATIO: The current benefit to cost ratio is 1.7 at 7-1/8 percent.

INITIAL BENEFIT-COST RATIO: 1.7 at 7-3/8 percent (FY 1998).

BASIS OF BENEFIT-COST RATIO: Chief of Engineers Report dated 23 December 1996 at October 1996 price levels.

SUMMARIZED FINANCIAL DATA:

	\$	STATUS (1 Jan 2009)	% Complete	Completion Schedule
Estimated Appropriation Requirement (COE)	66,149,000	Phase I Offshore Reefs	100	Jan 2002
Estimated Appropriation Requirement (U.S. Coast Guard)	21,000	Phase II Harbor Deepen/Improve	100	Aug 2005
Estimated Total Appropriation Requirement	66,170,000	Phase III Small Boat Hr	0	Dec 2011
Future Non-Fed Reimbursement	1,798,200			
Estimated Federal Cost (Ultimate) (COE)	64,350,800			
Total Estimated Project	73,574,900			

Division: Pacific Ocean

District: Alaska  
7 May 2009

St Paul Harbor, Alaska  
POD-9

		Accmltd % est. FED cost	PHYSICAL DATA
Allocations thru 30 September 2006	49,470,000		
Allocations for FY 2007	4,500,000		
Allocations for FY 2008	2,808,000		
Conference Allowance for FY 2009	2,871,000		
Allocations for FY 2009	6,371,000		
Allocations through FY 2009	63,149,000		
Programmed Balance to Complete after FY 2010	0		
Unprogrammed Balance to Complete after 2010	0		
Allocations requested for FY 2010	3,000,000	100%	100%

JUSTIFICATION: The city of Saint Paul is situated on the southwestern end of Saint Paul Island in the eastern Bering Sea. It is an active and growing island port whose economy is heavily dependent on commercial fishing. Storm waves overtopping and transmitting through the main breakwater create hazardous conditions and damage vessels and facilities in a harbor which serves a fishing fleet 3 times greater than that for which it was designed. The maneuvering area is inadequate for the increased numbers of vessels that are much larger than the original design vessel and harbor operations have changed significantly since initial construction. The proposed improvements would provide reduction in storm wave damages, increased efficiencies in harbor operations, and increased economies in transporting processed product. The average annual navigation benefits attributable to the project are currently estimated at \$2,613,000.

FISCAL YEAR 2010: The requested amount of \$3,000,000 will be applied as follows to complete the project:

Continue Channels and Canals	2,700,000
Continue Engineering and Design	60,000
Continue Construction Management	240,000
Total	\$3,000,000

APPROPRIATION TITLE: Construction, Navigation - Channels and Harbors, Fiscal Year 2010

Pacific Ocean Division

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below.

	Payments During Construction and Reimbursements	Annual Operation, Maintenance, and Replacement Costs
Requirements of Local Cooperation		
Provide lands, easements, rights of way, and borrow and excavated or dredged material disposal areas.	\$ 55,000	
Pay 10 percent of the costs allocated to general navigation features during construction reduced by a credit allowed for the value of lands, easements, rights of way, relocations, and dredged or excavated material disposal areas provided for commercial navigation..	\$ 7,349,900	
Reimburse an additional 10 percent of the costs of Phase III general navigation features allocated to commercial navigation within a period of 30 years following completion of construction is partially reduced by a credit allowed for the value of lands, easements, rights of way, relocations, and dredged or excavated material disposal areas provided for commercial navigation.	\$ 1,798,200	
Total Non-Federal Costs	\$ 9,203,100	\$0

The non-Federal sponsor has also agreed to make all required payments concurrently with project construction and reimburse its share of construction costs over a period not to exceed thirty years.

STATUS OF LOCAL COOPERATION: The City Council of St Paul, Alaska, has agreed to meet all requirements of local cooperation. The Project Cooperation Agreement was signed in November 1998. A modification to the Project Cooperation Agreement is being prepared to include the revised cost sharing provided in the Consolidated Appropriations Resolution, 2003 PL 108-7.

Division: Pacific Ocean

District: Alaska  
7 May 2009

St Paul Harbor, Alaska  
POD-11



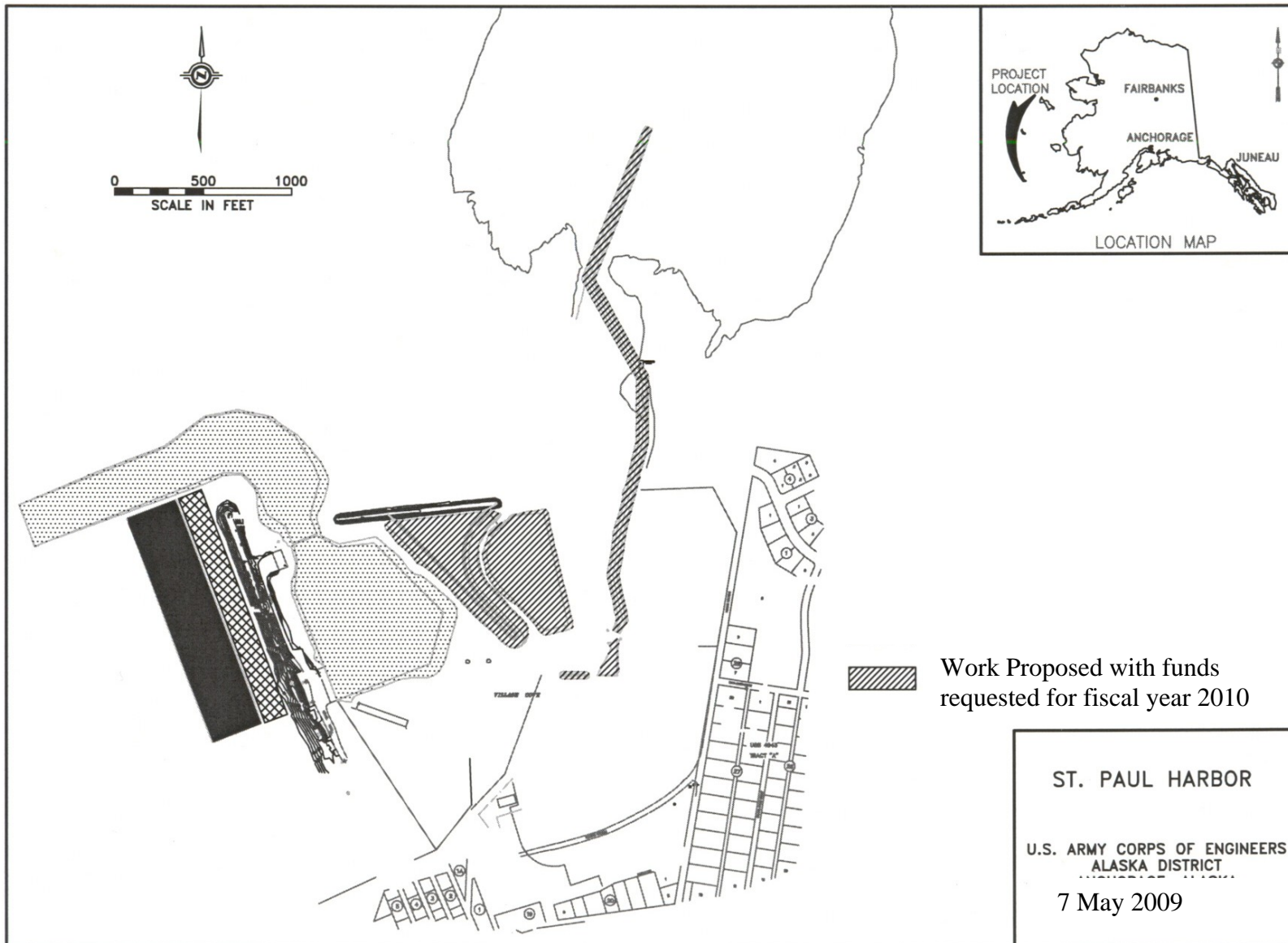
COMPARISON OF FEDERAL COST ESTIMATE: The current Federal (Corps of Engineers) Cost Estimate of \$66,149,000 is an increase of \$9,371,000 over the last estimate (\$56,778,000) presented to Congress (FY 2008).

Item	Amount
Price Escalation on Construction	\$ 9,371,000
Featires	
Total	\$ 9,371,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT AND COMPLIANCE WITH CLEAN WATER ACT:

- a. The FONSI was signed on 31 July 1996. A second FONSI for the small boat harbor was signed on 9 September 2002.
- b. The provisions of Section 404 of the Clean Water Act were met with the submission of the EA including a Section 404 (b)(1) evaluation to Congress in July 1996.

OTHER INFORMATION: Initial planning funds (PED) were received in FY 1996 and initial construction funds in FY 1998. Local service facilities estimated to cost \$7,145,000 are also required for the project.



# AQUATIC ECOSYSTEM RESTORATION

# INVESTIGATIONS

Study	Total Estimated Federal Cost \$	Allocation Prior to FY 2009 \$	Allocation FY 2009 \$	Tentative Allocation FY 2010 \$	Additional To Complete After FY 2010 \$
Ala Wai Canal, Oahu, HI Honolulu District	2,985,000	2,510,000	167,000	175,000	133,000

The Ala Wai watershed encompasses more than 16 square miles. The Ala Wai Canal within the watershed is a two-mile long man-made waterway constructed during the 1920's to create and protect the Waikiki area on the island of Oahu. The carrying capacity of the Canal has been significantly reduced by accumulation of silt and debris from the Manoa, Palolo, and Makiki streams. During the November 1965 and December 1967 storms and passage of Hurricane Iniki in 1992, the Ala Wai Canal was overtopped causing flooding in the Waikiki district. Additionally, the 30 October 2004 storm in Manoa is estimated to have caused over \$100M in damages to property and irreplaceable documents in the University of Hawaii's library, causing the community and agencies to seek the expansion of the Ala Wai Canal project for flood mitigation measures in the upper stream areas. It is estimated that approximately 2,200 properties would be affected by a 100-year storm event in the Ala Wai watershed.

The Ala Wai Watershed supports important habitat for marine, estuarine and freshwater ecosystems. Endemic amphidromous species such as native gobies and shrimp that had once utilized the Ala Wai Watershed as a migratory pathway from the mountains to the sea have experienced significant losses in population due to loss of habitat. A rare native gastropod – the Hapa Wai – only location on Oahu is in the Manoa-Palolo Canal. The coral reef ecosystems in the Waikiki Marine Line Conservation District is threatened by land based pollutants and other activities. The accumulation of silt and pollutants over the years has resulted in a steady decline in water quality and has affected water flow and circulation. The streams in the Ala Wai watershed support some of the highest levels of contaminants in the nation according to the EPA Section 303(d) listing under Clean Water Act. The Ala Wai Canal Watershed Study is a cooperative effort with Federal, State and local agencies to develop an effective comprehensive management and restoration plan to restore aquatic habitat and biological diversity once present in the canal and upstream tributaries. The goal is to improve the overall quality of the Ala Wai watershed, from the crest of the Ko'olau Mountains to the nearshore waters, while minimizing the risk of flood damages to the public. Objectives of the study include flood risk management, ecosystem restoration, addressing coastal issues, water quality, water supply, economic opportunities, addressing infrastructure maintenance issues and stakeholder involvement.

The feasibility cost sharing agreement (FCSA) was initially executed in April 2001 with the State Department of Land and Natural Resources and amended in August 2006 to expand the study scope and cost. Fiscal Year 2009 funds are being used to continue feasibility phase studies to include completion of the economic analysis, preparation of the environmental impact analysis, completion of the feasibility scoping meeting package and development of the alternatives formulation briefing package. Fiscal Year 2010 funds will be used to continue the feasibility phase studies. The total estimated cost of the feasibility phase is \$5.42M, which will be shared on a 50-50 percent basis by Federal and non-Federal interests, except for the Independent Peer Review which is funded at 100% federal cost. A summary of study cost sharing is as follows:

Total Estimated Study Cost	\$5,545,000
Reconnaissance Phase (Federal)	125,000
Feasibility Phase (Federal)	2,860,000
Feasibility Phase (Non-Federal)	2,560,000

The completion date of the feasibility study is to be determined.

APPROPRIATION TITLE: Investigations, Fiscal Year 2010

Pacific Ocean Division

Study	Total Estimated Federal Cost \$	Allocation Prior to FY2009 \$	Allocation FY 2009 \$	Tentative Allocation FY 2010 \$	Additional to Complete After FY 2010 \$
Matanuska Watershed, AK Alaska District	3,039,000	701,000	96,000	100,000	2,142,000

The Matanuska-Susitna Watershed is located about 50 miles north of Anchorage in the Matanuska-Susitna Borough. The Matanuska-Susitna Borough has experienced accelerated development in recent years (~4%/year) with resulting concerns about flooding, stream bank erosion, aquatic habitat degradation, and the overall health within their watershed. The collaborative study includes partners such as the Matanuska Watershed Coalition, The Native Village of Chickaloon, and the Mat-Su Salmon Partnership, a pilot project under the National Fish Habitat Initiative. The study investigates water resource related concerns in the Matanuska and Susitna watershed to develop a comprehensive water resources plan and provide the Borough, Federal and State agencies with a planning tool that will assist them in making better decisions related to future development within the watershed. In addition working closely with the District Regulatory personnel as well as USEPA and USFWS, the study implements a comprehensive approach to managing wetland impacts and evaluating wetland quality so that appropriate mitigation can be applied on a consistent basis throughout the watershed. A Feasibility Cost Sharing Agreement was executed in September 2007.

The study is being conducted under the Rivers and Harbors in Alaska Resolution, 2 December 1970. Existing funds are being used to continue feasibility study activities in Fiscal Year 2009. Fiscal Year 2010 will be used to continue the feasibility study and gather important data needed to evaluate the water resource needs of the watershed.

Total Estimated Study Cost	\$5,782,700
Reconnaissance Phase (Federal)	295,300
Feasibility Phase (Federal)	2,743,700
Feasibility Phase (Local)	2,743,700

The completion date of the feasibility study is to be determined.

# SOUTH ATLANTIC DIVISION

# SOUTH ATLANTIC DIVISION

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# FLOOD AND COASTAL STORM DAMAGE REDUCTION

# INVESTIGATIONS

APPROPRIATION TITLE: Investigations, Fiscal Year 2010  
 Division: South Atlantic

Study	Total Estimated Federal Cost \$	Allocation Prior to FY 2007 \$	Allocation FY 2007 \$	Allocation FY 2008 \$	Allocation FY 2009 \$	Tentative Allocation FY 2010 \$	Additional to Complete After FY 2010 \$
Augusta/Richmond County Flood Reduction Savannah District	1,399,500	0	25,000	0	0	278,000	\$1,096,500

PRECONSTRUCTION ENGINEERING AND DESIGN (PED) ACTIVITIES - FDR

The study area is Richmond County and areas contiguous to it in the northeastern part of the state of Georgia, comprising an area of approximately 326 square miles on the West Side of the Savannah River, and is part of the Savannah River Basin that comprises about 11,000 square miles. The economy of the study area is highly diversified, including industry, agriculture, and maritime. It is the trade center for 13 counties in Georgia and 5 counties in South Carolina. Because of the rapid growth of the unincorporated areas, considerable development has occurred in the flood plains of the streams in the study area. This commercial, industrial, and residential expansion in and adjacent to the flood plains in the Richmond County area has resulted in recent widespread flood problems occurring in many parts of the county. The 12 October 1990 flood resulted in the loss of four lives and thousands of people were left homeless. Damage estimates, including damages to water lines, roads and bridges, wastewater systems, the University Hospital complex, residences and automobiles, exceeded \$47 million. The feasibility study identified several flood control alternatives that are concentrated in three water basins in Richmond County: Rae's Creek, Rocky Creek and Augusta Canal. The recommended project, estimated to cost \$19,523,000 with an estimated Federal cost of \$10,803,000 and an estimated non-Federal cost of \$8,720,000, includes construction of 2 flood detention basins, a berm, 2500 feet of ecosystem restoration, 2.6 miles of recreation trail, and a 450 foot weir; removal of five houses; and installation of four or more remote control valves for flood gates. The average annual benefits amount to \$1.7 million, all for flood damage reduction. The benefit-cost ratio is 4.72 to 1 at 4 7/8 percent based upon the latest economic analysis dated Oct 2007. The local sponsor, Augusta - Richmond County, understands and supports the requirements of PED cost sharing. PED will ultimately be cost shared at the rate for the project to be constructed but will be financed through the PED period at 25 percent non-Federal. Any adjustments that may be necessary to bring the non-Federal contribution in line with the project cost sharing will be accomplished in the first year of construction.

Total Estimated Preconstruction Engineering and Design Costs	1,866,000	Total Estimated Preconstruction Engineering and Design Costs	1,866,000
Initial Federal Share	1,399,500	Ultimate Federal Share	1,399,500
Initial Non-Federal Share	466,500	Ultimate Non-Federal Share	466,500

The project is not yet authorized for construction. Fiscal Year 2008 and 2009(\$48k) funds were received for PED but reallocated for Feasibility to complete feasibility phase. Fiscal Year 2009 funds are being utilized for Augusta Canal and Rocky Creek feasibility phase. Fiscal Year 2010 funds will be used to continue the Augusta Canal and Rocky Creek feasibility studies in preparation for the upcoming PED phase.

7 May 2009

APPROPRIATION TITLE: Investigations, Fiscal Year 2010

Division: South Atlantic Division

Study/Project	Total Estimated Federal Cost \$	Allocation Prior to FY 2007 \$	Allocation FY 2007 \$	Allocation FY 2008 \$	Allocation FY 2009 \$	Tentative Allocation FY 2010 \$	Additional To Complete After FY 2010 \$
Edisto Island Charleston District	975,000	100,000	275,000	215,000	104,000	167,000	114,000

Edisto Island is a barrier island approximately 4.5 miles in length and is located approximately 30 miles southwest of Charleston, South Carolina. The northeastern portion of Edisto Island is a state park, which includes camping sites and cabins, while the remainder of the island is primarily single-family residential. The Town of Edisto Beach has developed as a permanent and seasonal residential community with limited commercial development. One commercial structure and 220 residences have been affected by storm damage. It is estimated that seven structures along the 700 block could fail completely and other residential structures could incur damage from a hurricane. Opportunities exist at Edisto Island to analyze and develop a recommendation that will provide for reduction of hurricane and storm damages to the beachfront structures located within the Town of Edisto Beach. This would be realized through placement of material along the beachfront that would sustain a wider beach profile through this reach of the study area. Additionally, environmental restoration and protection opportunities exist through the entire study area, primarily for protection of the habitat that exists at Edisto Beach State Park and to provide more stable turtle nesting habitat along the entire Edisto Island shoreline. The Town of Edisto Beach is the cost-sharing sponsor and the Feasibility Cost Sharing Agreement was executed on 29 September 2006.

Fiscal Year 2009 funds will be used to continue the feasibility phase of the study. Activities will consist largely of data input and analysis with the various coastal engineering models. Fiscal Year 2010 funds will be used to continue the feasibility phase of the study. Activities will consist of coastal engineering modeling, environmental assessment and coordination, and economic analysis. The preliminary estimated cost of the feasibility phase is \$1,750,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. A summary of the study cost sharing is as follows:

Total Estimated Study Cost	\$1,850,000
Reconnaissance Phase (Federal)	100,000
Feasibility Phase (Federal)	875,000
Feasibility Phase (Non-Federal)	875,000

The reconnaissance phase was completed in September 2006. The feasibility study scheduled completion date is TBD.

7 May 2009

# CONSTRUCTION

APPROPRIATION TITLE: Construction – Local Protection (Coastal Storm Damage Reduction)

PROJECT: Carolina Beach and Vicinity, North Carolina (Continuing)

LOCATION: The project is located in New Hanover County, about 15 miles southeast of Wilmington, NC, on the peninsula which separates the lower Cape Fear River from the Atlantic Ocean.

DESCRIPTION: The project consists of two separable elements known as the Carolina Beach Portion and Area South of Carolina Beach Portion. The project provides a dune with a crown width of 25 feet at elevation 13.5 feet National Geodetic Vertical Datum (NGVD) and a berm with a crown width of 50 feet at elevation 10.5 feet and 9.5 feet NGVD, respectively, for the Carolina Beach and the Area South Portions. A rock revetment at elevation 10.5 feet NGVD is located along the northern 2,050 feet of the project fronted by a 130 foot wide berm at elevation 6.5 feet NGVD. Total length of project is 32,000 feet. Federal participation in the cost of beach nourishment is authorized for a period not to exceed 50 years from year of initial construction of each project portion. Initial construction of the Carolina Beach Portion was completed in 1965 and the Area South of Carolina Beach Portion (Kure Beach) in 1998. All work is programmed.

AUTHORIZATION: 1962 Flood Control Act (H.D.418, 87th Cong. 2d sess.) and Water Resources Development Act of 1986 authorized Federal participation in future nourishment for 50 years.

REMAINING BENEFIT-REMAINING COST RATIO: The remaining benefit-remaining cost ratio for the project is not applicable because the initial construction has been completed.

TOTAL BENEFIT-COST RATIO: 3.5 to 1 at 7 percent.

INITIAL BENEFIT-COST RATIO: 3.2 to 1 at 3 percent (FY 1965)

BASIS OF BENEFIT-COST RATIO: Benefits for the Carolina Beach Portion are based on the December 1992 Section 934 General Reevaluation Report (GRR) at April 1992 price levels. Hurricane damage prevention benefits for the Area South of Carolina Beach Portion are based on the Design Memorandum Supplement approved in March 1994 at October 1992 price levels.

Division: South Atlantic

District: Wilmington

Carolina Beach and Vicinity, NC

7 May 2009

SUMMARIZED FINANCIAL DATA			ACCUM PCT OF EST FED COST	STATUS (1 Jan 2009)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost		\$119,275,000		Carolina Beach Portion	77	TBD
Initial Construction	16,744,000			Area South	17	TBD
Future Nourishment	102,531,000			Entire Project	32	TBD
Estimated Non-Federal Cost		\$ 64,225,000				
Initial Construction		9,489,000				
Cash Contributions	9,240,000					
Other Costs	249,000					
Future Nourishment		54,736,000				
Cash Contributions	54,736,000					
Other Costs	0					
Total Estimated Project Cost		\$183,500,000				
Initial Construction	26,233,000					
Future Nourishment	157,267,000					
Allocations to 30 September 2006		\$ 34,795,000				
Allocation for FY 2007		0				
Allocation for FY 2008		0				
Conference Allowance for FY 2009		0				
Allocation for FY 2009		3,500,000				
Allocations through FY 2009		38,295,000	32			
Allocation Requested for FY 2010		1,500,000	33			
Programmed Balance to Complete after FY 2010		78,105,000				
Unprogrammed Balance to Complete after FY 2010		0				

Division: South Atlantic

District: Wilmington

Carolina Beach and Vicinity, NC

7 May 2009



PHYSICAL DATA

Carolina Beach Portion:

	Dune	Integral Berm	Stone Revetment	Frontal Berm
Elevation	13.5 feet above NGVD	10.5 feet above NGVD	10.5 feet above NGVD	6.5 feet above NGVD
Crown Width	25 feet	50 feet	-	-
Length	14,000 feet	14,000 feet	2,050 feet	2,050 feet

Area South of Carolina Beach:

	Dune	Integral Berm
Elevation	13.5 feet above NGVD	9.5 feet above NGVD
Crown Width	25 feet	50 feet
Length	18,000 feet	18,000 feet

JUSTIFICATION: The project will provide improvements for coastal storm damage reduction, reduction of beach erosion, and recreation in the urban area of the Towns of Carolina Beach and Kure Beach, North Carolina. These areas experienced heavy hurricane flood damages in the hurricanes of 1944, 1954, 1955, and 1958. Hurricane Hazel, the maximum hurricane of record, which occurred in 1954, caused \$4,664,000 and \$1,218,000 in damages to Carolina Beach and Kure Beach, respectively, based on 1954 price levels. A recurrence of this type hurricane at October 1999 price levels and July 1973 development would cause damages of \$46,052,000 to Carolina Beach, and \$39,878,000 in damages at October 1999 price levels and January 1993 development to Kure Beach. The beach communities suffered only minor damage from overwash during the 1999 hurricane season as a result of the project. Average annual benefits are as follows:

Annual Benefits	Total Amount	Carolina Beach Portion	Area South Portion
Hurricane Damage Prevention	\$10,159,500	\$5,083,600	\$5,075,900
Recreation	482,100	228,300	253,800
Total	\$10,641,600	\$5,311,900	\$5,329,700

Division: South Atlantic

District: Wilmington

Carolina Beach and Vicinity, NC

7 May 2009

FISCAL YEAR 2009: The allocated amount of \$3,500,000 will be used to complete plans and specifications and initiate nourishment for the Carolina Beach and Area South of Carolina Beach Portions of the project.

FISCAL YEAR 2010: The requested amount of \$1,500,000 will be applied as follows:

Complete nourishment for the Carolina Beach and Area South of Carolina Beach Portions of the project.	\$1,500,000
Total	\$1,500,000

NON-FEDERAL COST:	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation, and Replacement Costs
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Carolina Beach – In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the Town of Carolina Beach, North Carolina, as the Non-Federal sponsor for the Carolina Beach Portion must comply with the requirements of local cooperation as listed below:

Provide lands, easements, rights of way, Including suitable borrow areas.	\$ 8,000	
Pay up to 35 percent of the first costs and future nourishment allocated to coastal storm damage reduction and bear all costs of operation, maintenance, repair, rehabilitation and replacement of coastal storm damage reduction facilities.	\$16,267,000	\$95,000
Total Non-Federal Costs	\$16,275,000	\$95,000

Area South of Carolina Beach – In accordance with the cost sharing and financing concepts reflected in the Water Resource Development Act of 1986, the Town of Kure Beach, North Carolina as non-Federal sponsor for the Area South of Carolina Beach Portion must comply with the requirements of local cooperation as listed below:

Provide lands, easements, rights of way, Including suitable borrow areas.	\$241,000	
Pay up to 35 percent of the first costs and future nourishment allocated to coastal storm damage reduction and bear all costs of operation, maintenance, repair, rehabilitation and replacement of coastal storm damage reduction facilities.	47,709,000	\$100,000
Total Non- Federal Costs	\$47,950,000	\$100,000

Division: South Atlantic

District: Wilmington

Carolina Beach and Vicinity, NC

7 May 2009

STATUS OF LOCAL COOPERATION: The Towns of Carolina Beach and Kure Beach have complied with all the terms of local cooperation to date including multiple increments of future nourishment. On 1 November 1983, a local occupancy tax went into effect in New Hanover County. Seventy-five percent of the revenues collected from this tax must be used for beach nourishment. Project Cooperation Agreements were executed for the Carolina Beach and Area South of Carolina Beach Portions in July 1994 and September 1995, respectively.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal (Corps) cost estimate of \$119,275,000 is a decrease of \$14,625,000 from the latest estimate (\$133,900,000) presented to Congress (FY 2004). This change includes the following item:

Item	Amount
Price De-escalation on Construction Features	-\$14,625,000
Total	-\$14,625,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: A draft Environmental Impact Statement (EIS) was filed with the Council on Environmental Quality on 15 November 1974. A revised draft EIS was filed on 17 April 1981 and a final EIS was filed on 17 July 1981 for the Carolina Beach Portion. The draft EIS for the Area South of Carolina Beach Portion was filed with the EPA in November 1992 and the final was filed in June 1993.

OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in FY 1964 and funds to initiate construction of the Carolina Beach Portion were appropriated in FY 1965. Funds to initiate construction of the Area South of Carolina Beach Portion were appropriated in FY 1995.

Carolina Beach Portion

SUMMARIZED FINANCIAL DATA FOR PROGRAMMED SEPARABLE ELEMENTS:

Estimated Federal Costs			\$30,225,000
Initial Construction		\$6,987,000	
Future Nourishment		23,238,000	
Estimated Non-Federal Cost			16,275,000
Initial Construction		4,235,000	
Cash Contributions	\$4,227,000		
Other Costs	8,000		
Future Nourishment		12,040,000	
Cash Contributions	12,040,000		
Other Costs	0		
Total Estimated Project Cost			\$46,500,000
Initial Construction		\$11,222,000	
Future Nourishment		\$35,278,000	

REMAINING BENEFIT-REMAINING COST RATIO FOR PROGRAMMED SEPARABLE ELEMENTS: Not applicable because the initial construction has been completed.

TOTAL BENEFIT-COST RATIO FOR PROGRAMMED SEPARABLE ELEMENTS: 1.6 TO 1 at 8-1/4 percent.

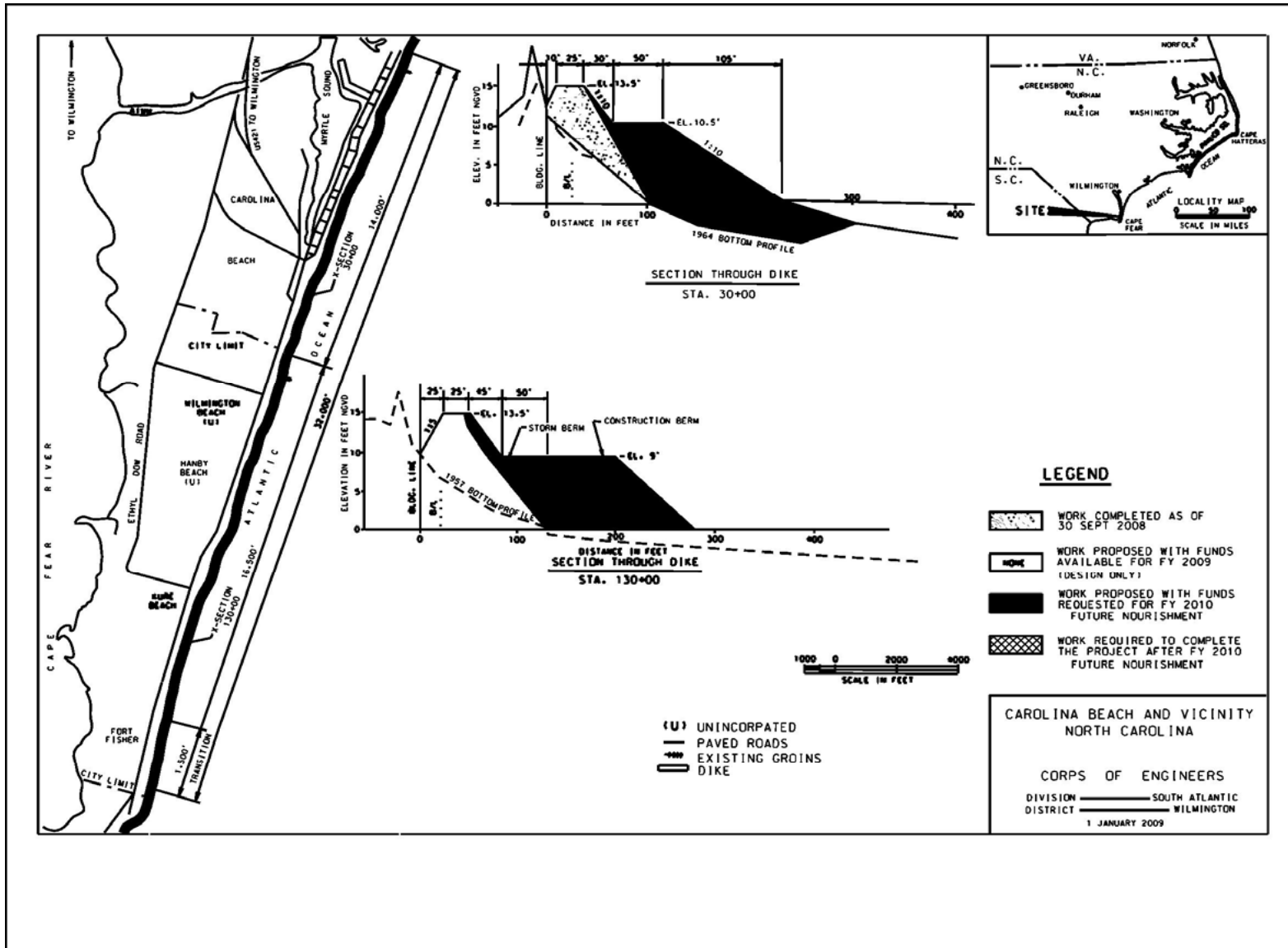
Area South of Carolina Beach

SUMMARIZED FINANCIAL DATA FOR PROGRAMMED SEPARABLE ELEMENTS:

Estimated Federal Costs			\$89,050,000
Initial Construction		\$9,757,000	
Future Nourishment		79,293,000	
Estimated Non-Federal Cost			47,950,000
Initial Construction		5,254,000	
Cash Contributions	\$5,013,000		
Other Costs	241,000		
Future Nourishment		42,696,000	
Cash Contributions	42,696,000		
Other Costs	0		
Total Estimated Project Cost			\$137,000,000
Initial Construction		\$15,011,000	
Future Nourishment		\$121,989,000	

REMAINING BENEFIT-REMAINING COST RATIO FOR PROGRAMMED SEPARABLE ELEMENTS: Not applicable because the initial construction has been completed.

TOTAL BENEFIT-COST RATIO FOR PROGRAMMED SEPARABLE ELEMENTS: 1.8 TO 1 at 8-1/4 percent.



Division: South Atlantic

District: Wilmington

Carolina Beach and Vicinity, NC

7 May 2009

APPROPRIATION TITLE: Construction - Local Protection Project (Flood and Coastal Storm Damage Reduction)

PROJECT: Cedar Hammock (Wares Creek), Florida (Continuing)

LOCATION: The project area is located in Bradenton and unincorporated Manatee County on the southwest coast of Peninsular Florida.

DESCRIPTION: The project provides for clearing and snagging from approximately 500 feet upstream of Manatee Avenue bridge and extending 17<sup>th</sup> Avenue West; trapezoidal grass-lined channel from 17<sup>th</sup> Avenue West to 21<sup>st</sup> Avenue West; Vertical Sheet Pile Wall channel from just upstream of 21<sup>st</sup> Avenue West to 14<sup>th</sup> Street West (Business Route 41); and trapezoidal grass-lined channel from upstream of 14<sup>th</sup> Street West (Business Route 41) and extending to just downstream of 44<sup>th</sup> Avenue West (Cortez Road) bridge.

AUTHORIZATION: Water Resources Development Act of 1996

REMAINING BENEFIT-REMAINING COST RATIO: 4.1 to 1 at 7 percent.

TOTAL BENEFIT-COST RATIO: 3.1 to 1 at 7 percent.

INITIAL BENEFIT-COST RATIO: 3.3 to 1 at 7-1/8 percent (FY2001).

BASIS OF BENEFIT-COST RATIO: Benefits are included in the Cedar Hammock (Wares Creek) Final Detailed Project Report and Environmental Assessment Report completed in April 1995 revised in 1996 at October price levels.

SUMMARIZED FINANCIAL DATA	ACCUM. PCT OF EST FED COST	STATUS (1 Jan 2009):	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost	\$ 21,100,000			
Estimated Non-Federal Cost	27,400,000	Channels & Canals	0	May 2012
Cash Contribution	5,432,000			
Other	21,968,000	Total Project	0	May 2012
 Total Estimated Project Cost	 \$ 48,500,000			
Allocations through 30 September 2006	2,256,000			
Allocation for FY 2007	4,770,000			
Allocation for FY 2008	4,681,000			
Conference Allowance for FY 2009	3,828,000			
Allocation for FY 2009	3,828,000			
Allocations through FY 2009	15,535,000	74%		
Allocation Requested for FY 2010	5,565,000	100%		
Programmed Balance to Complete After FY 2010	0			
Unprogrammed Bal to Complete After FY 2010	0			

JUSTIFICATION: The Cedar Hammock (Wares Creek) is urban, and existing development has encroached upon the channel in several areas. Heavy rains frequently impact the area with the most severe flooding occurring in 1988, 1992, 1996, 1997 and 2001. These storms caused extensive flooding to the area and impacted residential as well as commercial development. The project would provide protection from the 1 in 10 year storm event. Under existing conditions, average annual flood damages are estimated at \$6,725,000.

Annual Benefits	Amount
Flood Protection	3,735,000
Total	3,735,000

FISCAL YEAR 2009: Fiscal Year 2009 funds will be used to complete plans and specifications, PPA execution, initiate construction of the project channels; engineering during construction; and construction management.

Division: South Atlantic

District: Jacksonville  
7 May 2009

Cedar Hammock (Wares Creek), Florida



FISCAL YEAR 2010: The requested amount will be applied as follows:

Complete Channel Contract	\$ 4,900,000
Engineering and Design	245,000
Supervision & Administration	420,000
Total	\$ 5,565,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below:

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation, and Replacement Costs
Provide lands, easements, rights of way, and borrow and excavated or dredged material disposal areas.	21,361,000	
Modify or relocate utilities, roads, bridges, and other facilities, where necessary for the construction of the project.	607,000	
Pay 9.6 percent of the costs allocated to flood damage reduction during construction and 100% of the costs of betterments.	5,432,000	
Total Non-Federal Costs	27,400,000	

STATUS OF LOCAL COOPERATION: Manatee County, Florida strongly supports this project. The Project Partnership Agreement will be executed in the 4th quarter of FY 2009.

COMPARISON OF FEDERAL COST ESTIMATE: The current Federal (Corps of Engineers) cost estimate of \$21,100,000 is an increase of \$2,400,000 over the latest estimate (\$18,700,000) presented to Congress (FY 2009). This change includes the following items:

Item	Amount
Schedule Change	\$ 1,770,000
Cost Share Adjustment	630,000
Total	\$ 2,400,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT COMPLIANCE: Final Environmental Assessment was signed April 13, 1995.

Division: South Atlantic

District: Jacksonville  
7 May 2009

Cedar Hammock (Wares Creek), Florida

OTHER INFORMATION: Preconstruction Engineering and Design was initiated in August 1997 and is scheduled for completion in the 4th quarter of FY 2009. Funds to initiate construction were appropriated in FY 2001. The Water Quality Certification process was initiated in 2004 and is scheduled to be granted by the Florida DEP in June 2009. This long process has caused a schedule slip of 12 months from the latest presented to Congress. The base contract includes dredging at the mouth of the channel, the first option provides for channel widening as well as clearing and snagging, and the final option provides for sheet pile wall channel improvements.



-  CLEARING AND SNAGGING
-  VERTICAL SHEET PILE WALL, 40 FT. BOTTOM WIDTH
-  TRAPEZOIDAL GRASS-LINED CHANNEL, 1V:2H, 26 FT. BOTTOM WIDTH

# CEDAR HAMMOCK BRADENTON, FLORIDA

APPROPRIATION TITLE: Construction – (Replacement)

PROJECT: Herbert Hoover Dike, FL (Continuing)

LOCATION: The Herbert Hoover Dike (HHD) system encircles Lake Okeechobee entirely, except in the vicinity of Fisheating Creek on the western shore. The existing embankments total about 143 miles in length with typical crest elevations rising about 25 feet above adjacent land elevations. Reach 1 extends 22 miles from the Hillsboro Canal to the St. Lucie Canal in the southeast quadrant of the dike and Reaches 2 and 3 extend from Hillsboro Canal westward to C-43 (Caloosahatchee River).

DESCRIPTION: The Major Rehabilitation Report (MRR), approved in November 2000, divided the dike into 8 Reaches and included a detailed analysis of alternatives in the 1<sup>st</sup> Reach. The MRR proposed construction of a seepage/drainage berm along the landside toe of the dike for Reach 1. Following input from a variety of expert sources, the Corps convened an independent technical review panel to further evaluate the design of the proposed repairs, which were underway. After reviewing the findings of this panel, the Corps decided to fundamentally alter its plans for strengthening the HHD. The new design concept includes toe-ditch fill, cut-off wall at the center of the dike, and seepage berm.

AUTHORIZATION: Herbert Hoover Dike is a component of the Central and Southern Florida (C&SF) Project for Flood Control and Other Purposes. The C&SF Project was authorized in the Flood Control Act of 1948, 1954, 1958, 1960, 1965 and 1968; Authorization in 1970 under Section 201 of the Flood Control Act of 1965, the Water Resources Development Acts of 1986, 1988, 1990, 1992, 1996, 2007 and the Rivers and Harbors Act of 1930.

REMAINING BENEFIT - REMAINING COST RATIO for the project as a whole: Not available. The latest economic analysis is based on a different, less expensive design.

TOTAL BENEFIT - COST RATIO for the project as a whole: Not available. The latest economic analysis is based on a different, less expensive design.

BASIS OF BENEFIT - COST RATIO: The latest economic analysis performed is in the November 2000 MRR, which estimated that the benefit-cost ratio for the project as a whole would be 0.94 to 1 at a 6 1/8 percent discount rate, using October 2000 price levels. This is the equivalent of a benefit-cost ratio of 0.96 to 1 at a 7 percent discount rate. Since that time, in response to the views of external peer reviewers and the findings of the independent technical review panel, the Corps significantly expanded the scale of the project plan. The resulting plan would cost roughly three times as much as the plan proposed in the 2000 report.

These benefit-cost ratios do not, however, reflect the benefits of reduced risk of loss of life, which cannot be quantified in economic terms. The Corps has classified the Herbert Hoover Dike as a Dam Safety Action Class I (DSAC I). Structures in this class are critically near failure or extremely high risk under normal operations without intervention. In this case, there is a concern even at a relatively low pool level due to the limitations of current outlet structures. As an interim measure, the Corps has changed the operating regime for Lake Okeechobee to lower the probability of failure from seepage. However, it is also proceeding to repair the dike as quickly as is practical in order to further mitigate the risk.

Division: South Atlantic

District: Jacksonville

Herbert Hoover Dike, FL

7 May 2009

SUMMARIZED FINANCIAL DATA		ACCUM PCT OF EST FED COST	STATUS (1 Jan 2009)	PCT CMPL	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost	959,600,000		Levees Reach 1	20	TBD
Estimated Non-Federal Cost	31,500,000		Levees Reaches 2 thru 8	0	Unscheduled
Cash Contributions	0		Entire Project	0	Unscheduled
Other Costs	31,500,000				
<b>Total Estimated Project Cost</b>	<b>991,100,000</b>				
Allocation to 30 September 2006	21,153,000				
Allocations for 2007	39,884,000				
Allocations for 2008	55,734,000	1/			
Conference Allowance for 2009	74,069,000				
Allocations for 2009	74,069,000				
Allocations through 2009	190,840,000	20%			
Allocation Requested for 2010	130,000,000	34%			
Programmed Balance to Complete after 2010	TBD	2/			
Unprogrammed Balance to Complete after 2010	TBD				

1/ Reflects \$850,000 reprogrammed from the Central and Southern Florida Project.  
2/ Reflects funding for Reaches 1, 2 & 3 only

PHYSICAL DATA

Levees – Miles – Reach 1	22.4
Levees – Miles – Reaches 2-3	27.1
Levees – Miles – Reaches 4-8	85.3

Division: South Atlantic

District: Jacksonville

Herbert Hoover Dike, FL

7 May 2009

JUSTIFICATION: The work on Reach 1 involves the construction of a cutoff wall, landside construction features such as partial seepage berms, relief wells, relief trenches and structural solutions for existing culverts. Currently, the probability of catastrophic dike failure due to piping is unacceptably high. Such an event would produce flooding, which could (depending on its location) lead to the loss of life and/or significant economic damage. The Corps is proceeding first with work on the reaches where the potential risk is the greatest. Any such failure would also adversely affect the ecosystem of Lake Okeechobee (directly) and the estuaries of the Indian River Lagoon and the Caloosahatchee River (indirectly). It would also reduce the ability to store water in the lake for release in dry years for consumptive uses and to benefit the ecosystem of the Everglades.

FISCAL YEAR 2009: Fiscal Year 2009 funds are being used to continue construction and installation of cut-off wall in reach 1, ongoing design of Reach 1 landside design features and structural solutions for existing culvert structures. Associated NEPA (Supplemental Environmental Impact Statements (SEIS) for Reach 1 will also be initiated using FY 2009 funds. Work will also be continuing on the Major Rehabilitation Report for Reaches 2, 3, and required NEPA (SEIS) in FY 2009.

FISCAL YEAR 2010: The requested amount of \$130,000,000 will be applied to continue work as follows:

Continue Reach 1 Construction	\$ 110,300,000
Planning, Engineering and Design Rea 1	10,000,000
Construction Management Reach 1	9,700,000
 Total	 \$ 130,000,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the original, 1930's-era authorizing legislation, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation, and Replacement Costs
Provide lands, easements, and rights of way	31,500,000	
Total Non-Federal Costs	31,500,000	

Division: South Atlantic

District: Jacksonville

Herbert Hoover Dike, FL

7 May 2009

STATUS OF LOCAL COOPERATION: A Partnership Agreement (PA) is not required for the Herbert Hoover Dike Project. There are resolutions through which the sponsor, South Florida Water Management District (SFWMD) commits to items of local cooperation. This consists of Resolutions 12 (1948) and 398(1949). The repairs to the Herbert Hoover Dike are being 100% Federally funded. Any additional real estate or easements required for the repairs are the responsibility of the local sponsor.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal (Corps) cost estimate of \$959,600,000 is no change from the latest estimate submitted to Congress (FY2009).

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The draft EIS for the project was completed December 1998. A Supplemental EIS was prepared and completed in January 2005 and the Record of Decision was signed in September 2005. A Supplemental EIS for Reach 1 design is scheduled to be completed in March 2010. A Supplemental EIS for Reaches 2 and 3 is scheduled to be completed in May 2010.

OTHER INFORMATION: Funding for the major rehabilitation were appropriated in FY 2002. All funding prior to FY 2002 was appropriated through dam safety.

A value engineering (VE) study was done on design for Reach 1 described in the 2000 MRR. The VE recommendation was a modified plan of the recommended plan in the MRR. Subsequently, a Detailed Design Report (DDR) analyzed the VE plan and determined that it permitted too much seepage flow through the section and impacted local flood control. Following input from a variety of expert sources, the Corps convened an independent technical review panel to further evaluate the design of the proposed repairs, which were underway. After reviewing the findings of this panel, the Corps decided to fundamentally alter its plans for strengthening the HHD. The most recent approved MCASES is contained in the 2000 MRR. Major rehabilitation reports will be prepared for other reaches of the dike. Preliminary analyses indicate that construction of a cut-off wall in conjunction with landside repairs will be required in the 27-mile stretch of Reaches 2 and 3, which when complete would increase reliability of Reaches 1, 2, and 3 to authorized levels of protection.

The Herbert Hoover Dike Project is a multi-purpose project authorized for flood control, water supply, and navigation. The Comprehensive Everglades Restoration Plan (CERP) assumed the dike was fully functional. A fully functional dike will support the authorized ecosystem restoration benefits of the CERP. The current effort to strengthen the dike, when completed, will allow the Corps to hold more water safely in the lake. This will enable the Corps to release excess water to the estuaries of the Indian River Lagoon and the Caloosahatchee River in a more controlled, less damaging, fashion. In the long-term, it will also enable the Corps to release more water during dry periods to benefit the ecosystem of the Everglades.

SUMMARIZED FINANCIAL DATA: HHD REACH 1

Estimated Federal Cost	416,652,000
Estimated Non-Federal Cost	31,500,000
Cash Contributions	0
Other Costs	31,500,000
	0
Total Estimated Project Cost	448,152,000

SUMMARIZED FINANCIAL DATA: HHD REACH 2 & 3

Estimated Federal Cost	244,881,000
Estimated Non-Federal Cost	0
Cash Contributions	0
Other Costs	0
Total Estimated Project Cost	244,881,000

Cost is estimated based upon recent design changes for Reach 1.

REMAINING BENEFIT-REMAINING COST RATIO (Reaches 1, 2 & 3): Not available. The latest economic analysis is based on a different, less expensive design.

TOTAL BENEFIT-COST RATIO (Reaches 1, 2 & 3): Not available. The latest economic analysis is based on a different, less expensive design.

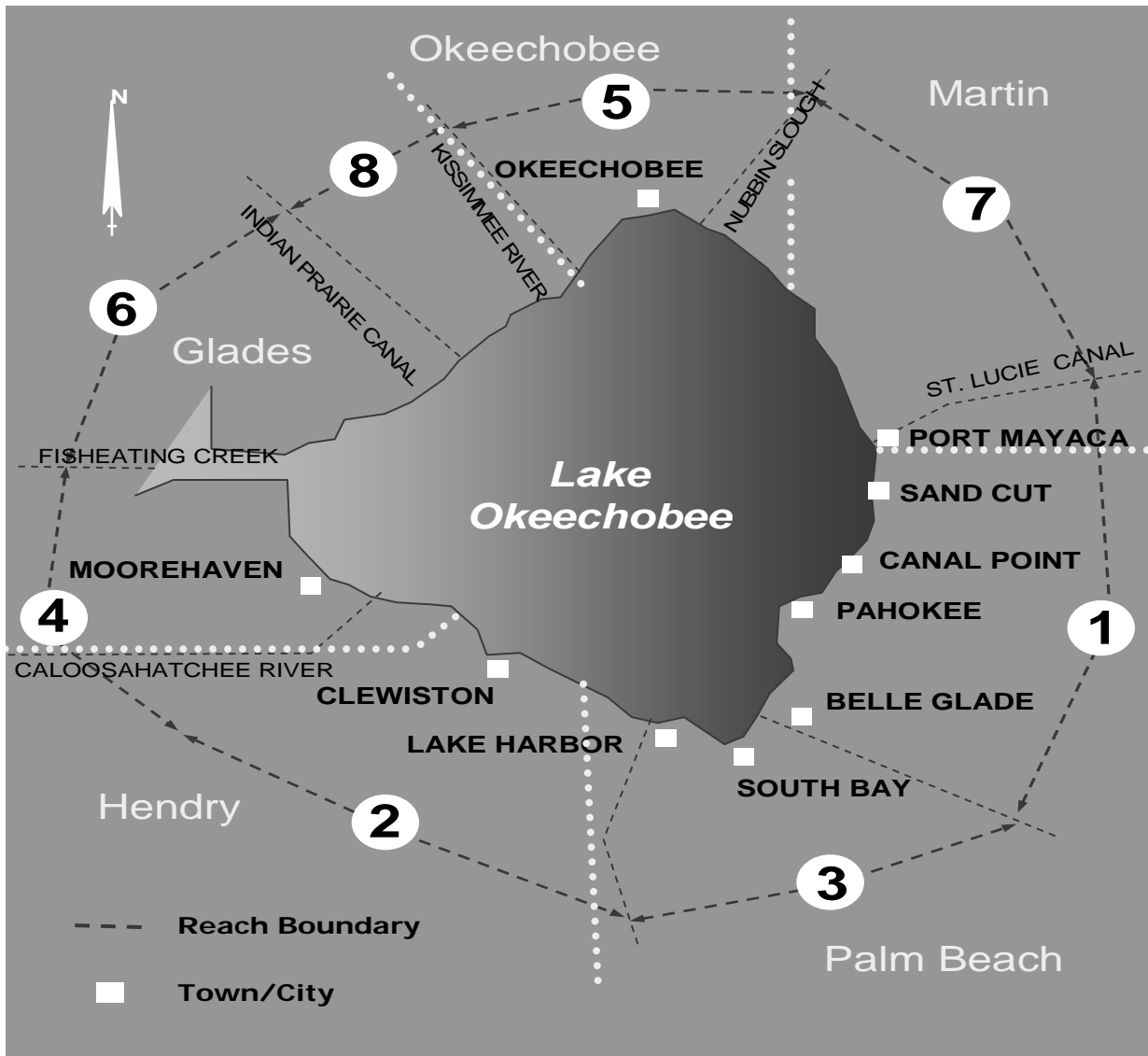
Division: South Atlantic

District: Jacksonville

Herbert Hoover Dike, FL

7 May 2009





US Army Corps  
of Engineers  
Jacksonville District

# HHD Rehabilitation

## Reaches in miles

1. 22.4	2. 20.4
3. 6.7	4. 15.7
5. 14.5	6. 28.0
7. 17.6	8. 12.5

## Project construction Priorities

Reaches: 1, 2, 3

APPROPRIATION TITLE: Construction – Local Protection Project (Flood and Coastal Storm Damage Reduction)

PROJECT: Martin County, Florida (Continuing)

LOCATION: Martin County is located about 100 miles north of Miami on the east coast of Florida due east of Lake Okeechobee. The Martin County Atlantic coastline is located in the southeastern section of Florida with the Indian River Lagoon to the West, the Atlantic Ocean to the East, St. Lucie Inlet to the South, and St. Lucie County to the North. The renourishment project itself is located on Hutchinson Island, which stretches from the St. Lucie/Martin County line to the southern boundary of Stuart Public Beach Park.

DESCRIPTION: The recommended plan of improvement for Martin County provides for restoration of a protective beach along 3.75 miles of shoreline. The plan includes restoration of the primary dune, as needed, to an elevation of 12.5 feet above mean sea level and a top width of 20 feet, as well as a 35-foot-wide protective berm at to elevation of 8.0 feet mean sea level. The recommended plan was designed to reduce associated environmental impacts to minimum levels. Of primary importance is the impact of construction activities on sea turtle nesting. Due to this, future nourishments of the Martin County shore protection project are scheduled to occur between November 1st and April 30th. Initial construction was completed 15 April 1996.

AUTHORIZATION: Water Resources Development Act of 1990.

REMAINING BENEFIT-REMAINING COST RATIO: Not applicable because initial construction has been completed.

TOTAL BENEFIT-COST RATIO: 4.0 to 1 at 7 percent.

INITIAL BENEFIT-COST RATIO: 5.0 to 1 at 8-5/8 percent (FY 1990).

BASIS OF BENEFIT-COST RATIO: Benefits are from the Martin County, Florida, General Design Memorandum dated December 1993 (revised June 1994) at December 1993 price levels.

Division: South Atlantic

District: Jacksonville

Martin County, FL

7 May 2009

SUMMARIZED FINANCIAL DATA			ACCUM PCT OF EST FED COST	STATUS (1 Jan 2009)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost		26,200,000		Beach Replenishment		
Initial Construction	5,422,000			Initial Fill	100	Apr 1996
Periodic Nourishment	20,778,000			Periodic Nourishment 1	100	Apr 2003
Estimated Non-Federal Cost		29,900,000		Periodic Nourishment 2	100	Apr 2005
Initial Construction	6,217,000			Remaining Nourishments 3-5	0	TBD
Cash Contribution	6,190,000					
Other Costs	27,000					
Periodic Nourishment	23,683,000					
Cash Contributions	23,683,000					
Other Costs	0					
Total Estimated Project Cost		56,100,000				
Initial Construction	11,639,000					
Periodic Nourishment	44,461,000					
Allocations to 30 September 2006		13,349,000				
Allocation for FY2007						
Allocation for FY2008						
Conference Allowance for FY 2009		0				
Allocation for FY 2009		0				
Allocations through FY 2009		13,349,000	51%			
Allocation Requested for 2010		350,000	52%			
Programmed Balance to Complete after FY 2010		12,501,000				
Unprogrammed Balance to Complete after FY 2010		0				

PHYSICAL DATA

Initial Beach Fill 1,297,500 Cubic yards

Division: South Atlantic

District: Jacksonville

Martin County, FL

7 May 2009

Future Periodic Nourishment

589,600 Cubic yards every 11 years

JUSTIFICATION: Martin County is a rapidly developing region of southern Florida with an estimated 1985 population of 80,000. The population is expected to grow to 165,000 by the year 2020. Economic development depends heavily upon tourism, with other major industries including aerospace, plastics, and agriculture. The majority of the development on Hutchinson Island within the previous 10 years consists of multi-unit residential structures. A feasibility report was completed in September 1985. A General Design Memorandum (GDM) with an Environmental Assessment was approved June 1994. The recommended plan described in the GDM, estimated to cost \$55,900,000 with an estimated Federal cost of \$25,600,000 and an estimated non-Federal cost of \$30,300,000, provides for initial beach fill and periodic nourishment for 3.75 miles beginning at the St. Lucie/Martin County and proceeding south on Hutchinson Island. The plan includes restoration of the primary dune and a 35-foot protective beach to provide storm damage protection along the project area. The average annual benefits amount to \$5,674,000. Average annual costs are \$1,142,000. The benefit-cost ratio is 5.0 to 1.

The project was authorized for construction by the Water Resources Development Act of 1990. The cost sharing requirements as stated in the GDM and the PCA calls for Martin County Board of County Commissioners to pay 53.41 percent of all costs associated with the initial construction and future nourishments of the project.

The annual storm damage prevention benefits, based on current shorefront development, are estimated to be \$4.972 million. Average annual benefits for the recommended plan are as follows:

Annual Benefits	Amount
Storm Damage Prevention	4,972,000
Recreation Benefits	702,000
Total	5,674,000

FISCAL YEAR 2009: Previously appropriated funds will be used to complete the NEPA process on a new borrow site and complete public involvement activities.

FISCAL YEAR 2010: Funding will be used to complete plans and specifications and prepare for contract advertisement of the next nourishment contract.

Engineering & Design and pre-award activities	\$350,000
Total	\$350,000

Division: South Atlantic

District: Jacksonville

Martin County, FL

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NON-FEDERAL COST: The non-Federal cost-sharing reflected in the Martin County, Florida, General Design Memorandum dated December 1993 (revised June 1994), and the PCA is 53.41%.

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation, and Replacement Costs
Provide lands, easements, right-of-ways, relocations, and dredged material disposal sites	27,000	
Pay 53.41 percent of costs allocated to initial fill	6,190,000	
Pay 53.41 percent of costs allocated to periodic renourishment of the project shoreline	23,683,000	
<b>Total Non-Federal Costs</b>	<b>29,900,000</b>	

STATUS OF LOCAL COOPERATION: A Project Cooperation Agreement was executed in August 1995.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal (Corps) cost estimate of \$26,200,000 is a decrease of \$9,600,000 from the latest estimate (\$35,800,000) presented to Congress (FY 2001). This change includes the following items:

Item	Amount
Price De-Escalation on Construction Features	\$9,600,000
<b>Total</b>	<b>\$9,600,000</b>

STATUS OF ENVIRONMENTAL IMPACT STATEMENT COMPLIANCE: A final EIS was prepared and included in the Feasibility Report dated September 1985 (revised June 1986). An Environmental Assessment and a FONSI (Finding-of-No-Significant-Impact) are included in the General Design Memorandum dated December 1993 (revised June 1994).

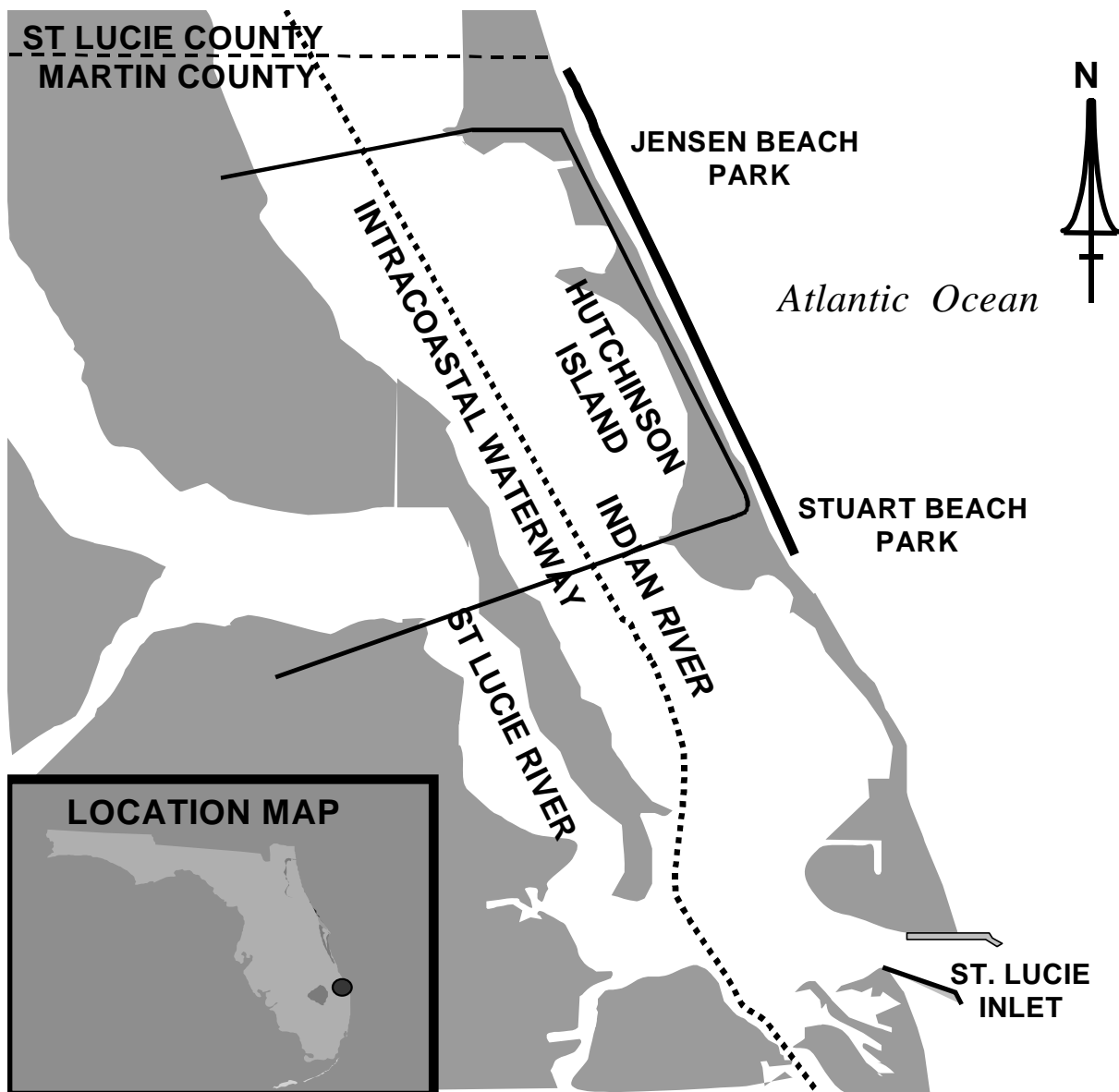
OTHER INFORMATION: Funds to initiate construction were appropriated in FY 1990. The first renourishment was completed April 2003 and renourished the southern half of the project only. The second renourishment occurred in response to hurricane damages to the beach. This third renourishment will occur in 2011 pending appropriation of funds.

Division: South Atlantic

District: Jacksonville

Martin County, FL

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**MARTIN COUNTY,  
FLORIDA**

Division: South Atlantic

District: Jacksonville

Martin County, FL

7 May 2009

APPROPRIATION TITLE: Construction – Local Protection Project (Flood and Coastal Storm Damage Reduction)

PROJECT: Pinellas County, Florida (Continuing)

LOCATION: The project is located along the west-central coast of Florida covering about 25 miles of the island beaches in the Clearwater-St. Petersburg area of Pinellas County, extending from Dunedin Pass to Pass-A-Grille.

DESCRIPTION: The project provides for restoration of 5,000 feet of beach at Clearwater Beach Island; 41,700 feet of beach at Sand Key; 10,700 feet of beach at Treasure Island; 2,800 feet of beach on Long Key; advance nourishment of each island; construction of 600 feet of revetment at Long Key and breakwaters at locations along Sand Key; and periodic nourishment of each island as needed. All work is programmed except for the Clearwater Beach segment.

AUTHORIZATION: River and Harbor Act of 1966 and Water Resources Development Act of 1986.

REMAINING BENEFIT-REMAINING COST RATIO: Clearwater Beach Island, 1.2 to 1.0 at 7 percent; Sand Key, Treasure Island, and Long Key not applicable because initial construction has been completed.

TOTAL BENEFIT-COST RATIO: The benefit-cost ratio for the Sand Key element (budget request), excluding recreation benefits, is 5.2 to 1 at 7 percent.

INITIAL BENEFIT-COST RATIO: Clearwater Beach Island, 1.2 to 1.0 at 7-1/8 percent; Sand Key, 9.8 to 1.0 at 7-5/8 percent; Treasure Island, 7.6 to 1.0 at 3-1/8 percent; Long Key 1.8 to 1.00 at 3-1/8 percent.

BASIS OF BENEFIT-COST RATIO: Benefit-cost ratios are based upon the approved Limited Reevaluation Report and Environmental Summary for Pinellas County, Florida, Beach Erosion Control Project dated April 1994 (revised August 1994) at October 1993 price levels.

SUMMARIZED FINANCIAL DATA			ACCUM PCT OF EST FED COST	STATUS (1 Jan 2009)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost		178,800,000		Groins:		
		158,400,000		Treasure Island	100	Sep 1976
Programmed Construction				Treasure Island Groin	100	Sep 1976
Initial Construction	17,513,000			No. 2 Extension	100	Jun 1983
Periodic Nourishment	140,887,000			Pass-A-Grille	100	Jun 1984
Unprogrammed Construction		20,400,000		Rehabilitation of N. Groin at		
Initial Construction	3,452,000			John's Pass	100	Dec 1987
Periodic Nourishment	16,948,000					
Estimated Non-Federal Cost		119,800,000		Breakwaters:		
				Long Key	100	Sep 1986
Programmed Construction		107,000,000		Redington Shores Breakwater	100	Mar 1986
Initial Construction	17,791,000			Initial Fill:		
Cash Contribution	17,729,000			Treasure Island	100	Jul 1969
Other Costs	62,000			Long Key	100	Apr 1980
Periodic Nourishment	89,209,000			Sand Key	100	Sep 1993
Cash Contributions	89,006,000			Clearwater	0	Unprogrammed
Other Costs	203,000			Nourishment:		
Estimated Non-Federal Cost				Treasure Island 1st	100	Nov 1971
Unprogrammed Construction		12,800,000		Treasure Island 2nd	100	Mar 1973
Initial Construction	1,747,000			Treasure Island 3rd	100	Jun 1976
Cash Contributions	1,741,000			Treasure Island 4th	100	Jun 1983
Other Costs	6			Treasure Island 5th	100	Apr 1992
Periodic Nourishment	11,053,000			Treasure Island 6th	100	May 1996
Cash Contributions	10,997,000			Treasure Island 7 <sup>th</sup>	100	Jul 2000
Other Costs	56			Treasure Island 8 <sup>th</sup>	80	Sep 2004
Total Estimated Programmed Construction Cost		265,400,000		Treasure Island Remainder	80	Sep 2019
				Long Key 3rd	100	May 1996
				Long Key 4 <sup>th</sup>	100	Jun 2000
				Long Key 5th	80	Sep 2004

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District: Jacksonville

Pinellas County, FL

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Initial Construction	35,304,000		Long Key Remainder	50	Sep 2030
Periodic Nourishment	231,096,000		Sand Key 1st	100	Oct 1999
			Sand Key Remainder	10	Sep 2043
Total Estimated Unprogrammed Construction Cost		33,200,000			
Initial Construction	5,199,000		Clearwater	0	Unprogrammed
Periodic Nourishment			Entire Project	40	TBD
28,001,000					
Total Estimated Project Cost		298,600,000			
Initial Construction	45,968,000				
Periodic Nourishment	252,632,000				
Allocations to 30 September 2006		72,439,000			
Allocation for FY 2007		0			
Allocation for FY2008		389,000			
Conference Allowance for FY 2009		6,699,000			
Allocation for FY 2009		6,699,000			
Allocations through FY 2009		79,527,000	44%		
Allocation Requested for 2010		6,000,000	48%		
Programmed Balance to Complete after FY 2010		72,873,000			
Unprogrammed Balance to Complete after FY 2010		20,400,000			

PHYSICAL DATA

Placement of Initial Beach Fill	Sand Key	2,173,000	Cy
	Treasure Island	599,000	Cy
	Long Key	67,000	Cy
	Clearwater Beach Island	130,000	Cy
Periodic Nourishment	Sand Key	365,200	Cy every 5 years
	Treasure Island	275,000	Cy every 5 years
	Long Key	275,000	Cy every 5 years
	Clearwater Beach Island	55,000	Cy every 5 years

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JUSTIFICATION: Erosion problems include the lowering of beach profiles, recession of the shorelines, and damage to upland properties. The shore is highly developed and used intensively year-round. The project will provide needed restoration and stability of the beaches and protection for shore development. Nourishment completed to date has been highly successful in retaining the material and providing storm damage protection benefits to development while providing a large recreational beach as incidental benefits. Average annual costs for each project are: \$3,282,000 for Sand Key; \$1,312,000 for Treasure Island; \$357,000 for Long Key, and \$602,000 for Clearwater Beach Island. Average annual benefits for each project segment are as follows (annual benefits are based upon the approved Limited Reevaluation Report and Environmental Summary for Pinellas County, Florida, Beach Erosion Control Project dated April 1994 (Revised August 1994) at October 1993 price levels):

	Annual Benefits	Amount
Sand Key:		
Beach Erosion Control/Storm Damage Prevention		18,969,000
Recreation		13,225,000
Total		32,194,000
Long Key:		
Beach Erosion Control/Storm Damage Prevention		632,000
Recreation		0
Total		632,000
Treasure Island:		
Beach Erosion Control/Storm Damage Prevention		9,924,000
Recreation		0
Total		9,924,000
Clearwater Beach Island:		
Beach Erosion Control/Storm Damage Prevention		679,000
Recreation		62,000
Total		741,000

FISCAL YEAR 2009: In FY 09 the contract for renourishment of the Long Key and Treasure Island segments will be awarded.

FISCAL YEAR 2010: Requested funding will be used to award a construction contract for renourishment of the Sand Key segment:

Sand Key Construction Contract	\$5,550,000
Supervision and Administration	450,000
Total	\$6,000,000

NON-FEDERAL COST: Non-Federal costs are in accordance with the cost sharing and financing concepts reflected in the authorizing legislation and as agreed to in the Project Cooperation Agreement (PCA) which was executed 7 April 1995. The PCA is supported by the approved Limited Reevaluation Report and Environmental Summary for Pinellas County, Florida, Beach Erosion Control Project dated April 1994 (revised August 1994) at October 1993 price levels:

Requirements of Local Cooperation	Payments During Construction and Reimbursement	Annual Operation, Maintenance, Repair, Rehabilitation, and Replacement Costs
Provide lands, easements, and rights-of-ways	327,000	
Pay percentage of all costs associated with the nourishment and renourishment of the project	119,473,000	
Total Non-Federal Costs	119,800,000	

STATUS OF LOCAL COOPERATION: The Pinellas County Board of County Commissioners has adopted resolutions agreeing to act as local sponsor for the Long Key, Treasure Island, and Sand Key segments. A Project Cooperation Agreement, in accordance with cost-sharing provisions and Section 501(b) of the WRDA of 1986, was executed 7 April 1995.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal (Corps) cost estimate of \$178,800,000 is an increase of \$11,600,000 from the latest estimate (\$167,200,000) presented to Congress (FY 2001). This change includes the following item:

Item	Amount
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Division: South Atlantic

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Price Escalation on Construction Features \$11,600,000

Total \$11,600,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT COMPLIANCE: The final Environmental Impact Statement for Sand Key, Pinellas County project, and Section 404(b) (1) Evaluation were filed with the Environmental Protection Agency on 8 November 1985.

OTHER INFORMATION: Funds to initiate construction were appropriated in FY 1994. Environmental Assessments for Long Key, Treasure Island, and Sand Key will be completed in FY2009.

SUMMARIZED FINANCIAL DATA FOR PROGRAMMED SEPARABLE ELEMENTS:

Separable Element – Sand Key

Estimated Federal Cost		118,900,000
Estimated Non-Federal Cost		79,500,000
Cash Contributions	79,394,000	
Other Costs	106,000	
Total Estimated Project Cost		198,400,000

REMAINING BENEFIT – REMAINING COST RATIO: Not applicable because construction is substantially complete

Separable Element – Treasure Island

Estimated Federal Cost		12,900,000
Estimated Non-Federal Cost		10,000,000
Cash Contributions	9,957,000	
Other Cost	43,000	
Total Estimated Project Cost		22,900,000

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District: Jacksonville

Pinellas County, FL

7 May 2009

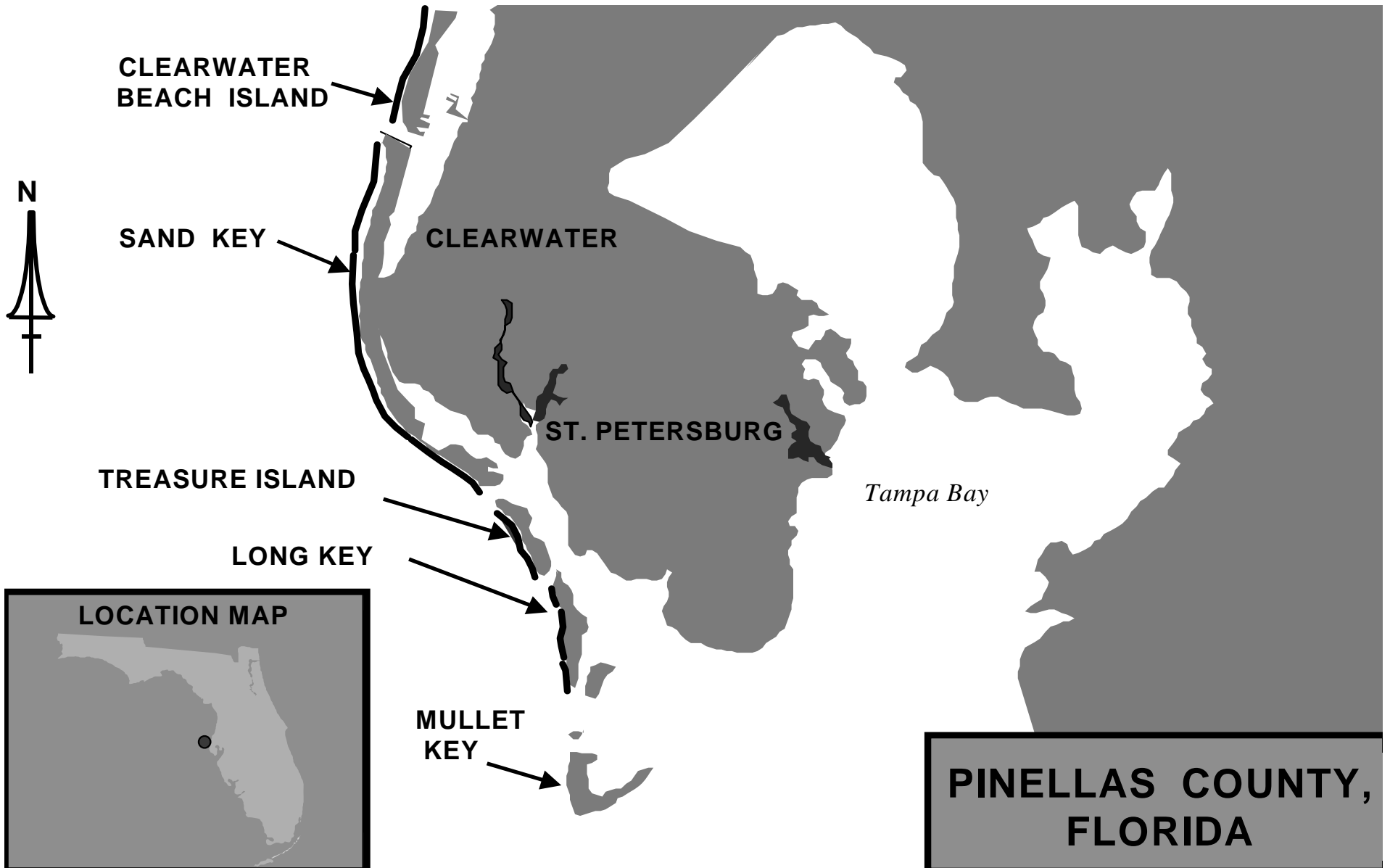
REMAINING BENEFIT – REMAINING COST RATIO: Not applicable because construction is substantially complete

SUMMARIZED FINANCIAL DATA (Continued):

Separable Element – Long Key

Estimated Federal Cost		26,600,000
Estimated Non-Federal Cost		17,500,000
Cash Contributions	17,384,000	
Other Costs	116,000	
Total Estimated Project Cost		44,100,000

REMAINING BENEFIT – REMAINING COST RATIO: Not applicable because construction is substantially complete



Division: South Atlantic

District: Jacksonville

Pinellas County, FL

7 May 2009

APPROPRIATION TITLE: Construction - Local Protection Project (Flood and Coastal Storm Damage Reduction)

PROJECT: Portugues and Bucana Rivers, Puerto Rico (Continuing)

LOCATION: Flood control improvements related to Portugues and Bucana Rivers are in and near the Municipality of Ponce on the south coast of Puerto Rico.

DESCRIPTION: The Standard Project Flood (SPF) flood protection project involves construction of 9.1 miles of channel improvements, two multi-purpose dams with uncontrolled emergency spillways, a dependable water supply for the Ponce area, and recreational facilities on the lakes and channels. The Cerrillos Dam is located on the Cerrillos (Upper Bucana) River 9.5 miles above its mouth. The Cerrillos Dam is 323 feet high and its reservoir will provide 47,900 acre-feet of flood control and water supply storage. The estimated water supply yield of Cerrillos is 22 m.g.d. The Portugués Dam flood control structure will be located on the Portugués River 8.3 miles above its mouth. The Portugués Roller Compacted Concrete (RCC) Dam will be 219 feet high. The final reservoir will provide a total storage of 12,325 acre-feet. The Portugues Dam will be awarded as one contract with five phases of construction. Phase I will include mobilization, clearing and grubbing, quarry overburden excavation, and powerline relocation. Phase II will include foundation excavation, aggregate production and dental concrete. Phase III will include aggregate production, placement of one half of the Roller Compacted Concrete (RCC). Phase IV will include final RCC placement, spillway and intake structure. Phase V will include the valve house, access road and all mechanical and electrical items for valve house.

AUTHORIZATION: Flood Control Act of 1970 and Water Resources Development Act of 1986.

REMAINING BENEFIT - REMAINING COST RATIO: 2.2 to 1 at 7 percent.

TOTAL BENEFIT - COST RATIO: 2.5 to 1 at 7 percent.

INITIAL BENEFIT - COST RATIO: 2.0 to 1 at 5-5/8 percent (FY 1974).

BASIS OF BENEFIT - COST RATIO: Benefits are from the July 1973 Design Memorandum Phase 1, Plan Formulation and Site Selection Report at July 1973 prices levels except for Portugues Dam where benefits are from the Post Authorization change report dated April 2004 and approved by MSC in July 2005.

SUMMARIZED FINANCIAL DATA		ACCUM PCT OF EST FED COST	STATUS (1 Jan 2009)	PCT CMPL	PHYSICAL COMPLETION SCHEDULE
Estimated Total Appropriation Requirement	\$616,600,000		Channels and Canals		
Future Non-Federal Reimbursement	213,974,000		Lower Channels	100	Aug 1978
			Upper Bucana Channel	100	Jun 1983
			Upper Portugues Channel	100	Jun 1994
Estimated Federal Cost (Ultimate)	402,626,000		Bucana River Debris Basin	100	Jun 1987
			Portugues Debris Basin	100	Mar 1987
Estimated Non-Federal Cost	389,974,000		Dams		
Cash Contributions	71,447,000		Cerrillos	100	Sep 1994
Other Costs	104,553,000		Portugues (Flood Control)	15	TBD
Reimbursements	213,974,000				
Water Supply	213,974,000		Recreation		
			Channels	60	TBD
Total Estimated Project Cost	\$792,600,000		Cerrillos	100	Sep 2008
			Portugues	0	TBD
Allocations to 30 September 2006	\$414,920,441				
Allocation for FY 2007	5,310,000		Entire Project	86	TBD
Allocation for FY 2008	31,727,000				
Conference Allowance for FY 2009	40,987,000				
Allocation for FY 2009	40,987,000				
Allocations through FY 2009	492,944,441	80%			
Allocation Requested for FY 2010	45,000,000	87%			
Programmed Balance to Complete After FY 2010	\$78,655,559				
Unprogrammed Balance to Complete After FY 2010	0				

Division: South Atlantic

District: Jacksonville  
7 May 2009

Portugues and Bucana Rivers, PR



PHYSICAL DATA

Dam	Portugues	Cerrillos
Type	Roller Compacted Concrete	Earth and rock-fill
Height	220 feet	323 feet
Crest Length	1,317 feet	1,555 feet
Spillway Type	Ungated concrete 150 feet wide	Ungated rock cut 400 feet wide
Reservoir Capacity (Acre-Feet)		
Flood Control	9,484	17,065
Water Supply	12,858	25,200
Sediment	2,841	5,635
Total	25,183	47,900
Portugues River Channel Enlargement		2.1 miles
Bucana River Channel Enlargement		5.7 miles
Diversion Channel Connecting Portugues River to the Lower Bucana River		1.3 miles

JUSTIFICATION: The completed components of the project (lower channels of Cerrillos Dam) provided over 100 year flood event level of protection to the eastern urban side of the city but less than 25 years to the city's main residential, commercial, public and industrial areas. Only with completion of the Portugues Dam will these areas receive the SPF level of protection as designed and authorized. There are over 15,000 families and several billion dollars worth of property subject to flooding because the dam, which was designed as an integrated system, but has not been completed, thereby exacerbating flood risk for some areas. This component is an integral part of the entire Portugues and Bucana project, and without it the lower channels will not perform effectively. Close to \$10 million has been expended during the last 10 years to repair the lower channels and lower area due to high velocities and erosion from flood waters that are designed to be held back by the Portugues Dam. The additional investment of about \$164.6 million (Federal) to complete the Portugues Dam is holding back, to a large extent, the beneficial economic development impact of the already invested \$422.1 million (Federal) in the completed components. The construction of the Portugues Dam will provide annual benefits of over \$25 million in avoided flood damages. This project, in addition to preventing damages to property, is effective in reducing a high risk to life for the populations in the project area. That risk must be considered in evaluating the project justification in addition to economic analyses. Risk is created by both hydrologic factors (flash flooding and thus short warning time) and cultural factors (few available routes of egress from the flood plain.) Average annual benefits for the total project are as follows:

Annual Benefits	Amount
Flood Control	43,387,000
Water Supply	13,968,000
Recreation	2,418,000
Area Redevelopment	1,116,000

Division: South Atlantic

District: Jacksonville  
7 May 2009

Portugues and Bucana Rivers, PR

Total 60,889,000

FISCAL YEAR 2009: Fiscal Year 2009 funds will be used to continue Phase I and Phase II of the Portugues Dam contract, which includes excavation and disposal of quarry overburden, clearing of disposal areas, access and haul roads, quarry production, foundation excavation; initiate Phase III, which includes first phase of Roller Compacted Concrete placement; and associated engineering during construction and construction management.

FISCAL YEAR 2010: The requested amount will be applied as follows:

Continue Portugues Dam Construction Contract	\$35,000,000
Engineering During Construction	1,900,000
Construction Management	4,087,000
<b>Total</b>	<b>\$40,987,000</b>

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Flood Control Act of 1970 and the Water Resources Act of 1986, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, and Replacement Costs
Provide lands, easements, and rights-of-way.	\$83,165,000	
Modify or relocate buildings, utilities, roads, bridges, and other facilities, where necessary in the construction of the project.	21,388,000	
Pay additional cash required to bring the total Non-Federal share of the flood control costs to 25 percent and bear all costs of operation, maintenance, and replacement of flood control facilities.	55,705,000	249,900
Pay one-half of the separable costs allocated to recreation and bear all costs of operation, maintenance, and replacement of recreation facilities.	15,742,000	258,300
Reimbursement for water supply on Cerrillos Dam	213,974,000	
<b>Total Non-Federal Costs</b>	<b>\$389,974,000</b>	<b>508,200</b>

STATUS OF LOCAL COOPERATION: The Commonwealth of Puerto Rico Department of Natural and Environmental Resources is the local sponsor. The following contract agreements are required pursuant to Section 221 of the River and Harbor and Flood Control Act of 1970 and the Water Resources Development Act of 1986:

Contract	Actual or Anticipated Execution Date
Section 221 – Cerrillos Reservoir Channels	15 Mar 1982 22 Jul 1974
Water Supply – Cerrillos Reservoir	15 Mar 1982
Recreation – Cerrillos Reservoir Channels	15 Mar 1982 24 Jun 1987
Project Cooperation Agreement – Portugues Reservoir	9 Aug 1993

Portugues Dam is a roller compacted concrete dam. The dam is designed as a multi-purpose dam to be constructed in two phases. The Commonwealth of Puerto Rico has requested that the dam be constructed as soon as possible for flood control and recreation, but to defer the water supply feature to a later date. By letter dated May 2003, the Commonwealth restated their commitment to the full and complete multi-purpose Portugues Dam, and agreed to pay the additional costs required for the phased construction.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal (Corps) cost estimates of \$616,600,000 is unchanged from the previous estimate (\$616,600,000) last presented to Congress (FY 2009).

STATUS OF ENVIRONMENTAL IMPACT STATEMENT COMPLIANCE: The final EIS was filed with CEQ on 25 February 1974. A Supplemental EIS for the Portugues Dam was submitted in November 1992.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in Fiscal Year 1972. Funds to initiate construction were appropriated in Fiscal Year 1975. FY10 funds will be used to initiate the Roller Compacted Concrete placement.

SUMMARIZED FINANCIAL DATA FOR PROGRAMMED SEPARABLE ELEMENTS

Channels and Canals

Estimated Federal Cost		\$116,901,000
Estimated Non-Federal Cost		62,112,000
Cash Contribution	3,731,000	
Other Costs	58,381,000	
Total Estimated Project Cost		\$179,013,000

REMAINING BENEFIT - COST RATIO: Not applicable because construction is substantially complete.

Cerrillos Dam

Estimated Total Appropriation Requirement		\$232,799,000
Future Non-Federal Reimbursement (Water Supply)		213,974,000
Estimated Federal Cost Ultimate		18,825,000
Estimated Non-Federal Cost Ultimate		247,562,000
Cash Contributions	9,708,000	
Other Costs	23,880,000	
Reimbursement:		
Water Supply	213,974,000	
Total Estimated Project Cost		\$266,387,000

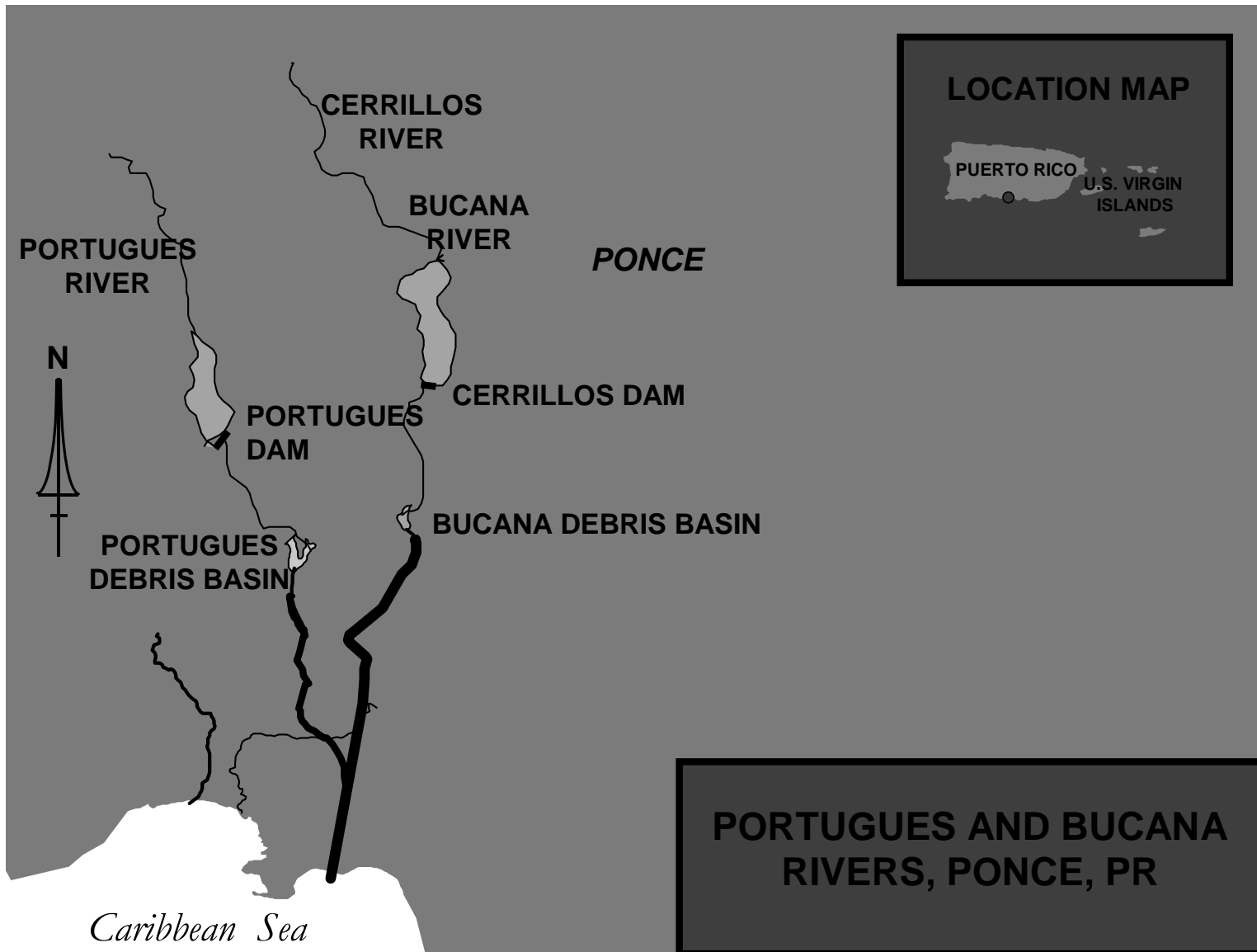
REMAINING BENEFIT-REMAINING COST RATIO: Not applicable because construction is substantially complete.

Portugues Dam

Estimated Federal Cost		\$266,900,000
Estimated Non-Federal Cost		80,300,000
Cash Contribution	58,449,000	
Other Costs	21,851,000	
Total Estimated Project Cost		\$347,200,000

REMAINING BENEFIT-REMAINING COST RATIO: 2.2 to 1 at 7 percent.

TOTAL BENEFIT-COST RATIO: 2.1 to 1 at 7 percent.



APPROPRIATION TITLE: Construction - Local Protection Project (Flood and Coastal Storm Damage Reduction)

PROJECT: Rio Puerto Nuevo, Puerto Rico (Continuing)

LOCATION: The Rio Puerto Nuevo drainage basin is located within the San Juan Metropolitan Area along the northern coast of Puerto Rico. The basin joins the southeast side of San Juan Harbor and extends south and up into the foothills of the central mountains of Puerto Rico. The Rio Piedras, Rio Puerto Nuevo, Quebrada Margarita, Quebrada Josefina, Quebrada Dona Ana, Quebrada Buena Vista, and Quebrada Guaracanal traverse the basin. The Río Puerto Nuevo Basin drains 24 square miles, 75 percent of which is highly developed with a population of 250,000 persons.

DESCRIPTION: The plan of improvement protects against the 100-year flood by the construction in the Puerto Nuevo River and its tributaries of 1.7 miles of earth lined channel, 9.5 miles of concrete lined channels (of which 5.1 miles are high velocity) and two debris basins. The plan will also require the construction of five new bridges, the replacement of 17 bridges, and the modification of eight existing bridges.

AUTHORIZATION: Water Resources Development Act of 1986.

REMAINING BENEFIT - REMAINING COST RATIO: 5.1 to 1 at 7 percent.

TOTAL BENEFIT - COST RATIO: 2.4 to 1 at 7 percent.

INITIAL BENEFIT - COST RATIO: 4.5 to 1 at 8 percent (FY1994).

BASIS OF BENEFIT - COST RATIO: Benefits are from the economic analyses performed for the revised General Design Memorandum dated June 1991 at October 1989 price levels.

SUMMARIZED FINANCIAL DATA		ACCUM PCT OF EST FED COST	STATUS (1 Jan 2009)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost	372,400,000		Relocations	40	TBD
			Roads, Railroads, Bridges	48	TBD
Estimated Non-Federal Cost	147,900,000		Channels and Canals	54	TBD
Cash Contributions	64,138,000		Recreation	0	TBD
Other Costs	83,762,000				
Total Estimated Project Costs	520,300,000		Entire Project	52	TBD
Allocations thru 30 September 2006	153,917,000				
Allocation for FY 2007	20,000,000				
Allocation for FY 2008	10,724,000				
Conference Allowance for FY 2009	11,171,000				
Allocation for FY 2009	11,171,000				
Allocations through FY 2009	195,812,000	53%			
Allocation Requested for 2010	5,000,000	54%			
Programmed Balance to Complete after FY 2010	171,588,000				
Unprogrammed Balance to Complete after FY 2010	0				

#### PHYSICAL DATA

Relocations - Bridges (Replacement)	17
Relocations - Bridges (Modification)	8
Relocations - Bridges (Construction)	5
Canals - Miles	11.2
Debris Basins	2
Stilling Areas	2

Division: South Atlantic

District: Jacksonville  
7 May 2009

Rio Puerto Nuevo, PR



JUSTIFICATION: The Rio Puerto Nuevo flows thru the middle of the San Juan Metropolitan area. The intense development in the basin has altered the natural discharge patterns, significantly increased the runoff rates and restricted the flows in the floodplain. In very short time, discharges reach over 30,000 cfs with stages of over 4 ft and velocities approaching 12 – 15 ft per second. There are over 250,000 people living in the 25 square mile drainage basin and over a quarter of a million people commute every day to work, study and visit the area. The area is 100% developed. About 125,000 persons are directly or indirectly affected by the 100-year flood. Property subject to flooding includes over 8,000 housing structures, several hospitals, police stations, dozens of schools and higher education colleges, San Juan Harbor ports facilities, electric power plants, wastewater treatment plant, main highways and bridges, the financial district and several regional shopping centers valued at over \$10 billion. Overflow of Rio Puerto Nuevo, even from very small floods resulting from frequent rainfalls of 2 inches or more in a few hours, bring the San Juan area to a stand still situation for hours several times per year. This results in millions of dollars of damages. San Juan is always part of Presidential Disaster Declarations for Puerto Rico associated with floods. There have been 8 of these during the last 20 years. Recently, Tropical Storm Jeanne, in 2004, resulted in FEMA expending over \$350 million in damage relief over the Island. Average annual inundation damage in the Rio Puerto Nuevo area is estimated at over \$75 million. Over 89% of these damages will be reduced by the proposed flood control measures. This project, in addition to preventing damages to property, is effective in reducing a high risk to life for the populations in the project area. That risk must be considered in evaluating the project justification in addition to economic analyses. Risk is created by both hydrologic factors (deep and fast flood waters; critical infrastructure; possible bridge failure) and cultural factors (large population). Average annual benefits are as follows:

Annual Benefits	Amount
Flood Control	66,750,000
Total	66,750,000

FISCAL YEAR 2009: Fiscal Year 2009 funds will be used to continue the De Diego Bridge and the Bechara Channel contracts, engineering during construction and construction management activities for the two construction contracts.

FISCAL YEAR 2010: The requested amount will be applied as follows:

Continue de Diego Bridge contract	\$ 3,000,000
Continue Bechara Channel contract	1,000,000
Planning, Engineering, and Design	330,000
Supervision and Administration	670,000
Total	\$ 5,000,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the authorizing legislation, the non-Federal sponsor must comply with the requirements listed below for programmed work.

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation, and Replacement Costs
Provide lands, easements, right-of-way, and dredged material disposal areas.	36,611,000	0
Modify or relocate buildings, utilities, roads, bridges (except railroad bridges), and other facilities, where necessary in the construction of the project.	47,151,000	0
Pay one-half of the separable costs allocated to recreation and bear all costs of operation, maintenance, and replacement of recreation facilities.	451,000	0
Pay 12.37 percent of the first costs allocated to flood control, and bear all cost of operation, maintenance, repair, rehabilitation, and replacement of flood control structures.	63,687,000	0
<b>Total Non-Federal Costs</b>	<b>147,900,000</b>	<b>0</b>

The non-Federal sponsor has also agreed to make all required payments concurrently with project construction.

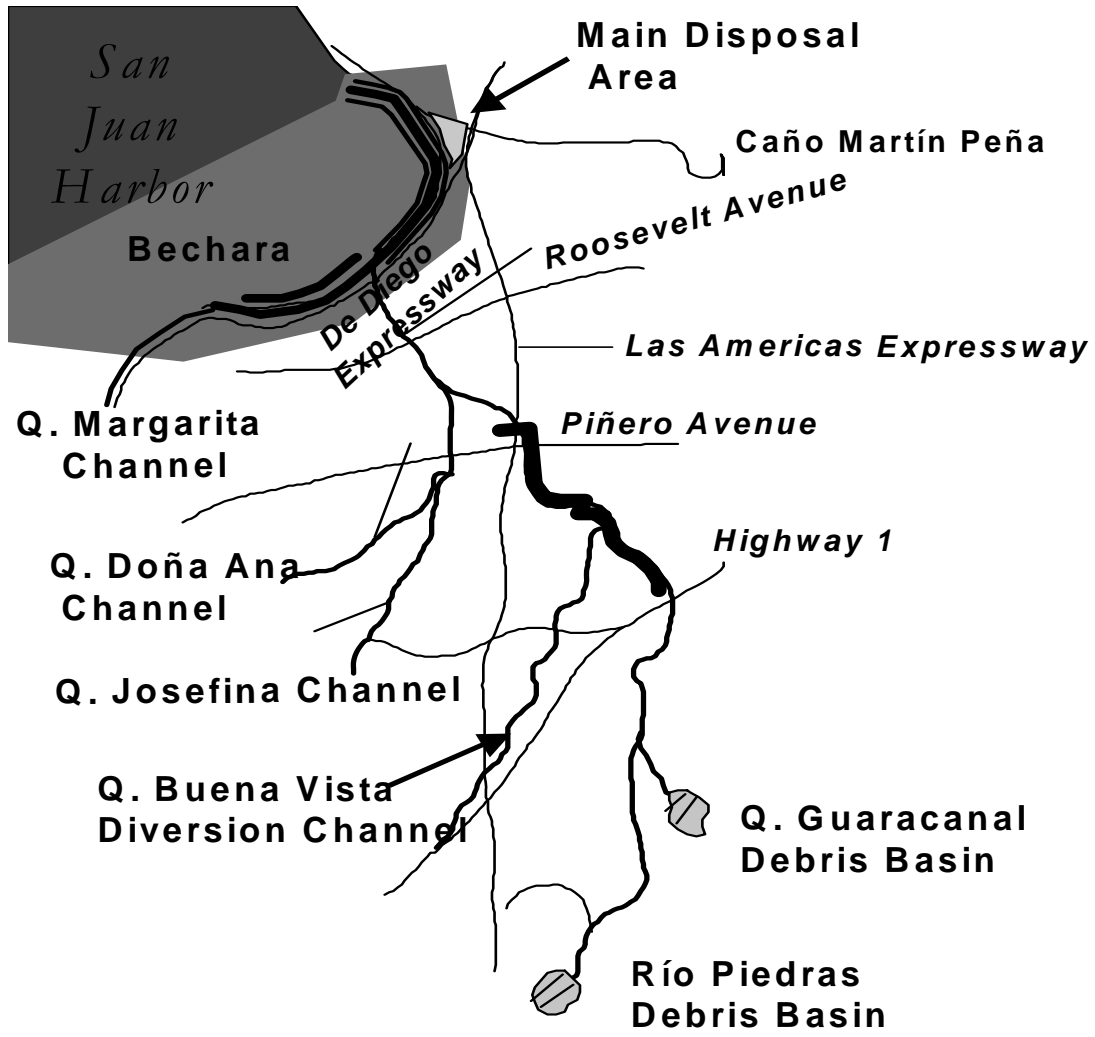
STATUS OF LOCAL COOPERATION: The Commonwealth of Puerto Rico Department of Natural and Environmental Resources is the local sponsor. A Project Cooperation Agreement for the project was executed in March 1994.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal (Corps) cost estimate of \$372,400,000 is an increase of \$11,500,000 over the last estimate (\$360,900,000) presented to Congress (FY 2009). This change includes the following items:



Item	Amount
Price escalation on construction features	\$ 4,934,000
Post contract award and other estimating adjustments	6,566,000
<b>Total</b>	<b>\$11,500,000</b>

STATUS OF ENVIRONMENTAL IMPACT STATEMENT COMPLIANCE: Environmental Impact Statement for the project was filed on 6 December 1985. The Finding of No Significant Impact (FONSI) was approved in July 1992.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in Fiscal Year 1987. Funds to initiate construction were appropriated in Fiscal Year 1994.



**LEGEND**

-  MAIN DISPOSAL AREA
-  CONCRETE CHANNELS
-  EARTH CHANNEL
-  VERTICAL WALLS
-  RECREATION FEATURE
-  MITIGATION AREA
-  LEVEE

**N**  


**RIO PUERTO NUEVO  
PUERTO RICO**

APPROPRIATION TITLE: Construction - Local Protection (Flood Damage Reduction)

PROJECT: Roanoke River Upper Basin, Virginia, Headwaters Area (Continuing)

LOCATION: The project is located on the Roanoke River in the City of Roanoke, Virginia.

DESCRIPTION: The project includes about 6.2 miles of channel widening along the 10 miles of river through the City of Roanoke, Virginia. Channel widening will be accomplished with the construction of a benched channel above the elevation of the average stream flow. Other flood damage reduction features include flood proofing at two locations, training walls to prevent floodwater intrusion into low areas along the river, and a flood warning system. Recreation facilities consist of a 9.5-mile recreation trail along the project reach and access and parking areas. All work is programmed.

AUTHORIZATION: Water Resources Development Act of 1986, Energy and Water Development Appropriation Act of 1990 and Energy and Water Development Appropriation Act of 2004.

REMAINING BENEFIT - REMAINING COST RATIO: 2.2 to 1 at 7 percent.

TOTAL BENEFIT - COST RATIO: 1.6 to 1 at 7 percent.

INITIAL BENEFIT - COST RATIO: 1.1 to 1 at 8-7/8 percent (FY 1990).

BASIS OF BENEFIT - COST RATIO: Benefits are from the General Design Memorandum approved in January 1990 at 1988 price levels.

SUMMARIZED FINANCIAL DATA			ACCUM PCT OF EST FED COST	STATUS (1 Jan 2009)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost		\$46,700,000		Entire Project	82	TBD
Estimated Non-Federal Cost		\$23,300,000				
Cash Contributions	8,733,000					
Other Costs	14,567,000					
Total Estimated Project Cost		\$70,000,000				
Allocations to 30 September 2006		\$20,422,000				
Allocation for FY 2007		8,300,000				
Allocation for FY 2008		9,502,000				
Conference Allowance for FY 2009		1,029,000				
Allocation for FY 2009		1,029,000				
Allocations through FY 2009		39,253,000	84			
Allocation Requested for 2010		1,075,000	86			
Programmed Balance to Complete after FY 2010		6,372,000				
Unprogrammed Balance to Complete after FY 2010		0				

#### PHYSICAL DATA

##### Project Features:

Channel Excavation	27,000 linear feet
Training Wall	6,300 linear feet
Paved Recreation Trail	50,160 linear feet
Parking/Access Areas	3 each
Riprap	28,000 tons

##### Relocations:

Utility	3,880 linear feet
Roads	2,000 linear feet
Overhead Line	6,350 linear feet
Buildings	13 each

Division: South Atlantic

District: Wilmington

Roanoke River Upper Basin, VA, Headwaters Area

7 May 2009

PHYSICAL DATA - Continued

Land Acquisition (acres):	
Total Rights of Way Requirement	195
Flood Control Rights of Way	185
Disposal Areas (Temporary)	40
Recreation Rights of Way (Separable)	20
Right of Way Underwater	110

JUSTIFICATION: The project will provide improvements for flood damage reduction and recreation. Most of the property that would be protected is industrial and commercial with a value of \$680,000,000. The average annual damages in the project area are estimated at \$5,777,000 at October 1988 price levels and 1988 level of development over the next 50 years if no flood damage reduction facilities are provided to manage flood risk. The project would reduce these damages by \$3,126,200. The maximum flood of record, November 1985, caused damages estimated at \$112,424,000 under 1985 conditions of development and price levels. Damages at 1988 levels of development and October 1988 price levels would be \$119,997,000. Floodplain development is not promoted by the project. Return on investments by local businesses is adversely affected by the flooding problem. Industrial and commercial property owners have to use their resources to repair and attempt flood proofing that could be used for expansion and modernization. In this respect, return on investment is suppressed. The project will have a beneficial effect on a variety of businesses and increase return on investment throughout the flood plain. This project, in addition to preventing damages to property, is effective in reducing a high risk to life for the populations in the project area. That risk must be considered in evaluating the project justification in addition to economic analyses. Risk is created by both hydrologic factors (recent flooding in urban area, hospital and sewage treatment plant in floodplain, high velocity of flow from mountains into low areas with short lead time and dense traffic) and cultural factors (major urban area). Average annual benefits are as follows:

Annual Benefits	Amount
Flood Damage Reduction	\$5,111,000
Recreation	1,642,000
Total	\$6,753,000

FISCAL YEAR 2009: The allocated amount of \$1,029,000 will be used to continue monitoring of endangered species, planning, engineering and design and construction management.

FISCAL YEAR 2010: The requested amount of \$1,075,000 will be applied as follows:

Continue Monitoring of Endangered Species	\$ 300,000
Planning, Engineering and Design	180,000
Construction Management	595,000
Total	\$1,075,000

Division: South Atlantic

District: Wilmington

Roanoke River Upper Basin, VA, Headwaters Area

7 May 2009

NON-FEDERAL COSTS: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below:

Requirements of local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation, and Replacement Costs
Provide all lands, easements, and rights of way including suitable spoil disposal areas	\$ 7,968,000	
Modify or relocate buildings, utilities, roads and other facilities except railroad bridges, where necessary for construction of the project.	6,559,000	
Pay 25 percent of the cost of the flood warning system (partially offset by a credit for lands, easements, rights of way, and relocations).	10,000	
Pay 5 percent of the total cost allocated to flood damage reduction in cash in addition to all lands, easements, rights of way and relocations, and bear all costs of operation, maintenance, and replacement of flood damage reduction facilities.	2,215,700	\$101,000
Pay one-half of the separable cost allocated to recreation (partially offset by a credit for land, easements, rights of way and relocations) and bear all costs of operation, maintenance and replacement of recreation facilities	6,180,300	9,000
Pay 25 percent of the cost of the non-structural flood proofing (partially offset by a credit for lands, easements, rights of way and relocations).	367,000	
Total Non-Federal Costs	\$23,300,000	\$110,000

The non-Federal sponsor has also agreed to make all required payments concurrently with project construction.

Division: South Atlantic

District: Wilmington

Roanoke River Upper Basin, VA, Headwaters Area

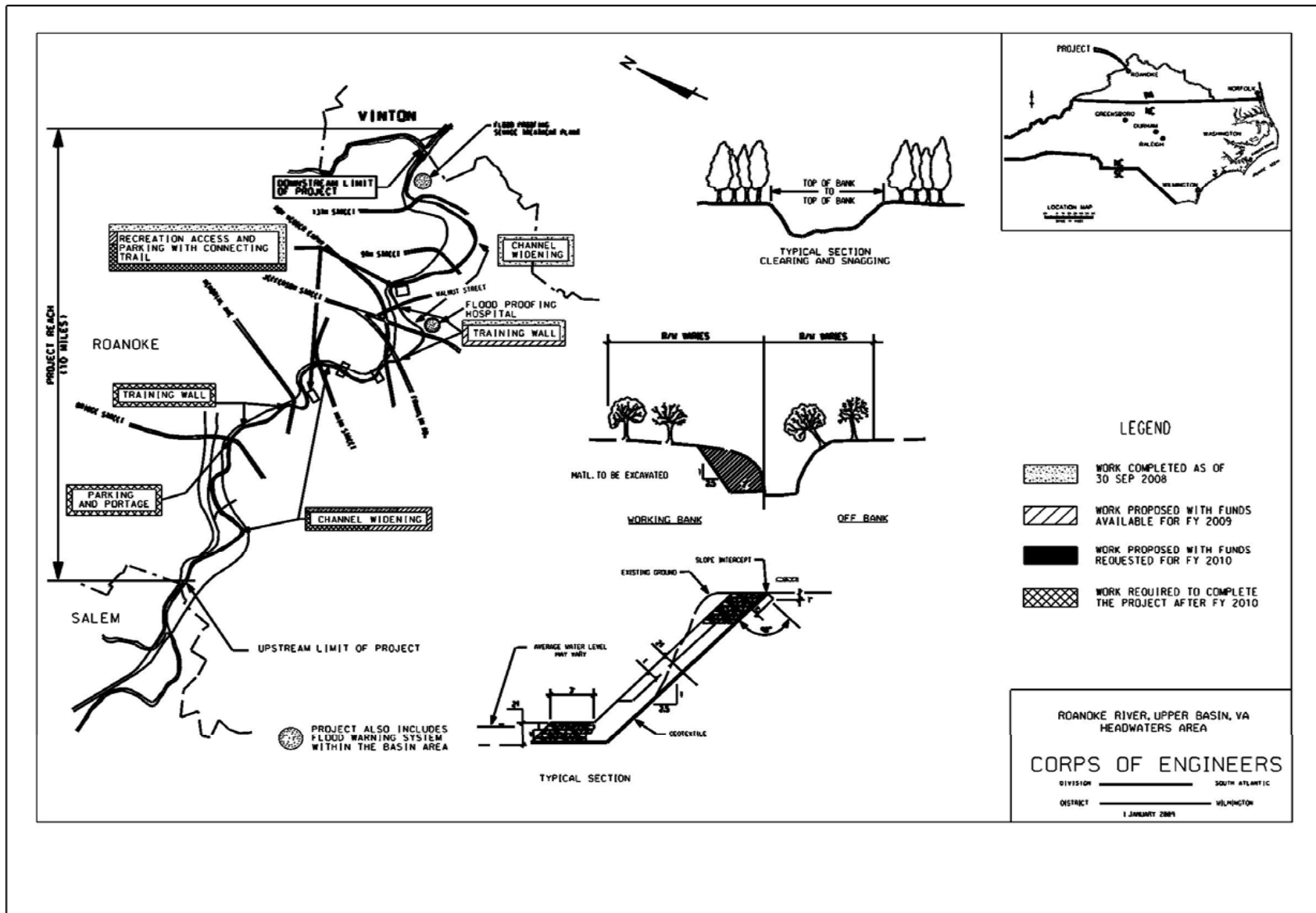
7 May 2009

STATUS OF LOCAL COOPERATION: The City of Roanoke is the project sponsor. On 11 April 1989, the voters of the City of Roanoke approved the sale of \$7.5 million worth of bonds to pay Roanoke's required cash contribution, acquire lands that are not currently owned and pay for relocation of bridges and utilities. The Local Cooperation Agreement was executed on 25 June 1990. A supplement to the Local Cooperation Agreement addressing the reimbursement for the flood proofing of the hospital was executed in January 1993. Design and construction of the project is now underway, which had been deferred for eight years due to concerns the sponsor had over assuming liability for potential HTRW issues that might arise during project construction. The City in conjunction with the Corps, EPA and the Virginia Department of Environmental Quality conducted an extensive investigation and review of the project right of way to alleviate these concerns. Hazardous material was found at two sites. The landowner has cleaned these sites. Soil contamination was found at 14 other sites. A project action plan for the screening and disposal of this material has been prepared and reviewed by the sponsor and the Virginia Department of Environmental Quality.

STATUS OF ENVIRONMENTAL IMPACT STATEMENT COMPLIANCE: The final Environmental Impact Statement was filed with the Environmental Protection Agency in February 1985. A Finding of No Significant Impact for design changes was signed on 30 June 1989.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in FY 1986 and funds to initiate construction were appropriated in FY 1990. The project was modified by the Energy and Water Development Appropriations Act of 2004 to increase the total estimated project cost to \$61,700,000 (October 2004 price levels). The Roanoke Logperch, which is located in the project area, was listed as an endangered species effective 18 September 1989 and will be monitored during project construction. Reimbursement for the Federal share of the flood proofing of Roanoke Hospital, as authorized by Section 102cc of the Water Resources Development Act of 1990, in the amount of \$501,000, was made in February 1993.





Division: South Atlantic

District: Wilmington

Roanoke River Upper Basin, VA, Headwaters Area

7 May 2009

APPROPRIATION TITLE: Construction – Local Protection (Coastal Storm Damage Reduction)

PROJECT: West Onslow Beach and New River Inlet (Topsail Beach), North Carolina (Continuing)

LOCATION: The project is located in the Town of Topsail Beach at the southern end of Topsail Island in Pender County on the southeastern North Carolina Coast. Topsail Island is a barrier island located approximately 40 miles northeast of Wilmington, North Carolina.

DESCRIPTION: The authorized project provides for a dune at elevation 13 feet National Geodetic Vertical Datum (NGVD) and a berm at elevation 9 feet NGVD for a distance of 9,500 feet and two transition sections at elevation 7 feet NGVD along the southern and northern ends for distances of 2,400 feet and 6,860 feet, respectively. The total project length is 19,000 feet. The authorized project has been reevaluated under a General Reevaluation Report (GRR). The recommended plan is the locally preferred plan for a dune at elevation 12 feet NGVD fronted by a berm at elevation 7 feet NGVD for a distance of 23,200 feet and two transition sections at elevation 7 feet NGVD along the southern and northern ends for distances of 1,000 feet and 2,000 feet, respectively.

AUTHORIZATION: Water Resources Development Act of 1992.

REMAINING BENEFIT-REMAINING COST RATIO: 3.2 to 1 at 7 percent.

TOTAL BENEFIT-COST RATIO: 3.2 to 1 at 7 percent.

INITIAL BENEFIT-COST RATIO: 1.5 to 1 at 8-1/2 percent (FY 1994)

BASIS OF BENEFIT-COST RATIO: Benefits are from the final integrated General Reevaluation Report and Environmental Impact Statement (EIS) dated February 2009 at October 2008 price levels.

Division: South Atlantic

District: Wilmington

West Onslow Beach and New River Inlet (Topsail Beach), NC

7 May 2009

SUMMARIZED FINANCIAL DATA			ACCUM PCT OF EST FED COST	STATUS (1 Jan 2009)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost		\$144,000,000		Initial Construction	2	TBD
Initial Construction	24,407,000			Future Nourishment	0	TBD
Future Nourishment	119,593,000			Entire Project	1	TBD
Estimated Non-Federal Cost		\$ 133,000,000				
Initial Construction		13,407,000				
Cash Contributions	11,926,000					
Other Costs	1,481,000					
Future Nourishment		119,593,000				
Cash Contributions	119,593,000					
Other Costs	0					
Total Estimated Project Cost		\$277,000,000				
Initial Construction	37,814,000					
Future Nourishment	239,186,000					
Allocations to 30 September 2006		\$ 3,085,600				
Allocation for FY 2007		0				
Allocation for FY 2008		49,000				
Conference Allowance for FY 2009		0				
Allocation for FY 2009		100,000				
Allocation through FY 2009		3,234,600	3			
Allocation Requested for FY 2010		400,000	3			
Programmed Balance to Complete after FY 2010		140,365,400				
Unprogrammed Balance to Complete after FY 2010		0				

Division: South Atlantic

District: Wilmington

West Onslow Beach and New River Inlet (Topsail Beach), NC

7 May 2009

PHYSICAL DATA – Authorized Project

Project Dimensions:  
 Shoreline – 18,760 feet  
 Main Fill – 9,500 feet  
 South transition – 2,400 feet  
 North transition – 6,860 feet

Berm and Dune Elevation:  
 Dune – 13.0 feet above NGVD  
 Storm berm – 9.0 feet above NGVD  
 Beach (natural) berm – 7.0 feet NGVD

Borrow Area:  
 Access Channel -- 243 acres  
 Width – 200 feet  
 Depth – 17 feet below NGVD

JUSTIFICATION: The Town of Topsail Beach has experienced severe beach erosion and heavy property damage as a result of storm surges from hurricanes in 1996 and 1999 and northeasters over the recent years. In addition to property damage, these storms have severely damaged or destroyed the primary dune system. The average annual erosion rate is 4.5 feet per year. Topsail Beach is vulnerable to damages of more than \$50 million from a hurricane with a 3.33 percent chance of occurrence in any year. Losses to these structures and related damages would result in a tremendous loss to the Town’s tax base. The recommended improvements are essential to the economic welfare of the Town of Topsail Beach. Average annual benefits are as follows:

Annual Benefits	Amount
Coastal Storm Damage Prevention	\$7,595,000
Recreation	5,500,000
Reduced Emergency Costs	87,000
 Total	 \$13,182,000

FISCAL YEAR 2009: The allocated amount of \$100,000 will be used to complete the integrated GRR and EIS.

FISCAL YEAR 2010: The requested amount of \$400,000 will be applied as follows:

Planning, Engineering and Design for Topsail Beach	\$ 400,000
 Total	 \$400,000

Division: South Atlantic

District: Wilmington

West Onslow Beach and New River Inlet (Topsail Beach), NC

7 May 2009

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below:

Requirements of Local Cooperation:	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation, and Replacement Costs
Provide lands, easements, rights of way, Including suitable borrow areas and dredged material disposal areas.	\$ 1,481,000	
Pay 100 percent of the additional incremental costs of the locally preferred plan.	320,000	
Pay up to 35 percent of the initial construction cost allocated to coastal storm damage reduction and bear all costs of operation, maintenance, repair, rehabilitation and replacement of coastal storm damage reduction facilities.	11,606,000	\$22,000
Pay 50 percent of the future nourishment cost allocated to coastal storm damage reduction and bear all costs of operation, maintenance, repair, rehabilitation, and replacement of coastal storm damage reduction facilities.	119,593,000	
<b>Total Non-Federal Costs</b>	<b>\$133,000,000</b>	<b>\$22,000</b>

The non-Federal sponsor has also agreed to make all required payments concurrently with project construction.

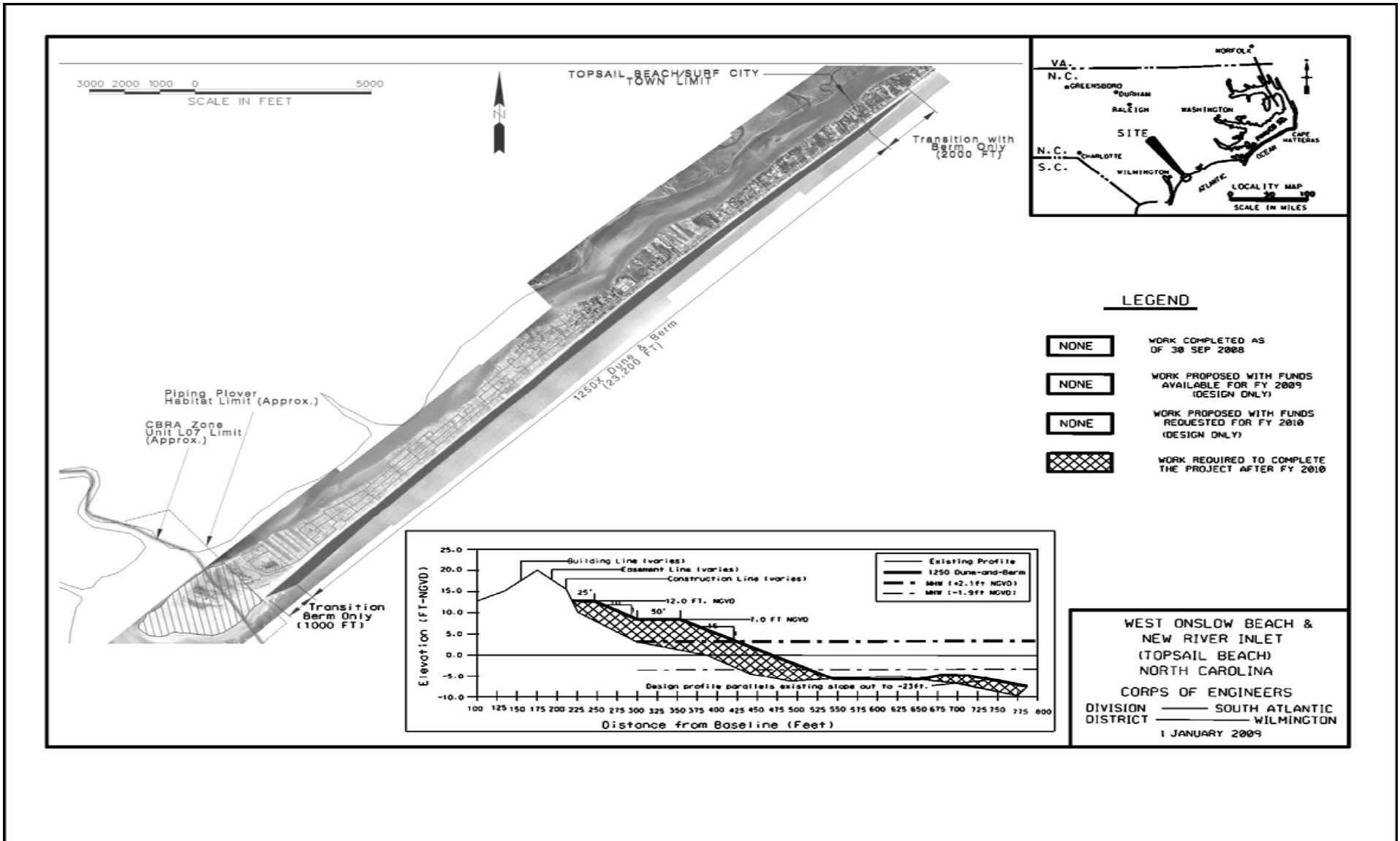
STATUS OF LOCAL COOPERATION: The Town of Topsail Beach, North Carolina, is the project sponsor. To date, the sponsor executed a Design Agreement to cost share all design activities including the ongoing GRR/EIS. The sponsor fully supports the recommended plan, the locally preferred plan, for construction implementation. The sponsor further understands that implementation of this project will require providing public beach access with a minimum of one beach access point and associated parking areas every half mile along the project. The State of North Carolina is expected to provide partial funding of the sponsor's cost share to implement this project (subject to its own funding restraints) at time of construction. The Project Partnering Agreement (PCA) is scheduled to be executed in FY 2011.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal (Corps) cost estimate of \$144,000,000 is an increase of \$19,000,000 from the latest estimate (\$125,000,000) presented to Congress (FY 2003). This change includes the following items.

Item	Amount
Costs updated based on GRR/EIS dated February 2009.	\$19,000,000
Total	\$19,000,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final EIS is scheduled for final approval in FY 2009.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in FY 1990. Construction funds were appropriated in FY 2001. A favorable report dated 19 November 1991, from the Chief of Engineers, Department of the Army, on West Onslow Beach and New River Inlet, North Carolina, was transmitted to Congress on 18 September 1992, House Document 102-393 and served as the authorizing project document. This project initially received a new construction start for FY 1994. However, the project cooperation agreement was not executed due to the sponsor's inability to fund their share of the project cost and the project was placed in an inactive status. Following extensive coastal storm damages from hurricanes in the mid to late 1990s, the Town of Topsail Beach requested that the project be reinitiated and a Design Agreement was executed on 25 July 2001 to conduct a General Reevaluation Report followed by Preconstruction Engineering and Design. The Alternative Formulation Briefing for the GRR/EIS was held on July 2004. The Civil Works Review Board meeting was held 17 Apr 2008 with approval received to issue the GRR/EIS for final 30-day State and agency review. The GRR/EIS is scheduled for final approval in FY 2009.



Division: South Atlantic

District: Wilmington

West Onslow Beach and New River Inlet (Topsail Beach), NC

7 May 2009

# NAVIGATION



# INVESTIGATIONS

APPROPRIATION TITLE: Investigations, Fiscal Year 2010

Division: South Atlantic

Study/Project	Total Estimated Federal Cost \$	Allocation Prior to FY 2007 \$	Allocation FY 2007 \$	Allocation FY 2008 \$	Allocation FY 2009 \$	Tentative Allocation FY 2010 \$	Additional to Complete After FY 2010 \$
Port Everglades Harbor, Florida Jacksonville District	4,085,000	2,067,000	490,000	492,000	526,000	510,000	0

Port Everglades is about 25 miles north of Miami in Broward County, Florida. Currently, Port Everglades is the twelfth busiest container port in the United States and services approximately 16 cruise lines. Port Everglades experienced approximately 129 million barrels of petroleum throughput in 2005. The Port is a man-made deep-water port uniquely situated near Ft. Lauderdale Airport, with direct connections to the Interstate Highway system and the CSX Railroad lines. The present feasibility study is investigating widening and deepening the major channels within the port due to the expected use of larger and deeper draft vessels. The study includes expanding the Port into the Dania Cut-off Canal, deepening the Mid-Port turning basin, and widening and deepening the Turning Notch. Harbor pilots are required to restrict usage of the larger more efficient container vessel fleet due to maneuvering and turning restraints. The project is estimated to cost \$280 million with an estimated Federal cost of \$82 million and an estimated non-Federal cost of \$198 million. The local sponsor is Broward County, Port Everglades Department. An amendment was executed to include Peer Review, Cost Risk Analysis, and additional environmental effort.

This study was included in the FY 2009 President's budget. The funds requested for Fiscal Year 2010 will be used to continue the feasibility phase of the study. The estimated cost of the entire feasibility phase is \$7,110,000, which includes \$560,000 for a peer review study at 100% Federal expense. The balance of the study cost (\$6,550,000) is to be shared on a 50-50 percent basis by Federal and non-Federal interests. A summary of study cost sharing follows:

Total Estimated Study Cost	\$7,360,000
Reconnaissance Phase (Federal)	250,000
Feasibility Phase (Federal)	3,835,000
Feasibility Phase (Non-Federal)	3,275,000

The reconnaissance phase was completed in May 1997. The current study estimate considers peer review at 100% Federal expense based on WRDA 2007. The feasibility phase completion date is being determined.

7 May 2009

APPROPRIATION TITLE: Investigations, Fiscal Year 2010  
 Division: South Atlantic

Study/Project	Total Estimated Federal Cost \$	Allocation Prior to FY 2007 \$	Allocation FY 2007 \$	Allocation FY 2008 \$	Allocation FY 2009 \$	Tentative Allocation FY 2010 \$	Additional to Complete After FY 2010 \$
Savannah Harbor Expansion Savannah District	8,391,500*	3,951,500	1,194,000	796,000	400,000	1,000,000	1,050,000

\* Includes \$670K in Construction funds in FY09

PRECONSTRUCTION ENGINEERING AND DESIGN (PED) ACTIVITIES – NAV

The Savannah Harbor area includes the lower 21.3 miles of the Savannah River, which is the principal boundary between the states of Georgia and South Carolina. The City of Savannah is located 15 miles from the river mouth. Savannah Harbor has been the fastest growing US container port since 1995, with an average annual growth rate (1995-2006) of 12.5%. The Harbor's Garden City Terminal is the second largest container port on the US East Coast, by container volume, and the fourth largest in the nation. Savannah's share of twenty-foot equivalent units (TEUs) among the four largest US East Coast ports has grown from 13.1% in 1995 to 19.1% in 2005. Between 1987 and 2007, total TEU volume increased by more than seven fold. Loaded import TEU volume increased by more than 830% and export volume by 580%. According to the Georgia Ports Authority, over 82% of ships currently calling upon the Savannah Harbor are constrained in some way by the project's current depth.

The non-Federal interest, Georgia Ports Authority (GPA), conducted the initial, Tier I feasibility study under the authority of Section 203 of the Water Resources Development Act of 1986 (WRDA 86) and was responsible for funding most associated study costs. The Feasibility Report was submitted to the Secretary of the Army in August 1998. The project was initially estimated to cost \$230,174,000 (1999 price levels), with an estimated Federal cost of \$145,160,000 and an estimated non-Federal cost of \$85,014,000. The work includes deepening the harbor channel from -42 feet to as deep as -48 feet. The average annual benefits at the time of authorization amounted to \$35.2 million, all for commercial navigation. The benefit-cost ratio was calculated at 3.0 to 1 at 7-1/8 percent based on the economic analysis dated August 1998. Updated economic data, which include the benefits of an expanded Panama Canal, are now being analyzed as are updated cost estimates for dredging and mitigation. Currently, the project estimated construction cost could be as high as \$629 million but this figure includes large contingencies in the selection of a mitigation plan. Project costs will exceed the current Section 902 Limit estimated to be \$395 million. The GPA is aware of project cost sharing requirements. PED may ultimately be cost shared and will be financed through the PED period at 79 percent non-Federal and 21 percent Federal. Upon completion of construction, credit may be given to the local sponsor for the Federal share of the PED cost. Costs for the General Reevaluation Report (GRR) and Tier II Environmental Impact Statement (EIS) have increased due to additional review requirements including the requirement for a more thorough economic analysis, Internal Peer Review, Independent External Peer Review and Cost Risk Analyses. Additional hydrodynamic modeling, mitigation alternative analyses and required agency coordination have also increased the cost of report preparation.

7 May 2009

APPROPRIATION TITLE: Investigations, Fiscal Year 2010  
Division: South Atlantic

Savannah Harbor Expansion  
Savannah District  
(continued)

Total Estimated Preconstruction		Total Estimated Preconstruction	
Engineering and Design Costs	\$39,626,500	Engineering and Design Costs	\$39,626,500
Initial Federal Share	\$8,391,500	Ultimate Federal Share	\$29,719,875
Initial Non-Federal Share	\$31,235,000	Ultimate Non-Federal Share	\$9,906,625

The project was conditionally authorized in WRDA 99, with final approval contingent upon completion of a positive Chief's Report by the end of CY 1999. The Chief's Report gave approval to the project, with construction contingent upon the approval of a GRR and Tier II EIS by the EPA, the Department of the Interior, the Department of Commerce and the US Army Corps of Engineers. Fiscal Year 2009 funds will be used to continue Federal oversight of the GRR and the Tier II EIS development, including project design, mitigation, economic analysis and coordination with the other Federal Cooperating Agencies. The scheduled completion date for the final Tier II EIS and GRR is June 2010 with a November 2010 Record of Decision. Construction funds totaling \$670,000 were allocated in Fiscal Year 2009 for this project. Fiscal Year 2010 funds will be used for public, peer and agency reviews, submittal of a final GRR and Tier II EIS to the Chief of Engineers, and initiate the first set of plans and specifications.

7 May 2009

APPROPRIATION TITLE: Investigations, Fiscal Year 2010  
 Division: South Atlantic

Study/Project	Total Estimated Federal Cost \$	Allocation Prior to FY 2007 \$	Allocation FY 2007 \$	Allocation FY 2008 \$	Allocation FY 2009 \$	Tentative Allocation FY 2010 \$	Additional to Complete After FY 2010 \$
Tybee Island Channel Impact Savannah District	2,004,000	240,000	125,000	0	239,000	206,000	1,194,000

Tybee Island is a 3.5-mile long barrier island, located 18 miles east of Savannah at the mouth of the Savannah River on the Atlantic Ocean. The mostly developed island is bordered on the north by the South Channel of the Savannah River, on the east by the Atlantic Ocean, and on the south and west by the Back River and other tidal creeks. Tybee Island has an average width of 0.5 miles and the ground elevation varies from 10 to 18 feet above mean low water and slopes westward to the salt marshes. Two potential project purposes have been identified: (1) Determine if the Savannah Harbor Federal Navigation Project is adversely impacting the shores of Tybee Island, Georgia and evaluate alternatives to mitigate for any adverse affects to Tybee Island's shelf and shoreline resulting from the Savannah Harbor Federal navigation project, and (2) Determine if the existing Tybee Island Shoreline Protection Project should be modified to include shore protection for the north end of Tybee Island from the North Terminal Groin to the mouth of Lazaretto Creek. The City of Tybee Island, Georgia, is the non-Federal partner and they understand the requirements for cost sharing in the feasibility phase. The 905(b) Report was completed under the scope of the Construction General (CG) Tybee Island Beach Erosion project using CG funds. The Feasibility Cost Share Agreement (FCSA) was signed on 11 January 2007 for the Initial Impact Report prepared by the Engineer Research and Design Center (ERDC). The FCSA will be amended or a new FCSA developed once the Feasibility Phase scope of work, schedule and budget have been finalized and agreed upon by the local sponsor.

FY 2009 funds will be used to identify and evaluate mitigation alternatives for the Savannah Harbor Federal navigation channel's impact on Tybee's shelf and shoreline. The funds requested for FY 2010 will be used to continue the feasibility study. The currently estimated cost of the feasibility phase is \$3,716,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. A summary of the anticipated study cost sharing is as follows:

Total Estimated Study Cost	\$3,862,000
Reconnaissance Phase (Federal)	146,000
Feasibility Phase (Federal)	1,858,000
Feasibility Phase (Non-Federal)	1,858,000

With the execution of the Feasibility Cost Share Agreement, the reconnaissance phase was completed in January 2007. The scheduled completion for feasibility study is being determined.

7 May 2009

# CONSTRUCTION

APPROPRIATION TITLE: Construction - Channel and Harbors (Navigation)

PROJECT: Wilmington Harbor, North Carolina (Continuing)

LOCATION: The project is located at Wilmington on the southeastern coast of North Carolina in New Hanover and Brunswick Counties.

DESCRIPTION: The project consists of two separable elements, the portion for deepening of the existing project and the portion for raising the dikes on the Eagle Island dredged material disposal facility (DMDF) for maintenance of the existing project until the deepening is completed. Features constructed to date include deepening the ocean bar and entrance channels to the authorized depth of 44 feet; deepening the project to 42 feet up from Lower Swash Channel to and including the Between Channel; widening the existing 400-foot wide channel to 600 feet over a total length of 6.2 miles including Lower and Upper Midnight and Lower Lilliput reaches; widening five turns and bends by 100 to 200 feet providing a total average channel width of 500 to 675 feet; and widening the Fourth East Jetty Channel to 500 feet over a total length of 1.5 miles. Features yet to be completed include deepening the anchorage basin immediately upriver from the North Carolina State Ports Authority dock from 38 feet to 42 feet; extending the anchorage basin northward by 300 feet; deepening the 32-foot channel between Castle Street and the Hilton Railroad Bridge, the 32-foot turning basin just above the mouth of the Northeast Cape Fear River on the west side, and the 25-foot channel from the Hilton Railroad Bridge to 750 feet upstream all to a depth of 38 feet; deepening the 25-foot channel from 750 feet upstream of the Hilton Railroad Bridge to the turning basin near the upstream limits of the project to 34 feet, along with widening of the channel from 200 to 250 feet; and widening the turning basin from 700 to 800 feet. Mitigation requirements are partially complete with the acquisition of, by fee title, 30 acres of upland areas and construction of an embayment. Acquisition of about 800 acres of existing marsh and upland areas for preservation of habitat to offset losses of wetlands and primary nursery areas are underway. A Fish Passage at Lock and Dam #1 still remains to be constructed as mitigation for the deepening actions already accomplished. Improvement to the Eagle Island dredged material disposal facility is also underway by incrementally raising the dikes of three cells from their current elevations to an ultimate elevation of 40 feet. A separate Section 933 project was added in FY 2001 to place sand on Brunswick County Beaches. Approval to initiate a separate General Reevaluation Report was received in June 2005 to reevaluate the requirements for the relocated 39-foot turning basin to be above the Hilton Railroad Bridge and any associated required mitigation.

AUTHORIZATION: Water Resources Development Acts of November 17, 1986 (PL 99-662) and October 12, 1996 (PL 104-303) and the Energy and Water Development Appropriations Act, 1998.

REMAINING BENEFIT- REMAINING COST RATIO: 2.7 to 1 at 7 percent (deepening portion); N/A (DMDF Portion).

TOTAL BENEFIT-COST RATIO: 1.4 to 1 at 7 percent (deepening portion); N/A (DMDF Portion).

INITIAL BENEFIT - COST RATIO: 1.3 to 1 at 7-5/8 percent (deepening portion); N/A (DMDF Portion).

BASIS OF BENEFIT-COST RATIO: Benefits for the deepening portion are from the latest available evaluation contained in the feasibility report dated June 1996 at October 1995 price levels for the previous Cape Fear-Northeast Cape Fear River project, in the General Design Memorandum Supplement dated February 1994 at October 1993 price levels for the previous Wilmington Harbor-Northeast Cape Fear River project and in the feasibility report dated March 1994 at October 1992 price levels for the previous Wilmington Harbor Channel Widening project. Project feasibility for the DMDF portion is based on the original project authorization and the method of disposal of the dredged material is based on the least cost alternative as shown in the decision report approved 1 September 1998.

Division: South Atlantic

District: Wilmington

Wilmington Harbor, NC

7 May 2009

SUMMARIZED FINANCIAL DATA		ACCUM PCT OF EST FED COST	PHYSICAL STATUS (1 Jan 2009)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Appropriation Requirement (COE)		\$358,613,000	Deepening Portion	78	TBD
Estimated Appropriation Requirement (OFA)		1,887,000	Dredged Material Disposal Facility (DMDF) Portion	11	TBD
Estimated Total Appropriation Requirement		360,500,000	Entire Project	69	TBD
Future Non-Federal Reimbursement		44,000,000			
Estimated Federal Cost (Ultimate)		316,500,000			
Estimated Non-Federal Cost		216,500,000			
Cash Contributions	121,232,000				
Other Costs	51,268,000				
Reimbursements	44,000,000				
Navigation	44,000,000				
Total Estimated Project Cost		\$533,000,000			
Allocations to 30 September 2006		234,583,000			
Allocation for FY 2007		8,200,000			
Allocation for FY 2008		3,745,000			
Conference Allowance for FY 2009		2,075,000			
Allocation for FY 2009		2,075,000			
Allocations through FY 2009		248,603,000		69	
Allocation Requested for FY 2010		1,800,000		70	
Programmed Balance to Complete after FY 2010		108,210,000			
Unprogrammed Balance to Complete after FY 2010		0			

Division: South Atlantic

District: Wilmington

Wilmington Harbor, NC

7 May 2009



PHYSICAL DATA

Channels and Basins	Length	Width	Depth
Ocean Bar and Entrance Channel	8.5 miles	500 feet	44 feet
River Channel to mile 27.5	24.8 miles	400 feet	42 feet
Passing Lane	6.2 miles	200 feet	42 feet
Turns and Bends – widen five turns and bends by 100 to 200 feet providing a total average navigation channel width of 500 to 675 feet.			
Anchorage Basin	1,600 feet	1,200 feet	42 feet
Fourth East Jetty	1.5 miles	500 feet	42 feet
Castle Street to NC 133 Bridge	1.7 miles	400 feet	38 feet
NC 133 Bridge to Hilton RR Bridge	0.5 miles	300 feet	38 feet
Hilton RR Bridge Upstream	750 feet	200 feet	38 feet
Turning Basin #1	750 feet	750 feet	38 feet
Channel from 750 feet upstream of Hilton RR Bridge to mile 30.5			
Turning Basin #2	1.3 miles	250 feet	34 feet
Turning Basin #2	550 feet	800 feet	34 feet

Mitigation – Acquisition of 30 acres of uplands and construction of an embayment, acquisition of 650 acres to offset losses of wetlands and primary nursery area and fish passage at Lock and Dam No. 1 on the Cape Fear River.

Incremental dike raising of cells 1, 2, and 3 on Eagle Island to elevations 25, 29, 32, 35, 38 and 40 feet.

JUSTIFICATION: Waterborne commerce on the existing Wilmington Harbor project was 8.0, 8.4 and 7.9 million tons, respectively, for the period 2005-2007. The recommended project would result in substantial savings ranging from \$0.57 to \$13.00 per ton in transportation and handling costs on certain commodities. The largest savings would be \$13.00 per ton on liquefied gas followed by chrome ore at \$6.88. The major commodities imported through the port are salt, chrome ore, fertilizer materials, basic chemicals, asphalt, alcohols and cement with major exports being tobacco, wood pulp and dimethyl terephthalate fibers. The Port of Wilmington handled 133,723 loaded containers in 2005, 166,625 in 2006, and 173,111 in 2007. The previous 38-foot project could handle vessels in the 25,000 to 40,000 ton class while the current 42-foot project can handle vessels in the 35,000 to 60,000 ton class. For the portion of the project already deepened, estimated efficiencies have come to fruition. The average tons per vessel call before deepening (1999-2003) was 4,739 while after deepening the average tons per vessel call is 8,788, which is an 85% increase in efficiency. The current 32-foot channel in the Northeast Cape Fear River can handle vessels in the 25,000 ton class while the recommended 38-foot channel will handle vessels in the 40,000 ton class. Recently completed investments in container facilities, regional highway improvements, airport facilities, and refrigerated warehouse storage will result in greater opportunities for growth. The Wilmington Harbor Ocean Dredged Material Disposal Site (ODMDS) is available for the lower reaches. An existing disposal site, the Eagle Island confined disposal facility, is available for the middle reach and the upper reach of the project. The Eagle Island dikes are being raised to increase capacity.

JUSTIFICATION (continued):

Operations and maintenance dredging cost requirements of up to \$16,000,000 would be incurred every year. They represent the equivalent average annual cost of this operation and can therefore be compared directly to the equivalent annual cost associated with the Eagle Island dike plan. This comparison resulted in the dike raising being the least costly alternative. Also, the dredged material management plan is the formal decision document for future cost sharing of modifications to disposal areas. The recommended improvements are essential to the economic welfare of New Hanover County and the surrounding area. Average annual benefits are as follows:

Annual Benefits	Amount
Commercial Navigation	\$39,292,000
Environmental Enhancement	(not quantified)
Total	\$39,292,000

FISCAL YEAR 2009: The allocated amount of \$2,075,000 will be used to continue the General Reevaluation Report, the Dredged Management Material Plan, the biological and physical monitoring and complete construction of the Eagle Island contract.

FISCAL YEAR 2010: The requested amount of \$1,800,000 will be applied as follows:

Continue Biological & Physical Monitoring for deepening portion	\$1,800,000
Total	\$1,800,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1996, the non-Federal sponsor must comply with the requirements listed below:

Requirements of local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation, and Replacement Costs
Separable Element (Deepening Portion):		
Provide lands, easements, rights of way, and dredged material disposal area lands.	\$ 2,193,000	\$6,000
Modify or relocate utilities, roads, bridges (except railroad bridges), and other facilities where necessary for the construction of the project.	22,929,000	
Pay 25 percent of the costs allocated to deep draft navigation during construction.	100,785,000	
Pay 35 percent of costs allocated to Section 933 portion during construction.	5,380,000	
Provide and maintain, at its own expense, the local service facilities necessary to realize the benefits of the general navigation features.	24,713,000	
Reimburse an additional 10 percent of the costs allocated to general navigation facilities within a period of 30 years following completion of construction, as partially reduced by a credit allowed for the value of lands, easements, rights of way, relocations and dredged material disposal areas.	38,000,000	
<b>Total Non-Federal Costs</b>	<b>\$194,000,000</b>	<b>\$6,000</b>
Separable Element (DMDF):		
Pay 25 percent of the cost of construction of the facilities.	\$ 12,400,000	
Reimburse an additional 10 percent of the costs of the facility within a period of 30 years following completion of construction.	5,000,000	
<b>Total Non-Federal Costs</b>	<b>\$17,400,000</b>	<b>\$0</b>

The non-Federal sponsor has also agreed to make all required payments concurrently with project construction and reimburse its share of construction costs within a period of 30 years following completion of construction.

Division: South Atlantic

District: Wilmington

Wilmington Harbor, NC

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STATUS OF LOCAL COOPERATION:

The State of North Carolina is the project sponsor. By letters dated 16 May 1996 and 24 April 1997 the State expressed support for the project and provided assurances of their intent to act as project sponsor and to sign a Project Cooperation Agreement (PCA) at the appropriate time. The State of North Carolina intends to seek appropriations from the General Assembly to fund its share of the project cost. The future reimbursement payment will be initiated in the year following completion of construction. The combined PCA was executed on 26 March 1999 for both elements. All work on the dredged material disposal facility prior to FY 2000 was accomplished with advanced contributed funds under an agreement executed in July 1997. The future reimbursement for this element will be initiated in the year following the completion of the first dike raising.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal (Corps of Engineers) cost estimate of \$358,613,000 is an increase of \$46,332,000 from the latest estimate (\$312,281,000) presented to Congress (FY 2006).

<u>Item</u>	<u>Amount</u>
Post Contract Award and Other Adjustments	\$ 30,236,000
Price Escalation on Construction Features	12,846,000
Design Changes	<u>3,250,000</u>
Total	\$46,332,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT COMPLIANCE: The draft EIS for the deepening portion was filed with the EPA in February 1996. The final EIS was filed with the EPA in July 1996. 401 Certification was completed in October 1996. The final EIS for the DMDF portion was filed with the EPA in July 1996. A Record of Decision was signed in December 1996. A Finding of No Significant Impact for design changes was signed in June 2000.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in FY 1987. Funds to initiate construction were appropriated in FY 1998. The Wilmington Harbor, NC - 96 Act, and Wilmington Harbor, NC (Dredged Material Disposal Facilities) projects were combined in October 1998 to form this project.

Wilmington Harbor, NC - 96 Act - Deepening Portion

SUMMARIZED FINANCIAL DATA FOR SEPARABLE ELEMENTS:

Estimated Appropriation Requirement (COE)		\$321,113,000
Estimated Appropriation Requirement (OFA)		1,887,000
Estimated Total Appropriation Requirement		323,000,000
Estimated Federal Cost (Ultimate)		284,000,000
Estimated Non-Federal Cost		199,000,000
Cash Contributions	108,732,000	
Other Costs	51,268,000	
Reimbursements	39,000,000	
Navigation	39,000,000	
Total Estimated Project Cost		\$483,000,000

REMAINING BENEFIT-REMAINING COST RATIO FOR PROGRAMMED SEPARABLE ELEMENTS: 2.7 to 1 at 7 percent.

TOTAL BENEFIT-COST RATIO FOR PROGRAMMED SEPARABLE ELEMENTS: 1.4 to 1 at 7 percent.

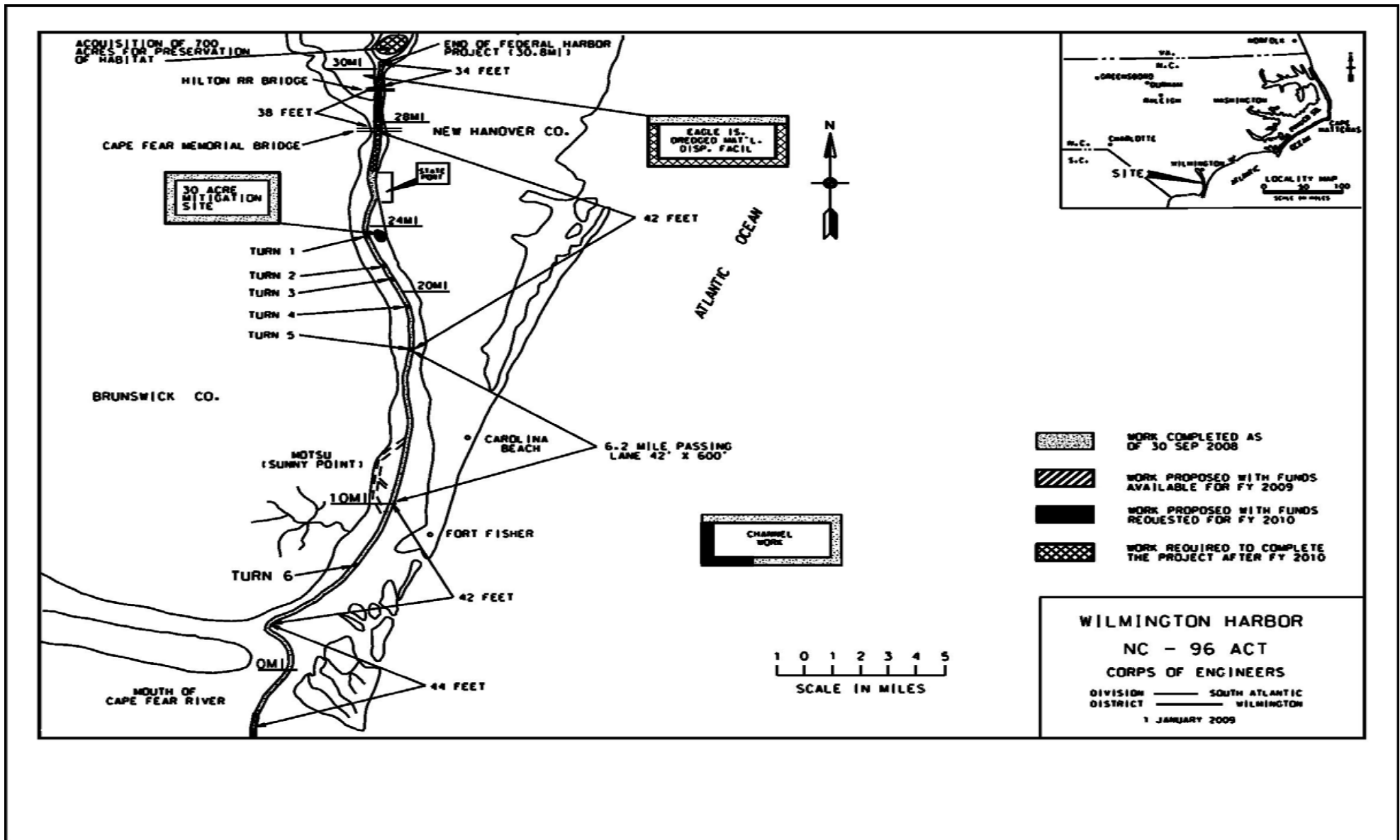
Wilmington Harbor, NC - Dredged Material Disposal Facilities Portion

SUMMARIZED FINANCIAL DATA FOR SEPARABLE ELEMENTS:

Estimated Total Appropriation Requirement			\$37,500,000
Estimated Non-Federal Reimbursement			5,000,000
Estimated Federal Cost (Ultimate)			32,500,000
Estimated Non-Federal Cost			17,500,000
Cash Contributions		\$12,500,000	
Other Costs		0	
Reimbursements		5,000,000	
Navigation	\$5,000,000		
Total Estimated Project Cost			\$50,000,000

REMAINING BENEFIT-REMAINING COST RATIO FOR PROGRAMMED SEPARABLE ELEMENTS: Not Applicable.

TOTAL BENEFIT-COST RATIO FOR PROGRAMMED SEPARABLE ELEMENTS: Not Applicable.



Division: South Atlantic

District: Wilmington

Wilmington Harbor, NC

7 May 2009

# ENVIRONMENT



# AQUATIC ECOSYSTEM RESTORATION

# INVESTIGATIONS

APPROPRIATION TITLE: Investigations, Fiscal Year 2010  
 Division: South Atlantic Division

Study	Total Estimated Federal Cost	Allocation Prior to FY 2007	Allocation FY 2007	Allocation FY 2008	Allocation FY 2009	Tentative Allocation FY 2010	Additional to complete After FY 2010
	\$	\$	\$	\$	\$	\$	\$
North Carolina							
Currituck Sound Wilmington District	1,625,000	510,000	275,000	138,000	143,000	150,000	409,000

The study area, comprised of Currituck Sound and Back Bay, is located in Currituck and Dare Counties in northeastern North Carolina, and in Chesapeake and Virginia Beach Counties in southeastern Virginia. Currituck Sound, Back Bay and their watersheds comprise one of the most unique brackish water estuaries and wildlife habitats in the United States. Together, they are the beginning of North Carolina's legendary Outer Banks, and the northern end of the Albemarle-Pamlico National Estuarine System (APES) comprising an area of over 190 square miles. Currituck Sound and Back Bay are renowned for prolific waterfowl and fish populations. Local interests are concerned about significant declines in these populations in recent years. Based on the Currituck Sound Study of mid-winter waterfowl surveys conducted from 1961 through 2006, the waterfowl population peaked in 1976, with 305,000 birds. Since then, the waterfowl population declined well below 50,000 birds, with an estimated average of 25,000 birds per year. Of the 21 fish species identified in 1961, only fifteen were identified in 2003. The declines in the fish and waterfowl populations are attributed to significant loss of submerged aquatic vegetation (SAV), a major food source for water bird and marine mammals, and critical habitat for a host of vertebrate and invertebrate organisms. SAVs once grew in abundance, covering most of the shallow waters of Currituck Sound and Back Bay. Today, these areas retain only 35% and 5%, respectively, of the SAV distributions of 25 years ago. SAV loss has been attributed to water quality degradation and development pressures in the region. Potential alternative actions could include marsh creation, development of bird rookery, and creation of submerged aquatic vegetation. The feasibility cost sharing agreement was signed on 5 February 2004 with the state of North Carolina, who is fully committed to the requirements of the study. Non-Corps study participants include Elizabeth City State University, the U.S. Geological Survey, the N.C. Estuarine Research Reserve, the U.S. Fish and Wildlife Service, and the N.C. Department of Environment and Natural Resources, Division of Water Resources.

Fiscal Year 2009 funds are being used to continue the feasibility phase of the study significantly completing data collection and modeling activities and conduct a Feasibility Scoping Meeting, where work to date on problem identification and existing and without project conditions will be reviewed.

Fiscal Year 2010 funds will be used to continue the feasibility phase by performing the Alternative Formulation Briefing. The estimated cost of the feasibility phase is \$3,000,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. A summary of study cost sharing is as follows:

Total Estimated Study Cost	\$3,125,000
Reconnaissance Phase (Federal)	125,000
Feasibility Phase (Federal)	1,500,000
Feasibility Phase (Non-Federal)	1,500,000

The reconnaissance phase was completed in February 2004. The feasibility study completion is being determined.

7 May 2009

Study/Project	Total Estimated Federal Cost \$	Allocation Prior to FY 2007 \$	Allocation FY 2007 \$	Allocation FY 2008 \$	Allocation FY 2009 \$	Tentative Allocation FY 2010 \$	Additional to Complete After FY 2010 \$
Indian River Lagoon North, FL Jacksonville District	2,292,000	1,297,000	0	295,000	0	150,000	550,000

The project area is located along the coast of Central Florida. The project area includes the Indian River Lagoon watershed, beginning in Volusia County near the Ponce de Leon Inlet, extending southward through Brevard and Indian River counties, and ending near the Fort Pierce Inlet in St Lucie County. The Indian River Lagoon and its surrounding watershed is a mosaic of habitats that supports one of the most diverse assemblages of flora and fauna in North America and supports the industries tourism, commercial and recreation fishing, and general recreation. Urban and agricultural developments have heavily impacted the study area. These impacts have greatly changed the function of many of the watershed habitats with negative impacts to the estuary. Especially of interest are the impacts caused by canals built as part of the Central and Southern Florida (C&SF) project. Restoration efforts in the IRL-N project will be directed toward restoring and maintaining a healthy and productive Lagoon system. The key element of this effort will be projects addressing the impacts of excessive discharges of fresh water by reducing the volume and improving the timing, distribution and quality of discharge to the IRL-N from tributaries and drainage systems. The St. Johns River Water Management District is the non Federal sponsor of the project and entered into a Feasibility Cost Sharing Agreement on August 5, 2002

This study is not included in the FY 2009 President's budget. The funds requested for Fiscal Year 2010 will be used to continue the feasibility phase of the study. The estimated cost of the feasibility is \$4,584,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	\$4,584,000
Feasibility Phase (Federal)	2,292,000
Feasibility Phase (Non-Federal)	2,292,000

The Feasibility Report completion is being determined.

Funds prior to FY07 were provided under the Construction appropriation. The Corps vertical team and ASA (CW) requested at the Feasibility Scoping Meeting that future funding be budgeted in the Investigations appropriation.

7 May 2009

APPROPRIATION TITLE: Investigations, Fiscal Year 2010  
 Division: South Atlantic Division

Study	Total Estimated Federal Cost	Allocation Prior to FY 2007	Allocation FY 2007	Allocation FY 2008	Allocation FY 2009	Tentative Allocation FY 2010	Additional to complete After FY 2010
	\$	\$	\$	\$	\$	\$	\$
Virginia and North Carolina							
John H. Kerr Dam and Reservoir Wilmington District	2,645,000	905,000	500,000	277,000	287,000	300,000	376,000

John H. Kerr Dam and Reservoir is located in the Roanoke River Basin, which extends into north-central North Carolina and south-central Virginia. The project was completed in 1952 and provides hydropower, flood damage reduction, water supply, and recreation. Two downstream non-Federal hydropower reservoirs operated by Dominion North Carolina Power, Gaston and Roanoke Rapids have minimal active storage for daily hydropower peaking. The Kerr, Gaston and Roanoke Rapids projects operate cooperatively to generate power, reduce flood damage, and ensure appropriate downstream flows. The lower Roanoke River basin is one of the finest remaining river swamp forest ecosystems in the eastern United States, and is designated as one of The Nature Conservancy's Sustainable Rivers Projects. These bottomland hardwood forests, wetlands, uplands, and streams provide a high quality habitat for fish and wildlife, including waterfowl. Federal and State agencies have expressed concern that there is a correlation between operation of Kerr Reservoir and fish kills in the lower Roanoke River due to low dissolved oxygen. Resource concerns for the Lower Roanoke center on the need for restoration and enhancement of extensive swamp and flood plain forests habitat and fisheries through improvements to the hydrologic regime. The Feasibility Cost Sharing Agreement (FCSA) was signed on 17 June 2003 by the State of North Carolina and the Commonwealth of Virginia who are fully committed to the requirements for the feasibility study.

Fiscal Year 2009 funds are being used to initiate stage 3 formulation and evaluation of alternative plans; complete stage 2 data collection, technical studies, and modeling; and continue the Kerr Interim Operations Changes Pilot Project.

Fiscal Year 2010 funds will be used to continue stage 3 formulation and evaluation of alternative plans to improve the hydrologic regime and restore and enhance habitats for the lower Roanoke River, continue the Kerr Interim Operations Changes Pilot Project and hold the Feasibility Scoping Meeting. The estimated cost of the feasibility phase is \$4,940,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. A summary of study cost sharing is as follows:

Total Estimated Study Cost	\$5,115,000
Reconnaissance Phase (Federal)	175,000
Feasibility Phase (Federal)	2,470,000
Feasibility Phase (Non-Federal)	2,470,000

The reconnaissance phase was completed in June 2003. The feasibility study completion date is being determined.

7 May 2009

APPROPRIATION TITLE: Investigations, Fiscal Year 2010  
 Division: South Atlantic Division

Study	Total Estimated Federal Cost \$	Allocation Prior to FY 2007 \$	Allocation FY 2007 \$	Allocation FY 2008 \$	Allocation FY 2009 \$	Tentative Allocation FY 2010 \$	Additional to complete After FY 2010 \$
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PRECONSTRUCTION ENGINEERING AND DESIGN (PED) ACTIVITIES – (ENVIRONMENTAL RESTORATION)

Neuse River Basin Wilmington District	900,000	0	0	0	0	200,000	700,000
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The recommended project is located in the eastern part of North Carolina and is expected to include construction of up to 2,000 acres of oyster reefs and restoration of four streams including removal and/or modification of five dams. The Neuse River basin encompasses approximately 11 percent of the State of North Carolina and consists of all or portions of 19 counties. The basin is roughly oblong in shape, approximately 180 miles long, with a maximum width of about 46 miles. The Neuse River is formed by the confluence of the Eno and Flat Rivers, about 8 miles north of the city of Durham, and has a drainage area of approximately 5,710 square miles. The basin is primarily an agricultural region, but contains many small towns and several cities, which are important commercial centers. At the City of New Bern, the Neuse River system changes from a free-flowing river to a tidal estuary (i.e., Neuse Estuary). There have been considerable problems in the basin due to increased urbanization in the Raleigh-Durham area, sediment and nutrient loading from agricultural areas in the lower half of the basin, and over-harvesting of certain fisheries in the Neuse Estuary, all of which have had adverse impacts on wetlands and submerged aquatic vegetation (SAV). Estuarine bottom is lost annually due to low dissolved oxygen (DO). Environmental restoration alternatives include stream restoration, anadromous fish habitat restoration, and oyster habitat restoration in the Neuse Estuary, part of Albemarle-Pamlico National Estuary. A secondary focus of this project is flood damage reduction. A number of flood prone structures have been removed by the Federal Emergency Management Agency, which has reduced the occurrence of future flood damages within the flood plain. The sponsor, North Carolina Department of Environment and Natural Resources, supports the project as evidenced by their execution of the feasibility cost sharing agreement in May 2002, and is ready to sign the PED cost sharing agreement upon completion of the feasibility phase. PED will ultimately be cost shared at the rate for the project to be constructed but will be financed through the PED period at 25 percent non-Federal. Any adjustment that may be necessary to bring the non-Federal contribution in line with the project cost sharing will be accomplished in the first year of construction.

Total Estimated Preconstruction Engineering and Design Costs	\$1,200,000	Total Estimated Preconstruction Engineering and Design Costs	\$1,200,000
Initial Federal Share	900,000	Ultimate Federal Share	780,000
Initial Non-Federal Share	300,000	Ultimate Non-Federal Share	420,000

At this time, the project is not authorized for construction. Once authorized and in accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must provide all lands, easements and rights of way, including suitable borrow and spoil disposal areas; pay 35 percent of the first costs allocated to environmental restoration and flood damage reduction; and bear all costs of operation, maintenance, repair, replacement and rehabilitation of constructed facilities. Fiscal year 2009 funds are being utilized to finish the draft Feasibility Report and EIS. Fiscal year 2010 funds are being utilized to initiate PED. The feasibility phase is scheduled for completion in January 2010 using carryover funds. PED completion is being determined.

7 May 2009

APPROPRIATION TITLE: Investigations, Fiscal Year 2010  
 Division: South Atlantic

Study	Total Estimated Federal Cost \$	Allocation Prior to FY 2009 \$	Allocation FY 2009 \$	Tentative Allocation FY 2010 \$	Additional to Complete After FY 2010 \$
SURVEYS – NEW Watershed Study					
Ocmulgee River Basin Watershed	100,000	0	0	100,000	0
Savannah District					

The Ocmulgee River basin is located in the Piedmont and Coastal Plain physiographic provinces of central Georgia. The Ocmulgee basin is flanked by the Flint River basin to the west, the Suwannee and Satilla River basins to the south, and the Oconee River basin to the east. The headwaters of the basin are located in DeKalb and Gwinnett Counties and consist of the Alcovy, Yellow, and South Rivers that drain the eastern and southeastern Metropolitan Atlanta area. These rivers, which join at Jackson Lake west of Monticello, Georgia, form the present-day Ocmulgee River. The Ocmulgee River basin is located entirely in the State of Georgia and drains approximately 6,085 square miles. The study involves a review of the current authorized purposes and operating plans for Ocmulgee reservoirs to determine if changes in storage allocations or operations are warranted to meet current and future needs for flood risk management, water supply, fish and wildlife, drought management, water quality, recreation and other related purposes. Population growth is causing a number of communities to look to the reservoirs in the Ocmulgee Basin for future water supply. However, the water use classifications of fishing, recreation, and drinking water are potentially threatened in water bodies by erosion and loading of sediment, which can alter stream morphology, impact habitat, and reduce water clarity. The water quality is impaired with high fecal coliform counts, impaired fish habitat and toxicity. Low dissolved oxygen concentrations coincide primarily with low or zero flows, slow stream velocities, shallow water depths and high temperatures contribute to poor water quality. The reconnaissance phase is scheduled to be completed in December 2010, which is 9 months after initiating the study.

Study authority P.L. 110-114 SEC. 5002 Watershed Management

7 May 2009

# CONSTRUCTION



APPROPRIATION TITLE: Construction – Environmental Restoration

PROJECT: South Florida Ecosystem Restoration Program, Florida (Continuing)

LOCATION: The South Florida Ecosystem Restoration Program stretches from the southern Orlando area southward across the Everglades, the Florida Keys, and the contiguous and near-shore waters of South Florida, and across South Florida from east to west including portions of the drainage areas of the Indian River Lagoon and the Caloosahatchee River, as well as population centers along the southeast and southwest coasts. The project area is defined by the political boundaries of the Southwest Florida Water Management District, and includes all of the Everglades. It encompasses an area of approximately 18,000 square miles, which includes all or part of 18 counties in the southeast part of the State of Florida. Principle areas are the Kissimmee River Basin, Lake Okeechobee, Everglades Agricultural Area, Upper East Coast, Lower East Coast, Big Cypress Basin, Water Conservation Areas, Everglades National Park, Southwest Florida, Florida Bay and the Florida Keys.

DESCRIPTION: The South Florida Ecosystem Restoration Program includes the Central and Southern Florida (C&SF) Project, the Kissimmee River Restoration Project, the Everglades and South Florida Restoration Project, and the Modified Waters Deliveries Project, which were previously budgeted separately. The consolidated budget request herein includes the following separable elements: West Palm Beach Canal, South Dade County, Comprehensive Everglades Restoration Plan (CERP), and Manatee Pass Thru Gates (previously separable elements under the C&SF Project); East Coast Canal Structures, Western C-11 Basin, Seminole Big Cypress, Ten Mile Creek, Tamiami Trail (Western Culverts), Florida Keys Carrying Capacity, Lake Okeechobee Water Retention, Southern CREW, and Lake Trafford (previously separable elements under the Everglades and South Florida Ecosystem Restoration Project); Kissimmee River Project; and the Modified Water Deliveries to Everglades National Park Project. The objective of the South Florida Ecosystem Restoration Program is to restore, protect and preserve the South Florida ecosystem including the Everglades, while providing for other water related needs of the region.

The C&SF Project includes 1,000 miles of canals, 720 miles of levees and several hundred water control structures, while providing water supply, flood damage reduction, water management and other benefits to south Florida.

The Everglades and South Florida Ecosystem Restoration Project separable elements must meet the following criteria: be within the C&SF Project and its near shore waters; provide immediate, independent, and substantial ecosystem restoration, protection, and preservation benefits; cost less than \$25 million in Federal funds, be consistent with the Governor's Commission's Conceptual Plan; and have a local sponsor to contribute a minimum of 50% of the total project cost. The Water Resources Development Act of 2007 amended authorization for the Seminole Big Cypress project to increase the Federal project cost from \$25M to \$30M.

The Kissimmee River basin is approximately 3,000 square miles in size and has two component parts; the upper basin, referred to as the Headwaters Revitalization, and the lower basin, referred to as the Kissimmee River Restoration. The upper basin portion of the project consists of water regulation schedule modifications, canal and structure improvements, and land acquisition. This will result in environmental benefits in the upper chain of lakes and in the lower basin. More natural fluctuations of water levels will enhance the peripheral marshes of the upper lakes, which in turn will also help to improve the water quality entering Lake Okeechobee. Reestablishing a more natural timing of flows to the lower basin will assist in the restoration of the Kissimmee River ecosystem. Structural improvements will include enlargements of existing canals and existing water control structures. The Kissimmee River project is restoring natural flooding in portions of the historic floodplain to reestablish wetland conditions. Construction will include backfilling approximately 22 miles of the C-38 canal, excavating

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approximately 9 miles of new river channel, and removing 2 water control structures and locks in the backfilled sections. The project also includes acquisition of fee title for lands within the 5-year-floodplain and acquisition of flowage easements for lands between the five-year-flood line and the 100-year-flood line.

#### DESCRIPTION CONT:

The Modified Water Deliveries to Everglades National Park (MWD) involves construction of certain modifications to the C&SF Project water management system and related operational changes to improve water deliveries to Everglades National Park (ENP). The project consists of structural features with the intended purpose of improving the conveyance of water between Water Conservation Areas (WCA) north of ENP and the Shark River Slough within the Park. It will also provide flood mitigation to the 8.5 Square Mile Area (SMA), a residential area adjacent to the Park expansion boundary in East Everglades. For management purposes, the project is described in four categories: 8.5 SMA, Conveyance and Seepage Control, Tamiami Trail (Eastern Segment), and Project Implementation Support (ENP requirements, Experimental Program, Cape Sable Seaside Sparrow Emergency, Combined Structural and Operational Plan, Environmental Monitoring, and Osceola Camp).

Picayune Strand (Southern Golden Gate Estates) Hydrologic Restoration was authorized under Section 1001 (15) of the Water Resources Development Act (WRDA) 2007. The purpose of this project is to restore and enhance the wetlands in the Southern Golden Gates Estates area of Picayune Strand and in adjacent public lands by reducing over-drainage. Implementation of the restoration plan would also improve the water quality of coastal estuaries by moderating the large salinity fluctuations caused by freshwater point discharge of the Fahka Union Canal. The plan would also aid in protecting the City of Naples eastern Golden Gate wellfield by improving groundwater recharge. The project includes a combination of spreader channels, canal plugs, road removal and pump stations.

The Site 1 Impoundment project was authorized under Section 1001 (16) of the Water Resources Development Act 2007. It includes: (1) 1,800-acre site with a 1,660-acre project footprint, approximately eight foot deep above ground impoundment, (2) a 600 cfs inflow pump station, (3) discharge gated culvert, (4) one combined service / auxiliary non-gated spillway and one auxiliary non-gated spillway, and (5) seepage control canal with an associated 43 cfs pump station and overflow weir. An additional gated culvert structure is designed to control stages in L-36 Borrow Canal and North Springs Improvement District discharges into the Hillsboro Canal. Recreation features include boardwalks, viewing platforms, picnic shelters, canoe launches and information kiosks at two sites within the footprint.

The Indian River Lagoon (IRL) was authorized under Section 1001 (14) of the Water Resources Development Act 2007. It is identified as the most biologically diverse estuarine system in all of North America. The Project Implementation Report (PIR) recommends a plan in Martin, St. Lucie, and Okeechobee Counties that will reduce the damaging effects of watershed runoff, reduce high peak discharges, reduce nutrient loads, provide water quality benefits to control salinity, pesticides, and other pollutants presently discharged to the estuary, and provide water supply for agriculture to offset reliance on the Floridan Aquifer. The plan includes 170,000 acre-feet of reservoir storage (C-44 Reservoir, C-23/24 North/South Reservoirs and C-25 Reservoir), and storm water treatment areas (C-44 West/East, C-23, C-24, and C-25), and provides storage on 92,000 acres of natural storage areas (Allapattah, Palmar, and Cypress Creek). The plan may also include steps to remove up to 7,900,000 cubic yards of muck from the St. Lucie River and Estuary.

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AUTHORIZATION: Flood Control Acts of 1948, 1954, 1960, 1962, 1965, and 1968; Authorization in 1970 under Section 201 of the Flood Control Act of 1965, and the Water Resources Development Acts of 1986, 1988, 1990, 1992, 1996, 1999, 2000 and 2007. The Modified Water Deliveries to Everglades National Park was authorized under the Everglades Expansion Act of 1989 (PL 101-229). PL 101-229 specifically directs the Secretary of the Army, in consultation with the Secretary of Interior, to construct modifications to the C&SF Project to improve water deliveries to ENP.

REMAINING BENEFIT – REMAINING COST RATIO: NA

TOTAL BENEFIT - COST RATIO: NA

INITIAL BENEFIT – COST RATIO: NA

BASIS OF BENEFIT – COST RATIO: NA

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SUMMARIZED FINANCIAL DATA				ACCUM PCT OF EST FED COST	STATUS (1 Jan 2009)	PCT CMPL	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost (CoE)			4,887,148,000		Misc. Completed Works	100	Oct 1992
Programmed Construction	4,268,751,000				CERP, Plan and Design	29	TBD
Unprogrammed Construction	618,397,000				West Palm Beach	98	TBD
Estimated Federal Cost (OFA)			387,061,000		South Dade County	64	TBD
Programmed Construction	387,061,000				Manatee Pass Gates	93	TBD
Estimated Non-Federal Cost			4,0394,700,000		E Coast Canal	100	Sep 2004
Programmed Construction	3,706,384,000				Western C-111	100	Sep 2005
Cash Contributions	314,238,000				Seminole Big Cypress	70	TBD
Other Costs	3,392,146,000				Ten Mile Creek *	99	TBD
Unprogrammed Construction	328,316,000				Tamiami Trail (Western Culverts	TBD	TBD
Cash Contributions	176,860,000				Florida Keys Carrying	100	Dec 2004
Other Costs	151,456,000				Lake Okeechobee Water Retention	100	Apr 2006
Estimated Unallocated Cost					Southern CREW	TBD	TBD
Programmed Construction	4,500,000	4,500,000	4,500,000		Lake Trafford	TBD	TBD
					Kissimmee	65	TBD
					Mod Waters Del	TBD	TBD
					Picayune Strand **	50	TBD
Total Estimated Programmed Construction Cost			8,366,696,000				
Total Estimated Unprogrammed Construction Cost			946,713,000				
Total Estimated Project Cost			9,313,409,000	1/			
							* Additional construction required prior to turnover.
							** COE will initiate construction of ongoing work.
Allocations to 30 September 2006			1,080,093,000				
Allocations for 2007			152,548,000				
Allocations for 2008			122,406,000	2/	Entire Project	31	TBD
Conference Allowance for 2009			123,448,000				
Allocation for 2009			123,448,000				
Allocations through 2009			1,478,495,000	30%			
Allocation Requested for 2010			214,357,000	35%			
Programmed Balance to Complete after 2010			TBD				
Unprogrammed Balance to Complete after 2010			TBD				

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1/ Includes only authorized features for CERP.

2/ Reflects a decrease in allocation in the amount of \$9,513,000 of FY08 funding to the Upper St Johns River Project and \$850,000 reprogramming to Herbert Hoover Dike Project.

#### PHYSICAL DATA

Pumping Plants (Number)	38	Locks (Number)	25
Floodway Control & Diversion Structures (Number)	235	Canals (Miles)	999
Relocations-Highways (Bridges)	2	Levees (Miles)	720
Relocations-Railroads (Bridges)	58	Bridge	7
Canals - New River Channel	9		
Water Control Structures Removal	2		

#### JUSTIFICATION:

The Central and Southern Florida Project: The C&SF project was originally authorized and designed as a flood control project in response to the maximum flood of record in 1947. Existing damages, without the project, were \$59,693,000 (\$366,903,000 at 1 October 1989 price levels). The 1947 flood frequency averages 1 in 25 years over the project area, with an average duration of 70 days. Minor floods occur almost yearly in the project area and major floods occur frequently. This situation is aggravated by wet antecedent conditions followed by heavy seasonal rainfall. The average degree of protection provided by the completed project is about a 10-year flood frequency protection. Approximately 2,853,700 acres are protected. This encompasses 2,765,100 agricultural acres and 88,600 urban acres. The present value of property subject to flood damages is about \$12.3 billion. Property types include residential, commercial, industrial, public, and agricultural.

Average annual damages without the project would be \$110,580,000 and \$22,536,000 with the project. Damages attributable to urban property are 16.7 percent and 83.3 percent are attributable to rural property. The proportion of average annual damages prevented is 36.8 percent to existing development and 63.2 percent to future development.

Under Public Law 90-483 (River and Harbor Act of 1968), additional project features for the purpose of water supply were added to the Central and Southern Florida project. The storage capacity of the entire project is 2,953,000 average annual acre-feet divided into approximately 1,600,000 acre-feet for urban use by 2020 and 740,000 acre-feet for agricultural use by 2020. The Everglades National Park receives virtually its entire source of water (other than direct rainfall) from the Central and Southern Florida Project. The pumping rate for irrigation of 590 square miles would yield approximately 917,850 acre-feet per year for agricultural use. Recurrent drought conditions with resultant low flows require supplemental irrigation to ensure adequate crops yields.

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JUSTIFICATION CONT:

Average annual benefits are as follows:

Annual Benefits	Amount
Flood Control	235,213,000
Municipal and Industrial Water Supply	25,664,000
Agricultural Water Supply	27,614,000
Recreation	11,109,000
Fish and Wildlife	238,000
Area Redevelopment	3,012,000
Total	302,850,000

The Modified Water Deliveries to Everglades National Park and South Dade County (C-111) Projects: The Corps is working in stages to restore natural hydrological conditions in Everglades National Park. Public Law 90-483 and Public Law 101-229 (Everglades National Park Protection and Expansion Act) authorized modifications to the C&SF project for environmental restoration in the C-111 basin and Shark River Slough. The South Dade County effort will help restore natural hydrologic conditions in Taylor Slough within Everglades National Park. Modified Water Deliveries will take steps to restore natural hydrological flows to Shark River Slough in the Park. The Corps will evaluate the success of these projects, and incorporate the lessons learned into implementation efforts conducted under the WRDA 2000 Comprehensive Everglades Restoration Plan (CERP) authority with further steps to improve water deliveries to the park.

Due to a significant increase in the costs of the option selected in November 2005 for the Tamiami Trail (Eastern Segment) feature of the Modified Water Deliveries Project, the Corps has completed a Limited Reevaluation Report (LRR) to re-examine prior reports and environmental documentation associated with this feature in an effort to re-evaluate the immediate steps to increase flows of water under the highway and into the Park. The Integrated LRR and Environmental Assessment was approved by Mr. Woodley on 1 August 2008.

Everglades and South Florida Ecosystem Restoration Project: WRDA 1996 authorized implementation of the Everglades and South Florida Ecosystem Restoration Project in order to provide immediate, independent, and substantial ecosystem restoration, protection and preservation benefits. The projects were

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justified on the basis of those benefits. Florida Keys Carrying Capacity Study, East Coast Canal Structure and Western C-11, and Lake Okeechobee Water Retention and Phosphorus Removal projects have been completed. The Ten Mile Creek project was physically completed in 2006. However, prior to turnover of the project, a determination will need to be made as to whether additional work may need to be performed.

Kissimmee River Restoration Project: Local water resource development of the Kissimmee River began in the late 1800's. In the 1960's, the river was channelized as part of the comprehensive Central and Southern Florida Project. Although the project has provided for navigation and reduced flood damages as intended, it also resulted in long-term degradation of the natural ecosystem. The 103-mile river that historically meandered across and inundated about 35,000 acres of

#### JUSTIFICATION CONT:

wetlands over a broad flood plain was reduced to a 56-mile canal that has successfully contained almost all flows since its completion. The channelization coupled with the modifications of the Lower Basin tributary watersheds and efficient control of floodwaters and regulation of inflows from the Upper Basin significantly altered hydrologic characteristics of the ecosystem. Project formulation and scoping was based on the most cost-effective plan that would meet fish and wildlife resources objectives for restoring ecological integrity. Completion of the project will result in the restoration of 52 miles of river; 27,000 acres of wetlands; improved water quality characteristics for the Kissimmee River; and restored conditions for over 300 fish and wildlife species.

The FY 2008 Budget proposed a Reevaluation Study to determine the Federal interest in expanding the geographic scope of the Kissimmee River Restoration Project authorized under Water Resources Development Act (WRDA) of 1992 (section 101) to achieve additional aquatic ecosystem benefits and reduce peak flows to Lake Okeechobee. Reducing peak flows to the lake could improve the ability to hold flood waters safely in the lake. However, pending further discussions with the non-Federal sponsor, the Corps is not proceeding with the proposed Reevaluation Study at this time due to a concern over the presence of about 350 homes in the floodplain. The features that were to be reevaluated were authorized as part of the project, but are currently authorized to be carried out only at 100 percent non-Federal expense.

FISCAL YEAR 2009: Fiscal Year 2009 funds for Kissimmee River will be used to complete construction on the Istokpoga Canal features, complete construction of S-69A, continue construction of the second backfill contract for Reach 4, initiate construction of residential flood proofing for River Acres community and continue plans and specifications on future construction.

Funding for the Everglades & South Florida program will be used to complete construction of the Seminole Big Cypress project.

Funding for the Central and Southern Florida project include: Comprehensive Everglades Restoration Plan (CERP): Continue Project Implementation Reports (PIR), to include completion of 3 reports: Melaleuca Eradication, Biscayne Bay Coastal Wetlands and C-111 Spreader Canal; plans and specifications on Indian River Lagoon South, Picayune Strand, Site 1 Impoundment and Broward County WPA; continue design, installation and testing on the ongoing Pilot projects, initiate and construct the L-31 Seepage Management Pilot project; initiate the C-111 Spreader Canal Design Test; continue system wide monitoring. West Palm Beach Canal: continue Periphyton Stormwater Treatment Area (PSTA) contract, repair work on the S-375 and S-365 and design of the L-40 feature. Picayune Strand: Initiate construction of Merritt Pump Station; continue design of other features. South Dade County: continue design of P&S on remaining features, continue interim testing of PS 332C, design and monitoring. Manatee Pass Thru Gates: complete construction on acoustic devices at S-77 and S-308B.

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Funding carried over from FY2008 for the Modified Water Deliveries to Everglades National Park will be used to complete construction on the 8.5 Square Mile Area and the permanent command and control center at the 331 pump station; begin implementation of Tamiami Trail Modifications; design of conveyance and seepage feature; and development of Combined Structural and Operational Plan.

FISCAL YEAR 2010: The requested amount will be applied as follows:

Central and Southern Florida

Continue Construction on the CERP Picayune Strand	44,441,000
Initiate Construction on the CERP Indian River Lagoon South	21,767,000
Initiate Construction on CERP Site 1 Impoundment	25,000,000
Continue Installation and Testing of the Pilot Projects	1,500,000
Continue Construction for PSTA monitoring for West Palm Beach Canal	1,800,000
Continue Construction repair work on the West Palm Beach Canal S-375 and S-365	2,400,000
Continue Interim Testing of Pump Station S-332C for South Dade County	1,000,000
Engineering and Design for CERP Picayune Strand	2,700,000
Engineering and Design for CERP Indian River Lagoon South	4,100,000
Engineering and Design for CERP Site 1 Impoundment	500,000
Engineering and Design for West Palm Beach Canal	200,000
Engineering and Design for South Dade County	3,430,000
Engineering and Design for Comprehensive Everglades Restoration Plan (CERP), includes Adaptive Assessment and Monitoring and DECOMP Physical Model	52,433,000
Construction Management for CERP Picayune Strand	500,000
Construction Management for CERP Indian River Lagoon South	300,000
Construction Management for CERP Site 1 Impoundment	1,500,000
Construction Management for West Palm Beach Canal	200,000
 Subtotal	 \$163,771,000

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Kissimmee	
Initiate Construction on the CXR Railroad Bridge	\$10,675,000
Initiate Construction on the Pool D Oxbow	9,334,000
Initiate Construction on the U-Shaped Weir	17,120,000
Engineering During Construction	475,000
Planning, Engineering, and Design/Monitoring	3,769,000
Construction Management	3,300,000
Subtotal	\$44,673,000

FISCAL YEAR 2010 CON'T

Everglades and South Florida Ecosystem Restoration	
Initiate a Post Authorization Change Report for Ten Mile Creek	\$ 1,050,000
Preventative Maintenance of the current Ten Mile Creek structure	675,000
Subtotal	\$1,725,000

Modified Water Deliveries to Everglades National Park (Army Corps portion of funding request)	
Continue construction of Tamiami Trail	900,000
Engineering and Design for Tamiami Trail	200,000
Engineering and Design of the Conveyance & Seepage	1,050,000
Project Implementation Support	2,038,000
Subtotal	\$4,188,000
Total	\$214,357,000

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NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in specific authorizing legislation and the Water Resources Development Act of 1986, 1996, 2000 and 2007 as applicable, the non-Federal sponsor must comply with the requirements listed below:

	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation, and Replacement Costs
Requirements of Local Cooperation		
West Palm Beach Canal		
Provide lands, easements, rights of way, and dredged material disposal areas.	12,711,000	
Modify or relocate utilities, roads, bridges (except railroad bridges), and other facilities, where necessary for the construction of the project.	1,400,000	
Pay 12.8 percent of the separable costs allocated to flood control and bear all costs of operation, maintenance, repair, rehabilitation, and replacement of facilities.	21,389,000	289,800
<b>Total Non-Federal Costs</b>	<b>35,500,000</b>	<b>289,800</b>

South Dade County

Provide lands, easements, rights of way, and dredged material disposal areas.

118,422,000

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Modify or relocate utilities, roads, bridges (except railroad bridges), and other facilities, where necessary for the construction of the project.	330,000	
Pay one-half of the cost of the project assigned to flood control and bear all costs of operation, maintenance, repair, rehabilitation, and replacement of flood control facilities.	76,748,000	845,000
<b>Total Non-Federal Costs</b>	<b>195,500,000</b>	<b>845,000</b>

<b>Manatee Pass-Through Gates</b>		
Pay applicable percentage based upon authorized cost share for each particular project.	2,200,000	
<b>Total Non-Federal Costs</b>	<b>2,200,000</b>	

**NON-FEDERAL COST CON'T**

	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation, and Replacement Costs
<b>Requirements of Local Cooperation</b>		
<b>Comprehensive Everglades Restoration Plan (CERP)</b>		
Provide lands, easements, rights of way, and dredged material disposal areas.	1,577,133,000	
Pay one-half of the cost of the project assigned to flood control and bear one half of the cost of operation, maintenance, repair, rehabilitation, and replacement of (CERP) facilities.	1,342,317,000	
<b>Total Non-Federal Costs</b>	<b>2,919,450,000</b>	

<b>Completed C&amp;SF Works</b>		
Provide lands, easements, rights of way, and modify or relocate buildings, utilities, roads, bridges and other facilities.	176,459,000	
Cash Contribution/WIK	232,241,000	

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Total Non-Federal Costs Total	408,700,000	
CERP: Site 1 Impoundment		
Provide lands, easements, rights of way, and modify or relocate buildings, utilities, roads, bridges and other facilities.	4,180,000	
Cash Contribution/WIK	50,520,000	778,700
Total Non-Federal Costs Total	54,700,000	
CERP: Indian River Lagoon South		
Provide lands, easements, rights of way, and modify or relocate buildings, utilities, roads, bridges and other facilities.	941,000,000	
Cash Contribution/WIK		6,144,700
Total Non-Federal Costs Total	941,000,000	

NON-FEDERAL COST CON'T

	Payments During Construction, and Reimbursements	Annual Operation, Maintenance, Repair Rehabilitation, and Replacement Costs
Requirements of Local Cooperation		
CERP: Picayune Strand		
Provide lands, easements, rights of way, and modify or relocate buildings, utilities, roads, bridges and other facilities.	154,553,000	
Cash Contribution/WIK	69,447,000	310,000
Total Non-Federal Costs Total	224,000,000	310,000

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East Coast Canal Structures

Provide; with credit toward the non-Federal 50 percent share of project costs; all lands, easements, rights of way, and excavated or dredged material disposal areas.	0	
Modify or relocate; with credit toward the non-Federal 50 percent share of project costs; utilities, roads, bridges (except railroad bridges), and other facilities, where necessary for the construction of the project.	0	
Pay 50 percent of the costs allocated to environmental restoration, and pay all costs of operation, maintenance, repair, rehabilitation, and replacement.	1,796,000	150,000
<b>Total Non-Federal Costs</b>	<b>1,796,000</b>	<b>150,000</b>

NON-FEDERAL COST CON'T

Requirements of Local Cooperation	Payments During Construction, and Reimbursements	Annual Operation, Maintenance, Repair Rehabilitation, and Replacement Costs
<b>Ten Mile Creek</b>		
Provide; with credit toward the non-Federal 50 percent share of project costs; all lands, easements, rights of way, and excavated or dredged material disposal areas.	5,074,000	
Modify or relocate; with credit toward the non-Federal 50 percent share of project costs; utilities, roads, bridges (except railroad bridges), and other facilities, where necessary for the construction of the project.	0	
Pay 50 percent of the costs allocated to environmental restoration, and pay all costs of operation, maintenance, repair, rehabilitation, and replacement.	19,926,000	660,000
<b>Total Non-Federal Costs</b>	<b>25,000,000</b>	<b>660,000</b>

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Tamiami Trail (Western Culverts)

Provide; with credit toward the non-Federal 84 percent share of project costs; all lands, easements, rights of way, and excavated or dredged material disposal areas.	0	
Modify or relocate; with credit toward the non-Federal 84 percent share of project costs; utilities, roads, bridges (except railroad bridges), and other facilities, where necessary for the construction of the project.	0	
Pay 68 percent of the costs allocated to environmental restoration, and pay all costs of operation, maintenance, repair, rehabilitation, and replacement.	13,884,000	250,000
<b>Total Non-Federal Costs</b>	<b>13,884,000</b>	<b>250,000</b>

Seminole Big Cypress

Provide; with credit toward the non-Federal 50 percent share of project costs; all lands, easements, rights of way, and excavated or dredged material disposal areas.	7,500,000	
Modify or relocate; with credit toward the non-Federal 50 percent share of project costs; utilities, roads, bridges (except railroad bridges), and other facilities, where necessary for the construction of the project.	0	
Pay 50 percent of the costs allocated to environmental restoration, and pay 50% costs of operation, maintenance, repair, rehabilitation, and replacement.	22,500,000	600,000
<b>Total Non-Federal Costs</b>	<b>30,000,000</b>	<b>600,000</b>

NON-FEDERAL COST CON'T

Requirements of Local Cooperation	Payments During Construction, and Reimbursements	Annual Operation, Maintenance, Repair Rehabilitation, and Replacement Costs
Florida Keys Carrying Capacity		
Provide; with credit toward the non-Federal 50 percent share of project costs; all lands, easements, rights of way, and excavated or dredged material disposal areas.	0	
Modify or relocate; with credit toward the non-Federal 50 percent share of project costs; utilities, roads, bridges (except railroad bridges), and other facilities, where necessary for the construction of the project.	0	
Pay 50 percent of the costs allocated to environmental restoration, and pay all costs of operation, maintenance, repair, rehabilitation, and replacement.	3,000,000	

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Total Non-Federal Costs	3,000,000	
	Payments During Construction, and Reimbursements	Annual Operation, Maintenance, Repair Rehabilitation, and Replacement Costs
Lake Okeechobee Water retention & Phosphorus Removal Provide; with credit toward the non-Federal 50 percent share of project costs; all lands, easements, rights of way, and excavated or dredged material disposal areas.	3,077,000	
Modify or relocate; with credit toward the non-Federal 50 percent share of project costs; utilities, roads, bridges (except railroad bridges), and other facilities, where necessary for the construction of the project.	0	
Pay 50 percent of the costs allocated to environmental restoration, and pay all costs of operation, maintenance, repair, rehabilitation, and replacement.	8,120,000	364,000
Total Non-Federal Costs	11,197,000	364,000

NON-FEDERAL COST CON'T

Requirements of Local Cooperation	Payments During Construction, and Reimbursements	Annual Operation, Maintenance, Repair Rehabilitation, and Replacement Costs
Southern CREW Provide; with credit toward the non-Federal 50 percent share of project costs; all lands, easements, rights of way, and excavated or dredged material disposal areas.	29,000,000	
Modify or relocate; with credit toward the non-Federal 50 percent share of project costs; utilities, roads, bridges (except railroad bridges), and other facilities, where necessary for the construction of the project.	0	
Pay 50 percent of the costs allocated to environmental restoration, and pay all costs of operation,	4,040,000	

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maintenance, repair, rehabilitation, and replacement.		175,000
Total Non-Federal Costs	33,040,000	175,000

	Payments During Construction, and Reimbursements	Annual Operation, Maintenance, Repair Rehabilitation, and Replacement Costs
Lake Trafford		
Provide; with credit toward the non-Federal 95 percent share of project costs; all lands, easements, rights of way, and excavated or dredged material disposal areas.	1,342,000	
Modify or relocate; with credit toward the non-Federal 95 percent share of project costs; utilities, roads, bridges (except railroad bridges), and other facilities, where necessary for the construction of the project.	0	
Pay 82 percent of the costs allocated to environmental restoration, and pay all costs of operation, maintenance, repair, rehabilitation, and replacement.	27,099,000	70,000
Total Non-Federal Costs	28,441,000	70,000

OTHER FEDERAL AGENCIES (OFA)

	Payments During Construction, and Reimbursements	Annual Operation, Maintenance, Repair Rehabilitation, and Replacement Costs
Modified Water Deliveries to Everglades National Park **		
Provide; with credit toward Dol's share of the project costs; all lands, easements, rights of way, and excavated or dredged material disposal areas.	\$ 109,056,000	
Pay share of project costs.	225,358,000	
	334,414,000	
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Total OFA Costs

\*\* Costs based on approved decision document dated 1 August 2008.

STATUS OF LOCAL COOPERATION: Assurances of local cooperation have been accepted from the local sponsor, the South Florida Water Management District, for all works authorized under the Central and Southern Florida project. The Project Cooperation Agreement for the South Dade County separable element was executed with the South Florida Water Management District in January 1995. A Post Authorization Change document is being drafted for approval to support an amendment to the existing PCA. The Design Agreement for the South Florida Water Management District segment of the Comprehensive Everglades Restoration Plan (CERP) was signed on 12 May 2000. The design agreement for Lake Park was signed on 17 January 2003 with Lee County and for Winsberg Farm on 03 January 2002 with Palm Beach County. Additional Design Agreements for CERP features maybe executed with Seminole Tribe of Florida, the Miccosukee Tribe of Florida, the Florida Department of Environmental Protection and Miami-Dade County.

The Kissimmee Project Cooperation Agreement reflects the cost sharing outlined in House Document 102-286 dated April 7, 1992 was executed with the South Florida Water Management District (SFWMD) in March 1994. The local sponsor will be required to provide a cash contribution for project costs in excess of land credit (reflecting credit for lands, easements, rights of way, relocations, and disposal areas).

PCA's were executed 07 January 2000 for East Coast Canal Structures, Tamiami Trail Culverts, Western C-11, Seminole Big Cypress, Southern Crew, Lake Okeechobee Water Retention, 10-Mile Creek, and Lake Trafford. A PCA was executed Dec 1998 for Florida Keys Carrying Capacity. Local sponsors include: South Florida Water Management District (SFWMD), Seminole Tribe of Florida, and the Florida Department of Community Affairs (DCA).

PCA's were executed with the South Florida Water Management District September 1994 and July 2001 for the Modified Water Deliveries Project to implement modifications to the C&SF Project to improve water deliveries into Everglades National Park. PCA Amendment No. 2 was executed August 2008 for Tamiami Trail Modifications.

A Project Partnering Agreement is scheduled to be executed on the CERP: Picayune Strand project in June 2009.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal (Corps cost estimate for the Corps' share of the overall restoration effort) cost estimate of \$4,887,148,000 is an increase of \$242,297,000 from the latest estimate (\$4,644,851,000) submitted to Congress (FY 2009). The changes include the following items:

	Item	Amount
Division: South Atlantic	Price Escalation on Construction Features	\$114,320,500
	District: Jacksonville	South Florida Ecosystem Restoration Program, FL

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Design Changes	45,047,500
Federal LERRDS	21,229,000
Schedule Changes	21,700,000
MWD: Tamiami Trail Modifications contained in LRR	40,000,000
Total	\$242,297,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT:

The latest Programmatic Environmental Impact Statement for Central and Southern Florida project was the Comprehensive Review Study in April 1999. NEPA documents have also been completed for Indian River Lagoon South, Picayune Strand, Site 1 and Broward County WPA.

The final Environmental Impact Statement for the Kissimmee project was filed with EPA on April 5, 1992. A supplement to the Environmental Impact Statement was integrated into the Upper Basin project modification report.

Appropriate NEPA documents were prepared and finalized prior to execution of the PCA for East Coast Canal Structures, Tamiami Trail Culverts (Western Culverts), Western C-11, Seminole Big Cypress, Southern Crew, Lake Okeechobee Water Retention, 10-Mile Creek, and Lake Trafford. A PCA was executed Dec 1998 for the Florida Keys Carrying Capacity Study.

The Record of Decision for the Integrated Environmental Impact Statement of the Picayune Strand Restoration recommended plan was signed on April 13, 2007.

OTHER INFORMATION: Funds to initiate preconstruction planning and construction on the original Central and Southern Florida project were appropriated in FY1950.

The Everglades National Park Protection and Expansion Act, signed 13 December 1989, authorized construction of structural works required to take steps to improve water deliveries to Shark River Slough in Everglades National Park, construction of flood mitigation works for the residential area in the East Everglades, and acquisition of 107,600 acres of privately owned wetlands in the East Everglades. The Department of the Interior and the State of Florida acquired the lands included in the ENP expansion area and the Secretary of the Army has responsibility for constructing all project modifications. Under the initial implementation

Division: South Atlantic

District: Jacksonville

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plan, funds were appropriated to the National Park Service and transferred to the Corps of Engineers for this purpose. Beginning in FY2006, Congress has provided funding for this project to both the National Park Service and the Corps of Engineers.

Modifications to the C&SF, South Dade County separable element to improve the natural resources in Taylor Slough in Everglades National Park have been funded through the Corps.

The Kissimmee Restoration Project was authorized by the Water Resources Development Act of 1992. The project cooperation agreement was executed in March 1994. Engineering and design and construction are underway. Construction was initiated in Fiscal Year 1997. A Post Authorization Change is being developed due to increased costs from inflation over the years and a need for a 902 Limit reauthorization. It is estimated that the 902 Limit will be exceeded in FY 2012.

The Water Resources Development Act of 1992 authorizes the Chief of Engineers to review the Central and Southern Florida project to determine whether modifications to the existing project are advisable at the present time due to significantly changed physical, biological, demographic, or economic conditions, with particular reference to modifying the project or its operation for improving the quality of the environment, improving protection of the aquifer, and improving the integrity, capability, and conservation of urban water supplies affected by the project or its operation. The central organizing theme of the Comprehensive Restudy was the restoration of the South Florida ecosystem while accommodating other demands for water and related land resources in south Florida. Recognizing the complexity of ecological restoration and the extensive interaction between the ecosystem and other uses of water and related land resources, oversight of the reconnaissance level study effort was provided by the interagency South Florida Ecosystem Restoration Task Force, which continues to provide policy guidance, study coordination, and appropriate agency participation. The Water Resources Development Act of 1996 (Section 528) required that the Comprehensive Restudy feasibility report be submitted to Congress, along with a Programmatic Environmental Impact Statement, in July 1999. The Final Integrated Feasibility Report and Programmatic Environmental Impact Statement was submitted to Congress on 01 July 1999. The Comprehensive Plan provided a conceptual framework for restoring the South Florida Everglades. Congress authorized this plan in WRDA 2000. The Energy and Water Appropriations Act of FY 2000, Public Law 106-50 authorized funds to initiate design of elements of the Comprehensive Plan for the Everglades and South Florida Ecosystem Restoration Project.

The Water Resources Development Act of 1996 also legislatively established the Task Force and expanded its membership to include State and local agency representatives. The Task Force is providing assistance to the Comprehensive Restoration Plan Program.

The Indian River Lagoon South Feasibility Study was initiated in 1996. This study evaluated potential modifications to the Central and South Florida Project for ecological restoration of Indian River Lagoon system. A final feasibility report, which included components of the Comprehensive Plan, was submitted to HQUSACE in FY02. The Project Implementation Report (PIR), required by WRDA 2000, for Indian River Lagoon South was completed August 2004. A Chief's Report on the PIR was signed 04 August 2004. Construction was authorized in WRDA 2007.

#### OTHER INFORMATION CON'T:

Division: South Atlantic

District: Jacksonville

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The Picayune Strand Project Implementation Report, which is a component of the Comprehensive Plan, was completed in December 2004. A Chief's Report on the PIR was signed on 15 September 2005. Construction was authorized in WRDA 2007. Construction has started with funds provided by the non-Federal sponsor and would continue with the funds requested for FY 2009. Specifically, the local sponsor, South Florida Water Management District, has completed construction of some of the road demolition and some plugging of canals. The Corps would complete the remaining construction of 3 pump stations, road removal and plugging of canals. The FY 2009 funds would be used for the first pump station, which is scheduled to be initiated in 2009 and completed in three years. This project involves the restoration of natural flow across roughly 90 square miles in western Collier County, which were drained in the early 1960's. The project will restore wetlands in Picayune Strand (Southern Golden Gates Estates) and in adjacent public lands by reducing over drainage while restoring a natural and beneficial sheetflow of water to the Ten Thousand Islands National Wildlife Refuge. Additionally, the project will benefit the endangered Florida panther, and improve wetland/upland mosaic habitat west of the Everglades.

The Site 1 Impoundment Project Implementation Report, which is a component of the Comprehensive Plan, was completed in August 2006. A Chief's Report on the PIR was signed on 19 December 2006. Construction was authorized in WRDA 2007.

A Project Implementation Report for Broward County WPA, which is a component of the Comprehensive Plan, was completed in April 2007. However the final report is pending a decision on the CERP land valuation policy.

The Caloosahatchee River (C-43) West Basin Storage Reservoir Project Implementation Report, which is a component of the Comprehensive Plan, was completed in September 2007. However the final report is pending a decision on the CERP land valuation policy.

The Water Resources Development Act 2000 authorized the Comprehensive Everglades Restoration Plan as the framework for modifications and operational changes to the Central & Southern Florida Project. In addition, specific authorization was provided for 10 projects totaling \$1.1 billion (including \$100 million for adaptive assessment and monitoring programs) and 4 pilot projects totaling \$69 million, and to allow for implementation of projects under a programmatic authority, not to exceed \$206 million. Two additional pilot projects and part of the Comprehensive Everglades Restoration Plan were authorized in the Water Resources Development Act of 1999 for \$29 million.

The Water Resources Development Act of 2007 also provided a new authorized project cost for the Hillsboro and Lake Okeechobee ASR Pilot and the Caloosahatchee ASR Pilot projects; and a provision for the establishment of Section 902 limits for the Programmatic Authority projects.

The Everglades and South Florida Ecosystem Restoration project authorization limit of a total federal funding of \$75 million was increased to \$95 million in WRDA 2007. It also provided for an increased project Federal funding cap on the Seminole Big Cypress project from \$25M to \$30M. The local sponsors have elected, on some projects, to fund more than 50% of project costs to complete those projects. A Post Change Report will be prepared for the Ten Mile Creek project which has reached the authorized \$25M Federal funding cap. The constructed facility will be maintained in a minimum caretaker status to protect the property for health and safety.

## SUMMARIZED FINANCIAL DATA

Division: South Atlantic

District: Jacksonville

South Florida Ecosystem Restoration Program, FL

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C&SF Miscellaneous Completed Work

Estimated Federal Cost		934,900,000
Estimated Non-Federal Cost		408,700,000
Cash Contributions	232,241,000	
Other Costs	176,459,000	
Total Estimated Project Cost		1,343,600,000

Modified Water Deliveries to Everglades National Park \*\*

Estimated Federal Cost (COE)		170,701,000
Programmed Construction	170,701,000	
Unprogrammed Construction	0	
Estimated Federal Cost (OFA)		334,414,000
Programmed Construction	334,414,000	
Unprogrammed Construction	0	
Estimated Unallocated Cost		4,500,000
Programmed Construction	4,500,000	
Unprogrammed Construction	0	
Total Estimated Programmed Construction Cost		509,615,000
Total Estimated Unprogrammed Construction Cost		0
Total Estimated Project Cost		509,615,000

REMAINING BENEFIT-REMAINING COST RATIO: Not applicable

TOTAL BENEFIT-COST RATIO: Not applicable

.SUMMARIZED FINANCIAL DATA (Continued)

\*\* Costs based on approved LRR decision document dated 1 August 2008.

Division: South Atlantic

District: Jacksonville

South Florida Ecosystem Restoration Program, FL

7 May 2009

SUMMARIZED FINANCIAL DATA (Continued)

South Dade County

Estimated Federal Cost		195,500,000
Programmed Construction	195,500,000	
Unprogrammed Construction	0	
Estimated Non-Federal Cost		195,500,000
Programmed Construction	195,500,000	
Cash Contributions	76,343,000	
Other Costs	119,157,000	
Estimated Non-Federal Cost		
Unprogrammed Construction		0
Cash Contributions	0	
Other Costs	0	
Total Estimated Programmed Construction Cost		391,000,000
Total Estimated Unprogrammed Construction Cost		0
Total Estimated Project Cost		391,000,000

REMAINING BENEFIT-REMAINING COST RATIO: Not applicable

TOTAL BENEFIT-COST RATIO: Not applicable

Division: South Atlantic

District: Jacksonville

South Florida Ecosystem Restoration Program, FL

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SUMMARIZED FINANCIAL DATA (Continued)

West Palm Beach Canal

Estimated Federal Cost (COE)		236,500,000
Programmed Construction	236,500,000	
Unprogrammed Construction	0	
Estimated Federal Cost (OFA)		46,000,000
Programmed Construction	46,000,000	
Unprogrammed Construction	0	
Estimated Non-Federal Cost		35,500,000
Programmed Construction	35,500,000	
Cash Contributions	21,389,000	
Other Costs	14,111,000	
Estimated Non-Federal Cost		0
Unprogrammed Construction		0
Cash Contributions	0	
Other Costs	0	
Total Estimated Programmed Construction Cost		318,000,000
Total Estimated Unprogrammed Construction Cost		0
Total Estimated Project Cost		318,000,000

REMAINING BENEFIT-REMAINING COST RATIO: Not applicable

TOTAL BENEFIT-COST RATIO: Not applicable

Division: South Atlantic

District: Jacksonville

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SUMMARIZED FINANCIAL DATA (Continued)

Manatee Pass-Through Gates

Estimated Federal Cost			16,400,000
Programmed Construction		16,400,000	
Unprogrammed Construction		0	
Estimated Non-Federal Cost			2,200,000
Programmed Construction		2,200,000	
Cash Contributions	2,200,000		
Other Costs	0		
Estimated Non-Federal Cost			
Unprogrammed Construction		0	
Cash Contributions	0		
Other Costs	0		
Total Estimated Programmed Construction Cost			18,600,000
Total Estimated Unprogrammed Construction Cost			0
Total Estimated Project Cost			18,600,000

REMAINING BENEFIT-REMAINING COST RATIO: Not applicable

TOTAL BENEFIT-COST RATIO: Not applicable

Division: South Atlantic

District: Jacksonville

South Florida Ecosystem Restoration Program, FL

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SUMMARIZED FINANCIAL DATA (Continued)

Comprehensive Everglades Restoration Plan

Estimated Federal Cost		2,926,794,000
Programmed Construction	2,926,794,000	
Unprogrammed Construction	0	
Estimated Non-Federal Cost		2,919,450,000
Programmed Construction	2,919,450,000	
Cash Contributions	14,872,000	
Other Costs	2,904,578,000	
Estimated Non-Federal Cost		
Unprogrammed Construction		0
Cash Contributions	0	
Other Costs	0	
Total Estimated Programmed Construction Cost		5,846,244,000
Total Estimated Unprogrammed Construction Cost		0
Total Estimated Project Cost		5,846,244,000

REMAINING BENEFIT-REMAINING COST RATIO: Not applicable

TOTAL BENEFIT-COST RATIO: Not applicable

Division: South Atlantic

District: Jacksonville

South Florida Ecosystem Restoration Program, FL

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SUMMARIZED FINANCIAL DATA (Continued)

Lake Okeechobee

Estimated Federal Cost		11,236,000
Estimated Non-Federal Cost		11,197,000
Cash Contributions	5,970,000	
Other Costs	5,227,000	
Total Estimated Project Cost		22,433,000

Southern CREW

Estimated Federal Cost		281,000
Estimated Non-Federal Cost	1/	33,040,000
Cash Contributions	3,462,000	
Other Costs	29,578,000	
Total Estimated Project Cost		33,321,000

East Coast Canal Structures

Estimated Federal Cost		1,902,000
Estimated Non-Federal Cost		1,796,000
Cash Contributions	1,571,000	
Other Costs	225,000	

Division: South Atlantic

District: Jacksonville

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Total Estimated Project Cost 3,698,000

SUMMARIZED FINANCIAL DATA (Continued):

Western C-11 Basin

Estimated Federal Cost 9,100,000

Estimated Non-Federal Cost 8,992,000

Cash Contributions 8,389,000

Other Costs 603,000

Total Estimated Project Cost 18,092,000

Seminole Big Cypress

Estimated Federal Cost 30,000,000

Estimated Non-Federal Cost 1/ 30,000,000

Cash Contributions 14,001,000

Other Costs 15,999,000

Total Estimated Project Cost 60,000,000

Ten-Mile Creek

Estimated Federal Cost 25,000,000

Estimated Non-Federal Cost 25,000,000

Cash Contributions 14,305,000

Other Costs 10,695,000

Division: South Atlantic

District: Jacksonville

South Florida Ecosystem Restoration Program, FL

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Total Estimated Project Cost 50,000,000

SUMMARIZED FINANCIAL DATA (Continued):

Tamiami Trail (Western Culverts)

Estimated Federal Cost		6,755,000
Estimated Non-Federal Cost 1/		13,884,000
Cash Contributions	0	
Other Costs	13,884,000	
Total Estimated Project Cost		20,639,000

Lake Trafford

Estimated Federal Cost		6,687,000
Estimated Non-Federal Cost 1/		28,441,000
Cash Contributions	0	
Other Costs	28,441,000	
Total Estimated Project Cost		35,128,000

Keys Carrying Capacity

Estimated Federal Cost		3,000,000
Estimated Non-Federal Cost		3,000,000
Division: South Atlantic	District: Jacksonville	

South Florida Ecosystem Restoration Program, FL

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Cash Contributions	1,500,000	
Other Costs	1,500,000	
Total Estimated Project Cost		6,000,000

SUMMARIZED FINANCIAL DATA (Continued):

INDIAN RIVER LAGOON SOUTH

Estimated Federal Cost		941,000,000
Estimated Non-Federal Cost		941,000,000
Cash Contributions	0	
Other Costs	941,000,000	
Total Estimated Project Cost		1,882,000,000

REMAINING BENEFIT-REMAINING COST RATIO: N/A

TOTAL BENEFIT-COST RATIO: N/A

Division: South Atlantic

District: Jacksonville

South Florida Ecosystem Restoration Program, FL

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PICAYUNE STRAND

Estimated Federal Cost		224,000,000
Estimated Non-Federal Cost		224,000,000
Cash Contributions	0	
Other Costs	224,000,000	
Total Estimated Project Cost		448,000,000

REMAINING BENEFIT-REMAINING COST RATIO: N/A

TOTAL BENEFIT-COST RATIO: N/A

SUMMARIZED FINANCIAL DATA (Continued):

SITE 1 IMPOUNDMENT

Estimated Federal Cost		54,700,000
Estimated Non-Federal Cost		54,700,000
Cash Contributions	0	
Other Costs	54,700,000	

Division: South Atlantic

District: Jacksonville

South Florida Ecosystem Restoration Program, FL

7 May 2009

Total Estimated Project Cost

109,400,000

REMAINING BENEFIT-REMAINING COST RATIO: N/A

TOTAL BENEFIT-COST RATIO: N/A

SUMMARIZED FINANCIAL DATA (Continued):

Kissimmee River

Division: South Atlantic

District: Jacksonville

South Florida Ecosystem Restoration Program, FL

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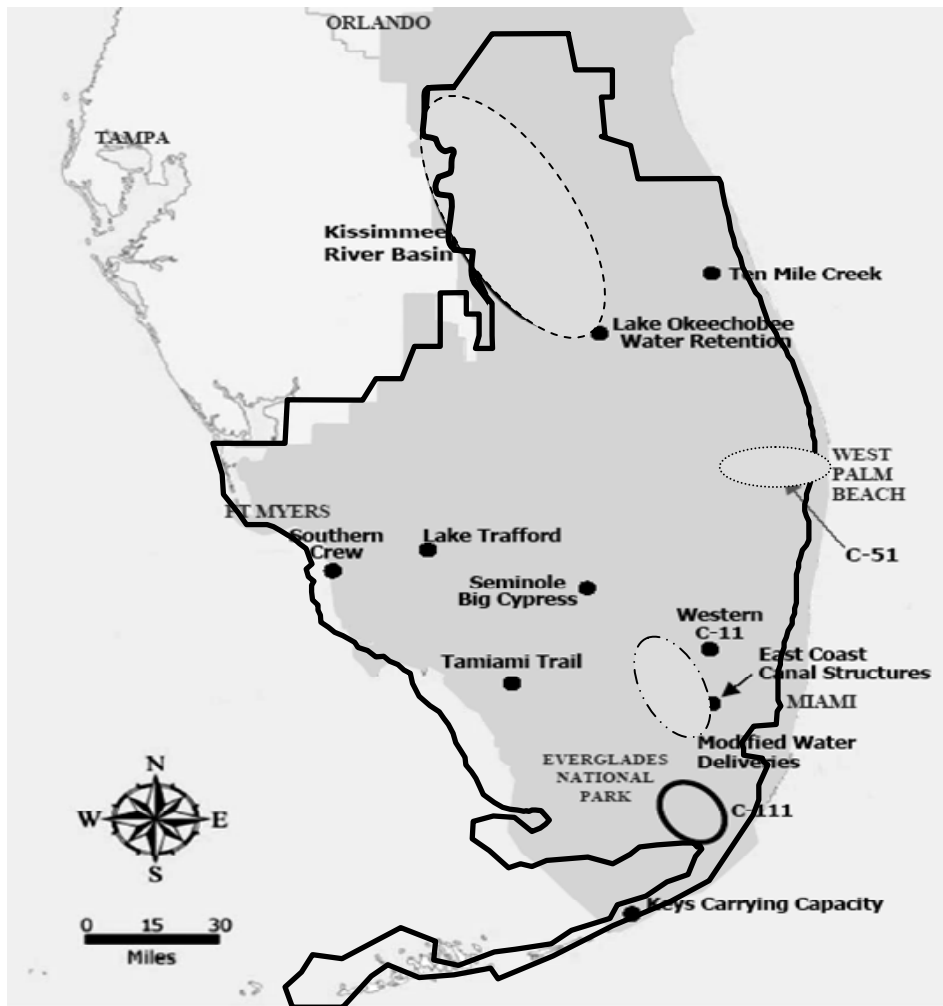
Estimated Federal Cost		318,000,000
Programmed Construction	318,000,000	
Unprogrammed Construction	0	
Estimated Non-Federal Cost		318,000,000
Programmed Construction	318,000,000	
Cash Contributions	96,986,000	
Other Costs	221,014,000	
Estimated Non-Federal Cost		0
Unprogrammed Construction		0
Cash Contributions	0	
Other Costs	0	
Total Estimated Programmed Construction Cost		636,000,000
Total Estimated Unprogrammed Construction Cost		0
Total Estimated Project Cost		636,000,000

REMAINING BENEFIT-REMAINING COST RATIO: Not applicable




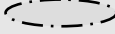
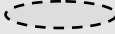


TOTAL BENEFIT-COST RATIO: Not applicable

1/ Construction assigned to sponsor due to Federal funding cap on Everglades and South Florida program.





**Legend**

-  C&SF Boundaries
-  CERP Boundaries
-  Critical Projects
-  Modified Water Deliveries to ENP
-  Kissimmee River Basin
-  C-51
-  C-111

**South Florida  
Everglades Ecosystem  
Restoration**

7 May 2009

# HYDROPOWER

# CONSTRUCTION

APPROPRIATION TITLE: Construction - Multiple Purpose Power (Major Rehabilitation).

PROJECT: John H. Kerr Dam and Reservoir, VA & NC (Continuing).

LOCATION: The Kerr Powerhouse is located on the Roanoke River in Mecklenburg County, Virginia, 7 miles east of Boydton, Virginia, 80 air miles southwest of Richmond, Virginia, and 60 air miles north of Raleigh, North Carolina.

DESCRIPTION: The recommended plan involves the rewinding of seven generator units to maximum capacity, replacement of the turbines and main power transformers, and the replacement or refurbishment of key electrical and mechanical peripheral equipment in order to improve the overall reliability of the project, reduce operation and maintenance costs, reduce unscheduled repair costs, and provide additional hydropower capacity and power revenues.

AUTHORIZATION: Flood Control Act of 1944.

REMAINING BENEFIT-REMAINING COST RATIO: 9.2 to 1 at 7 percent.

TOTAL BENEFIT-COST RATIO: 3.6 to 1 at 7 percent.

INITIAL BENEFIT-COST RATIO: 1.4 to 1 at 7 1/8 percent. Initial construction funds appropriated in FY 1998.

BASIS OF BENEFIT-COST RATIO: Benefits are from the latest available evaluations contained in the Major Rehabilitation Evaluation Report addendum and transmittal memorandum dated June 1997 at October 1996 price levels. Benefits were brought to current conditions of the power generation facilities and expected alternative costs in January 2005 using information from the Hydropower Design Center, and are reflected in the benefit-to-cost ratios computations.

SUMMARIZED FINANCIAL DATA		ACCUM PCT OF EST FED COST	STATUS (1 Jan 2009)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Total Appropriation Requirement	\$89,975,000		Entire Project	74	April 2011
Future Non-Federal Reimbursement	\$89,975,000				
Estimated Non-Federal Cost (Ultimate)	\$ 0				
Cash Contributions	0				
Other Costs	0				
Reimbursements	\$ 89,975,000				
Power	\$89,975,000				
Total Estimated Project Cost	\$89,975,000				
Allocations to 30 September 2006	\$ 35,395,000				
Allocation for FY 2007	10,500,000				
Allocation for FY 2008	13,767,000				
Conference Allowance for FY 2009	13,398,000				
Allocation for FY 2009	13,398,000				
Allocations through FY 2009	73,060,000	81			
Allocation Requested for 2010	\$ 16,915,000	100			
Programmed Balance to Complete after FY 2010	0				
Unprogrammed Balance to Complete after FY 2010	0				

PHYSICAL DATA

Rewind Generator	7
Replace Turbines	6
Refurbish Turbines	1
Replace Transformers	All

Division: South Atlantic

District: Wilmington

John H. Kerr Dam and Reservoir, NC & VA

7 May 2009

JUSTIFICATION: The John H. Kerr Powerplant, which was initially placed into operation in 1953, is showing signs of excessive wear of the generators, the peripheral equipment and the turbines. This has resulted in a loss of efficiency, reduced reliability of the units and lost power output for the units. The recommended plan of improvement calls for rewinding the generators to maximum capacity, replacement of the turbines and main power transformers, and replacement or refurbishment of key electrical/mechanical peripheral equipment. The recommended plan will improve the powerplant's overall reliability, reduce further degradation of the hydroelectric units, decrease operation and maintenance costs, and increase the power generation capability. There is growing concern with project reliability due to recent malfunctions of oil circuit breakers in the switchyard, for which repair parts are no longer available and must be custom fabricated; frequent leaks in the raw water piping system, which is in extremely poor condition throughout; and the extremely heavy cavitation observed in the runner, stay ring and discharge ring of Unit Number 5. Average annual benefits for hydroelectric power are \$17,485,000.

FISCAL YEAR 2009: The allocated amount of \$13,398,000 will be used for power plant rehabilitation, planning, engineering and design and construction management including completion of rehabilitation of Unit Numbers 6 and 7 and initiation of rehabilitation of Unit Number 5.

FISCAL YEAR 2010: The requested amount of \$16,915,000 will be applied as follows:

Continue work under contract for rehabilitation of powerplant	\$15,602,000
Planning, Engineering and Design	600,000
Construction Management	713,000
Total	\$16,915,000

NON-FEDERAL COST: The costs allocable to power are reimbursable, and will be reviewed and adjusted based on construction costs when the project becomes operational.

Requirements of local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation, and Replacement Costs
Pay all costs allocated to hydropower and bear all costs of operation, maintenance, repair, rehabilitation and replacement of hydropower facilities	\$89,975,000	\$6,043,000

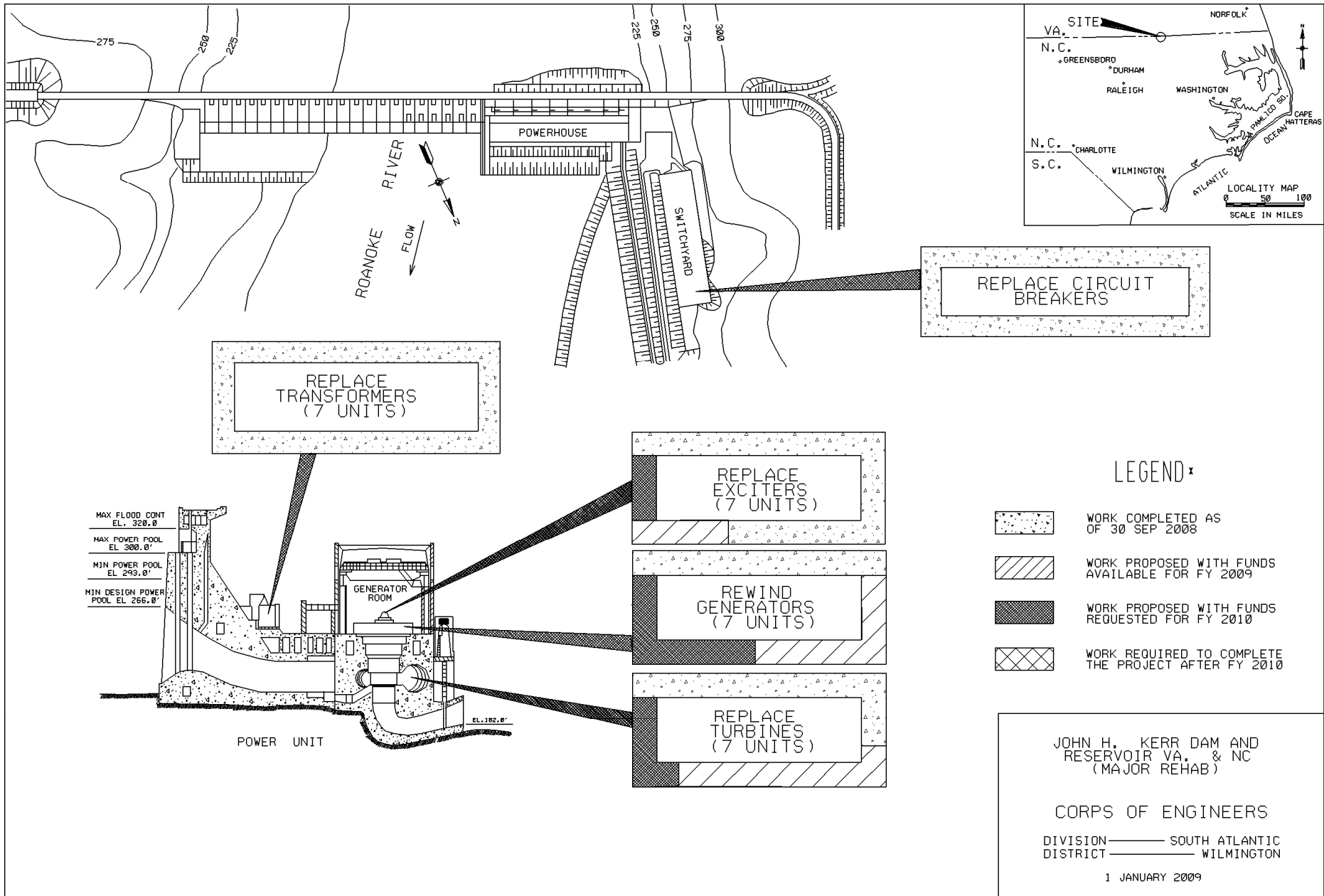
STATUS OF LOCAL COOPERATION: Pursuant to Federal Laws responsibility for repayment of hydropower costs rests with the power-marketing agency, the Southeast Power Administration.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of \$89,975,000 has increased due to the estimated price of piping for a dissolved oxygen system for units 3, 5, and 7 (\$975,000).

Item	Amount
Post Contract Award and Other Estimating Adjustments	\$975,000
Total	\$975,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT COMPLIANCE: An Environmental Assessment and Finding of No Significant Impact was prepared and distributed in December 1996 for public comment. The Finding of No Significant Impact was signed by the District Engineer on 7 February 1997.

OTHER INFORMATION: Construction funds to initiate major rehabilitation were appropriated in FY 2000.



Division: South Atlantic

District: Wilmington

John H. Kerr Dam and Reservoir, NC & VA

7 May 2009



APPROPRIATION TITLE: Construction - Multiple Purpose Power

PROJECT: Richard B. Russell Dam and Lake, Georgia and South Carolina (Continuing)

LOCATION: The project is located on the Savannah River approximately 275 miles above the mouth, 16 miles southeast of Elberton, Georgia and between the existing J. Strom Thurmond and Hartwell Lakes.

DESCRIPTION: The project consists of a concrete gravity-type dam, flanked by earth embankments with a maximum height of 200 feet above the river. The total length of 5,616 feet consists of a 1,884-foot concrete section and embankments of 3,732 feet. The gate-controlled spillway has a design capacity of 80,000 c.f.s. The project includes the installation of 328 megawatts of conventional power completed in January 1986 and 320 megawatts of reversible pumped storage power completed in 1992 for a total available capacity of 648 megawatts.

AUTHORIZATION: Flood Control Act of 1966, modified by the Water Resources Development Act of 1976 and the Water Resources Development Act of 1986.

REMAINING BENEFIT - REMAINING COST RATIO: 1.85 to 1 at 7 percent

TOTAL BENEFIT - COST RATIO: 1.9 to 1 at 7 percent.

INITIAL BENEFIT - COST RATIO: 2.0 to 1 at 3 1/4 percent (FY 1972).

BASIS OF BENEFIT - COST RATIO: Benefits are from the cost allocation study completed in December 1991 at October 1991 price levels.

SUMMARIZED FINANCIAL DATA		ACCUM PCT OF EST FED COST	STATUS (1 April 2009)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Total Appropriation Requirement	\$638,858,000		Entire Project	98.4%	Dec 2016
Future Non-Federal Reimbursement	590,583,000				
Estimated Federal Cost (Ultimate)	48,275,000				
Estimated Non-Federal Cost	592,483,000				
Cash Contributions	1,900,000				
Reimbursements	590,583,000				
Power	590,583,000				
Total Estimated Project Cost	638,858,000				
Allocations to 30 September 2006	613,780,000				
Allocation for FY 2007	4,600,000				
Allocation for FY 2008	4,770,000	1/			
Conference Allowance for FY 2009	1,388,000				
Allocation for FY 2009	3,544,000	2/			
Allocations thru FY 2009	626,694,000	98%			
Allocation Requested for FY 2010	1,615,000	98.3%			
Programmed Balance to Complete after FY 2010	10,549,000				
Un-programmed Balance to Complete after FY 2010	0				

1/ Reflects \$1,485,000 reprogrammed from the project

2/ Reflects \$2,156,000 reprogrammed into the project

Division: South Atlantic

District: Savannah

Richard B. Russell Dam and Lake, GA & SC

7 May 2009

FISCAL YEAR 2009: Continue environmental monitoring of pumped storage operation and construction management for Installation of the Main Circuit Breakers and Static Start and J. Strom Thurmond 02 Gilchrist Ferry Road.

FISCAL YEAR 2010: The requested amount will be applied as follows:

Procurement & Fabrication of 50% of the Government Furnished Equipment (GFE) associated with the Underwater Diffuser System.	\$1,415,000
Construction Management	200,000
Total	\$1,615,000

NON-FEDERAL COST: In accordance with Public Law 89-72, agreements for recreation development with the States of Georgia and South Carolina have been executed and were approved by the Secretary of the Army 20 May 1974. The costs allocable to power are reimbursable, and will be reviewed and adjusted, based on construction costs when the project becomes operational.

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation, and Replacement Costs
Capital Cost allocated to power.	590,583,000	3,557,000
Pay, contribute in kind, or repay (repayment not to exceed 50 years) with interest, one-half of the separable costs allocated to recreation.	1,900,000	0
Bear all costs of operation, maintenance, repair, rehabilitation, and replacement of recreation facilities.	0	249,000
Total Non-Federal Costs	592,483,000	3,806,000

STATUS OF LOCAL COOPERATION: The State of Georgia began payments for recreation reimbursements in May 1985. The State of South Carolina began payments in August 1985. Responsibility for repayment of power costs rests with the Southeastern Power Administration pursuant to Federal Laws.

Division: South Atlantic

District: Savannah

Richard B. Russell Dam and Lake, GA & SC

7 May 2009

PHYSICAL DATA

Dam		Relocations-Roads (Miles)	19.5
Type: Concrete Gravity, flanked by earth embankments		Railroads (Miles)	9.1
Maximum Height (Feet)	200	Initial Power Installation	
Length		4 Conventional Units (MW)	82
Concrete Section (Feet)	1,884	4 Pump Storage Units (MW)	80
Embankments (Feet)	3,732	Normal Average Head (Feet)	144
Spillway		Reservoir Capacity (Acre-feet)	
Type: Gate Controlled	80,000	Flood Control	140,000
Design Capacity (c.f.s)		Power	126,800
Lands and Damages (Acres)	53,112	Dead Storage	899,400
Type: Predominantly timber and Agricultural Improvements: Typical farm units			

JUSTIFICATION: The 648 megawatts installation, including pumped storage, will help meet the increased power requirements and rapid growth demands in this region. The output can be marketed and fully utilized immediately upon project completion in Federal Energy Regulatory Commission (FERC) supply areas 21, 22, and 23. This includes all of South Carolina, most of North Carolina, Georgia, Alabama, and parts of Mississippi and Florida. The FERC has stated repeatedly the need for this power source. This project will be an integral unit of the plan for development of the Savannah River Basin for flood control, navigation, power, and allied purposes. The recreational facilities will serve an area within a large zone of influences surrounding the three-lake complex of J. Strom Thurmond, Hartwell, and Richard B. Russell Lakes. Average annual benefits are as follows:

Annual Benefits	Amount
Power	\$ 52,995,000
Flood Control	177,000
Recreation	3,597,000
Fish and Wildlife	71,000
Area Redevelopment	4,212,000
Total	\$ 61,052,000

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal (Corps) costs estimate of \$638,858,000 is an increase of \$10,549,000 from the latest estimate presented to Congress (\$628,309,000 in FY 2009).

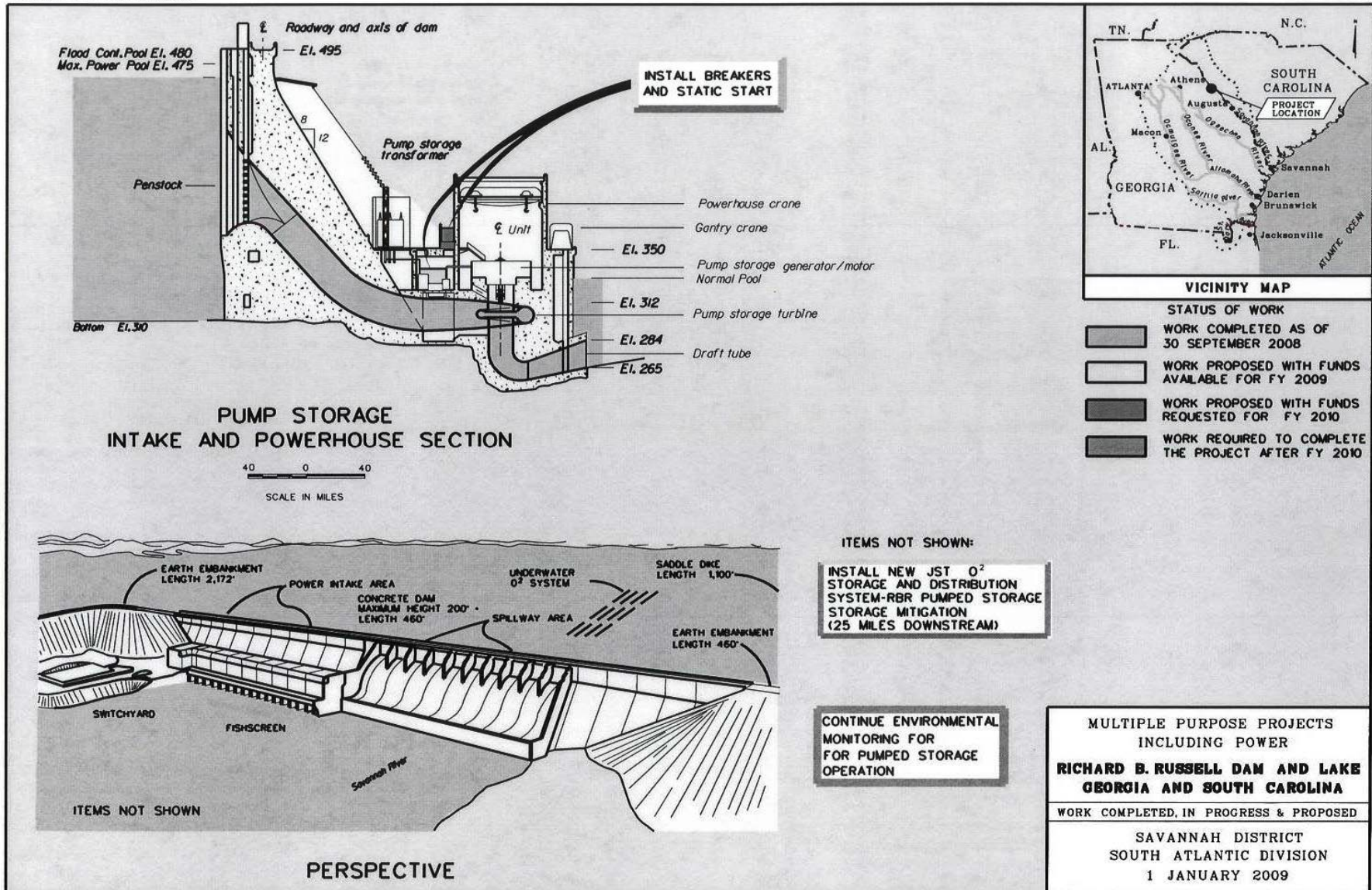
STATUS OF ENVIRONMENTAL IMPACT STATEMENT COMPLIANCE: The final Environmental Impact Statement (EIS) on conventional installation was submitted to Council on Environmental Quality (CEQ) on 31 May 1974. A supplement on water quality to the final EIS was filed with CEQ in May 1976. The final EIS on pumped storage was filed with the Environmental Protection Agency (EPA) in October 1979. The Supplement on fish and wildlife mitigation to the final EIS was filed with the EPA in December 1981. A supplement to the final EIS on pumped storage was filed in August 1991. A final NEPA document (Environmental Assessment) now based on 4 ½ years of environmental testing is complete. It embodies those technical items that the Corps of Engineers (COE) and South Carolina have reached agreement on, relating to operational measures, construction of an oxygenation (O2) system to increase fish habitat and continued environmental monitoring of a commercial operation. The EA for Pumped Storage was completed in FY 1999 and the FONSI was signed in August 1999.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in FY 1968. Funds to initiate land acquisition were appropriated in FY 1971 and allocated in FY 1972. Initial construction funds were appropriated in FY 1975.

Pumped Storage was declared commercially available on 1 September 2002 with a favorable decision from U.S. District Court granted 03 May 2002.

In accordance with the NEPA Decision previously signed in August 1999, the District agreed to construct an oxygenation (O2) system in J. Strom Thurmond (JST) Lake to mitigate the environmental impacts from the potential summer time temperature rise to the striped bass habitat in the tail water regime below Richard B. Russell Dam. This mitigation must be in place before there is the full use of the 4 Pump-Back units year round. The oxygenation (O2) system is designed to provide for additional fish habitat and it is located near Modoc, S.C. about 5 miles above J. Strom Thurmond (JST) Dam. Also, in accordance with the NEPA document, the Corps is required to continue environmental monitoring for seven years, five of which must be after the oxygenation (O2) system is operational, to cover the year round pump back capability using 4 pump units. The District has agreed to limit pumping to two units from June to September prior to the construction of the oxygenation (O2) system, after that, all 4 pump units will be available during the summer months.

STATUS OF IMPLEMENTATION: The Gilchrist Ferry Access road improvements are necessary to provide safe and dependable transportation for the tanker trucks delivering liquid oxygen to the Cryogenic Oxygenation site in Modoc, South Carolina. This contract was awarded in September 2008. The design of the above ground oxygenation system (storage tanks, vaporizers, etc.) is complete and the contract is scheduled to be awarded in June 2009. The final design of the oxygen diffuser system, which delivers the dissolved oxygen to the lake, has been completed and a list of materials necessary for fabrication of the system has been provided. Procurement of the materials will be executed by the Corps of Engineers while fabrication and installation is going to be conducted by Tennessee Valley Authority (TVA). Construction of the cryogenic oxygenation (O2) system is scheduled to be completed in December 2011. The required environmental monitoring will continue for an additional five years.



Division: South Atlantic

District: Savannah

Richard B. Russell Dam and Lake, GA & SC

7 May 2009

# South Pacific Division

7 May 2009

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# Flood and Coastal Storm Damage Reduction

7 May 2009

# INVESTIGATIONS

7 May 2009

PRECONSTRUCTION ENGINEERING AND DESIGN

APPROPRIATION TITLE: Investigations, Fiscal Year 2010

Division: South Pacific

Study/GRR	Total Estimated Federal Cost	Allocation Prior to FY 2007	Allocation FY 2007	Allocation FY 2008	Allocation FY 2009	Tentative Allocation FY 2010	Additional to Complete After FY 2010
	\$4,563,000	\$0	\$0	\$377,000 1/	\$96,000	\$950,000	TBD

PRECONSTRUCTION ENGINEERING AND DESIGN (PED) ACTIVITIES – (CONTINUING)

Berryessa Creek  
Sacramento District

1/ Includes \$66,000 reallocated to the feasibility phase of the study.

The Berryessa Creek watershed is located in Santa Clara County, California, south of San Francisco Bay. Berryessa Creek is a tributary to the Coyote Creek system, which flows into the southernmost end of San Francisco Bay. Berryessa Creek flows west out of the Diablo Range and into the residential neighborhoods of San Jose and Milpitas, finally turning north through industrial portions of Milpitas before joining Lower Penitencia Creek, and then into Coyote Creek. The Coyote Creek Element of the Coyote and Berryessa Creeks Project was physically complete in April 1997. The Berryessa Creek Element consists of approximately 4 miles of channel improvements and upgrades to existing berms for flood protection in a densely populated and industrialized area within the cities of Milpitas and San Jose. Recent flood events were in 1982, 1983, and 1998, with the 1998 event resulting in significant property damage. The project was authorized for construction in the early 1990's but due to changing environmental needs, sponsor's environmental concerns and local input, the authorized plan was deemed unacceptable. In coordination with resource agencies, a General Reevaluation Report/Environmental Impact Statement (GRR/EIS) is being prepared for the Berryessa Creek element, which will include an updated cost estimate. The intent of the redesign is to be within the current authorization. The Santa Clara Valley Water District, the local sponsor, understands the cost-sharing requirements during preconstruction, engineering and design and is prepared to execute a cost-sharing agreement in September 2010.

Fiscal Year 2009 funds are being used to continue the GRR/EIS. Funds requested for Fiscal Year 2010 will be used to complete the GRR/EIS, and initiate preconstruction, engineering and design, to include execution of the cost-share agreement and initiation of design. Preconstruction, engineering and design will be cost-shared at 25 percent non-Federal. The actual or final share will be the same as the non-Federal cost share for the particular project purpose. The difference, if any, will be paid at the beginning of the construction phase.

Total Estimated Preconstruction Engineering and Design Costs	\$6,084,000	Total Estimated Preconstruction Engineering and Design Costs	\$6,084,000
Initial Federal Share	4,563,000	Ultimate Federal Share	3,955,000
Initial Non-Federal Share	1,521,000	Ultimate Non-Federal Share	2,129,000

The project was authorized for construction by Section 101(b) of the 1990 Water Resources Development Act. The preconstruction, engineering and design phase completion date is to be determined.

7 May 2009

COST SHARED FEASIBILITY STUDY

APPROPRIATION TITLE: Investigations, Fiscal Year 2010

Division: South Pacific

Study	Total Estimated Federal Cost	Allocation Prior to FY 2007	Allocation FY 2007	Allocation FY 2008	Allocation FY 2009	Tentative Allocation FY 2010	Additional to Complete After FY 2010
Sacramento-San Joaquin Delta, Delta Islands & Levees, Sacramento District	\$6,153,000	\$367,000	\$800,000	\$859,000	\$478,000	\$468,000	TBD

The study area is located in parts of Alameda, Contra Costa, Sacramento, San Joaquin, and Yolo Counties, California and extends from Sacramento south to the city of Stockton and west to Suisun Bay. The Sacramento-San Joaquin Delta consists of about 738,000 acres of land segregated into some 80 tracts and islands and 1,100 miles of levees. Delta levees protect 500,000 inhabitants and the water supply to 24,000,000 Californians. This study will incorporate elements of the State's Delta Risk Management Strategy (DRMS), while reevaluating some of the results, to develop a combined ecosystem restoration and flood risk management plan for Corps involvement in the future Delta vision. This feasibility study is closely associated with the Levee System Integrity and Environmental Restoration Programs. USACE is the Federal lead. The State's DRMS is a technical study that will evaluate risk to the Delta levees, identify impacts, and develop potential projects and priorities. The State of California, the local sponsor, signed the Feasibility Cost Sharing Agreement in May 2006.

Fiscal Year 2009 funds are being used to continue the feasibility study to work towards a series of feasibility scoping meetings and developing problem and opportunity statements. Funds requested for Fiscal Year 2010 will be used to continue the feasibility study, including identification of historic, existing, and future without project conditions, development of modeling to evaluate alternative solutions, bathymetric data for a large portion of the delta, and economic and risk and uncertainty analysis. The estimated cost of the feasibility phase is \$12,000,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. A summary of study cost sharing is as follows:

Total Estimated Study Cost	\$12,153,000
Reconnaissance Phase (Federal)	153,000
Feasibility Phase (Federal)	6,000,000
Feasibility Phase (Non-Federal)	6,000,000

The reconnaissance phase was completed in May 2006. A completion date is to be determined for the feasibility study.

7 May 2009

PRECONSTRUCTION ENGINEERING AND DESIGN

APPROPRIATION TITLE: Investigations, Fiscal Year 2010

Division: South Pacific

Study	Total Estimated Federal Cost	Allocation Prior to FY 2007	Allocation FY 2007	Allocation FY 2008	Allocation FY 2009	Tentative Allocation FY 2010	Additional to Complete After FY2010
	\$2,881,000	\$298,000	\$621,000	\$730,000 1/	\$832,000	\$400,000	0

PRECONSTRUCTION ENGINEERING AND DESIGN (PED) ACTIVITIES – (CONTINUING)

Hamilton City  
Sacramento District

1/ Includes \$140,000 reprogrammed to the project.

The project area is located in Glenn County, California along the west bank of the Sacramento River about 85 miles north of Sacramento. The project area includes Hamilton City and the surrounding rural area. The boundaries are the Sacramento River to the east, the Glenn Colusa Canal to the west and extending about two miles north and six miles south of Hamilton City. Hamilton City has a population of about 2,000. Surrounding land use is agricultural with fruit and nut orchards being the primary crops. State Highway 32 runs east-west direction through town and connects with Interstate 5 to the west and State Highway 99 and the City of Chico to the east. A Union Pacific Railroad spur line also provides service to the town. Record floodflow occurred in 1974 when a privately constructed "J" levee failed. Extensive flood fighting has also taken place in 1983, 1986, 1995, 1997, and 1998. A feasibility report was completed in July 2004. The recommended project, estimated to cost \$52.4 million with an estimated Federal cost of \$34.1 million and an estimated non-Federal cost of \$18.3 million, consists of constructing a setback levee about 6.8 miles long, removal of the existing "J" levee, and restoration of 1,500 acres to native vegetation. The setback levee will have varying heights and varying levels of performance for flood damage reduction. The benefit to cost ratio for the flood damage reduction portion of the project is 1.8 to 1 at 5 5/8 percent based upon October 2003 price levels in the Feasibility report dated July 2004. The cost-sharing agreement was executed with the local sponsor, the State of California Reclamation Board, on December 13, 2005. Preconstruction, engineering and design will ultimately be cost-shared at the rate for the project to be constructed but will be financed through the preconstruction, engineering and design period at 25 percent non-Federal. Any adjustments that may be necessary to bring the non-Federal contribution in line with the project cost sharing will be accomplished in the first year of construction.

Total Estimated Preconstruction Engineering and Design Costs	\$3,841,000	Total Estimated Preconstruction Engineering and Design Costs	\$3,841,000
Initial Federal Share	2,881,000	Ultimate Federal Share	2,497,000
Initial Non-Federal Share	960,000	Ultimate Non-Federal Share	1,344,000

The project was authorized for construction by section 1001(8) of the 2007 Water Resources Development Act (WRDA) at a total first cost of \$52,400,000. The cost sharing for construction of the project will be 65 percent Federal and 35 percent non-Federal in accordance with WRDA 1996. Fiscal Year 2009 funds are being used to continue preconstruction, engineering and design. Fiscal Year 2010 funds will be used to complete preconstruction, engineering and design.

7 May 2009

COST-SHARED FEASIBILITY STUDY

APPROPRIATION TITLE: Investigations, Fiscal Year 2010

Division: South Pacific

Study	Total Estimated Federal Cost	Allocation Prior to FY 2007	Allocation FY 2007	Allocation FY 2008	Allocation FY 2009	Tentative Allocation FY 2010	Additional to Complete After FY 2010
	\$3,462,000	\$2,286,000	\$133,000	\$168,000	\$263,000	\$278,000	TBD

Solana Encinitas Beaches  
Los Angeles District

The study area is located on the Southern California Coast, about 15 miles north of San Diego Harbor. The protective beaches have been severely eroded, exposing backshore development, to wave attack, shoreline erosion and undermining. In addition, lagoons and embankments located along the coast are being plugged by littoral transport reducing tidal exchange and degrading ecological systems. The study will investigate shoreline erosion along the 8-mile stretch of beach from the mouth of the Batiquitos Lagoon to the southern boundary of Solana Beach. Under conditions, severe land loss would occur, public safety and infrastructure would be threatened and significant emergency protection costs would accrue. The reduced beach results in severely degraded recreational opportunities along the shoreline. The erosion causes undercutting of coastal bluffs, which will collapse with time and create a serious public hazard, as there are structures located on the bluff top. There is also public and agency concern of migrating sand covering reef habitat. The City of Solana Beach and City of Encinitas, the local sponsors signed the Feasibility Cost Sharing Agreement in July 2001.

Fiscal Year 2009 funds are being used to continue the feasibility phase of the study. Funds requested for Fiscal Year 2010 will be used to complete the feasibility phase of the study. The estimated cost of the feasibility phase is \$6,728,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. A summary of study cost sharing is as follows:

Total Estimated Study Cost	\$6,826,000
Reconnaissance Phase (Federal)	98,000
Feasibility Phase (Federal)	3,364,000
Feasibility Phase (Non-Federal)	3,364,000

The reconnaissance phase was completed in June 2001. The feasibility study completion is to be determined.

COST SHARED FEASIBILITY STUDY

APPROPRIATION TITLE: Investigations, Fiscal Year 2010

Division: South Pacific

Study	Total Estimated Federal Cost	Allocation Prior to FY 2007	Allocation FY 2007	Allocation FY 2008	Allocation FY 2009	Tentative Allocation FY 2010	Additional to Complete After FY 2010
Sutter Basin	\$4,158,000	\$1,514,000	\$400,000	\$272,000	\$669,000	\$339,000	TBD

Sutter Basin  
Sacramento District

1/ Reflects reprogramming of \$62,000 from the study.

The study area is located within the boundaries of the Sacramento River Flood Control Project in Sutter County, California and includes the Sacramento, Feather and Bear Rivers, and the Sutter Bypass. Results from levee evaluation studies on the Sacramento Urban Area, Marysville/Yuba City, Mid-Valley, Lower and Upper Sacramento Area levee reconstruction projects indicate that structural problems caused by on-going seepage exist. The Corps is addressing levee reconstruction under these projects. The Sutter Basin reconnaissance study addressed levee improvements beyond reconstruction in these areas and investigated new areas for flood prevention. January 1997 floods caused seepage and boils resulting in levee breaks – levees were stabilized by constructing stability berms and placement of relief wells under emergency construction authority. The State of California, the local sponsor, signed the Feasibility Cost Sharing Agreement in March 2000. The State of California Reclamation Board was reformed by the State Legislature as the Central Valley Flood Protection Board in October 2007. A new Sutter-Butte Flood Control Agency was formed by county and municipal governments and special districts in December 2007. As a result, the Project Management Plan was further modified to clearly include the Butte County portion of the Sutter Basin within the scope of the feasibility study, including economic analysis for the Butte County portion of the basin. The study scope will refocus on providing flood damage reduction to the urban areas of Yuba City, Live Oak, Gridley and Biggs in the Sutter Bypass – Feather River sub-basin and developing a flood warning system for the outlying areas of the sub-basin. Other study objectives will include ecosystem restoration and recreation.

Fiscal Year 2009 funds are being used to negotiate an amendment to the existing Feasibility Cost Sharing Agreement with the Reclamation Board and Sutter-Butte Flood Control Agency as joint sponsors, as well as determine the level of detail of geotechnical explorations required to complete the feasibility study, and initiate plan formulation and environmental planning. Funds requested for Fiscal Year 2010 will be used to continue with plan formulation and select the National Economic Development plan. The estimated cost of the feasibility phase is \$8,200,000. The feasibility phase is to be cost-shared on a 50-50 percent basis by Federal and non-Federal interests. A summary of study cost sharing is as follows:

Total Estimated Study Cost	\$8,258,000
Reconnaissance Phase (Federal)	58,000
Feasibility Phase (Federal)	4,100,000
Feasibility Phase (Non-Federal)	4,100,000

The reconnaissance phase was completed in March 2000. The feasibility study completion date is to be determined.

COST SHARED FEASIBILITY STUDY

7 May 2009



APPROPRIATION TITLE: Investigations, Fiscal Year 2010

Division: South Pacific

Study	Total Estimated Federal Cost	Allocation Prior to FY 2007	Allocation FY 2007	Allocation FY 2008	Allocation FY 2009	Tentative Allocation FY 2010	Additional to Complete After FY 2010
	\$3,928,000	\$2,689,000	\$319,000	\$229,000	\$191,000	\$386,000	TBD

Upper Penitencia Creek  
San Francisco District

The study area, extending along 3.6 miles of Upper Penitencia Creek, is located in the northwest portion of Santa Clara County, California in the city of San Jose and flows into Coyote Creek and the southern end of San Francisco Bay. Over the past 20 years, Upper Penitencia Creek has experienced severe flooding that has resulted in damages to residential, commercial and industrial properties, as well as erosion of the creeks levees. Major flood events occurred in the following storm years 1955, 1958, 1962, 1963, 1973, 1980, 1982 and 1983. The 1% flood plain contains approximately 1,600 properties. It is estimated that a 1% flood event would cause \$455 million in property damages. A study was initiated by the Soil Conservation Service, which developed feasibility level plans for flood damage reduction, but the amount of agricultural benefits identified in the analysis was insufficient to permit Soil Conservation Service participation. The U.S. Army Corps of Engineers was requested by the local sponsor, Santa Clara Valley Water District, to continue the study effort under Section 4 of the 1941 Flood Control Act. The improvements proposed by the Soil Conservation Service included flood proofing, new levees, floodwalls, bypass channels, channel realignment, grade stabilization and vegetative work in order to provide a flood protection from a 1% flood event. The reconnaissance study reviewed earlier efforts and identified the remaining tasks to be performed during the feasibility and design phases. The Santa Clara Valley Water District, signed the Feasibility Cost Sharing Agreement in February 1998.

Fiscal Year 2009 funds are being used to continue the feasibility phase of the study to include preparation of the Alternative Formulation Briefing and sections of the draft Engineering Report. The funds requested for Fiscal Year 2010 will be used to continue the feasibility phase of the study. The estimated cost of the feasibility phase is \$7,166,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to 100 percent of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	\$7,511,000
Reconnaissance Phase (Federal)	345,000
Feasibility Phase (Federal)	3,583,000
Feasibility Phase (Non-Federal)	3,583,000

The reconnaissance phase was completed in February 1998. The feasibility study completion date is to be determined.

7 May 2009

# CONSTRUCTION

7 May 2009

APPROPRIATION TITLE: Construction – Flood Risk Management

PROJECT: American River Watershed, California (Continuing)

LOCATION: The project is located in Placer, El Dorado and Sacramento Counties. It is comprised of three principal streams, the North, Middle and South Forks of the American River, which flow westward into Folsom Lake, through the city of Sacramento and into the Sacramento River, and includes Folsom Dam and Reservoir, located on the American River, about 29 miles upstream of the city of Sacramento, California. The American River watershed drains about 2,100 square miles northeast of Sacramento. Runoff from this basin flows through Folsom Reservoir and passes through Sacramento to the confluence with the Sacramento River.

DESCRIPTION: Evaluations indicated that the level of flood protection along much of the American River is less than 100-year level. Several flood control projects have been authorized for construction for the American River to reduce the risk of flooding to Sacramento. American River Watershed Common Features consists of modifications to the lower American River levees and Sacramento River east levee in the Natomas Basin; modification of the Natomas Cross Canal levees; telemetered gages above Folsom Dam; and improving the flood warning system for the lower American River. Currently, Folsom Dam is designed to release up to 115,000 cubic feet per second (cfs) during flood operations, however the existing outlets limit releases to 36,000 cfs until approximately one half of the reservoir's flood control space is filled. Additional work is scheduled for Folsom Dam and related facilities to increase flood protection. Authorized work for Folsom Dam Modifications (aka Joint Federal Project - JFP), which will allow releases much earlier, consists of construction of a new auxiliary spillway and modifying the flood control storage space in Folsom Reservoir to a variable space ranging from 400,000 to 600,000 acre-feet. The authorized project to raise Folsom Dam 3.5 feet includes raising related dikes and auxiliary dam, construction of a permanent bridge downstream of Folsom Dam, and ecosystem restoration projects. Joint Federal Project is a joint effort between the US Bureau of Reclamation and the US Army Corps of Engineers. The basic concept is that Reclamation will complete 20% of the work under their Dam Safety program with the USACE completing the remaining 80%. Details of the plan are described in the Post Authorization Change (PAC) Report – American River Watershed Project, Folsom Dam Modification and Folsom Dam Raise Projects.

AUTHORIZATION: (Common Features) Water Resources Development Act of 1996, Sec. 101(a)(1); Water Resources Development Act of 1999, Sec. 366; Energy and Water Development Appropriations Act, 2004; (Folsom Dam Modifications) Water Resources Development Act of 1999, Sec. 101(a)(6); Water Resources Development Act of 2007, Sec. 3029 (b)(1); (Folsom Dam Raise & Bridge) Defense Appropriations Act for FY 93, Water Resources Development Act of 1999, Sec. 566; Energy and Water Development Appropriations Acts of 2004 and 2006, Sec. 134 (permanent bridge).

REMAINING BENEFIT-REMAINING COST RATIO: 3.5 to 1 at 7 percent

TOTAL BENEFIT-COST RATIO: 2.2 to 1 at 7 percent

INITIAL BENEFIT-COST RATIO: 1.95 to 1 at 7 percent

BASIS OF BENEFIT-COST RATIO: Common Features – Initial benefits are from the Supplemental Information Report (SIR) approved June 1996 at 1995 price levels for work authorized in the Water Resources Development Act of 1996 (WRDA 96). Benefits and costs are originally from the Second Addendum to the SIR approved October 2002 at October 2001 price levels. Benefits were updated to current price levels in the Engineering Documentation Report, June 2006; the new

BASIS OF BENEFIT-COST RATIO (Continued)

7 May 2009

Benefit To Cost Ratio is 3.6 to 1. Remaining Benefit – Remaining Cost Ratio updated to 2007 price levels is 6.38 to 1.

Folsom Dam Modifications – Benefits and costs were updated in the Post Authorization Change Report (PAC) dated March 2007 and finalized in the Economic Reevaluation Report (ERR) dated February 2008. The benefit to cost ratio is 3.3 to 1.

Folsom Dam Raise – Benefits and costs were updated in the Post Authorization Change Report (PAC) dated March 2007 and finalized in the Economic Reevaluation Report (ERR) dated February 2008. The benefit to cost ratio is 3.3 to 1.

SUMMARIZED FINANCIAL DATA		ACCUM PCT EST FED COST	STATUS (1 JAN 2009)	PCT CMPL	PHYSICAL COMPLETION SCHEDULE
<u>Common Features</u>					
Estimated Federal Cost		\$213,100,000	WRDA 96 Features	85	TBD
Estimated Non-Federal Cost		68,900,000	WRDA 99 Features	25	TBD
Cash Contribution	\$54,509,000		Entire Project	75	TBD
Other Costs	14,391,000				
Total Common Features		\$282,000,000			
<u>Folsom Dam Modifications</u>					
Estimated Federal Cost		\$543,900,000	Entire Project	6	TBD
Estimated Non-Federal Cost		292,900,000			
Cash Contribution	\$292,900,000				
Other Costs	0				
Total Folsom Dam Modifications		\$836,800,000			
<u>Folsom Dam Raise</u>					
Estimated Federal Costs		\$133,530,000	Entire Project	18	TBD
Estimated Non-Federal Costs		71,330,000			
Cash Contribution	\$70,115,000				
Other Costs	1,215,000				
Total Folsom Dam Raise		\$204,860,000			
<u>Folsom Bridge</u>					
Estimated Federal Costs		\$ 86,810,000 1/	Entire Project	80	TBD
Estimated Non-Federal Costs		52,712,000			
Cash Contribution	\$38,486,000				
Other Costs	14,226,000				
Total Folsom Bridge		\$139,522,000			

1/ Includes \$48,720,000 for permanent bridge not subject to cost sharing requirements with non-Federal interests.

SUMMARIZED FINANCIAL DATA (Continued)

Project Summary

7 May 2009

Estimated Federal Costs		\$ 977,340,000
Estimated Non-Federal Costs		485,842,000
Cash Contribution	\$456,010,000	
Other Costs	29,832,000	
Total Estimated Project Costs		\$1,463,182,000

Allocations to 30 September 2006	\$180,255,000	
Allocations for FY 2007	76,600,000	
Allocations for FY 2008	32,357,000	
Conference Allowance for FY 2009	24,000,000	
Allocation for FY 2009	24,000,000	
Allocations through FY 2009	313,212,000	32
Allocation Requested for FY 2010	74,000,000	40
Programmed Balance to Complete after FY 2010	TBD	

#### PHYSICAL DATA

##### 1. COMMON FEATURES -

Streamflow Gages – Install 3 new telemetered gages upstream of Folsom Lake (WRDA 96)  
Flood Warning System – Install on lower American River (WRDA 96)  
Closure Structure – Install at Mayhew Drain (WRDA 99)

##### Levees:

- Construct slurry and jet grout cutoff wall on 19.7 miles of lower American River levees (WRDA 96)
- Modify 4.4 miles of American River levees (WRDA 99)
- Modify 12.1 miles of Sacramento River levees (WRDA 96)
- Modify 10 miles of Natomas Cross Canal levees (WRDA 99)

##### 2. Authorized FOLSOM DAM MODIFICATIONS – Construct auxiliary spillway

3. Authorized FOLSOM DAM RAISE -  
Raise Folsom Dam, wing walls & dikes  
Construct Bridge  
Accomplish ecosystem restoration

JUSTIFICATION: This flood and storm damage reduction project warrants a high funding priority because it addresses significant risk to human safety in accordance with the US Army Corps of Engineers performance-based guidelines for the construction account. The Folsom Dam and Reservoir are key features

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in the flood control system protecting Sacramento. Folsom Reservoir has a capacity of 975,000 acre-feet, which includes a minimum of 400,000 acre-feet of space seasonally dedicated to flood risk management. Significant rainfall in recent years has filled Folsom Lake and necessitated record releases in excess of design flow downstream. The levees along the American River are designed to accommodate releases from Folsom Dam of up to 115,000 cfs. Downstream levees would likely fail with sustained flows above this level. Levee failure along the lower American River and Sacramento River could result in flooding of more than 100,000 acres, affecting approximately 330,000 residents, with damages of up to \$58 billion, depending on the magnitude of the event. The Common Features project, consisting of levee improvements along the American and Sacramento River and Natomas Cross Canal, installation of new and telemetering existing streamflow gages and implementing a new flood warning system on the lower American River as authorized in WRDA 96 and WRDA 99 would decrease the probability of flood damage to about a 1 in 100 chance in any one year. Average annual benefits for the Common Features portion amount to \$42,300,000, all flood control, escalated to October 2007 price levels. The authorized Folsom Dam Modifications project would construct an auxiliary spillway. This would further reduce the risk of flood damage to a 1 in 140 chance in any one year. This project, in addition to preventing damages to property, is effective in reducing a high risk to life for the populations in the project area. That risk must be considered in evaluating the project justification in addition to economic analyses. Risk is created by both hydrologic factors (flood depth, velocity, and short warning time) and cultural factors (size of population and available routes of egress from the flood plain). Average annual benefits amount to \$89,900,000; all flood control, at October 2007 price levels. The Folsom Dam Raise Project would further reduce the risk of flood damage to a 1 in 213 chance in any one year. Average annual benefits amount to \$19,200,000, all flood control, at October 2007 price levels.

FISCAL YEAR 2009: Current year funds will be applied as follows:

Folsom Dam Modifications	
Continue Engineering and Design	\$ 9,000,000
Total Folsom Mods	\$ 9,000,000
Common Features	
Continue Construction of Slurry Walls and Floodwalls	\$11,050,000
Engineering and Design	1,300,000
Construction Management	650,000
Total Common Features	\$13,000,000
Folsom Dam Raise/Bridge	
Engineering and Design (Dam Raise)	\$1,000,000
Complete Construction (Bridge)	1,000,000
Total Folsom Dam Raise/Bridge	\$2,000,000
Grand Total, American River Watershed	\$24,000,000

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FISCAL YEAR 2010: The requested amount will be applied as follows:

Folsom Dam Modifications	
Complete detailed design of control structure	\$ 3,600,000
Initiate construction of control structure	60,700,000
Initiate design of chute and stilling basin	2,400,000
 Total Folsom Mods	 \$66,700,000
 Common Features	
Award construction contract to close most critical gaps in slurry walls	\$5,700,000
Planning, Engineering, and Design	650,000
Construction Management	350,000
 Total Common Features	 \$6,700,000
 Folsom Dam Raise	
Continue design on project features	\$600,000
 Grand Total, American River Watershed	 \$74,000,000

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NON-FEDERAL COSTS: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below.

	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation, and Replacement Costs
Requirements of Local Cooperation:		
Common Features		
Provide lands, easements, rights of way, and borrow and excavated or dredged material disposal areas.	\$14,391,000	\$
Pay 20 percent of the costs allocated to flood control to bring the total non-Federal share of flood control costs to 25 percent, as determined under Section 103 (m) of the Water Resources Development Act of 1996, as amended, and bear all costs of operation, maintenance, repair, rehabilitation and replacement of flood control facilities.	54,509,000	54,000
<b>Total Common Features Non-Federal Costs</b>	<b>\$68,900,000</b>	<b>\$54,000</b>
Folsom Dam Modifications		
Pay 35 percent of the costs allocated to flood control, and bear all costs of operation, maintenance, repair, rehabilitation and replacement of flood control facilities.	\$292,900,000	\$800,000 2/
<b>Total Folsom Dam Modifications Non-Federal Costs</b>	<b>\$292,900,000</b>	<b>\$800,000 2/</b>

2/ The operation and maintenance (O&M) would continue to be performed by the Bureau of Reclamation. An initial cost-sharing agreement has been negotiated between the Sacramento Area Flood Control Agency and the Bureau of Reclamation to pay the portion of O&M costs related to the new flood control features. Subsequent agreements are to be negotiated as project information is further defined.

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NON-FEDERAL COSTS (Continued)

	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation, and Replacement Costs
<u>Folsom Dam Raise – Raise Component</u>		
Provide lands, easements, rights of way, and borrow and excavated or dredged material disposal areas.	\$ 1,215,000	
Pay 35 percent of the costs allocated to flood control to bring non-Federal share to 35 percent, and bear all costs of operation, maintenance, repair, rehabilitation and replacement of flood control facilities.	42,697,000	3/
Pay 33 percent of the costs allocated to ecosystem restoration to bring non-Federal share to 35 percent.	27,418,000	
Total Folsom Dam Raise Component	\$71,330,000	
<u>Folsom Dam Raise – Bridge Component</u>		
Provide lands, easements, rights of way, and borrow and excavated or dredged material disposal areas (City of Folsom).	\$9,589,000	
Modify or relocate utilities, roads, bridges (except railroad bridges), and other facilities, where necessary for the construction of the project (City of Folsom).	4,637,000	
City of Folsom's share of costs associated with bridge construction.	28,000,000	
Pay 35 percent of the costs allocated to flood control, and bear all costs of operation, maintenance, repair, rehabilitation and replacement of flood control facilities.	10,486,000	
Total Folsom Bridge Component	\$52,712,000	
Total Folsom Dam Raise (including Bridge) Non-Federal Costs	\$124,042,000	
Total American River Watershed Non-Federal Costs	\$485,842,000	\$854,000

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NON-FEDERAL COSTS: (Continued)

3/ The operation and maintenance (O&M) would continue to be performed by the Bureau of Reclamation. An initial cost-sharing agreement would be negotiated between the Sacramento Area Flood Control Agency and the Bureau of Reclamation to pay the portion of O&M costs related to the new flood control features. Amount is for both Folsom Dam Modifications and Folsom Dam Raise (Joint Federal Project).

STATUS OF LOCAL COOPERATION: The Central Valley Flood Protection Board is the non-Federal sponsor for the Common Features Project. The Central Valley Flood Protection Board and the Sacramento Area Flood Control Agency (SAFCA) are the non-Federal sponsors for the Folsom Dam Modifications. The Project Cooperation Agreement (PCA) for the Common Features was executed in July 1998 for implementation of features authorized by WRDA 1996. Amendment 1 to the PCA was executed in June 2003 and increased the project cost and extended the completion date due to addition of WRDA 1999 levee work. Amendment 2 was executed in September 2006 and increased the total project cost and project completion date in accordance with EWDA of 2004. Amendment 3 was executed in July 2006 and authorized the non-Federal sponsor to accelerate the cash contribution. Amendment 4 was executed in July 2007 and amended the project scope in accordance with WRDA 1999 to add Mayhew, Howe Avenue, Jacob Lane and NMDEC Levees to the project scope. The total project cost was increased. The PCA for the Folsom Dam Modifications was executed on 30 March 2004. Amendment to the Folsom Dam Modifications PCA is scheduled for execution July 2009. The Central Valley Flood Protection Board and SAFCA are the non-Federal sponsors for the Folsom Dam Raise. The PCA for the Dam Raise is scheduled for execution in FY 2013. The non-Federal sponsors are financially capable and willing to contribute the non-Federal share. The non-Federal sponsors have also agreed to make all required payments concurrently with project construction. The City of Folsom is the non-Federal sponsor for the Folsom Dam Bridge Project. PCA was executed 22 November 2006.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of \$977,340,000 is an increase of \$61,340,000 from the latest estimate (\$916,000,000) presented to Congress (FY 2009). This change includes the following:

Item	Amount
Price Escalation or De-escalation on Construction Features	\$ 61,340,000
Total	\$ 61,340,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: Common Features - A Supplemental Environmental Impact Statement/Environmental Impact Report (SEIS/EIR) was filed with the Environmental Protection Agency on 8 March 1996. Folsom Dam Modifications/Folsom Dam Raise (Joint Federal Project) – The Bureau of Reclamation (Bureau), with cooperation from the Corps, prepared an EIS/EIR, which was finalized in March 2007. The Bureau and the Corps signed a joint Record of Decision (ROD) on 3 May 2007.

OTHER INFORMATION: The American River Watershed Feasibility Report was completed in December 1991 and the Supplemental Information Report (SIR) was completed in March 1996. The SIR identified three candidate plans which would help reduce the flood risk facing Sacramento: modifying Folsom Dam and increasing the dedicated flood space; modifying Folsom Dam and the downstream system to allow increased objective releases; and constructing a detention dam

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upstream of Folsom Dam. In June 1996, the Chief of Engineers deferred a decision on a comprehensive flood control plan, but recommended that features common to all three plans be authorized as the first component of a comprehensive plan. WRDA 1996 authorized construction of the Common Features. Funds were appropriated in Fiscal Year 1998 to initiate construction. Additional flood control improvements along the lower American River and Natomas Cross Canal were authorized by Section 366 of WRDA 1999 as part of the overall project. The cost of slurry wall construction authorized by WRDA 1996 has increased significantly due to increased slurry wall quantities, the technical requirement for the more costly jet grout construction method for slurry wall construction around bridges and deep utilities, and several high-cost contract modifications due to slurry leaks during construction. The cost of planning, engineering and design has also increased. Project reauthorization was required to increase the project cost estimate to complete most of the remaining WRDA 1996 and WRDA 1999 features. The Second Addendum to the SIR, dated March 2002 and revised July 2002, serves as the decision document/post-authorization change (PAC) report. Based on this report, Section 129 of the Energy and Water Development Appropriations Act, 2004 increased the authorized first cost to \$205 million. For implementation of the Natomas Basin features a separate decision document/PAC is being prepared under the Common Features project to address the previously unknown levee under-seepage problem along the Sacramento River and the associated increased cost. A General Re-evaluation Report is being prepared that will likely result in additional construction features requiring new authorization.

Common Features – Funds used to initiate preconstruction engineering and design of the common elements were allocated in FY 1996. Construction of the first contract on the lower American River levees was initiated in July 1998. WRDA 1996 Phase 1 remaining sites construction will begin in summer 2009 and will be completed in 2010; Phase 2 remaining sites construction will be initiated in summer 2010. Fish and wildlife mitigation costs are currently estimated at \$3,773,000.

Folsom Dam Modifications – Funds used to initiate preconstruction engineering and design on the Folsom Modifications were allocated in FY 2000. Funds to initiate construction were appropriated in FY 2001.

SAFCA prepared the Folsom Dam Modification Report New Outlets Plan dated March 1998 (SAFCA Outlet Report), which identified some proposed changes to the Folsom Modification Plan described in the 1996 SIR. The 1996 SIR as modified by SAFCA Outlet Report was the basis for the project authorized under the Water Resources Development Act of 1999. The Limited Reevaluation Report (LRR), dated November 2003, documents the 1996 SIR plan as modified by the SAFCA Outlet Report.

Information in FY 2007 budget submittal indicated that the project, as originally designed, would exceed the maximum authorized cost per Section 902 of WRDA 1986. Action was taken to conduct engineering evaluations and to develop a Post Authorization Change and Engineering Documentation Report (PAC/EDR) document recommending a functionally equivalent performance project that involves a new gated auxiliary spillway on the left embankment of Folsom Dam. USACE PAC Report and U.S. Bureau of Reclamation Mod Report recommended a Joint Federal Project, which addresses both the Dam Safety and the Flood Risk Management issues. During PAC and Mod approval process, both ASA(CW) and ASI(WS) made strong commitments to each other to make the JFP a top priority and expeditiously design and construct the project, because of the significant property and loss of life risks and the efficiencies of both agencies working together. Further, both agencies recognized that neither agency could or should move forward without a strong commitment to build the project together. Both the PAC and Mod Reports were approved by OMB September 2007. WRDA 2007 authorized construction in accordance with the PAC at a total cost of \$683,000,000 (USACE portion) and congress encouraged USACE and USBR to move forward expeditiously. Average annual costs and flood damage reduction benefits in the PAC report are \$37.9 million and \$89.9 million, respectively. Total damageable property is estimated at \$58B due to flooding in the Sacramento area.

#### OTHER INFORMATION (Continued)

Engineering and design effort on the Folsom Dam Modifications portion of the Joint Federal Project will continue through FY 2012. US Bureau of Reclamation started construction of the JFP on 11 Jan 2008 and will complete their portion of the project September 2010.

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DAM SAFETY ISSUE: This construction satisfies the Bureau of Reclamation's significant dam safety issues at Folsom Dam. This is the USBR's top Dam Safety issue in the Nation. Without the JFP, the USBR has determined a probable maximum flood would cause catastrophic failure of the Folsom Dam and many lives would be lost. Emergency response and regional/national economic disruption costs associated with flooding in Sacramento are enormous. There is limited egress and ingress across Sacramento and American rivers and there would be a disruption of statewide drinking water supplies.

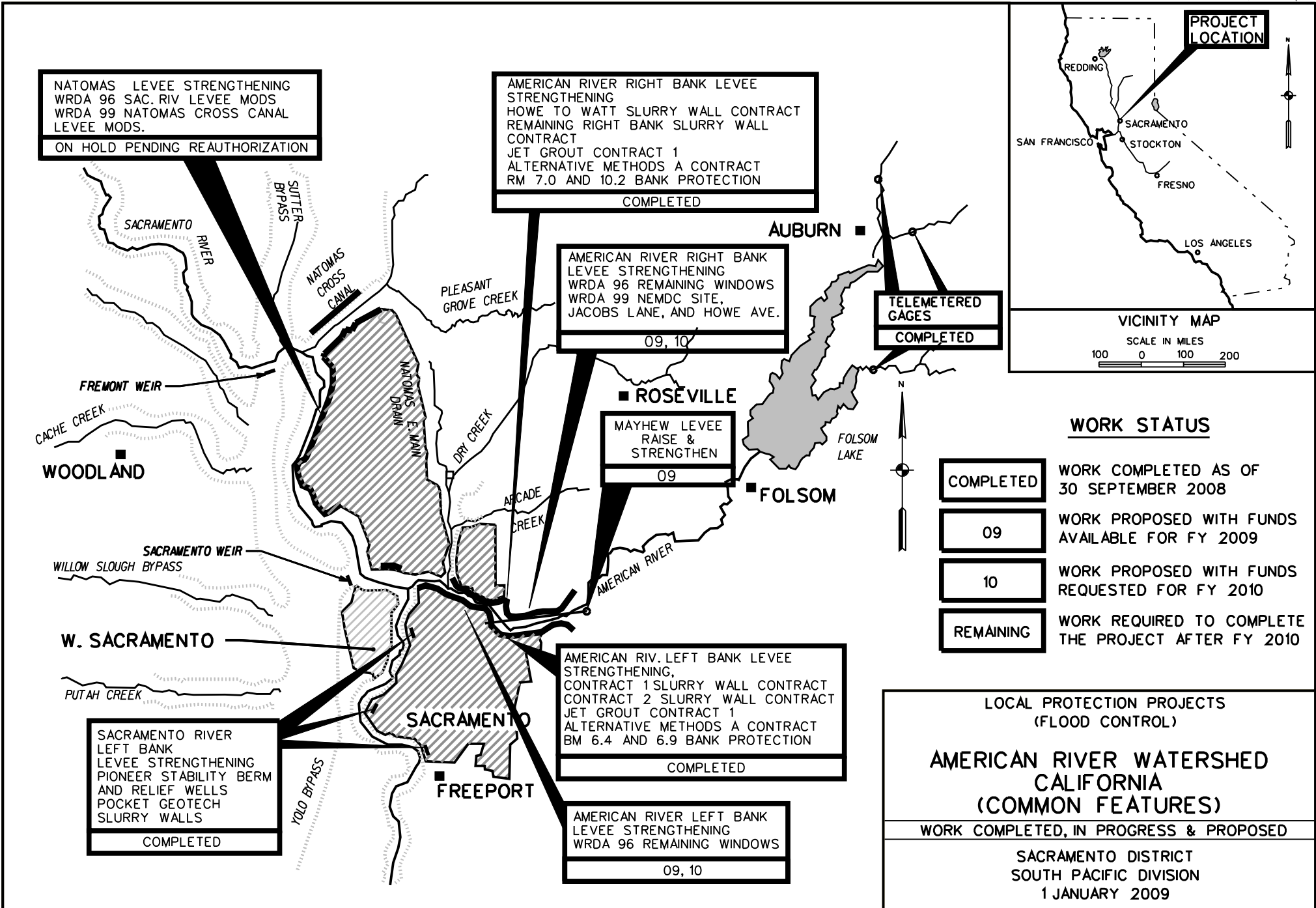
Continuing Contract Clause: Recent continuing contract clause approval allows the Corps to meet efficiencies and project purposes with \$66.7M (\$60.7M construction, \$6M total to complete design of the control structure and initiate design for the chute/stilling basin). Consequence of not providing \$66M in 2010 is approximately a 6 month+ delay (assuming adequate and timely funding in 2011), \$20M in escalation cost, and continued loss of life and property risk. Should the Corps not award the control structure contract as scheduled, the USBR will reinitiate the design and construction of a fuse plug to satisfy their dam safety requirements. Any federal funds expended on the design and construction of a fuse plug would become lost effort, once funding for the JFP is restored. Sacramento is arguably the most at-risk city in the nation to experience a catastrophic flood event.

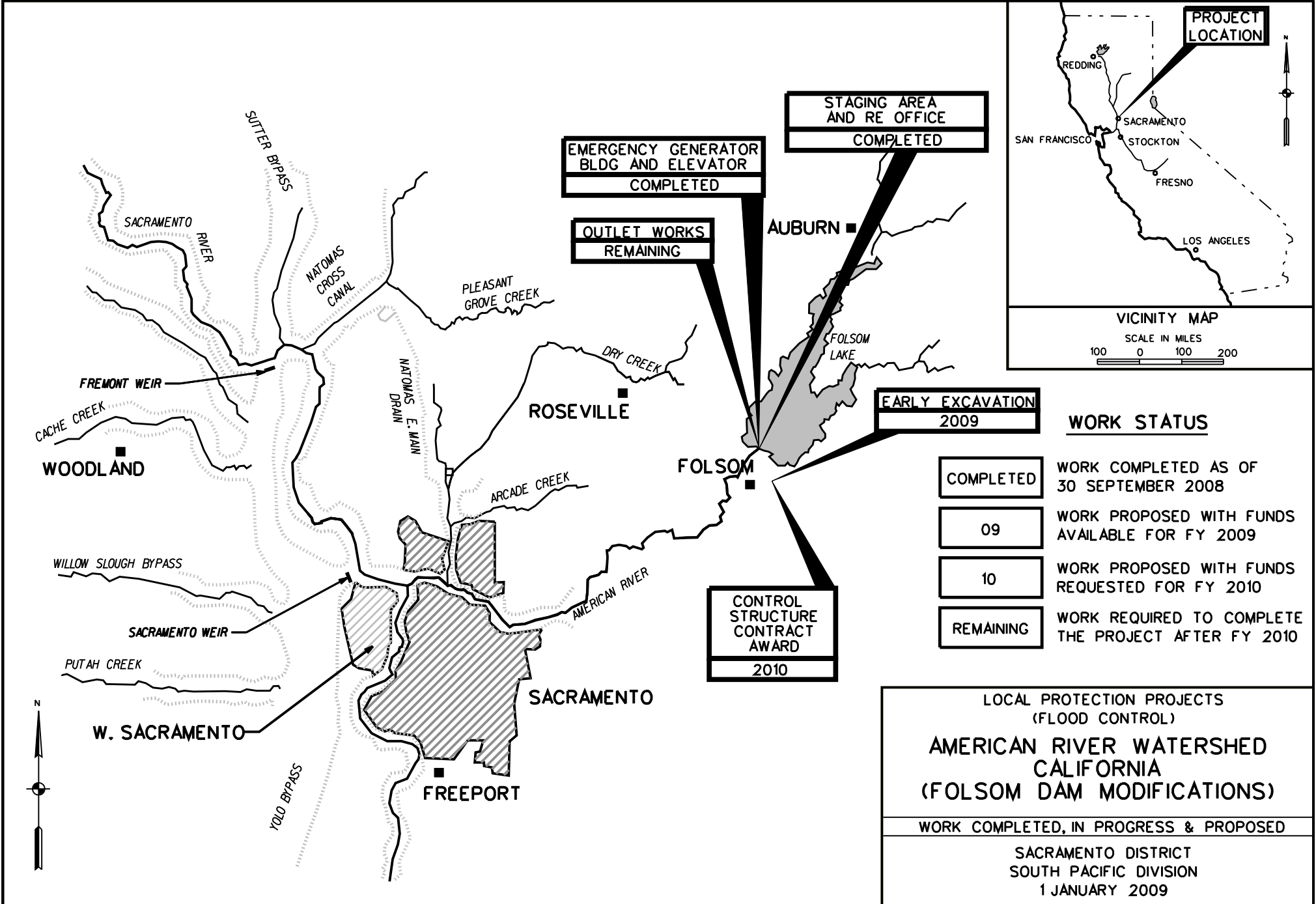
Fish and wildlife mitigation costs are currently not expected to be significant.

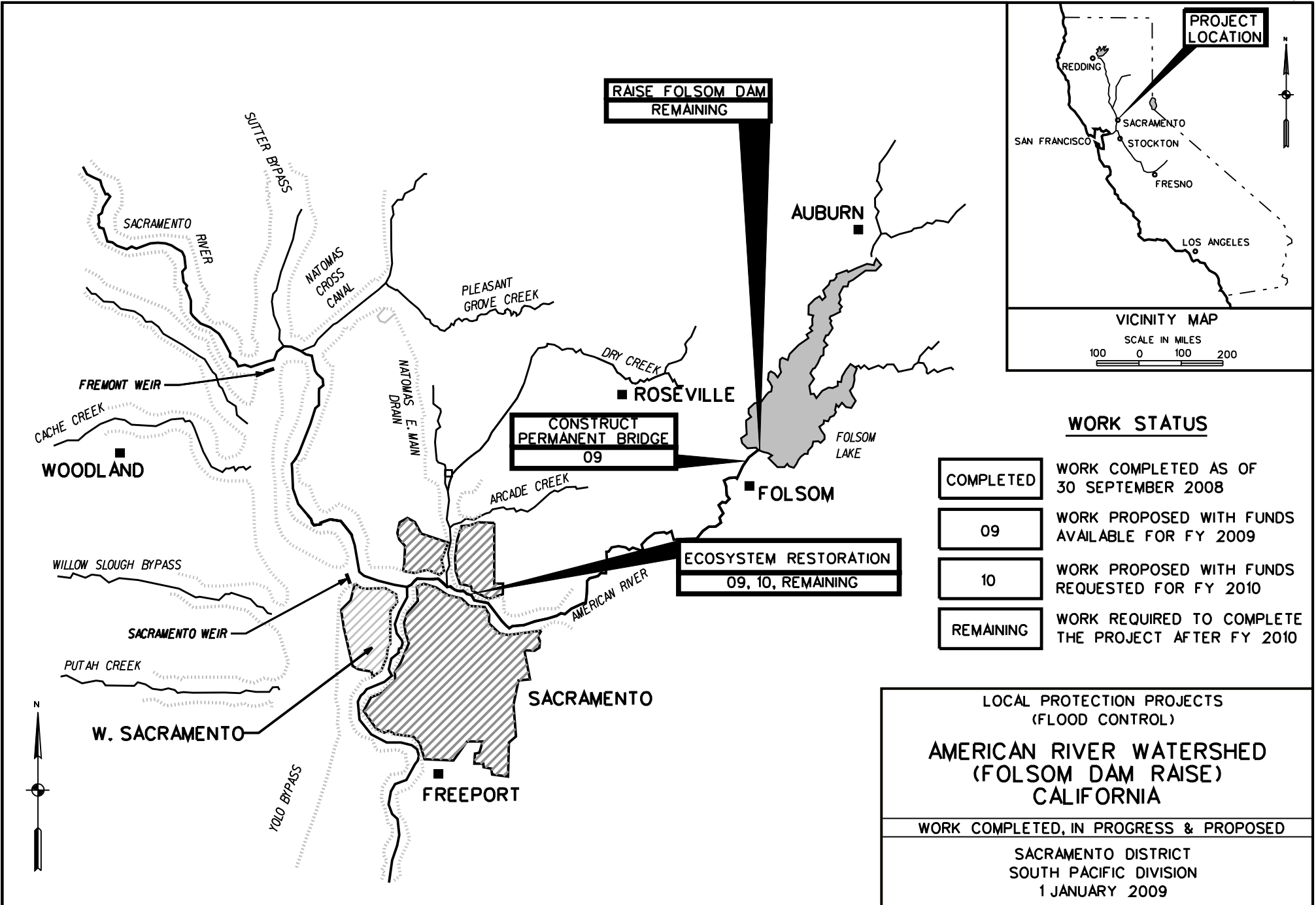
Folsom Dam Raise – The Long Term Study (Feasibility Report) for the entire American River Watershed was completed in February 2002. The Chief's Report, dated 5 November 2002, was followed by the Division Engineer's Public Notice issued on 22 March 2003. Funds to initiate construction were appropriated in FY 2004. The PAC Report recommended the Raise design be refined from 7-foot raise to a 3.5-foot raise. Fish and wildlife mitigation costs are currently not expected to be significant.

Folsom Bridge – Total project cost (including only the temporary bridge component) was authorized at \$257,300,000 in PL 108-137, Section 128 for both Folsom Dam Raise and Folsom Bridge. Section 128 also modified the cost sharing of the permanent bridge feature and required status reports to Congress.

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**RAISE FOLSOM DAM  
REMAINING**

**CONSTRUCT  
PERMANENT BRIDGE  
09**

**ECOSYSTEM RESTORATION  
09, 10, REMAINING**

**COMPLETED**

WORK COMPLETED AS OF  
30 SEPTEMBER 2008

**09**

WORK PROPOSED WITH FUNDS  
AVAILABLE FOR FY 2009

**10**

WORK PROPOSED WITH FUNDS  
REQUESTED FOR FY 2010

**REMAINING**

WORK REQUIRED TO COMPLETE  
THE PROJECT AFTER FY 2010

LOCAL PROTECTION PROJECTS  
(FLOOD CONTROL)  
**AMERICAN RIVER WATERSHED  
(FOLSOM DAM RAISE)  
CALIFORNIA**

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WORK COMPLETED, IN PROGRESS & PROPOSED

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SACRAMENTO DISTRICT  
SOUTH PACIFIC DIVISION  
1 JANUARY 2009

APPROPRIATION TITLE: Construction – Flood and Coastal Storm Damage Reduction

PROJECT: Kaweah River, California (Continuing)

LOCATION: The project is located within the Tulare Lake Basin in the southeastern portion of the San Joaquin Valley between the cities of Fresno and Bakersfield, California.

DESCRIPTION: Lake Kaweah/Terminus Dam was completed in 1962, and has provided limited flood protection to Visalia and other rapidly developing urban areas along the Kaweah River. The project plan is to enlarge Lake Kaweah by 42,600 acre-feet by raising the spillway 21 feet to provide additional flood control and water conservation space.

AUTHORIZATION: Water Resources Development Act of 1996, Section 101(b)(5); Energy and Water Development Appropriations Act, 2003, Section 110; Water Resources Development Act of 2007, Section 3030.

REMAINING BENEFIT-REMAINING COST RATIO: Not applicable because project construction is substantially complete.

TOTAL BENEFIT-COST RATIO: 1.54 to 1 at 7 percent.

INITIAL BENEFIT-COST RATIO: 1.3 to 1 at 7-1/8 percent (FY 2000).

BASIS OF BENEFIT-COST RATIO: Benefits are from the latest available evaluation in the Decision Document approved in December 1999 at 1998 price levels.

SUMMARIZED FINANCIAL DATA	ACCUM PCT OF EST FED COST	STATUS (1 JAN 2009)	PCT CMPL	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost	\$35,512,000	Entire Project	98	TBD
Estimated Non-Federal Cost	23,113,000	PHYSICAL DATA		
Cash Contribution	\$ 2,643,000	Spillway: Type – Fusegate, Install 6 fusegates (230.4 feet wide) along reconstructed spillway. Crest height - 715 feet Capacity - Increase by 600 to total of 183,300 Downstream and Upstream Mitigation D/S – 1,218 acres - Levee construction on interior of mitigation site 35 acres – Riparian site 2.1 acres – Endangered Species site U/S – 3,800 acres - Mitigation of oak woodland and riparian plantings.		
Other Costs	21,110,000			
Credit/Reimbursement for Prior Work	-640,000			
Total Estimated Project Cost	\$58,625,000			

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SUMMARIZED FINANCIAL DATA (Continued)		ACCUM PCT OF EST FED COST	STATUS (1 JAN 2009)	PCT CMPL	PHYSICAL COMPLETION SCHEDULE
Allocations to 30 September 2006	\$33,355,000				
Allocation for FY 2007	517,000				
Allocations for FY2008	0				
Conference Allowance for FY 2009	1,000,000				
Allocation for FY 2009	1,000,000				
Allocations through FY 2009	34,872,000		98		
Allocation Requested for FY 2010	640,000		100		
Programmed Balance to Complete after FY2010	TBD				
Unprogrammed Balance to Complete after FY2010	TBD				

JUSTIFICATION: The Kaweah River originates in the Sierra Nevada mountains and drains about 560 square miles into Lake Kaweah (Terminus Dam). From Lake Kaweah it passes near the city of Visalia, with a population of about 111,200 (January 2006), as it flows west into the Tulare Lakebed. Terminus Dam was completed in 1962 to provide flood control and irrigation water supply. However, significant flood damages to communities and highly developed agricultural lands along the Kaweah River have continued to occur. Flood releases beyond Terminus Dam capacity have contributed to flood damages to agricultural lands in the Tulare Lakebed. The December 1966 flood event exceeded the design capacity of Terminus Dam and flood flows passing downstream of the dam resulted in about \$1.0 million in damages below the dam, under conditions and prices at that time. These downstream flows peaked at about 5,700 cubic feet per second and inundated about 8,000 acres. The most recent flooding in 1983 caused extensive and widespread damages to properties in the Tulare Lakebed area where losses attributed to the Kaweah River were estimated at \$17.6 million. The project includes enlarging Lake Kaweah by 42,600 acre-feet. The average annual benefits at 1998 price levels are as follows:

Annual Benefits	Amount
Flood Control	\$3,882,000
Water Supply	251,000
Total	\$4,133,000

FISCAL YEAR 2009: The current amount is being applied as follows:

Repair damage to completed work caused during initial lake filling	\$700,000
Correct weir seepage	100,000
Continue High Pool inspection program for the next 3 to 5 years	200,000
Total	\$1,000,000

FISCAL YEAR 2010: The requested amount will be applied as follows:

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Credit/reimburse sponsor for prior work/Complete project closeout	\$640,000
Total	\$640,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below:

	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation, and Replacement Costs
<b>Requirements of Local Cooperation</b>		
Provide lands, easements, rights of way, and borrow and excavated or dredged material disposal areas for flood control, which may be reduced for credit/reimbursement allowed based on prior work after reductions for such credit/reimbursement have been made in the required cash payments.	9,414,000	
Modify or relocate utilities, roads, bridges (except railroad bridges), and other facilities where necessary for the construction of the project for flood control.	9,148,000	
Pay 35 percent of the costs allocated to agricultural water supply and bear all costs of operation, maintenance, repair, rehabilitation and replacement of water supply facilities. This is not a cash payment, but is included in the LERRD cost.	1,908,000	\$ 13,500
Pay 5 percent of the costs allocated to flood control to bring the total non-Federal share of flood control costs to 25 percent, and bear all costs of operation, maintenance, repair, rehabilitation and replacement of flood control facilities.	2,643,000	125,600
Total Non-Federal Costs	\$23,113,000	\$139,100

The non-Federal sponsor has also agreed to make all required payments concurrently with project construction.

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STATUS OF LOCAL COOPERATION: The California State Reclamation Board and Kaweah Delta Water Conservation District are the non-Federal sponsors. The Project Cooperation Agreement was executed on 9 February 2001 (See OTHER INFORMATION).

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of \$35,512,000 is an increase of \$640,000 from the latest estimate (\$34,872,000) presented to Congress (FY 2009). This change includes the following items:

Item	Amount
Authorized Modifications	\$640,000
Total	\$640,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement (EIS) was filed with Environmental Protection Agency on 11 October 1996. The Record of Decision for the EIS was issued on 19 November 1997. An Environmental Assessment (EA) supporting the Decision Document was approved in April 1998.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design (PED) were appropriated in FY 1996 and funds to initiate construction were appropriated in FY 2000. Design changes consist of toe drains and stability berms at the base of the auxiliary and main dams to better monitor seepage through the dams. Additional mitigation was required at the Tulare lakebed due to the presence of vernal pools and burrowing owls. The riparian site was increased by 4.65 acres when clearing was done downstream of the spillway and the endangered species site was increased by approximately 7 acres due to additional impacts on endangered species during construction. Ongoing replacement of plants has also extended the operation and maintenance periods for the endangered species site and the riparian sites.

Despite increases in sponsor costs for lands and relocations and higher construction and mitigation costs, the local sponsor continues to strongly support the project and is capable of providing additional resources to complete the project.

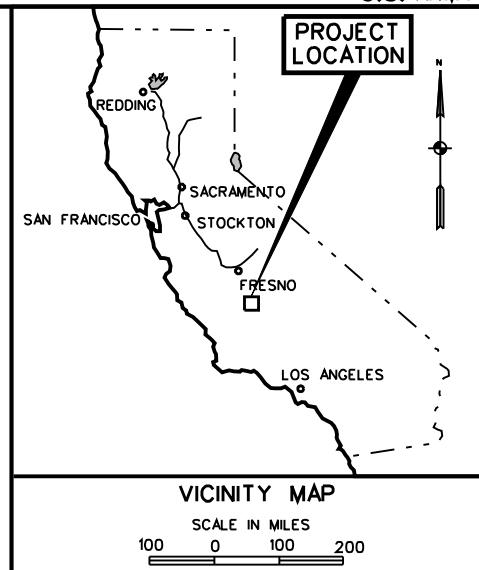
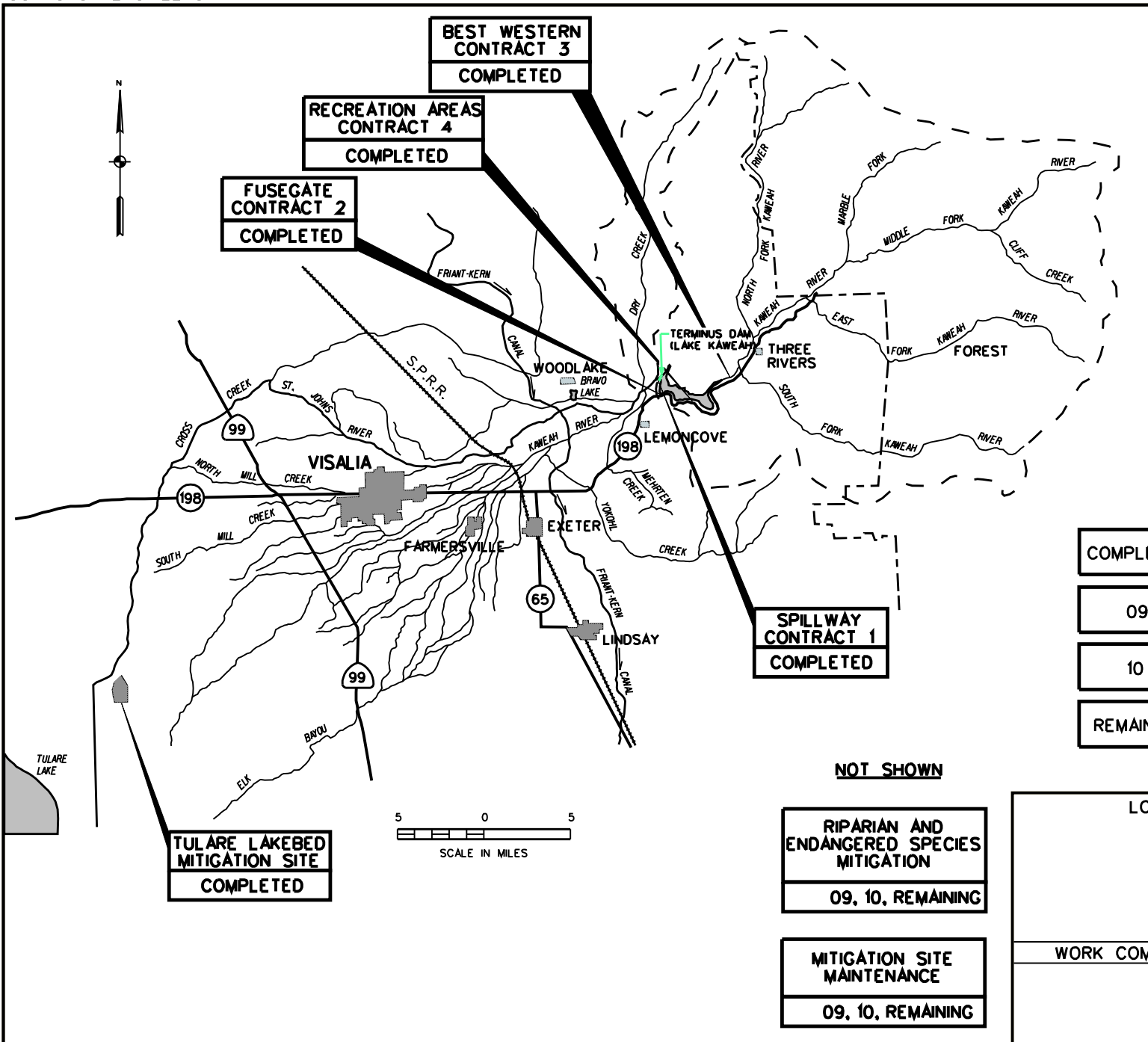
Section 307 of the Water Resources Development Act of 1999 authorized the Secretary to accept title for lands required for the project and directs the Secretary and the non-Federal interests to enter into an agreement whereby the Corps of Engineers would be reimbursed by the non-Federal interests for costs associated with operations and maintenance.

Section 3020 of the Water Resources Development Act of 2007 directed the Secretary to credit, in accordance with section 221 of the Flood Control Act of 1970 (42 U.S.C. 1962d-5b), toward the non-Federal share of the cost of the project, or provide reimbursement not to exceed \$800,000, for the costs of any work carried out by the non-Federal interest for the project before or after the date of the project partnership agreement.

The fish and wildlife mitigation cost is estimated at \$4 million.

Initial fill tests caused damage to several construction features requiring unplanned repair and monitoring. Additional work includes road repair, boat ramp and electrical repairs, and 3 years of high water monitoring.

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**WORK STATUS**

<b>COMPLETED</b>	WORK COMPLETED AS OF 30 SEPTEMBER 2008
<b>09</b>	WORK PROPOSED WITH FUNDS AVAILABLE FOR FY 2009
<b>10</b>	WORK PROPOSED WITH FUNDS REQUESTED FOR FY 2010
<b>REMAINING</b>	WORK REQUIRED TO COMPLETE THE PROJECT AFTER FY 2010

**NOT SHOWN**

<b>RIPARIAN AND ENDANGERED SPECIES MITIGATION</b>
<b>09, 10, REMAINING</b>
<b>MITIGATION SITE MAINTENANCE</b>
<b>09, 10, REMAINING</b>

LOCAL PROTECTION PROJECTS (FLOOD CONTROL)

**KAWEAH RIVER CALIFORNIA**

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WORK COMPLETED, IN PROGRESS & PROPOSED

SACRAMENTO DISTRICT  
SOUTH PACIFIC DIVISION  
1 JANUARY 2009

APPROPRIATION TITLE: Construction – Flood and Coastal Storm Damage Reduction

PROJECT: Napa River, California (Continuing)

LOCATION: The project is located in the city and county of Napa, California. The Napa River drainage basin, comprising 426 square miles, is just north of San Pablo Bay and approximately 40 miles northeast of San Francisco, California.

DESCRIPTION: The project consists of channel modifications to provide the project area with 100-year level of flood protection from Napa River and Napa Creek. Channel modifications include overbank excavation, vertical walls, floodwalls, levees, bridges, pumping stations, and flowage easements. The project also includes recreation trails and major ecosystem restoration including restoration of over 730 acres of scarce San Francisco Bay estuary habitats.

AUTHORIZATION: Section 204 of the 1965 Flood Control Acts and Section 136 of the 1976 Water Resources Development Act

REMAINING BENEFIT-REMAINING COST RATIO: 1.73 to 1 at 7 percent

TOTAL BENEFIT-COST RATIO: 1.07 to 1 at 7 percent

INITIAL BENEFIT-COST RATIO: 1.3 to 1 at 7 percent (FY 2000)

BASIS OF BENEFIT-COST RATIO: Benefits are from the latest available evaluation in the Final Supplemental General Design Memorandum, October 1998, at 1 October 1997 price levels. Incidental ecosystem restoration benefits are excluded in calculating the benefit cost ratios. The Final Supplemental General Design Memorandum was approved in May 1999.

SUMMARIZED FINANCIAL DATA	ACCUM PCT OF EST FED COST	STATUS (1 JAN 2009)	PCT CMPL	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost	\$244,400,000	Entire Project	65	TBD
Estimated Non-Federal Cost	\$158,370,000	PHYSICAL DATA		
Cash Contributions	\$ 20,682,000	Channel Modifications along Napa River from		
Other Costs	137,688,000	Highway 29 to Trancas Street - 6.9 miles:		
Total Estimated Project Cost	\$402,770,000	excavation		- 1.63 Mil cy
		widening		- 16,900 ft
		vertical walls		- 1,600 ft
		floodwalls		- 13,200 ft
		levees		- 9,900 ft
		training dikes		- 7,000 ft

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PHYSICAL DATA (Continued)	
bypass channel	- 1,300 ft
Channel Modifications along Napa Creek Main	
Street to Earl Street	- 4,000 ft:
excavation length	- 1,100 ft
Pumping stations	3 each
Bridges	
Roadway/rail	6
Pedestrian	3
Recreation Trails	- 19,000 ft
Flowage easement	- 418.2 acres
Ecosystem Restoration	- 60 acres

SUMMARIZED FINANCIAL DATA (Continued)		ACCUM PCT	STATUS	PCT	PHYSICAL
		OF EST	(1 JAN 2009)	CMPL	COMPLETION
		FED COST			SCHEDULE
Allocations to 30 September 2006	\$72,415,000				
Allocation for FY 2007	14,000,000				
Allocation for FY 2008	11,724,000				
Conference Allowance for FY 2009	10,527,000				
Allocation for FY 2009	10,527,000				
Allocations through FY 2009	108,666,000	44			
Allocation Requested for FY 2010	5,000,000	47			
Programmed Balance to Complete after FY 2010	130,734,000				
Unprogrammed Balance to Complete after FY2010	0				

JUSTIFICATION: The Napa River Basin, ranging from tidal marshes to mountainous terrain, is subject to severe winter storms and frequent flooding. In the lower reach of the river, flood conditions are aggravated by high tides from San Pablo Bay and local runoff. The population in the city of Napa was approximately 76,700 in January 2006. Many residential, business and industrial buildings are located by the Napa River within the City limits. Excluding public facilities, the present value of damageable property within the project floodplain is over \$500 million. Flooding in the Napa area has occurred in 1955, 1958, 1963, 1965, 1986 (flood of record), 1995 and 2005. The 1986 flood (estimated to be a 55-year event) resulted in 3 people dead, 27 injured, an estimated \$50-\$100 million in property damages throughout Napa County, and the evacuation of approximately 3,500 residents. The 1986 flood crested at 30.2 feet. The predicted crest for a 100 year flood is 32 feet. During the January 1995 flood (estimated to be a 50-year event) the Napa River crested at about 27 feet, and during the March 1995 flood the river crested near 31 feet. Although the March 1995 river crest was higher than the 1986 flood, fewer damages were incurred during the 1995 flood due to a rain stoppage three to four hours before the crest arrived, allowing the tributaries to partially subside. The damage assessments for the January and March 1995 floods report property damages of \$10 million and \$75 million, respectively. The floods resulted in 227 businesses and 843 residences being damaged

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JUSTIFICATION (Cont.): county-wide. The project will provide 100-year level of flood protection. Ecosystem restoration includes the creation of tidal and seasonal wetlands and marshes, thus enhancing the San Francisco Bay estuary, which provides both nationally and regionally scarce habitat. Average annual benefits (October 1997 price levels) are as follows:

Annual Benefits	Amount
Flood Damage Prevention	\$15,453,000
Recreation	310,000
Ecosystem Restoration	3,293,000
Total	\$19,056,000

FISCAL YEAR 2009: The current amount is being applied as follows:

Continue Napa Valley Wine Train (NVWT)	
Relocation Contract	\$ 3,852,000
Engineering and Design	6,097,000
Construction Management	578,000
Total	\$10,527,000

FISCAL YEAR 2010: The requested amount will be applied as follows:

Engineering and Design	5,000,000
Total	\$ 5,000,000

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NON-FEDERAL COSTS: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation, and Replacement Costs
Provide lands, easements, rights of way, and borrow and excavated or dredged material disposal areas.	\$ 83,783,000	
Modify or relocate utilities, roads, bridges (except railroad bridges), and other facilities, where necessary for the construction of the project. (Includes section 215 credit for railroad bridge.)	53,905,000	
Pay 5 percent of the costs allocated to flood control and bear all costs of operation, maintenance, repair, rehabilitation and replacement of flood control facilities.	20,065,000	\$367,000
Pay one-half of the separable costs allocated to recreation (except recreational navigation) and bear all costs of operation, maintenance, repair, rehabilitation and replacement of recreation facilities.	617,000	45,000
Total Non-Federal Costs	\$158,370,000	\$412,000

The non-Federal sponsor has also agreed to make all required payments concurrently with project construction.



STATUS OF LOCAL COOPERATION: The Napa County Flood Control and Water Conservation District is the local sponsor for both the flood control and recreation purposes of the project. In June 1999, the Napa County Flood Control and Water Conservation District indicated support for the project and intent to cost share both project purposes. In March 1998, the Napa County electorate passed "Measure A" which will fund the non-Federal share of the project. The Project Cooperation Agreement was executed in February 2000. The current non-Federal cost estimate of \$156,700,000, which includes a cash contribution of \$19,012,000, is an increase of \$2,900,000 from the non-Federal cost estimate of \$153,800,000 noted in the Project Cooperation Agreement, which includes a cash contribution of \$9,345,000. The sponsor agrees with current costs and continues to be financially able to support the project. An amendment to the PCA was executed 3 April 2007, which provided for the acceleration of non-Federal funds.

A Section 215 Agreement for construction of a portion of the authorized project by the local sponsor was executed on 16 January 2002. It limits Federal credit/reimbursement to no more than \$5,000,000, or 1 percent of total project costs, whichever is greater. In FY 2002, the local sponsor completed construction for a total cost of \$1.1 million. Initial reimbursement for \$500,000 was made 30 September 2003.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of \$244,400,000 is an increase of \$48,500,000 from the latest estimate (\$195,900,000) presented to Congress (FY 2009). This charge includes the following items.

Item	Amount
Price Escalation on Construction Features	\$18,500,000
Post Contracting Award and Other Estimating Adjustments	30,000,000
Total	\$48,500,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final EIS was filed with EPA on 18 December 1997. The Record of Decision was signed on 9 June 1999.

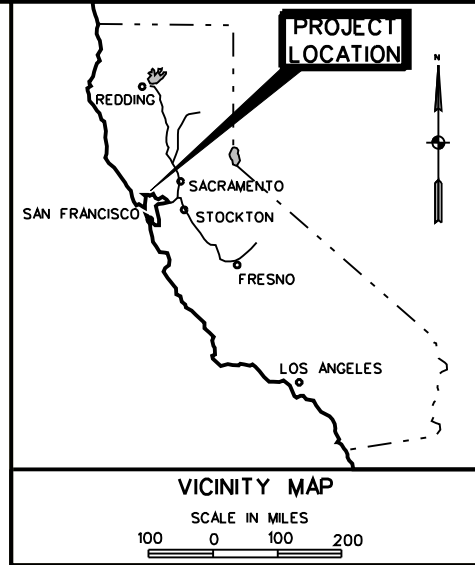
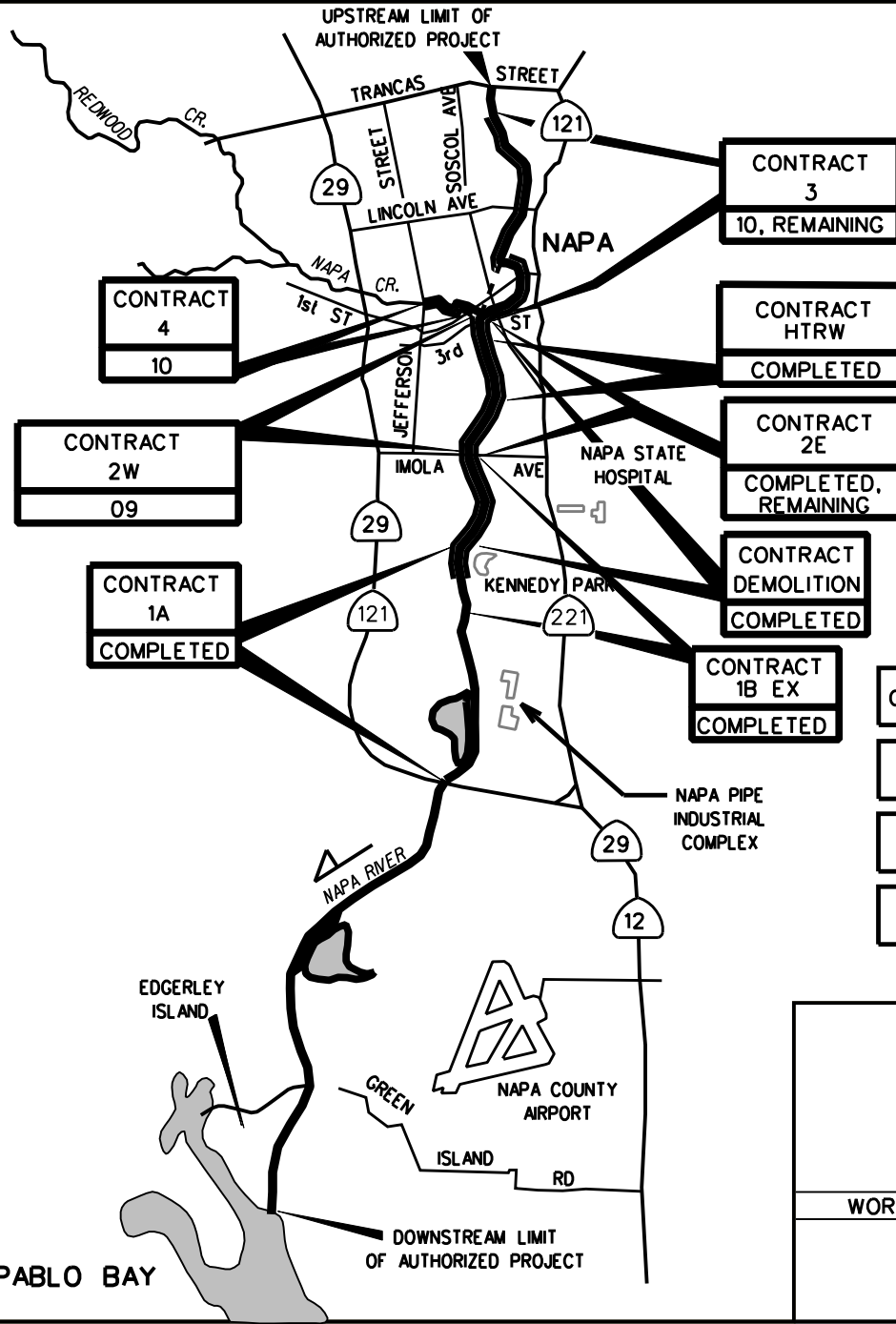
OTHER INFORMATION: Funds to resume preconstruction engineering and design were appropriated in Fiscal Year 1989. Funds to initiate construction were appropriated in Fiscal Year 2000.

On 31 December 2005, the City of Napa experienced flooding from both the Napa River and Napa Creek, causing extensive damage. The flood level experienced was second only to the record flood of 1986. Damages to the city, although estimated at \$40-50 million, did not reach the flood stages experienced in 1986. Partially completed project features downstream (flood terraces and raised bridges) are credited with reducing the flood damages.

ITEMS NOT SHOWN

ECOSYSTEM RESTORATION MITIGATION  
 COMPLETED, 09, 10, REMAINING

NAPA VALLEY WINE TRAIN RAIL ROAD RELOCATION  
 09, 10, REMAINING



WORK STATUS

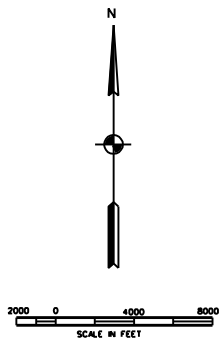
COMPLETED	WORK COMPLETED AS OF 30 SEPTEMBER 2008
09	WORK PROPOSED WITH FUNDS AVAILABLE FOR FY 2009
10	WORK PROPOSED WITH FUNDS REQUESTED FOR FY 2010
REMAINING	WORK REQUIRED TO COMPLETE THE PROJECT AFTER FY 2010

LOCAL PROTECTION PROJECTS (FLOOD CONTROL)

**NAPA RIVER CALIFORNIA**

WORK COMPLETED, IN PROGRESS & PROPOSED

SACRAMENTO DISTRICT  
 SOUTH PACIFIC DIVISION  
 1 JANUARY 2009



SAN PABLO BAY

APPROPRIATION TITLE: Construction –Flood and Coastal Storm Damage Reduction

PROJECT: Rio Grande Floodway, San Acacia to Bosque del Apache Unit, New Mexico (Continuing)

LOCATION: The project is located in Socorro County, New Mexico along the Rio Grande, and extends from the upper end of the Rio Grande low-flow conveyance channel at the San Acacia diversion works to Tiffany Junction, approximately 11 miles upstream of Elephant Butte Reservoir.

DESCRIPTION: The plan of improvement consists of the reconstruction of approximately 44 miles of existing spoil bank levee which separates the Rio Grande low flow conveyance channel from the river. The level of protection is a discharge of approximately 20,000 cfs at Socorro, New Mexico, corresponding to the 100 year flood.

AUTHORIZATION: Flood Control Act of 1948, Section 203 and Water Resources Development Act of 1992, Section 102(12)(s).

REMAINING BENEFIT - REMAINING COST RATIO: 4.1 to 1 at 7 percent.

TOTAL BENEFIT - COST RATIO: 2.4 to 1 at 7 percent.

INITIAL BENEFIT - COST RATIO: 2.9 to 1 at 7 percent (FY 1992).

BASIS OF BENEFIT - COST RATIO: Benefits are from the Appendix to the Project Decision Document dated December 1993 at October 1993 price levels.

SUMMARIZED FINANCIAL DATA		ACCUM. PCT. OF EST. FED. COST	STATUS (1 Jan 2009)	PCT CMPL	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost		\$67,900,000	Entire Project	0	TBD
Estimated Non-Federal Cost		9,700,000			
Cash Contribution	\$8,800,000				
Other Costs	900,000				
Total Estimated Project Cost		\$77,600,000			
			PHYSICAL DATA		
			Levees - 44 Miles		
Allocations to 30 September 2006		\$ 7,944,000			
Allocations for FY 2007		800,000			
Allocations for FY 2008		749,000			
Allocation for FY 2009		766,000			
Allocations through FY 2009		10,259,000	15		

SUMMARIZED FINANCIAL DATA (continued)

ACCUM.  
PCT. OF EST.  
FED. COST

Allocation Requested for FY 2010	\$ 800,000	16
Programmed Balance to Complete after FY 2010	TBD	

JUSTIFICATION: The project will provide protection from the 100-year flood with an estimated discharge of 20,000 cubic feet per second (cfs). The flood of record, in September 1929, produced a peak discharge of 60,000 cubic feet per second on the Rio Grande at the San Acacia gage. Irrigation and transportation facilities were either disrupted or destroyed. Over 90 percent of the irrigated farmland in a 60 mile reach of the Rio Grande was severely damaged, and the original villages of San Acacia, San Antonio, and San Marcial were destroyed. Damages sustained at that time were \$1,500,000; under current conditions and prices the damages would be \$288,000,000. The last major flood event occurred in 1965 with minor flooding in 1967, 1979 and 2005. The value of property within the 100-year flood plain is \$400,000,000. Residential property within the 100-year flood plain is worth \$55,000,000. The Rio Grande low-flow conveyance channel, built by the U.S. Bureau of Reclamation in 1961, is the primary damageable property in the project area. Cost to construct the low flow conveyance channel at October 2008 price levels is \$138,000,000. The United States Bureau of Reclamation estimates that following a flood severe enough to breach the spoil-bank levee separating the low-flow conveyance channel from the adjacent floodway, the low-flow conveyance channel would be obliterated and out of service for at least five years. As much as 455,000 acre-feet of water would be lost over such a five-year period, with an economic value of \$23,000,000. Loss of the channel would also have international significance, as the 1906 Treaty with Mexico requires the delivery of 60,000 acre-feet of water annually. Single occurrence damages from the one percent chance floods are \$277,000,000. Average annual damages without the project are \$12,996,400 and with the project are \$967,000. Average annual benefits are \$12,029,000, all flood risk management, based on October 2008 price levels. The project avoids long and short term impacts associated with the destruction or modification of wetlands; in fact, the project protects existing wetlands at Bosque del Apache National Wildlife Refuge.

FISCAL YEAR 2009: The current amount is being applied as follows:

Continue the Limited Reevaluation Report	\$ 766,000
Total	\$ 766,000

FISCAL YEAR 2010: The requested amount will be applied as follows:

Complete the Limited Reevaluation Report	\$ 600,000
Complete NEPA Compliance	200,000
Total	\$ 800,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, and the Water Resources Development Act of 1992, PL 102-580, Section 102(S), the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation, and Replacement Costs
Participate in Project Partnership Team, conduct audits of non-Federal costs, and perform investigations of hazardous substances.	\$ 100,000	
Modify or relocate utilities, roads, bridges (except railroad bridges), and other facilities, where necessary for the construction of the project.	800,000	
Pay 11.3 percent of the costs allocated to flood control to bring the total non-Federal share of flood control costs to 12.5 percent, but no less than 5 percent of the costs allocated to flood control and bear all costs of operation, maintenance, repair, rehabilitation and replacement of flood control facilities.	8,800,000	\$237,000
Total Non-Federal Cost	\$ 9,700,000	\$237,000

The non-Federal sponsor has also agreed to make all required payments concurrently with project construction.

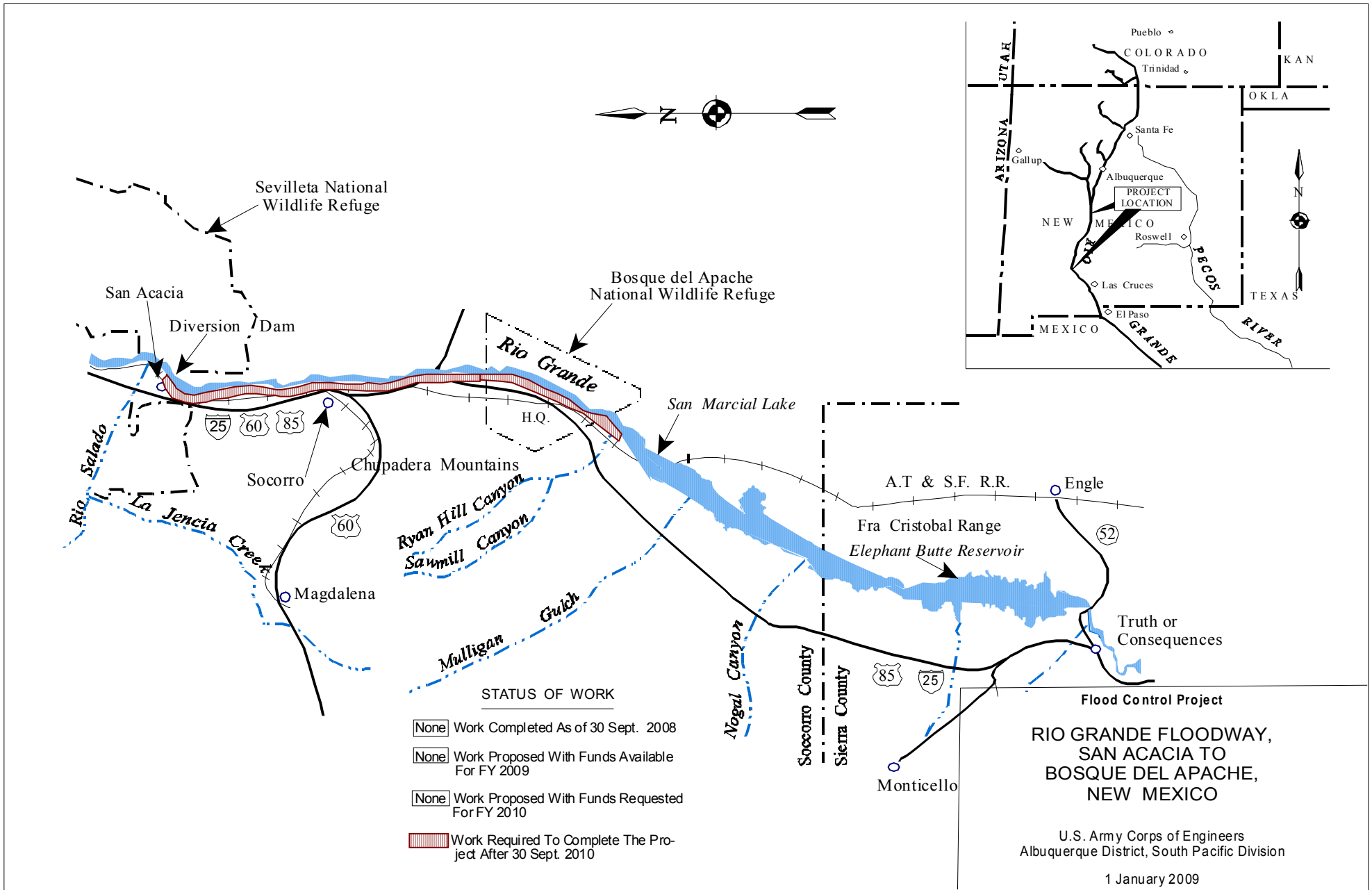
STATUS OF LOCAL COOPERATION: The Middle Rio Grande Conservancy District supports the authorized levee project, as currently modified, to provide needed flood protection to the Middle Rio Grande Valley below San Acacia. By letter dated 28 July 1995, the New Mexico State Engineer indicated that funding for a portion of the non-Federal share of the project may be provided by the New Mexico Interstate Stream Commission from the Improvement of the Rio Grande Income Fund. The Project Partnership Agreement is scheduled for execution in December 2010.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of \$67,900,000 (1 October 2008) is the same as the latest estimate (\$67,900,000) presented to Congress (FY 2008).

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement was filed in February 1992. A supplemental Environmental Impact Statement is scheduled to be filed with the Environmental Protection Agency in June 2010.

OTHER INFORMATION: Funds to initiate Preconstruction Engineering and Design were appropriated in Fiscal Year 1987, and funds to initiate construction were appropriated in Fiscal Year 1992. The final Limited Reevaluation Report (LRR) is scheduled for approval in September 2010. The Project Partnership Agreement is scheduled for execution in December 2010. Continued funding is critical to ensure completion of the LRR.

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APPROPRIATION TITLE: Construction – Flood Control

PROJECT: Sacramento River Bank Protection Project, California (Continuing)

LOCATION: The project is located in north-central California, along the Sacramento River and its principal tributaries from Sacramento River RM 0.0 at Collinsville to Chico Landing at RM 194. It is within the limits of the existing Sacramento River Flood Control Project levees and includes Butte Basin, Cache Slough, and a portion of the Sacramento-San Joaquin Delta slough. The project meanders through eight counties including Tehama, Glenn, Butte, Colusa, Sutter, Yolo, Solano, and Sacramento.

DESCRIPTION: The project provides a long-range program of bank protection to protect the levees within the limits of the Sacramento River Flood Control Project from erosion. It prevents undermining of levee sections and includes fish and wildlife mitigation features. Some recreational facilities have been provided along the river.

AUTHORIZATION: Flood Control Act of 1960; River Basin Monetary Authorization Act of 1974; Further Continuing Appropriations Act of 1983; Water Resources Development Act (WRDA) of 1986, Sec. 601 (a) and WRDA of 2007, Sec. 3031.

REMAINING BENEFIT-REMAINING COST RATIO: 10.0 to 1 at 7 percent (See OTHER INFORMATION)

TOTAL BENEFIT-COST RATIO: 12.4 to 1 at 7 percent (See OTHER INFORMATION)

INITIAL BENEFIT-COST RATIO: Not Reported

BASIS OF BENEFIT-COST RATIO: (See OTHER INFORMATION.)

SUMMARIZED FINANCIAL DATA		ACCUM PCT OF EST FED COST	STATUS (1 JAN 2009)	PCT CMPL	PHYSICAL COMPLETION SCHEDULE
Separable Element 1 (non-separable elements)			Bank Protection	97	TBD
Estimated Federal Cost	\$299,458,000		Recreation	100	1/ TBD
			Entire Project	97	TBD
Estimated Non-Federal Cost	\$149,881,000		1/ 100% of identified recreation is complete.		
Cash Contribution	\$129,391,000				
Other Costs	20,490,000		PHYSICAL DATA		
Total Separable Element 1	\$449,339,000		Bank Protection: 915,000 lineal feet First Phase – 430,000 lineal feet Second Phase– 485,000 lineal feet		

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SUMMARIZED FINANCIAL DATA (Continued)	ACCUM PCT OF EST FED COST	STATUS (1 JAN 2009)	PCT CMPL	PHYSICAL COMPLETION SCHEDULE
Separable Element 2 (Completed Fish & Wildlife Mitigation)				
Estimated Federal Cost	\$ 1,336,000			
Estimated Non-Federal Cost	\$ 784,000			
Cash Contribution	\$ 84,000			
Other Costs	700,000			
Total Separable Element 2	\$ 2,120,000			
Separable Element 3 (LCA 41)				
Estimated Federal Cost	\$ 8,619,000			
Estimated Non-Federal Cost	\$ 2,873,000			
Cash Contribution	\$ 1,857,000			
Other Costs	1,016,000			
Total Separable Element 3	\$ 11,492,000			
Separable Element 4 (LCA 38B, 40, & 42)				
Estimated Federal Cost	\$ 57,187,000			
Estimated Non-Federal Cost	\$ 19,062,000			
Cash Contribution	\$ 19,062,000			
Other Costs	0			
Total Separable Element 4	\$ 76,249,000			
Project Summary				

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Estimated Federal Cost	\$366,600,000	
Estimated Non-Federal Cost	\$172,600,000	
Cash Contribution	\$150,394,000	
Other Costs	22,206,000	
Total Estimated Project Cost	\$539,200,000	
Allocations to 30 September 2006	\$153,975,000	
Allocation for FY 2007	21,000,000	
Allocation for FY 2008	14,932,000	
Conference Allowance for FY 2009	23,968,000	
Allocation for FY 2009	22,967,000	
Allocations through FY 2009	212,874,000	58
Allocation Requested for FY 2010	15,000,000	62
Programmed Balance to Complete after FY 2010	TBD	

JUSTIFICATION: The Sacramento River Flood Control Project consists of 977 miles of levees plus overflow weirs, pumping plants and bypass channels along the Sacramento River from RM 0 near Collinsville to RM 194 near Chico, including several sloughs and the lower reaches of major tributaries. The Sacramento River levee system was initiated as a purely local project and in many cases the levees were constructed close to the riverbanks without a protective berm. The levee system, which was adopted as the Sacramento River Flood Control Project in 1917, has been modified and expanded several times since that date but no major change in the basic levee alignment has been made since the original conception of the project. Bank protection is necessary to preserve the Sacramento River JUSTIFICATION (Continued)

Flood Control Project and insure that it will continue to furnish the designed degree of protection. The levees are continuously threatened by erosion, and unless corrective measures are taken, levee failures may occur with resultant catastrophic damage and possible loss of many lives. Flood events that occurred in February 1986 and January 1997 greatly emphasized these problems. Several levees located along the Sacramento River were subjected to an extensive amount of erosion due to the extremely high river flows. High flows in January and March 1995 caused flooding and erosion in the Butte Basin area along the Sacramento River, River Mile (RM) 188 at Glenn County Road 29. If levee repairs had not been made, additional flooding would have caused extensive loss of agricultural land and endangered residents in nearby communities of Butte City, Princeton and Colusa. In addition, during moderately high flows in February 1996, a 500 foot portion of berm on the American River failed, threatening the levee protecting the City of Sacramento. A contract was awarded in August 1996 to repair this section and provide bank protection for a total of 1,200 lineal feet. The 1997 flood event and the high flows experienced in 1998 again put additional stress on the levee system (approximately 1,100 river miles) within the Sacramento River Bank Protection Project. The sustained high water in January/February 2006 caused great concern and instigated an emergency declaration from the governor of California relative to levee repair. The area protected by the levees comprises over one million acres in which about 50 communities are located; value of improvements (October 2003 prices) to be protected is about \$38 billion and about 2.3 million people live within the flood plain. The levee system enables the use of the flood plain for the benefit of the state and nation. The extremely fertile flood plain lands produce about 6.6 percent of the total agricultural production of the state and over 88 percent of the State's rice production. The Sacramento River Bank Protection Project provides a long-range program of bank protection to protect the levees where serious erosion is occurring and to prevent erosion from undermining additional levee sections in the future. In addition to assuring urgently needed flood protection, the project provides recreation facilities consisting of

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boat-launching facilities, campgrounds, and picnic areas needed along the river to meet a rapidly increasing public demand. Since the initial bank protection contract was let in June 1963, about 815,000 lineal feet of bank protection has been provided. Approximately 100,000 lineal feet of bank protection, including 80,000 authorized by WRDA 2007, remains to be placed on the second phase of this project. The local sponsor supports the addition of a third phase, which will require Congressional authorization.

FISCAL YEAR 2009: The current amount is being applied as follows:

Design and Construct Bank Protection and Mitigate For Habitat Loss	\$17,999,000
Engineering and Design During Construction	1,000,000
Construction Management	1,440,000
Initiate Post Authorization Change Report/ Environmental Impact Statement/Environmental Impact Report (PAC/EIS/EIR)	2,528,000
Total	\$22,967,000

FISCAL YEAR 2010: The requested amount will be applied as follows:

Design and Construct Bank Protection and Mitigate For Habitat Loss	\$11,000,000
Continue PAC/EIS/EIR	3,000,000
Continue Offsite Mitigation	1,000,000
Total	\$15,000,000

NON-FEDERAL COSTS: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below.

	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation, and Replacement Costs
Requirements of Local Cooperation		
Provide lands, easements, rights of way, and borrow and excavated or dredged material disposal areas.	\$ 16,167,000	
Modify or relocate utilities, roads, bridges (except railroad bridges), and other facilities, where necessary for the construction of the project.	6,039,000	

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Pay 30 percent of the costs allocated to flood control to bring the total non-Federal share of flood control costs to one-third for remaining work and bear all costs of operation, maintenance, repair, rehabilitation and replacement of flood control facilities.	129,391,000	\$1,174,000
Pay 4 percent of the total cost of separable element 2, fish and wildlife mitigation, to bring the total non-Federal share of costs of separable element 2 to 37 percent for work performed, and bear all costs of operation, maintenance, repair, rehabilitation and replacement of this functional portion of the project.	84,000	
Pay 16 percent of the total cost of Separable Element 3 to bring the total non-Federal share of flood control costs to 25 percent and bear all costs of operation and maintenance repair, rehabilitation and replacement of flood control facilities.	1,857,000	18,000
Pay 25 percent of the total cost of Separable Element 4 to bring the total non-Federal share of flood control costs to 25 percent and bear all costs of operation and maintenance repair, rehabilitation and replacement of flood control facilities.	19,062,000	187,000
<b>Total Non-Federal Costs</b>	<b>\$172,600,000</b>	<b>\$1,379,000</b>

The non-Federal sponsor has also agreed to make all required payments concurrently with project construction.

STATUS OF LOCAL COOPERATION: Chapter 2188, Statutes of the State of California, approved by the Governor on 21 July 1961, established the State Reclamation Board as the agency to meet the requirements of local cooperation for the project. Assurances of local cooperation were accepted from the Board 5 February 1963. The Reclamation Board signed a Local Cooperation Agreement (LCA) satisfying the requirements of Section 221, Flood Control Act of 1970 (Public Law 91-611) for the remaining Second Phase work in May 1984. In accordance with provisions of the Water Resources Development Act of 1986 for separable project elements initiated after 30 April 1986, new LCAs were executed for separable element 41 on 15 August 1988 and for separable elements 38B, 40, and 42 on 7 December 1988. The LCA for the First Phase Mitigation was signed on 5 June 1990. The current non-Federal cost estimate of \$172,600,000 is an increase of \$9,600,000 from the estimate last presented to Congress (FY 2009). The local sponsor supports the increase and is financially positioned to provide their increased share of project costs.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of \$366,600,000 is an increase of \$18,900,000 from the latest estimate of \$347,700,000 presented to Congress (FY2009). The change includes the following items:

Post Contract Award and Other Estimating Adjustments	\$18,900,000
<b>Total</b>	<b>\$18,900,000</b>

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: A final Environmental Impact Statement (EIS) was filed on 15 June 1973. An SEIS for the Second Phase was filed in February 1989. A final EIS for additional work in Butte Basin, and an update submitted as Supplement 4, were signed in June 1988. An

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Environmental Assessment/Site Specific Report (EA/SSR) was prepared for Contract 42A and a Finding of No Significant Impacts (FONSI) was signed on 15 February 1994. An EA/SSR was prepared for Contracts Lower American River site 3 and 40D and FONSI's were signed 2 July 1996 and 3 September 1997, respectively. A Supplemental Design Memorandum No. 8 was prepared for sites along the lower American River and the SEIS was completed in April 1998. Currently, an EA/SSR to meet both Federal and State of California requirements is approved prior to construction of each bank protection contract. A General Reevaluation Report (GRR) will be required to address remaining sites.

OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in FY 1962, and for construction in FY 1963. Construction of First Phase was completed in November 1974. Authority to proceed with additional bank protection work, Second Phase, was provided by Section 202, River Basin Monetary Authorization Act of 1974, Public Law 93-251. The Further Continuing Appropriations Act of 1983 extended the limits of the project to include bank protection along the Sacramento River to the upstream ends of the project levees to Chico Landing (Butte Basin area). The Water Resources Development Act of 1986 modified the First Phase of the project to include acquisition of lands for establishment and maintenance of wildlife habitat at a total cost of \$1,410,000 (\$2,120,000 inflated through construction). The last parcel was acquired in Fiscal Year 1997. Re-vegetation has been highly successful and is serving as a model for re-vegetation efforts by others. Monitoring of fish and wildlife habitat and engineering features continues at each site.

The U.S. Fish and Wildlife Service, by letter dated November 7, 1985, issued a Biological Opinion stating that the bank protection work along the Sacramento River from Chico Landing to Red Bluff and in the Butte Basin area would endanger the threatened valley elderberry longhorn beetle. The Service issued a revised opinion on 19 May 1987 that permitted limited rock revetment bank protection to be constructed in the Butte Basin. The potential impact to winter-run salmon has also been a significant concern as the winter-run salmon have experienced an alarming decline since 1969. The National Marine Fisheries Service (NMFS) listed winter-run salmon as a threatened species in November 1990. The winter-run salmon biological data report was completed January 1991. NMFS Biological Opinion dated 28 October 1991 for the winter-run salmon was non-jeopardy but lists recommended conservation measures. Winter-run salmon, along with bank swallows and Swainson's Hawk, are also State listed species and a Biological Opinion was received from California Department of Fish and Game on 18 November 1991 which also recommends conservation measures.

On August 23, 2001, the U.S. Fish and Wildlife Service issued its final Biological Opinion on the Sacramento River Bank Protection Project (SRBPP). The National Marine Fisheries Service released their opinion on September 27, 2001. Both opinions were virtually identical in terms of identifying the SRBPP's effects as jeopardizing the existence of five fish species (Delta smelt, Sacramento splittail, winter-run Chinook salmon, spring-run Chinook salmon, and Central Valley steelhead) listed under the Endangered Species Act in the Sacramento River. With recent collaborative efforts, most repair sites have been self-mitigating.

After the February 1986 flood, the Sacramento River System experienced below normal precipitation and flood flows. This led to a lower rate of erosion and a lowered need for expedited bank protection work. However, the storms of 1995 and 1997, plus the sustained high water in 2006 have caused substantial erosion damage and the urgency for bank protection is vital.

The 2005 and 2006 Erosion Inventory Reconnaissance report identified 57 Critical Erosion Sites which resulted in an emergency declaration by Governor Schwarzenegger. The Department of Water Resources (DWR) and the Corps repaired 33 sites beginning in fiscal year 2006 and completing in fiscal year 2007. During the first quarter of FY 2008, 24 sites (10 DWR and 14 Corps led) were repaired. Eight sites were constructed in fall 2008. The State of California has advanced funds ahead of the cost share with the aid of a Local Cooperation Agreement amendment allowing the project to accept funds ahead of the cost share balance, so that work on the sites may proceed unimpeded. Twelve new sites are scheduled for construction in 2009.

The Flood Control Act of 1960 included no quantitative language concerning the benefits or costs but authorized the rehabilitation of 430,000 lineal feet of levee. In 1974 language was added to increase the lineal feet by an additional 405,000 feet. WRDA 2007 authorized an additional 80,000 lineal feet for a total of 915,000 lineal feet. The total base project cost is computed based on the current estimated total project cost expended to date, the remaining costs to date, an assumed

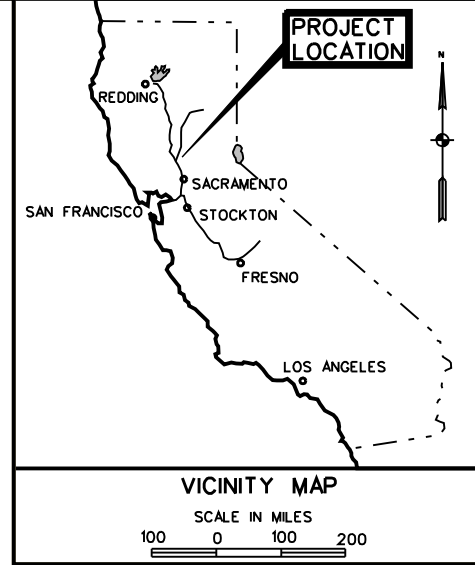
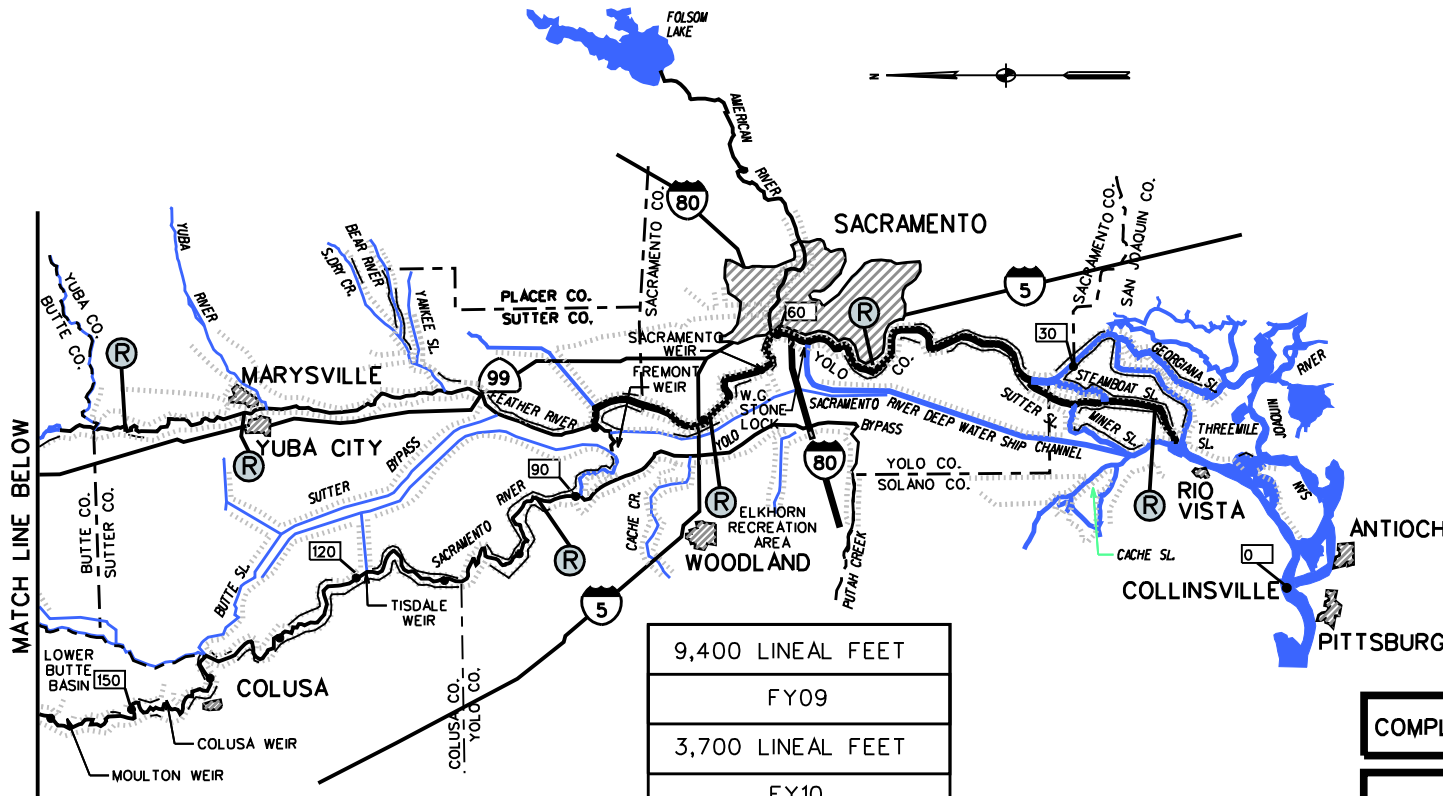
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spending stream throughout the 42 years of the project life, discounted to 1963 when the first appropriation was provided. Due to the language in the initial authorization stating that the benefits obviously exceeded the costs, the annual benefits are not available as they were absent from the original authorization and an economic reanalysis has never been performed. Remaining project cost is based on the current estimate of completing the last 100,000 lineal feet (includes the 80,000 lineal feet authorized in WRDA 2007). The RBRCR of 10.0 to 1 was based on a sample of levee repairs currently studied on the Sacramento main stem. This is the lowest benefit value included in the analytical base and is considered a conservative estimate.

WRDA 2007 authorized an additional 80,000 lineal feet. An EIS and Project Authorization Change Report are being prepared to implement this work and is scheduled for completion in summer 2011.

The fish and wildlife mitigation cost is estimated at \$31 million.

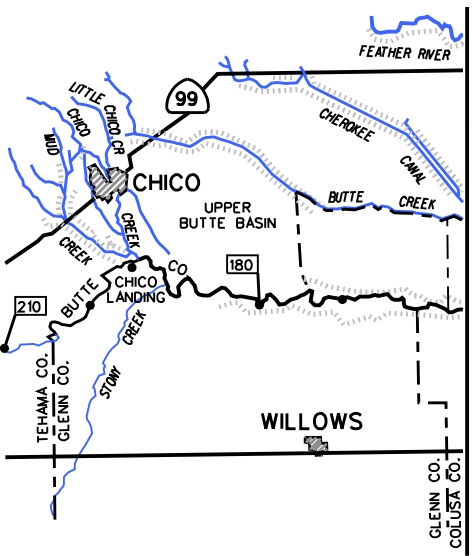
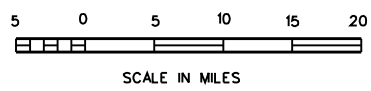
7 May 2009



9,400 LINEAL FEET
FY09
3,700 LINEAL FEET
FY10

LEGEND

- LEVEE SYSTEM AS CONSTRUCTED BY THE CORPS OF ENGINEERS
- LOCATION OF BANK PROTECTION SITES ACCOMPLISHED UNDER FIRST PHASE OF THE SACRAMENTO RIVER BANK PROTECTION PROJECT
- RECREATION SITE
- RIVER MILES



WORK STATUS

<b>COMPLETED</b>	WORK COMPLETED AS OF 30 SEPTEMBER 2008
<b>09</b>	WORK PROPOSED WITH FUNDS AVAILABLE FOR FY 2009
<b>10</b>	WORK PROPOSED WITH FUNDS REQUESTED FOR FY 2010
<b>REMAINING</b>	WORK REQUIRED TO COMPLETE THE PROJECT AFTER FY 2010

LOCAL PROTECTION PROJECTS  
(FLOOD CONTROL)

**SACRAMENTO RIVER  
BANK PROTECTION PROJECT  
CALIFORNIA**

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SACRAMENTO DISTRICT  
SOUTH PACIFIC DIVISION  
1 JANUARY 2009

**COMPLETED WORK**

**COMPLETED WORK (Cont.)**

**WORK PROPOSED WITH FY09 FUNDS**

FIRST PHASE, BANK PROTECTION:  
 CONTRACTS 1 THRU 26 (430,000 LF)

SECOND PHASE PART 1, BANK PROTECTION:  
 CONTRACTS 27 THRU 36 (182,000 LF)

SECOND PHASE PART II, BANK PROTECTION:  
 PRE-SEPARABLE ELEMENT (46,744 LF)  
 37 (RM 0-62)  
 38A (RM 60-145)  
 39 (RM 177-194)

SEPARABLE ELEMENT 38B (14,436 LF)  
 38B (RM 60-120)

SEPARABLE ELEMENT 40 (40,794 LF)  
 EMERGENCY COUNTY ROAD 29  
 (RM 186-188)  
 40A (RM 132-180)  
 40B-1 (RM 187-192)  
 40B-M (RM 145-194)  
 40C (RM 15-25)  
 STEAMBOAT, MINER & SUTTER SL.  
 40C-M (RM 15-25)  
 40D (RM 16, 1R) STEAMBOAT SL.  
 40D-M (RM SL16.1)  
 40E (RM 149)

SEPARABLE ELEMENT 41 (29,475 LF)  
 41A (RM 0-60)  
 41A-M1 (RM 20-60)  
 41A-M2 (RM 20-60)  
 41A-M3 (RM 20-60)  
 41A-M4 (RM 20-60)  
 41A-M5 (RM 20-60)  
 41B (FEATHER RIVER)  
 41B-M (FEATHER RIVER)

SECOND PHASE PART II, BANK PROTECTION (CONT.):  
 SEPARABLE ELEMENT 42 (17,362 LF)  
 42A (RM 60-145)  
 42A-M (RM 60-145)  
 42A-M1 (RM 60-145)  
 42C (RM 90.4 & 90.9) FISH CURT.  
 42C-M (RM 90.4 & 90.9) FISH CURT.  
 42D (RD 108-COLUSA BASIN)  
 42D-M (RD 108-COLUSA BASIN)  
 LAR 1A1 (SITE 3)  
 LAR 1A2 (RM 4.4, SITE 3, RIVER PARK)  
 LAR 1A2-M (RM 4.4, SITE 3, RIVER PARK)  
 LAR 1A3-M (RM 4.4, SITE 3, RIVER PARK)  
 LAR 1B (RM 2-9, SITES 1, 2 & 4)  
 LAR 1B-M (RM 2-9, SITES 1, 2 & 4)  
 LAR 2 (SITE 5, PHASE 1)  
 LAR 2 (SITE 5, PHASE 2)  
 LAR 2-M (SITE 5, PHASE 3)

SAC RIVER MILE: 16.8L  
 55.2L  
 77.2L  
 87.0L  
 73.5L  
 93.7L  
 114.5R  
 136.7R  
 136.9.5R

FEATHER RIVER RM 28.5  
 5.5

STEAMBOAT SLOUGH RM 0.4

SACRAMENTO RIVER MILE - CACHE SLOUGH  
 49.6L 53.5R 21.8R  
 49.7L 56.7L  
 49.9L 26.9L STEAMBOAT SLOUGH  
 50.2L 34.5R 16.6R  
 50.4L 72.2R  
 50.8L 99.3R AMERICAN RIVER  
 51.5L 123.5L 0.3L  
 52.3L 177.8R 2.8L  
 53.1L

**WORK STATUS**

COMPLETED

09

10

REMAINING

WORK COMPLETED AS OF  
 30 SEPTEMBER 2008

WORK PROPOSED WITH FUNDS  
 AVAILABLE FOR FY 2009

WORK PROPOSED WITH FUNDS  
 REQUESTED FOR FY 2010

WORK REQUIRED TO COMPLETE  
 THE PROJECT AFTER FY 2010

LOCAL PROTECTION PROJECTS  
 (FLOOD CONTROL)

**SACRAMENTO RIVER  
 BANK PROTECTION PROJECT  
 CALIFORNIA**

WORK COMPLETED, IN PROGRESS & PROPOSED

SACRAMENTO DISTRICT  
 SOUTH PACIFIC DIVISION  
 1 JANUARY 2009



APPROPRIATION TITLE: Construction - Local Protection (Flood Control)

PROJECT: Santa Ana River Mainstem, California (Continuing)

LOCATION: The project is located along a 75-mile reach of the Santa Ana River in Orange, Riverside, and San Bernardino Counties, southeast and adjacent to metropolitan Los Angeles, California.

DESCRIPTION: The plan of improvement provides for construction of the Seven Oaks Dam about 35 miles upstream of the existing Prado Dam, with a gross reservoir storage of 145,600 acre feet; flood plain management of the flood overflow area on the Santa Ana River between Seven Oaks Dam and the existing Prado Reservoir; enlargement of Prado Dam to increase the reservoir storage capacity from 217,000 acre-feet to 362,000 acre-feet; construction of 3.3 miles of channel modifications along Oak Street Drain in Corona; enlargement of the existing 2.4 miles of Mill Creek levee; construction of a detention basin and 2.0 miles of channel modifications along the Santiago Creek; and various means of flood control, including flood plain management, levees, and vertical walled concrete channels along the 30.5 miles of the Santa Ana River from Prado Dam to the Pacific Ocean. In addition, the plan includes recreational development and purchase of lands for mitigation and preservation of endangered species. A project for San Timoteo Creek was added to the Santa Ana River Mainstem project by the Energy and Water Development Appropriation Act of 1988. A special report was approved in May 1994; engineering and design was initiated in Fiscal Year 1991 with funds appropriated for that purpose and was completed in June 1994. Construction was initiated in Fiscal Year 1994. The project was modified by the Water Resources Development Act of 1990, which authorized the Secretary to develop recreational trails and facilities on lands between Seven Oaks Dam and Prado Dam, including flood plain management areas. These recreational features are not included in the current estimate pending development of plans and determination of costs.

AUTHORIZATION: Water Resources Development Act of 1986, Energy and Water Development Appropriation Act, 1988, Water Resources Development Act of 1990, Water Resources Development Act of 1996, and Water Resources Development Act of 2007.

REMAINING BENEFIT-REMAINING COST RATIO: 5.2 to 1 at 7 percent.

TOTAL BENEFIT-COST RATIO: 1.4 to 1 at 7 percent.

INITIAL BENEFIT-COST RATIO: 1.3 to 1 at 8 5/8 percent (FY 1988)

BASIS OF BENEFIT-COST RATIO: The benefit-cost ratio is based on the Phase II General Design Memorandum dated August 1988 at October 1987 price levels.

7 May 2009

SUMMARIZED FINANCIAL DATA			ACCUM PCT OF EST FED COST	STATUS (1 JAN 2008)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost		\$ 1,171,100,000		Seven Oaks Dam	100	August 1999
Programmed Construction	\$1,170,100,000			Prado Dam	52	December 2013
Unprogrammed Construction	1,000,000			Santiago Creek	10	December 2014
Estimated Non-Federal Cost		\$ 707,900,000		Mill Creek	100	March 1992
Programmed Construction	\$ 705,900,000			Oak Street Drain	100	September 1994
Cash Contributions	94,000,000			Lwr SAR Rch 9 & SARI Line	35	December 2010
Other Costs	681,900,000			Lower Santa Ana Rch 1-8,10	96	December 2008
Reimbursements	(69,000,000)			Marsh	100	March 1991
Estimated Non-Federal Cost				San Timoteo	99	est. 2014
Unprogrammed Construction	\$ 1,000,000			Total Project	80	TBD
Cash Contributions	1,000,000					
Other Costs	0					
Total Estimated Programmed Construction Costs		\$ 1,877,000,000				
Total Estimated Unprogrammed Construction Costs		\$ 2,000,000				
Total Estimated Project Cost		\$ 1,879,000,000 <u>1/</u>				
Allocations to 30 September 2006		\$ 816,912,000				
Allocations for FY2007		57,580,000				
Allocations for FY2008		20,664,000				
Conference Allowance for FY 2009		15,500,000				
Allocation for FY 2009		15,500,000				
Allocations Through FY 2009		910,656,000	78			
Allocation Requested for FY 2010		52,193,000	82			
Programmed Balance to Complete after FY 2010		TBD				
Unprogrammed Balance to complete after FY 2010		TBD				

1/ Reflects \$39,500,000 to be reimbursed to judgment fund for Seven Oaks claim

7 May 2009

PHYSICAL DATA:

SEVEN OAKS DAM:

Dam: Type - Impervious core

Height - 550 feet

Length - Crest Length 2,980 feet

Outlet Works: Gated conduit, 8,000 cfs maximum discharge

Basin Capacity: 145,600 acre-feet

Spillway: Type - Detached overflow, 500 ft wide, unlined

Embankment: Earth and Rock fill

Lands & Damages: Acres - 2,736 existing streambed and undeveloped (mountainous)

Water Quality Study

MILL CREEK

Levee repair: Type - Grouted riprap

Height - 10 feet maximum

Length - 12,500 feet (2.4 miles) of existing

13,600 feet (2.6 miles)

Lands & Damages: Acres – 1661 grazing, wildlife

Floodwall (Top of levee): Type – Concrete

Height - 7.5 feet maximum

Length - 12,600 feet (2.4 miles)

OAK STREET DRAIN:

Channel: Rectangular concrete 3.0 mile

Trapezoidal riprap 0.3 miles

Lands & Damages: 34 acres for rights-of-way

SANTIAGO CREEK:

Channel: Rectangular concrete 500 feet

Trapezoidal riprap 2.0 miles

Reservoir: Buttressed

Basin Capacity: Flood control 4,620 acre-feet (el. 274 to 298)

Lands and Damages: 281.5 acres, reservoir and channel

7 May 2009

PRADO DAM:

Dam: Type - Impervious core

Height - 134 feet

Length - 3,050 crest length

Outlet Works: Gated conduits

30,000 cfs maximum discharge

Embankment: Rolled earth fill

Spillway: Type - Detached, overflow concrete, 1,000 feet wide,

578,000 cfs maximum design discharge.

Basin Capacity: 362,000 acre-feet

LOWER SANTA ANA RIVER:

Channel: - 200-450 feet wide,

34 bridges replaced or modified

Relocate sewage and brine line (SARI) Santa Ana River Interceptor Line

- 5.0 miles trapezoidal concrete

- 2.4 miles rectangular concrete

- 15.5 miles trapezoidal grouted riprap

- 0.8 miles rectangular concrete/soft bottom

Lands & Damages: Acres - 2,429.5 for channel (7.4 miles floodway)

Mitigation Lands: Acres - 92-marsh restoration

RECREATION FACILITIES:

LOWER SANTA ANA RIVER: Bicycle/equestrian trail - 32 miles

SANTIAGO CREEK: Trails - Bicycle and equestrian (1 mile)

Rest stop - Concrete bicycle wheel stops

SEVEN OAKS TO PRADO DAM: To be developed

SAN TIMOTEO CREEK – To be developed

SAN TIMOTEO CREEK:

Channel: 5.4 miles trapezoidal concrete

Basins: 18 in-channel and transition chute

Lands & Damages: 60.3 acres for rights-of-way

7 May 2009

JUSTIFICATION: Construction of this project will primarily provide protection to lands and improvements within Orange County downstream of Prado Reservoir. A severe flood threat exists in this area, which could cause damages in excess of \$15 billion and could endanger and disrupt the lives of over three million people living or working in the floodplain. Damages upstream of Prado Reservoir could exceed \$450 million. The overflow area comprises 160 square miles of primarily urban development in 15 cities including San Bernardino, Riverside, Anaheim, Orange, Santa Ana, Fountain Valley, Costa Mesa, Huntington and Newport Beach. The greatest potential damage area is the Orange County floodplain below Prado Dam. The flood of 1938 is the largest that has been recorded since accurate stream gages were placed in the basin. With a peak flow at Riverside Narrows of approximately 100,000 cubic feet per second, the flood covered thousands of acres of then predominantly rural Orange County. Although the area was largely agricultural at the time, the flood caused \$4 million in damages (\$138 million at 2008 prices). Following this storm, Prado Dam was constructed at the head of the Santa Ana Canyon, providing effective control of floods for much of the downstream basin. In 1969, when communities upstream of Prado Dam suffered \$85 million in damages, Prado Dam prevented an estimated \$525 million in damages to downstream communities. With current development, damages for a similar flood would be approximately \$4.2 billion, at 2008 prices. Without the project, the level of protection downstream of Prado, primarily in Orange County, is approximately 70 years. With the project, the level of protection downstream of Prado would be increased to 190 years.

Average annual benefits are as follows:

Annual Benefits	Amount
Flood Damage Prevention	\$ 231,801,000
Recreation	282,000
Total	\$ 232,083,000

FISCAL YEAR 2009: Funds are being used to fully fund construction for the Prado Dam embankment and outlet works, continue design on Reach 9 and Prado interior Dikes, continue the Seven Oaks Dam water quality study and San Timoteo Creek landscape monitoring.

FISCAL YEAR 2010: The requested amount will be used to:

Fully fund construction for Reach 9 Phase 2B	\$21,000,000
Fully fund mitigation for Reach 9 Phase 2B & 2A	9,000,000
Fully fund mitigation at Seven Oaks Dam	8,000,000
Initiate construction for Reach 9 Phase 2A	14,193,000
Total	\$52,193,000

7 May 2009

NON-FEDERAL COSTS: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsors must comply with the following requirements listed below.

Requirements of Local Cooperation and Project Cooperation	Payments During Construction And Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation and Replacement Costs
<p>Santa Ana River Mainstem: Provide lands, easements, rights-of-way, and borrow, excavated or dredged material disposal areas.</p>	\$ 157,000,000	
<p>Modify or relocate utilities, roads, bridges (except railroad bridges), and other facilities, where necessary for the construction of the project.</p>	166,000,000	
<p>Pay 5 percent cash of the costs allocated to flood control to bring the total non-Federal share of flood control costs to 31 percent, and bear all cost of operation, maintenance, repair, rehabilitation and replacement of flood control facilities.</p>	62,400,000	\$ 2,194,000
<p>Pay one-half of the separable costs allocated to recreation and bear all costs of operation, maintenance, repair, rehabilitation and replacement of recreation facilities.</p>	1,000,000	6,000
<p>Reimburse 100 percent of the Federal funds, loaned to the sponsor for work on San Timoteo Creek, within a period of 30 years following the completion of the project, in accordance with section 103 (k) of the Water Resources Development Act of 1986.</p>	6,000,000	
<p>Prado Dam: Provide lands, easements, rights-of-way, and borrow, excavated or dredged material disposal areas.</p>	335,000,000	
<p>Modify or relocate utilities, roads, bridges (except railroad bridges), and other facilities, where necessary for the construction of the project.</p>	16,500,000	
<p>Pay 5 percent cash of the costs allocated to flood control to bring the total non-Federal Share of flood control costs to 50 percent, and bear all costs of operation, maintenance, Repair, rehabilitation and replacement of flood control facilities.</p>	32,000,000	200,000
<p>Estimated reimbursement to local sponsor for LERRDS in excess of 45 percent of total project costs for flood control, subject to availability of funds.</p>	(69,000,000)	

7 May 2009

Total Non-Federal Costs

\$ 707,900,000

\$ 2,400,000

The non-Federal sponsors have also agreed to make all required payments concurrently with project construction.

STATUS OF LOCAL COOPERATION: Orange, San Bernardino, and Riverside Counties are the local sponsors. In accordance with Memorandum of Agreement executed on 6 December 1987, Orange County contributed \$3 million to assure the project design schedule was maintained. Orange County has received credit for those funds towards their share of the project costs during construction. In addition, Orange County worked with California Department of Transportation (CALTRANS) to relocate some key bridges in Fiscal Year 1988, in advance of project construction. On 14 December 1989, the Local Cooperation Agreement was executed in compliance with the requirements of the Water Resources Development Act of 1986. A supplemental Local Cooperation Agreement was executed on 1 July 1994 for San Timoteo Creek. A draft Local Cost Sharing Agreement for recreation on Santiago Creek has been reviewed and approved by the local sponsor, Orange County, and the Orange County Department of Harbors, Beaches and Parks. Schedules for executing a Project Cooperation Agreement and programming this work are being determined. On 30 June 1997, the Assistant Secretary of the Army (Civil Works) approved Prado Dam as a separable element. On 30 June 1997, direction was given by the Assistant Secretary of the Army (Civil Works) to proceed in accordance with Section 309 (Water Resources Development Act of 1996) to modify the existing Local Cost Sharing Agreement to reflect this determination and the non-Federal cost-sharing be modified in accordance with section 103(a) (3) of Water Resources Development Act of 1996. A Project Cooperation Agreement for Prado Dam was executed in February 2003.

The current non-Federal cost estimate of \$707,900,000, which includes a cash contribution of \$94,000,000, is an increase of \$179,900,000 from the non-Federal cost estimate of \$528,000,000 noted in the current amended Local Cooperation Agreement dated February 2003, which included a cash contribution of \$59,306,000. Analysis of the non-Federal sponsors' financial capability to participate in the project affirms that Riverside and San Bernardino Counties still have a reasonable plan for meeting their financial commitments. On 30 June 1997, the Assistant Secretary of the Army (Civil Works) approved Prado Dam as a separable element. On 30 June 1997, direction was given by the Assistant Secretary of the Army (Civil Works) to proceed in accordance with Section 309 (Water Resources Development Act of 1996) to modify the existing Local Cost Sharing Agreement to reflect this determination and the non-Federal cost-sharing be modified in accordance with section 103(a) (3) of Water Resources Development Act of 1996. Construction of this project will primarily provide protection to lands and improvements within Orange County downstream of Prado Reservoir.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of \$1,171,100 is an increase of \$1,300,000 from the latest estimate (\$1,169,800,000) presented to Congress (FY 2009). This change includes the following items.

Item	Amount
Price leveling, inflation and other adjustments (including contingency adjustments)	\$1,300,000
Total	\$1,300,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement was filed with the Environmental Protection Agency in June 1989. The Records of Decision (ROD) for Prado Dam and San Timoteo Creek Reach 3B were executed in January 2002.

7 May 2009

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in FY 1979, and funds to initiate construction were appropriated in FY 1990.

An agreement with Fish and Wildlife Service on Section 7 consultations for endangered species (Eriastrum below Seven Oaks and Least Bell's Vireo at Prado Dam) was reached on the number of acres for mitigation. The final biological opinion necessary for formal conclusion of the consultation was received from Fish and Wildlife Service 22 June 1989.

Coordination with the U.S. Fish and Wildlife Service and the California Department of Fish and Game was initiated early in the planning of alternatives and completed 30 March 1989, which produced a Fish and Wildlife Service Coordination Act Report that was included in the Environmental Impact Statement. These agencies had a role in the determination of project associated impacts as well as mitigation needs and opportunities. Estimated fish and wildlife mitigation costs for Seven Oaks Dam are \$8,600,000 (\$6,450,000 Federal and \$2,150,000 non-Federal), for San Timoteo are \$2,743,000 (\$2,725,000 Federal and \$18,000 non-Federal) and for Lower Santa Ana are \$6,713,000 (\$6,537,000 Federal and \$176,000 non-Federal.)

An agreement was signed on 21 September 1989, in accordance with Section 215 of the Flood Control Act of 1968, to permit Orange County to undertake early partial construction of the Santiago Creek improvements in conjunction with other improvements they are planning for water supply, and to be credited for applicable project construction.

Section 104 of the Energy and Water Development Appropriation Act of 1988 authorized "...San Timoteo Creek in the vicinity of Loma Linda for construction as part of the Santa Ana River Mainstem including Santiago Creek Project... the benefits and costs of the San Timoteo project shall be included together with the benefits and costs of the Santa Ana Mainstem including Santiago Creek. The total costs for the Santa Ana Mainstem, including Santiago Creek, is to be raised by \$25,000,000." A special report was approved in May 1994; engineering and design was initiated in Fiscal Year 1991 with funds appropriated for that purpose. Construction was initiated in August 1994 with funds specifically identified in Act Language through 2006 for a total of \$78,400,000.

As a result of local sponsor activities to develop a more environmentally sensitive design for Reach 3, such as a soft-bottom channel, the remainder of the project has been redesigned as Reach 3A (extending to just upstream of Barton Road) and Reach 3B (the remainder of the channel and the in-channel debris control structures). The non-Federal Sponsor agreed to continue with Reach 3A as per the original design. The Corps with the local Sponsor developed an alternative plan for Reach 3B. Construction of the alternative plan for Reach 3B has been completed.

Section 103 (k) of Water Resources Development Act of 1986, authorized reimbursement with interest over time by non-Federal sponsor over a period of not more than thirty years from the date of completion of the project, to be determined on an individual basis. A supplemental local cooperation agreement concerning the San Timoteo Creek feature was approved in April 2001 and a total of \$6,000,000 has been loaned to date for that particular feature.

The project was modified by the Water Resources Development Act of 1990, which authorized the Secretary to develop recreational trails and facilities on lands between Seven Oaks Dam and Prado Dam, including flood plain management areas. These features are not included in the current estimate pending development of plans and determination of costs.

7 May 2009



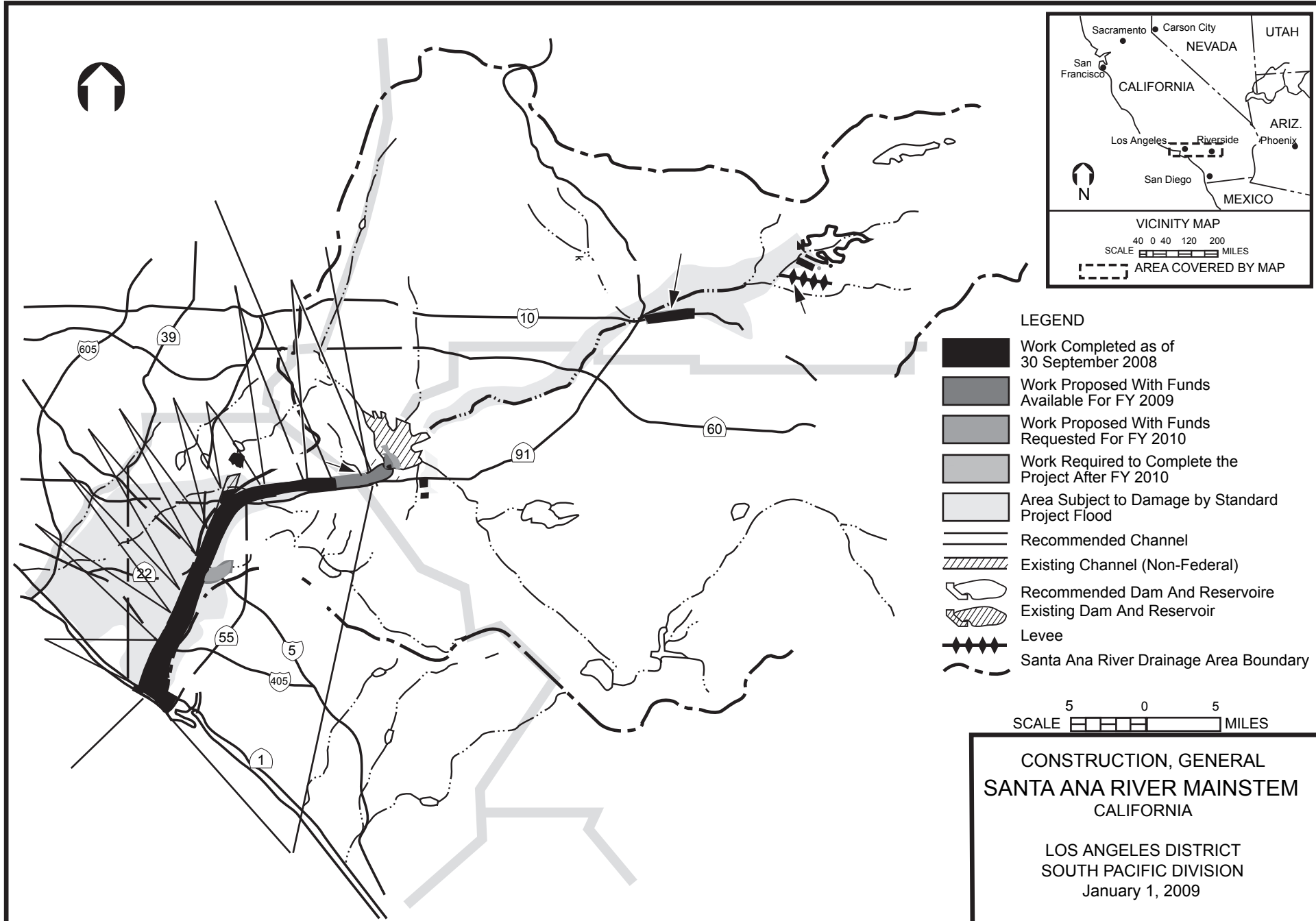
OTHER INFORMATION (Continued)

The project was modified by the Water Resources Development Act of 1996, which authorized the Secretary in coordination with the State of California, to provide technical assistance to Orange County, California, in developing appropriate public safety and access improvements associated with a portion of California State Route 71, which has been relocated for the Prado Dam project.

Total Lands, Easements, Rights of Ways, Relocations and Disposals (LERRD) for the Prado Dam project is being estimated above 45 percent of the total project cost for flood control. Upon completion of the project and final accounting, the government, subject to availability of funds, shall reimburse the Non-Federal sponsor for any such value in excess of 45 percent of total project costs to bring the ultimate cost sharing to 50 percent Federal and 50 percent Non-Federal for the Prado Dam Project.

The full operation of Prado Dam at the designed release flow of 30,000 cubic feet per second will be contingent upon completing the relocation of the Santa Ana River Interceptor Line (SARI) and the lower river channel. Congressional language in the Water Resources Development Act of 2007 increased the project cost to \$1,800,000,000 and included the SARI line as an authorized element of the project. This authority sufficiently increased the 902 maximum authorized total project cost to cover the added SARI line relocation, which is a 100% non-federal cost.

7 May 2009



APPROPRIATION TITLE: Construction - Flood Control

PROJECT: South Sacramento County Streams, California (Continuing)

LOCATION: The South Sacramento County Streams drainage basin lies south and east of the city of Sacramento. Most of the basin is situated in the Sacramento Valley. The eastern-most parts of the basin are in the lower foothills of the Sierra Nevada. A portion of the basin lies within the Sacramento city limits, south of the city center.

DESCRIPTION: The selected plan would include the following principal flood control features: raising and extending the ring levee around the Sacramento Regional Water Treatment Plant (SRWTP); raising the Beach Stone Lakes and Morrison Creek levees; installing floodwalls (using sheet pile) on Morrison Creek, Elder Creek, Florin Creek and Unionhouse Creek, and retrofitting bridges to lower risk of failure due to flooding. Recreation features include a bicycle and pedestrian trail. Restoration of ecosystem at five sites would increase water quality to open water environments and enhance and expand wetlands, riparian vegetation, grasslands, and woodlands.

AUTHORIZATION: Water Resources Development Act of 1999, Sec. 101(a)(8)

REMAINING BENEFIT-REMAINING COST RATIO: 3.93 to 1 at 7 percent.

TOTAL BENEFIT-COST RATIO: 3.9 to 1 at 7 percent.

INITIAL BENEFIT-COST RATIO: 3.9 to 1 at 6 5/8 percent (FY2002)

BASIS OF BENEFIT-COST RATIO: Benefits are from the latest available evaluation contained in the limited Reevaluation Report dated December 2004 (October 2003 price level)

SUMMARIZED FINANCIAL DATA		ACCUM PCT OF EST FED COST	STATUS (1 JAN 2009)	PCT CMPL	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost	\$ 67,500,000		Entire Project	45	TBD
Estimated Non-Federal Cost	\$ 36,800,000				PHYSICAL DATA
Cash Contribution	\$24,273,000				Beach Stone Lakes
Other Costs	5,334,000				Floodwalls: .4 mile
Section 104 Credit	7,193,000				Levee Raising: 4.0 miles
					New Levee: 1.3 miles
Total Estimated Project Cost	\$104,300,000				Levee improvement: 2.0 miles
					Morrison Creek
					Levee raising: .6 miles
					Levee improvement: 3.8 miles

7 May 2009

PHYSICAL DATA (CONTINUED)

Floodwalls: 3.8 miles  
 Florin Creek  
 Floodwalls: 3.8 miles  
 Elder Creek  
 Levee improvement: 1.0 miles  
 Floodwalls: 2.6 miles  
 Unionhouse Creek  
 Levee improvement: .9 miles  
 Floodwalls: 2.0 miles  
 Bridge Retrofits  
 Ecosystem Restoration: 266 acres of emergent wetlands, riparian woodland, oak savannah woodland, and perennial grasslands. Recreation features: 4.5 mile paved bicycle and pedestrian trail with signs, fencing, and benches.

SUMMARIZED FINANCIAL DATA (Continued)		ACCUM PCT OF EST FED COST	STATUS (1 JAN 2009)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Allocations to 30 September 2006	\$ 18,094,800				
Allocations for FY 2007	13,500,000				
Allocations for FY 2008	10,537,000				
Conference Allowance for FY 2009	12,000,000				
Allocation for FY 2009	12,000,000				
Allocations through FY 2009	54,131,800	80			
Allocation Requested for FY 2010	2,500,000	84			
Programmed Balance to Complete After FY 2010	TBD				

JUSTIFICATION: Significant portions of the area were flooded in 1952, 1955, 1962, 1963, 1967, 1969, 1973, 1982, 1986, 1995, and 1997. In January 1995, the most intense rainfall recorded in the watershed, resulted in record flows on Morrison Creek, resulting in flows near or exceeding the 1 in 100 annual event. Levee failure along Morrison, Unionhouse, Elder, and Florin Creeks and the SRWTP and Beach Stone Lakes levees could result in flooding of more than 14,000 acres. Approximately 41,000 structures are within the 500-year floodplain with an estimated value of \$5.6 billion. Significant development has occurred in the upper basin, in the Elk Grove area, which is increasing the runoff and potential for flooding. The population of the area is over 100,000 and flooding could result in loss of lives, mainly by drowning from rapid inundation in some areas of the flood plain. Once the floodwaters recede, there would be other impacts on public health and safety. The levees along Morrison Creek and tributaries provide less than a 100-year level of flood protection. The selected plan, known as the Consistent High Protection Plan, would provide a greater than 100 year level of protection to all index areas, including Morrison, Elder, Florin and Unionhouse Creeks and to the

JUSTIFICATION (Continued)

Beach Stone Lakes and SRWTP levees. A 100 year event would result in nearly \$715 million in damages (existing conditions) and more than \$2 billion in damages for a 500 year event.

The average annual benefits at October 2003 price levels are as follows:

Annual Benefits	Amount
Flood Control	\$23,600,000
Recreation	141,000
Environmental Restoration	0 1/
Total	\$23,741,000

1/ Ecosystem restoration benefits are not measured in dollars.

FISCAL YEAR 2009: The current amount is being applied as follows:

Award Design Contracts	\$ 4,500,000
Construction Contract Mods 1B2 (Florin, Elder and Unionhouse Creeks Channel Improvements)	1,500,000
Award Mitigation Contract	4,000,000
Relief Well Maintenance	250,000
Complete Post Authorization Change Document	750,000
Planning, Engineering and Design	600,000
Construction Management	400,000
Total	\$12,000,000

FISCAL YEAR 2010: The requested amount will be applied as follows:

Award Construction Contract 2B (Floodwall along Union Pacific Railroad)	\$2,000,000
Engineering and Design During Construction	300,000
Construction Management	200,000
Total	\$2,500,000

NON-FEDERAL COSTS: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, as amended by Section 202(a) of the Water Resources Development Act of 1996, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation Maintenance, Repair, Rehabilitation, and Replacement Costs
Provide lands, easements, rights of way, and borrow and excavated or dredged material disposal areas.	\$ 4,241,000	\$
Modify or relocate utilities, roads, bridges (except railroad bridges), and other facilities, where necessary for the construction of the project.	1,088,000	
Receive credit for prior work accomplished IAW section 104 of WRDAS 86	7,193,000	
Pay 21 percent of the costs allocated to flood control and environmental restoration to bring the total non-Federal share of flood control and environmental restoration costs to 35% and bear all costs of operation, maintenance, repair, rehabilitation, and replacement of flood control and environmental restoration facilities.	23,400,000	413,000
Pay one-half of the separable costs allocated to recreation and bear all costs of operation, maintenance, repair, rehabilitation and replacement of recreation facilities.	878,000	42,000
Total Non-Federal Costs	\$ 36,800,000	\$ 455,000

The non-Federal sponsor has also agreed to make all required payments concurrently with project construction.

STATUS OF LOCAL COOPERATION: The State of California Central Valley Flood Protection Board, in conjunction with the Sacramento Area Flood Control Agency (SAFCA), will act as the non-Federal sponsor for the flood control features of the project. The current non-Federal cost estimate of \$36,800,000 includes a cash contribution of \$24,273,000. As provided in Section 104 of the Water Resources Development Act of 1986 (PL 99-662), SAFCA applied for credit against their share of the design and construction cost of the project for work carried out after the reconnaissance phase consistent with the ultimately authorized plan. On

STATUS OF LOCAL COOPERATION: (Continued)

September 12, 1996, the Assistant Secretary of the Army (Civil Works) approved potential credit for SAFCA, estimated at \$7.1 million. The Section 104 credit amount approved by ASA (CW) in January 2006 was \$7,193,252. On January 15, 1998, SAFCA passed a resolution adopting the Consistent High Protection Plan as the locally preferred plan and indicated their intent to participate as the non-Federal sponsor. This plan would provide a consistent level of protection throughout the study area. SAFCA, along with the State of California Central Valley Flood Protection Board, has established a fund to mitigate project-related hydraulic impacts downstream in the Beach Stone Lakes and Point Pleasant areas. This fund would be approximately \$2 million and be borne 100 percent by the non-Federal sponsor.

The Project Cooperation Agreement (PCA) for environmental restoration was signed 18 September 2003 and the PCA for flood control was signed 20 May 2005. The sponsor has a reasonable plan for implementation to meet its financial commitment.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of \$67,500,000 reflects an increase of \$6,400,000 from the latest estimate (\$61,100,000) presented to Congress (FY 2009). This change includes the following items.

Item	Amount
Price Escalation on Construction Features	\$6,400,000
Total	\$6,400,000

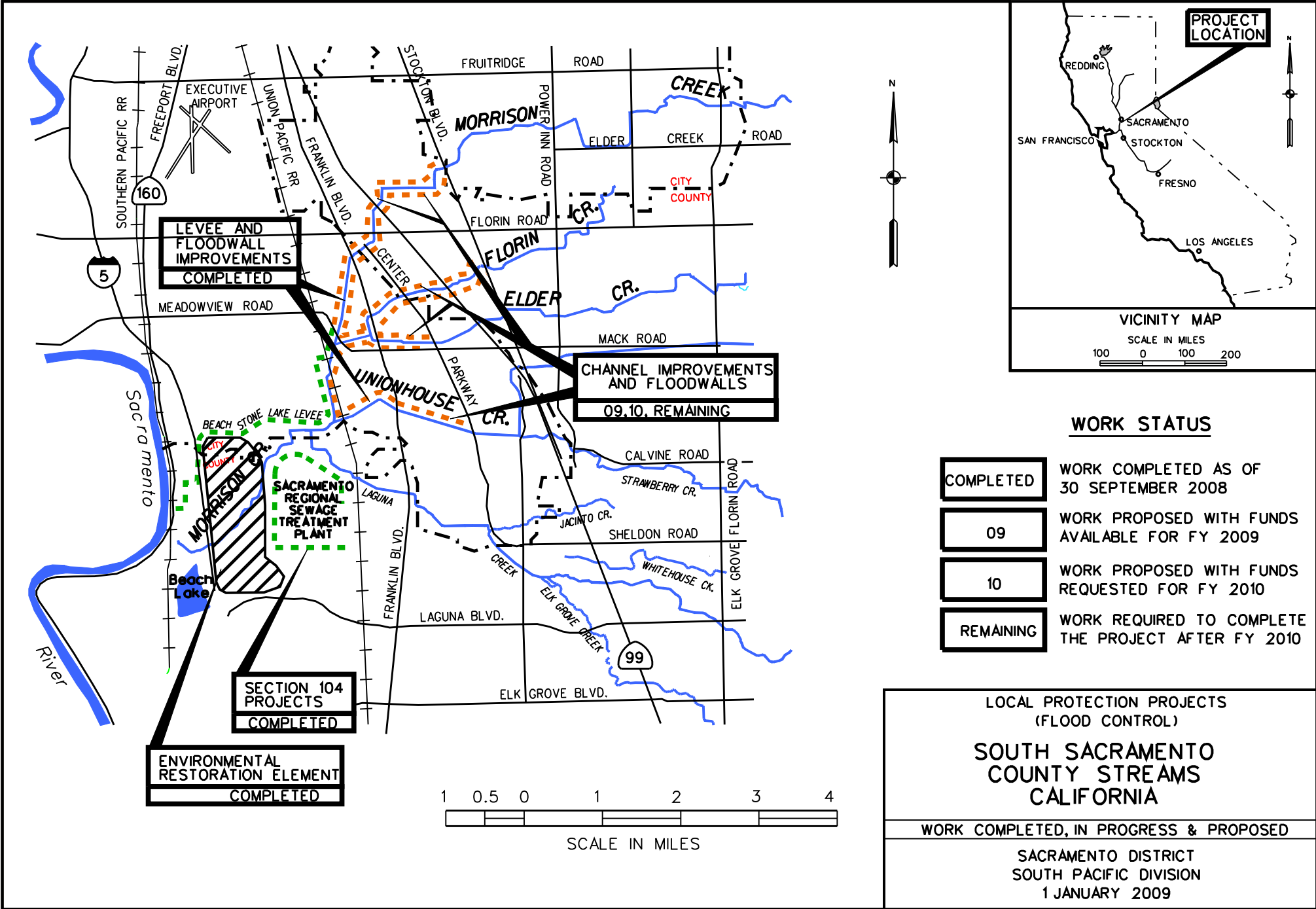
STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The Final Environmental Impact Statement/Environmental Impact Report was filed with EPA on 15 May 1998. A finding of No Significant Impact regarding the revised design was signed 16 December 2004.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in FY 1998 and funds to initiate construction were appropriated in FY 2002. The initial construction contract (contract 1A) for the lower reaches of the project from the Union Pacific Railroad to the Sacramento River was awarded on June 14, 2005.

The restoration monitoring contract was completed in FY2008.

Due to unforeseen complications in a highly urbanized area; limited access to the construction site and competing interests creating encroachment issues, the total project cost is being updated and will exceed the Section 902 limit. Reauthorization will be required. A Post Authorization Change Report is being prepared to quantify the amount of additional authorization required to complete the project.

Fish and wildlife mitigation costs are currently estimated at \$1,536,000.



**WORK STATUS**

<b>COMPLETED</b>	WORK COMPLETED AS OF 30 SEPTEMBER 2008
<b>09</b>	WORK PROPOSED WITH FUNDS AVAILABLE FOR FY 2009
<b>10</b>	WORK PROPOSED WITH FUNDS REQUESTED FOR FY 2010
<b>REMAINING</b>	WORK REQUIRED TO COMPLETE THE PROJECT AFTER FY 2010

**LOCAL PROTECTION PROJECTS  
(FLOOD CONTROL)  
SOUTH SACRAMENTO  
COUNTY STREAMS  
CALIFORNIA**

**WORK COMPLETED, IN PROGRESS & PROPOSED**

SACRAMENTO DISTRICT  
SOUTH PACIFIC DIVISION  
1 JANUARY 2009



APPROPRIATION TITLE: Construction - Dam Safety Assurance

PROJECT: Success Dam and Reservoir, Tule River, California - Dam Safety Seismic Remediation (Dam Safety Assurance) (Continuing)

LOCATION: The project area is located in Tulare County within the 12,500 square-mile Tulare Lake Basin in the southeastern portion of the San Joaquin Valley about 60 miles north of the city of Bakersfield, California. The Tule River drains about 390 square miles into Success Lake and flows from the lake on to the valley through the city of Porterville, and continues another 25 miles through agricultural areas.

DESCRIPTION: A Dam Safety Assurance Program (DSAP) Evaluation Report recommends remedial treatment at Success Dam to prevent foundation liquefaction that could lead to a catastrophic failure of the dam.

AUTHORIZATION: Section 10 of the 1944 Flood Control Act

REMAINING BENEFIT-REMAINING COST RATIO: N/A

TOTAL BENEFIT-COST RATIO: N/A

BASIS OF BENEFIT-COST RATIO: N/A

SUMMARIZED FINANCIAL DATA		ACCUM PCT OF EST FED COST	STATUS (1 JAN 2009)	PCT CMPL	PHYSICAL COMPLETION SCHEDULE
Estimated Appropriation Requirements (COE)	\$500,000,000		Entire Project	Not Started	TBD
Future Non-Federal Reimbursement	7,200,000		PHYSICAL DATA		
Estimated Federal Cost (Ultimate)	492,800,000		Dam-earthfill		
Estimated Non-Federal Cost	7,200,000		Gated outlet conduit		
Cash Contribution	\$ 0		Uncontrolled spillway 200 feet wide		
Other Costs	0		Crest length 3,404 feet (Abutment to Abutment)		
Reimbursements	7,200,000		Crest width 22.5 feet		
Total Estimated Project Cost	\$500,000,000				
SUMMARIZED FINANCIAL DATA (Continued)					
Allocations thru 30 September 2006	\$16,722,700	1/			
Allocation for FY 2007	20,000,000				

7 May 2009

Allocation for FY 2008	2,198,000	2/
Conference Allowance for FY 2009	0	
Allocation for FY 2009	0	
Allocations through FY 2009	38,920,700	8
Allocation Requested for FY 2010	10,000,000	10
Programmed Balance to Complete after FY 2010	TBD	3/

1/ Includes \$344,000 for PED funded under the Operations and Maintenance Appropriation.

2/ Includes \$6,800,000 reprogrammed from the project and \$2,810,000 revoked from the project in accordance with P.L. 111-8 (Omnibus Appropriations Act).

3/ Non-federal sponsor has up to 50 years to repay their share of project costs; therefore appropriations for entire project cost must be programmed.

JUSTIFICATION: Success Dam and Reservoir is located on the Tule River about 5 miles east and upstream of the town of Porterville, Tulare County, California. Construction of the main dam and appurtenances was begun during October 1958. The project was certified complete and accepted by the Government for operation on 15 May 1961. The total first cost of the project is approximately \$14,247,000 (1961 dollars). The project lies within Seismic Zone 3 (major seismic hazard), and is operated and maintained under the jurisdiction of the US Army Corps of Engineers, Sacramento District. The main dam is a rolled earthfill structure with a maximum height of 142 feet and is 3,404 feet long.

A 1983 report, "Dynamic Analysis of Success Dam, Success Reservoir, Tule River, California" (US Army Corps of Engineers, Sacramento District, June 1983), concluded that Success Dam would perform adequately in the event of a Maximum Credible Earthquake as required by criteria in the US Army Corps of Engineers, Engineering Regulation for Earthquake Design and Evaluation for Civil Works (ER 1110-2-1806) dated 16 May 1983. Review of the Dynamic Analysis report determined that there was considerable uncertainty about the amount of actual deformation the dam would experience under seismic loading. However, the dam was deemed safe due to the available freeboard of 39 feet when the reservoir is at gross pool. In June 1992, a Technical Review Conference (TRC) reexamined the 1983 report and concluded that the 1983 study was representative of accepted engineering practices at the time of its completion. However, the TRC recognized that recent advances allowed better understanding of the alluvial soils present in the foundation of Success Dam and recommended further studies be performed to update the seismic evaluation.

#### JUSTIFICATION (Continued)

These recent studies concluded that a Maximum Credible Earthquake would cause extensive loss of strength, slope instability, and deformation over a section of the Success Dam embankment. This damage may be sufficient to result in an uncontrollable loss of the reservoir pool through a breach in the embankment.

Similar damage levels may also result from lesser earthquake events. Any breach of the dam should be expected to result in loss of life and damages estimated at \$941 million (2004 prices).

The Lower Tule River Irrigation District has been identified as the primary non-Federal cost-sharing sponsor based on their conservation use of the project.

FISCAL YEAR 2009: Carryover funds will be used to continue Planning, Engineering, and Design.

FISCAL YEAR 2010: The requested amount will be applied as follows:

Planning, Engineering, and Design (Complete 90% DDR and Start 50% P&S)	3,000,000
Environmental mitigation	1,000,000
Real estate Acquisition and Relocations	6,000,000
<b>Total</b>	<b>\$10,000,000</b>

NON-FEDERAL COST: In accordance with the cost-sharing and financing concepts reflected in the Water Resources Development Act of 1986, as amended, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payment During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation, and Replacement Costs
Reimburse 15 percent of the costs of modification allocated to irrigation water supply (9.5% of total project cost) within a period of 30 years following completion of construction.	\$7,200,000	
<b>Total Non-Federal Costs</b>	<b>\$7,200,000</b>	

The non-Federal sponsor has agreed to reimburse its share of construction costs within a period of 30 years following completion of construction in accordance with Water Resources Development Act of 1986 and Public Law 98-404.

STATUS OF LOCAL COOPERATION: In accordance with the Water Resources Development Act of 1986 and Public Law 98-404 the sponsor is required to sign a Cost-Sharing Agreement with the Department of Interior prior to construction.

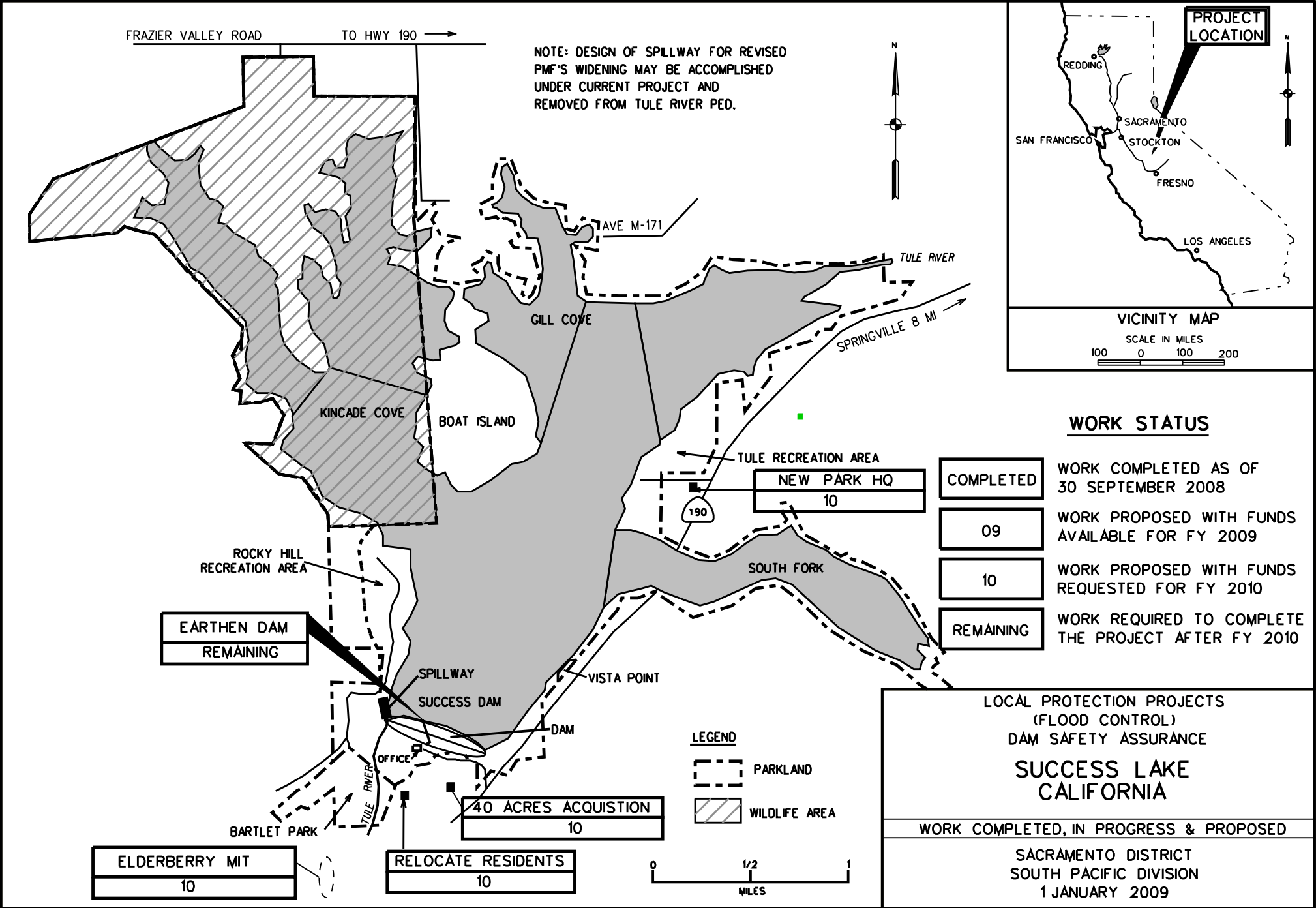
COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of \$500,000,000 is an increase of \$25,000,000 from the latest estimate (\$475,000,000) presented to Congress (FY 2009). The change includes the following item:

Item	Amount
Price Escalation on Construction Features	\$25,000,000
Total	\$25,000,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: A complete environmental assessment will be conducted prior to initiating remedial work.

OTHER INFORMATION: The Success Dam, Success Lake, Tule River, California Dam Safety Assurance Program Evaluation Report dated January 1999 was approved on 7 May 1999. Following approval of the report, preconstruction, engineering and design was initiated using Operations and Maintenance appropriation funding. Construction funds were initially appropriated in FY 2000.

A total estimated cost for the project is \$500,000,000, which includes construction, mid-point escalation and OMB inflation costs. In September 2008, the Sacramento District project delivery team recommended and the Dam Safety Committee approved the Downstream Modified Remediation Alternative. Continuing effort is dependent upon the approval of the Letter Report (Decision Document) by September 2009, and the signing of the Record of Decision by October 2009. As a result of the downstream modified embankment dam, approximately two Southern California Edison Transmission Line Towers will have to be removed. Carryover funds will be used in Fiscal Year 2010 for the design and construction of the new towers and will be used to award the construction contract of the new Park Headquarters.



APPROPRIATION TITLE: Construction, General – Beach Erosion Control

PROJECT: Surfside-Sunset and Newport Beaches (Orange County), California (Completion)

LOCATION: The project area is located 17 miles south of Los Angeles, along the upper coastline to Orange County, and extends 12.5 miles between Anaheim Bay and the Newport Beach pier on the coast of southern California south of Long Beach, in Orange County.

DESCRIPTION: The authorized project consists of construction of eight groins, construction of a single 2,600-foot long detached offshore rubblemound breakwater near the mouth of the Santa Ana River and approximately 17,300,000 cubic yards of sand beach fill with subsequent periodic beach nourishment once every 5 years of protection of the shore from Surfside Beach to Newport Beach, California. Work currently proposed is for the next phase (Stage 12) consisting of approximately 2.0 million cubic yards of beach nourishment at the Surfside Sunset feeder beach.

AUTHORIZATION: River and Harbor Act of 1962 and Water Resource Development Act of 2000, Section 551.

REMAINING BENEFIT - REMAINING COST RATIO: 2.0 to 1 at 7 percent.

TOTAL BENEFIT-COST RATIO: 7.0 to 1 at 7 percent.

INITIAL BENEFIT – COST RATION: 3.1 to 1 at 3.125 percent (FY 1966).

BASIS OF BENEFIT-COST RATIO: Based on the Chief of Engineer’s Report dated August 8, 1962.

SUMMARIZED FINANCIAL DATA			ACCUM PCT OF EST FED COST	STATUS (1 JAN 2008)	PCT CMPL	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost		\$38,047,000		Stages 1-5	100	Mar 1973
Estimated Non-Federal Cost		19,167,000		Stage 6	0	TBD
Cash Contributions	18,567,000			Stages 7-11	100	May 2002
Other Costs	600,000			Stage 12	0	TBD
Total Estimated Project Cost		57,214,000				

SUMMARIZED FINANCIAL DATA (Cont.)

		ACCUM PCT OF EST FED COST	STATUS (1 JAN 2008)	PCT CMPL	PHYSICAL COMPLETION SCHEDULE
Allocation to 30 September 2006	27,216,000				PHYSICAL DATA Groins: 8 varying from 470 to 600 feet in length Breakwater: Rubblemound: detached, about 2,600 feet long Beach Replenishment: 17,300,000 cubic yards
Allocation for FY 2007	1,200,000				
Allocation for FY 2008	8,238,000				
Conference Allowance for FY 2009	0				
Allocation for FY 2009	0				
Allocations through FY 2009	37,200,000	98			
Allocation Requested for FY 2010	847,000	100			
Programmed Balance to Complete after FY 2010	0				

JUSTIFICATION: Surveys show a net downcoast movement of about 300,000 cubic yards of beach sand on an average annual basis. To replace this loss, a feeder beach was established at the Surfside-Sunset Beach area for placement of 1.8 million cubic yards of imported sand every 5 years. The last beach replenishment at Surfside-Sunset Beach (Stage 11) was completed May 2002. Given the erosion rates at Surfside Colony, it is anticipated that the shoreline will require replenishment by the end of FY07, to prevent possible storm damages. Stage 12 will provide sand replenishment to the feeder beach, 12.5 miles of coastline, between Surfside Beach and Newport Beach. This will continue to provide protection to both public and private property. The increased beach size will result in great beach usage and recreational benefits. Estimated average annual benefits are as follows:

Annual Benefits	Amount
Beach Erosion Control	\$ 496,000
Recreational	76,000
Incidental Damages	12,000
Total	\$ 584,000

FISCAL YEAR 2010: The requested amount will be applied as follows:

Complete Construction of Stage 12	\$ 700,000
Engineering and Design	51,000
Construction Management	96,000
Total	\$ 847,000

NON-FEDERAL COST: In accordance with the cost-sharing and financing concepts reflected in the Water Resources Development Act of 1986, as amended, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payments During Construction And Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation and Replacement Costs
Pay 33 percent of the costs allocated to environmental restoration to bring the total non-Federal share of environmental restoration costs to 35 percent and bear 100 percent costs of operation, maintenance, repair, rehabilitation and replacement of environmental restoration facilities.	\$18,600,000	\$200,000 1/
Total Non-Federal Costs	\$18,600,000	\$200,000

1/ Exclusive of periodic beach replenishment.

The non-Federal sponsor has also agreed to make all required payments concurrently with project construction.

STATUS OF LOCAL COOPERATION: The State of California and Orange County provided the required assurances of local cooperation by resolutions dated 4 September 1963 and 18 September 1963, respectively, for construction of the project. In addition, local interests furnished contributed and advance funds for design and construction of the completed Stages 1 through 5, 7, 8, and 10 of the project. Cost sharing agreement with the County of Orange and the State of California Department of Boating and Waterways was executed 9 August 2001. An amendment to the Cost sharing agreement to include Stage 12 beach replenishment was negotiated.

Our analysis of the non-Federal sponsor's (State of California and Orange County) financial capability to participate in the project affirms that the sponsors have a reasonable plan for meeting the financial commitment.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of \$38,047,000 is a decrease of (-\$4,393,000) from the last estimate (\$42,440,000) presented to Congress (FY 2002). This change includes the following items.

Item	Amount
Post Contract Award and Other Estimating Adjustments for Stage 11	\$ 5,240,000
Total	5,240,000

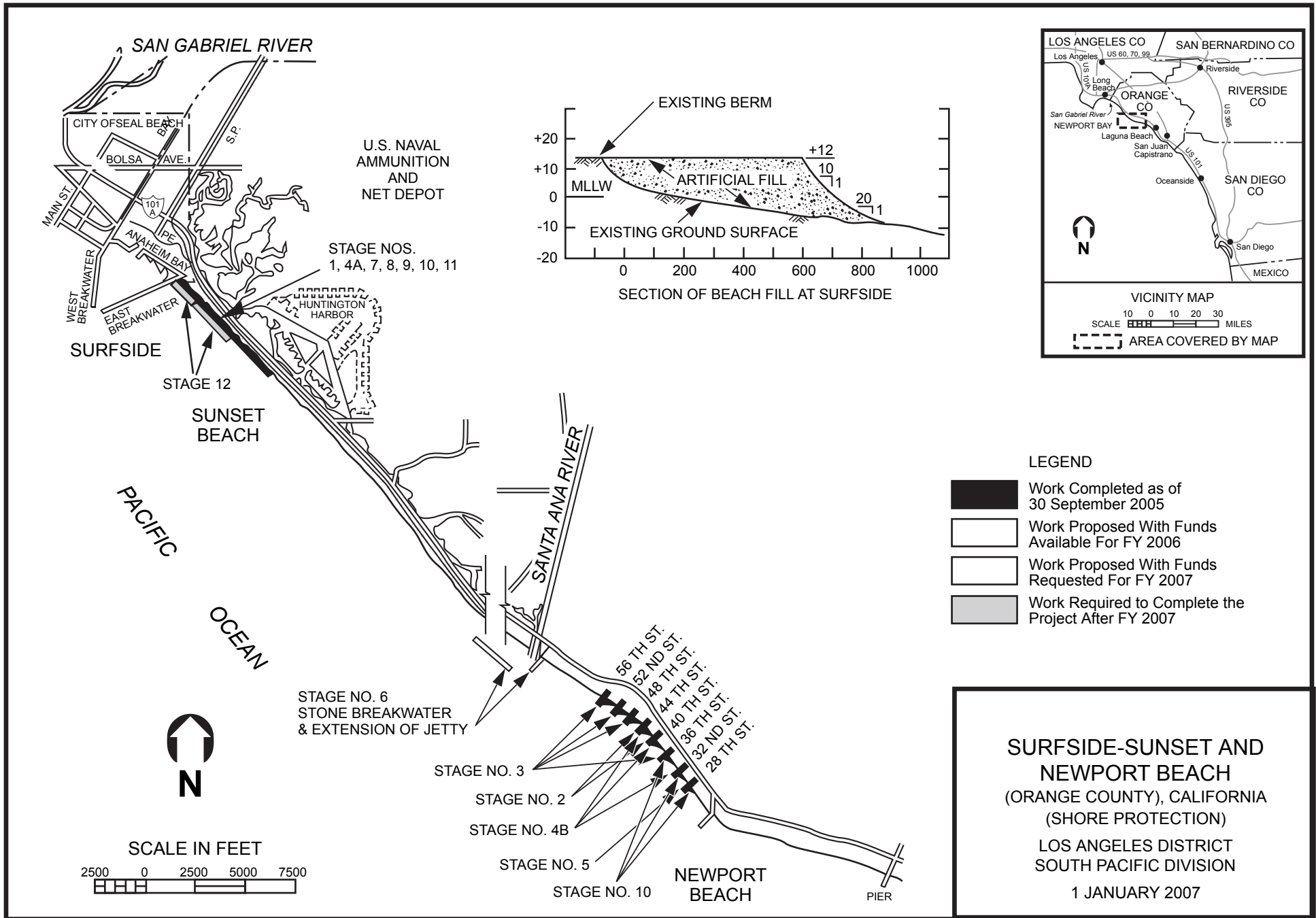


OTHER INFORMATION: Funds to initiate preconstruction planning and construction for the initial stage were advanced and contributed by local interests in FY 1964. Construction funds for the first stage were appropriated in FY 1966 for initial reimbursement to local interests.

Construction was accomplished as follows: Stage 1, beach replenishment along Surfside-Sunset Beach in June 1964; Stage 2, two groins and beach replenishment on Newport Beach in November 1968; Stage 3, four groins on Newport Beach in November 1969; Stage 4A, beach replenishment along Surfside-Sunset Beach in 1971; Stages 4B and 5, two groins, rehabilitation of two groins, and beach replenishment on Newport Beach in March 1973; and Stages 7, 8, 9, and 10 beach replenishment along Surfside-Sunset Beach in June 1979, April 1984, November 1990, and July 1997 respectively. Construction of Stage 11 was completed May 2002. To date, eight groins have been built.

Construction of Stage 6, a 2,600-foot detached breakwater, has been indefinitely postponed. The beach immediately down coast of Anaheim Bay (Surfside Colony) suffers the worst erosion in the project area. A study to conduct a preliminary assessment of cost-effective structural alternatives to reduce long-term beach nourishment costs was initiated in September 2000. Alternatives structure of Surfside-Sunset Beach will be further studied within the San Gabriel River to Newport Bay Study.

Section 551 of the Water Resource Development Act, 2000 redirects treatment of "the Surfside-Sunset and Newport Beach element of the project for beach erosion, Orange County, California, authorized by section 101 of the River and Harbor Act of 1962 (76 Stat. 1177), as continuing construction."



APPROPRIATION TITLE: Construction - Local Protection (Flood Control)

PROJECT: West Sacramento, California (Continuing)

LOCATION: The project is located in West Sacramento, Yolo County in north-central California.

DESCRIPTION: The project consists of raising 4.9 miles of levees up to 5.0 feet along the Sacramento and Yolo Bypasses; constructing concrete wing walls with stop logs at the Southern Pacific Railroad; constructing a concrete wing wall and flow cut-off wall on each side of Interstate 80; and developing approximately 40 acres of mitigation lands for riparian and upland habitat loss.

AUTHORIZATION: Water Resources Development Act of 1992 (P.L. 102-580), Sec. 101(4); Energy and Water Development Appropriations Act, 1999 (P.L.105-245)

REMAINING BENEFIT-REMAINING COST RATIO: Not applicable because project construction is substantially complete.

TOTAL BENEFIT-COST RATIO: 3.0 to 1 at 7 percent.

INITIAL BENEFIT-COST RATIO: 6.5 to 1 at 8-1/4 percent (FY 1995).

BASIS OF BENEFIT-COST RATIO: Benefits are from the latest available evaluation contained in the General Design Memorandum for West Sacramento, California, May 1995 at October 1994 price levels.

SUMMARIZED FINANCIAL DATA		ACCUM PCT OF EST FED COST	STATUS (1 JAN 2009)	PERCENT COMPLETE	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost		\$31,428,000 1/	Levees	75	
Estimated Non-Federal Cost		10,476,000	Mitigation	25	
Cash Contribution	\$8,017,000		Entire project	75	TBD
Other Costs	2,459,000				
Total Estimated Project Cost		\$41,904,000			

SUMMARIZED FINANCIAL DATA (Continued)

Allocations to 30 September 2006	\$24,055,000	
Allocation for FY 2007	0	
Allocation for FY 2008	4,373,000	
Conference Allowance for FY 2009	3,000,000	
Allocation for FY 2009	3,000,000	
Allocations through FY 2009	31,428,000	91
Allocation Requested for FY 2010	2,955,000	100
Programmed Balance to Complete after FY 2010	TBD	

PHYSICAL DATA

Sacramento Bypass, South Levee  
 Length: 1 mile  
 Maximum Height Increase: 3.0 feet  
 Yolo Bypass, East Levee  
 Length: 3.9 miles  
 Maximum Height Increase: 5.0 feet  
 Southern Pacific Railroad: Stop logs  
 Interstate 80: Wing walls and cut off walls

1/ Cost estimate is being revised; see "OTHER INFORMATION" below

JUSTIFICATION: Construction of this project will provide protection to lands, improvements, and 32,250 people (January 2001) in West Sacramento. Estimated damageable property in the floodplain is \$1.5 billion (Oct 2000 prices). Flooding in February 1986, in conjunction with subsequent updated hydrologic analyses, have shown that the existing level of flood protection is significantly less than previously thought and does not provide FEMA 100-year level of protection. Levee failure along the Yolo Bypass would release floodwater from the Sacramento River into the West Sacramento urban area, inundating industrial areas, two major highways, thousands of homes and thousands of acres of farmland. Average annual benefits, all flood risk management , amount to \$27.9 million.

FISCAL YEAR 2009: The current amount is being applied as follows:

Construction of Slump Repairs (south reach)	\$2,250,000
Planning, Engineering, and Design	500,000
Construction Management	250,000
<b>Total</b>	<b>\$3,000,000</b>

FISCAL YEAR 2010: The requested amount will be applied as follows:

Construction of Slump Repairs	\$2,205,000
Planning, Engineering, and Design	500,000
Construction Management	250,000
<b>Total</b>	<b>\$2,955,000</b>

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below.

	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation, and Replacement Costs
Requirements of Local Cooperation		
Provide lands, easements, rights of way, and borrow and excavated or dredged material disposal areas.	\$ 2,331,000	
Modify or relocate utilities, roads, bridges (except railroad bridges), and other facilities, where necessary for the construction of the project.	128,000	
Pay 19 percent of the costs allocated to flood control to bring the total non-Federal share of flood control costs to 25 percent, and bear all costs of operation, maintenance, repair, rehabilitation, and replacement of flood control facilities.	7,998,000	\$75,000
<b>Total Non-Federal Costs</b>	<b>\$10,457,000</b>	<b>\$75,000</b>

The non-Federal sponsor has also agreed to make all required payments concurrently with project construction.

STATUS OF LOCAL COOPERATION: The California State Reclamation Board is the non-Federal sponsor for the project. The Project Cooperation Agreement (PCA) was executed in May 1996. The sponsor has a reasonable and implementable plan for meeting its financial commitment.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of \$31,383,000 is an increase of \$13,683,000 from the latest estimate (\$17,700,000) presented to Congress (FY 2002).

Item	
Levee Repairs	\$11,000,000
Engineering and Design	2,183,000
Construction Management	500,000
<b>Total</b>	<b>\$13,683,000</b>

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The Final Environmental Impact Statement was filed with EPA in February 1992.

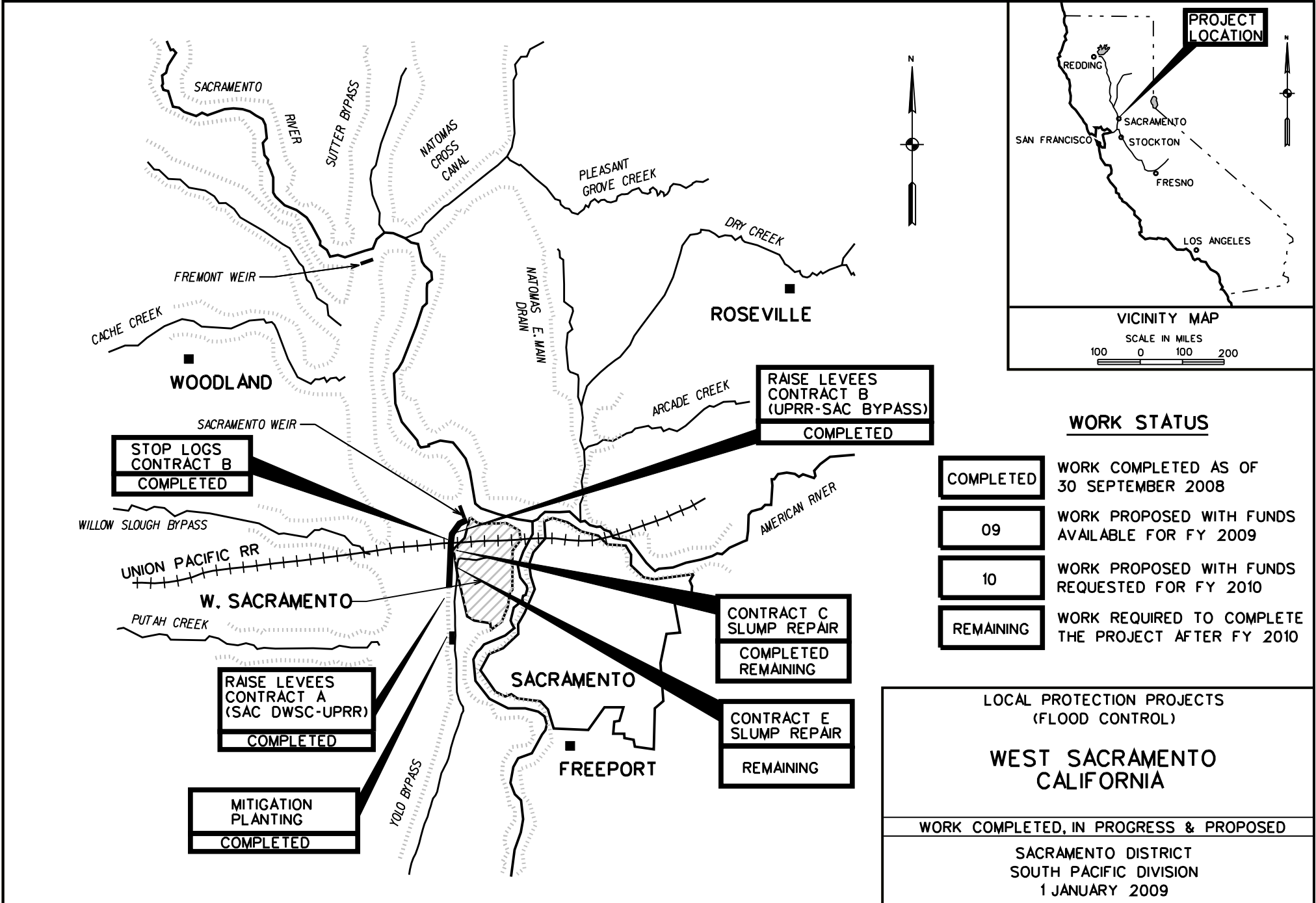
OTHER INFORMATION: Funds were appropriated in FY 1992 to initiate preconstruction engineering and design for the combined American River Watershed and Sacramento Metropolitan studies, and funds to initiate construction were appropriated in FY 1996. The two projects were separated when WRDA 92 authorized the West Sacramento Project (Sacramento Metropolitan) independently of the American River Watershed Project. Project was reauthorized under P.L. 105-245 at a total project cost of \$32,900,000.

Project levees were reconstructed in 1998 and during the flood events of January and April 2006, two slips occurred on the levees along the Yolo Bypass. The O&M manual was not complete at the time of the slips and therefore the built portion of the project had not been turned over to the local sponsor. The required Environmental Documentation Report (EDR) determined that the original recommended repair estimate, based on a California Department of Water Resources report, was not adequate. The repairs were determined to be more complex due to the extent of the damage to the levee resulting in higher costs

The Corps is preparing a Post Authorization Change Report to address the new Total Project Cost and determine if it exceeds the current authorized 902 limit.

The fish and wildlife mitigation cost is estimated at \$2.2 million.

The non-Federal sponsor has expressed a desire to perform a more thorough reevaluation of the entire levee system. A feasibility cost-share agreement will be prepared to cost share this feasibility study effort.



**WORK STATUS**

<b>COMPLETED</b>	WORK COMPLETED AS OF 30 SEPTEMBER 2008
<b>09</b>	WORK PROPOSED WITH FUNDS AVAILABLE FOR FY 2009
<b>10</b>	WORK PROPOSED WITH FUNDS REQUESTED FOR FY 2010
<b>REMAINING</b>	WORK REQUIRED TO COMPLETE THE PROJECT AFTER FY 2010

LOCAL PROTECTION PROJECTS (FLOOD CONTROL)

**WEST SACRAMENTO CALIFORNIA**

WORK COMPLETED, IN PROGRESS & PROPOSED

SACRAMENTO DISTRICT  
SOUTH PACIFIC DIVISION  
1 JANUARY 2009

# NAVIGATION



# CONSTRUCTION

APPROPRIATION TITLE: Construction, General - Channels and Harbors (Navigation)

PROJECT: Oakland Harbor, California (50-ft) (Continuing)

LOCATION: Oakland Harbor is located in the city of Oakland, California, on the eastern shore of central San Francisco Bay immediately south of the San Francisco-Oakland Bay Bridge.

DESCRIPTION: The project consists of deepening the 4 mile Inner Harbor and 3.4 mile Outer Harbor channels, including the respective turning basins, to 50 feet; widening of channels at various locations; and widening of the Inner and Outer turning basins. Approximately 12.8 million cubic yards of excavated dredged material will require disposal. The middle harbor enhancement area (MHEA) will use about 7 million cubic yards to create 190 acres of shallow water and sub-tidal habitat in an area no longer needed for navigation purposes; approximately 2.6 million cubic yards would be placed at the former Hamilton Army Airfield in Novato, California, as part of a separately authorized tidal wetlands restoration project; approximately 2.9 million cubic yards would be disposed at the existing Montezuma Wetlands Restoration Project (MWRP) in the northeast portion of Suisun Bay, and approximately 0.3 million cubic yards would be transported to the Vision 2000 upland site in the inner harbor. Previously authorized deepening of the 4 mile Inner Harbor and 3.4 mile Outer Harbor to 42 feet deep was completed in July 1998.

AUTHORIZATION: Section 101(a) (7) of the 1999 Water Resources Development Act

REMAINING BENEFIT - REMAINING COST RATIO: 10.4 to 1.0 @ 7 percent.

TOTAL BENEFIT - COST RATIO: 8.5 to 1.0 @ 7 percent.

INITIAL BENEFIT - COST RATIO: 8.1 to 1.0 @ 7 percent.

BASIS OF BENEFIT - COST RATIO: Benefits are from the latest available evaluation included in the Chief of Engineer's report approved in April 1999 at 1998 prices.

SUMMARIZED FINANCIAL DATA	ACCUM PCT OF EST FED COST	STATUS (1 Jan 2009)	PCT CMPL	PHYSICAL COMPLETION SCHEDULE
Estimated Appropriation Requirement (USACE)	\$239,640,000	Entire Project	90	TBD
Estimated Appropriation Requirement (USCG)	300,000			
Estimated Total Appropriation Requirement	239,940,000			

7 May 2009

PHYSICAL DATA

Estimated Non-Federal Cost	\$192,041,000
Cash Contribution	\$ 93,888,700
Other Costs	98,152,300

Channels: Deepen the 4 mile Inner Harbor and 3.4 mile Outer Harbor channels to 50 feet; Widen various locations.

Total Estimated Project Cost	\$427,630,000
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Turning Basins: Widen Inner and Outer Basins and deepen to 50 feet.

Habitat: Create 190 acres of shallow water and sub-tidal habitat.

Allocation to 30 September 2006	113,548,000	
Allocation for FY 2007	50,000,000	
Allocation for FY 2008	40,878,000	
Conference Allowance for FY 2009	25,092,000	
Allocation for FY 2009	25,092,000	
Allocation through FY 2009	229,518,000	97
Allocation Requested for FY 2010	1,000,000	97
Programmed Balance to Complete after FY 2010	TBD	
Unprogrammed Balance to Complete after FY 2010	TBD	

JUSTIFICATION: The Port of Oakland services about 85 percent of all general cargo moving through the Golden Gate, 95 percent of which is containerized. The existing Federal navigation channel serving Oakland Harbor is inadequate for efficient shipping operations and vessel safety as a result of increased vessel traffic and large containerships. Cargo movement by larger vessels is hampered by the need to load to less than full capacity and to wait for high tides to avoid grounding hazards. Annual tonnage handled by the Port amounted to approximately 30 million tons in 2005. The Port terminals are considered to be state-of-the-art. The plan of improvement will provide for further development of the harbors to accommodate the new generation of containerships, improve safety of vessel traffic and provide maximum efficiency of Port operations. The majority of ships presently using the Port have design drafts greater than 35 feet. Sixth generation vessels are now coming on line with drafts of 46 feet or greater (up to 48 feet at the present time). The deep draft fifth and sixth generation container ships experience tidal delays, with the result being that many of the shipping lines either bring those ships into Oakland only partially loaded or choose to bypass Oakland altogether. Limited deepening of the Inner Harbor portion of the project to -38 feet was completed in December 1992 and deepening of the Inner and Outer Harbors to -42 feet was completed in July 1998. Vessels may now depart the Port with some additional cargo, but must still arrive light-loaded. The remainder of the project is needed to allow safe and efficient utilization of the Port. Average annual benefits, all commercial navigation, are estimated at \$175,122,000 based on 2005 prices. Depths of 50 feet are required for users to efficiently call at the Port of Oakland presently and in the future.

FISCAL YEAR 2009: Current year funds will be used to:

Continue Dredging Phase 3E Contract	\$22,000,000
Planning, Engineering and Design	592,000
Construction Management	2,500,000
Total	\$25,092,000

FISCAL YEAR 2010: The requested amount of \$1,000,000 will be applied as follows:

Middle Harbor Geotechnical Analysis and Grading Plan	\$ 450,000
Planning, Engineering and Design	450,000
Construction Management	100,000
Total	\$1,000,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below:

	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation, and Replacement Costs
Requirements of Local Cooperation		
Provide lands, easements, rights of way, and dredged material disposal areas.	\$16,198,000	N/A
Modify or relocate utilities, roads, bridges (except railroad bridges) and other facilities, where necessary for the construction of the project.	10,000,000	N/A
In-Kind Credit for 50% of Section 203 expenditures for Feasibility Study and Project Coordination Team to be reimbursed during construction as detailed In Water Resources Development Act of 1986.	11,393,300	
Pay 25 percent of the costs allocated to general navigation features for deepening to 45 feet, and 50 percent of the costs allocated to general navigation features for deepening greater than 45 feet during construction, and pay 50 percent of the costs of incremental maintenance below 45 feet below mean low water.	71,420,800	\$694,000
Pay 25 percent of the costs for beneficial use of dredged material in accordance with Section 204 of the Water Resources Development Act of 1992.	29,617,900	N/A
Requirements of Local Cooperation (Continued)		

Pay 100% of the costs for local service facilities and berthing facilities.	49,360,000	N/A
Total Non-Federal Costs	\$187,990,000	\$694,000

The non-Federal sponsor has also agreed to make all required payments concurrently with project construction.

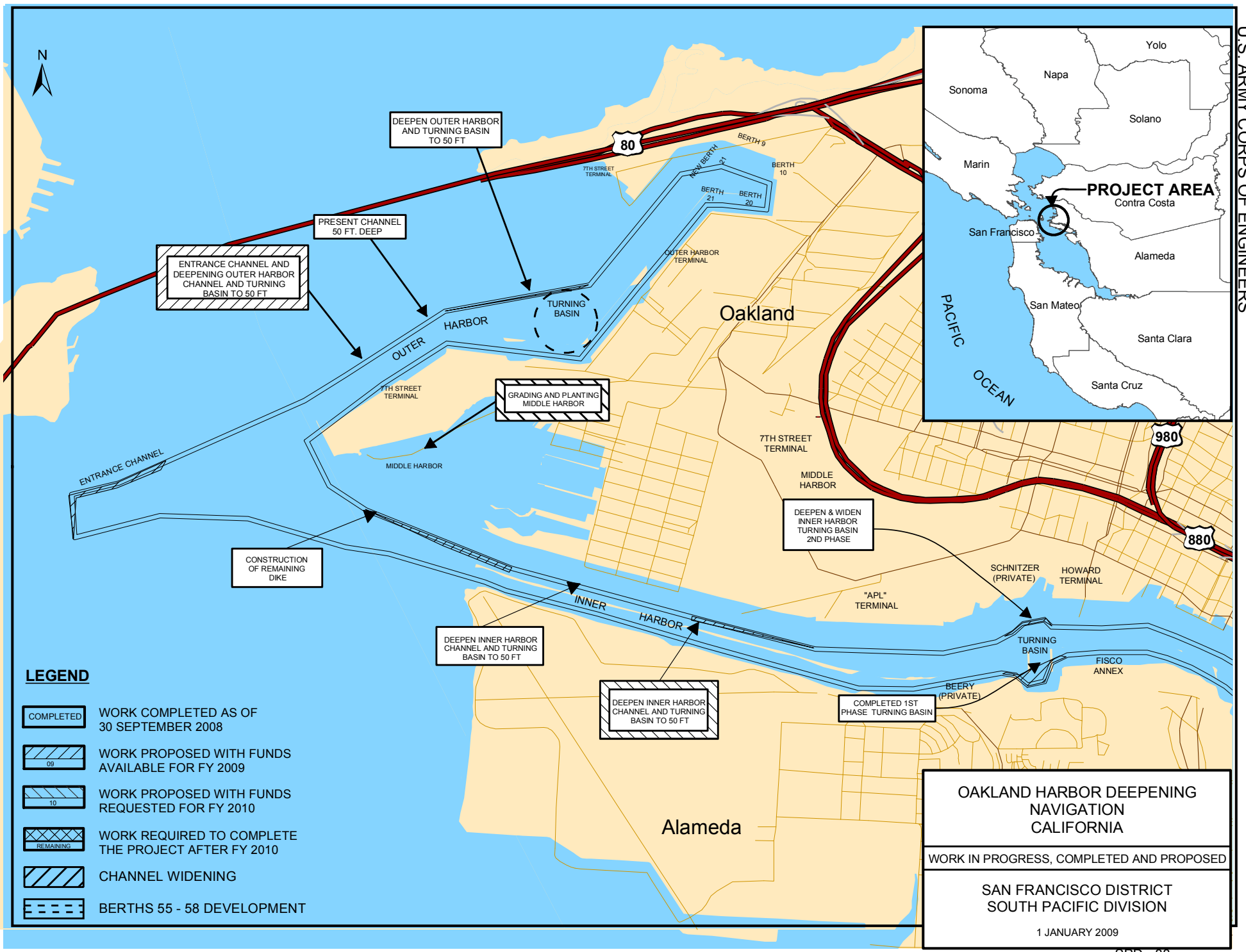
STATUS OF LOCAL COOPERATION: The non-Federal sponsor, the Port of Oakland, contributed full funding for the feasibility study of the 50 feet deepening of the Inner and Outer Harbor, under the authority of Section 203 of the Water Resources Development Act of 1986. The design agreement was executed on 24 March 1999. The Project Cooperation Agreement was executed on 24 May 2001. The current non-Federal cost estimate of \$187,990,000, which includes a cash contribution of \$82,495,409, is approximately \$42,991,130 more than the amount reflected in the Project Cooperation Agreement. The non-Federal sponsor has indicated it is financially capable and willing to contribute to the non-Federal share. Our analysis of the non-Federal sponsor's financial capability to participate in the project affirms that the sponsor has a reasonable and implementable plan for meeting its financial commitment.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate (ultimate) of \$239,640,000 is an increase of \$3,770,000 from the last estimate presented to Congress (FY 2009).

Item	Amount
Contract Award and Other Estimated Adjustments (Including contingency and cost share adjustments)	\$3,770,000
Total	\$3,770,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The Final Environmental Impact Statement was filed with EPA in May 1998.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in Fiscal Year 1999. Funds to initiate construction were appropriated in Fiscal Year 2001. The initial construction contract was awarded on 27 September 2001. The Oakland Harbor PCA amendment package for acceptance of additional local funds was executed February 2005. The local sponsor has contributed additional funds to the project in FY 2006 to maintain the schedule. Remaining funds needed for FY 2011 will be used to complete deepening of the Inner Harbor to the authorized project depth of -50-feet, and to complete the final grading and planting of the Middle Harbor for environmental mitigation.



**OAKLAND HARBOR DEEPENING NAVIGATION CALIFORNIA**

WORK IN PROGRESS, COMPLETED AND PROPOSED

SAN FRANCISCO DISTRICT  
SOUTH PACIFIC DIVISION

1 JANUARY 2009

APPROPRIATION TITLE: Construction - Navigation

PROJECT: Port of Los Angeles (Main Channel Deepening), California (Completion)

LOCATION: The project is located at the Port of Los Angeles on the coast of southern California in San Pedro Bay, approximately 25 miles south of downtown Los Angeles, California

DESCRIPTION: The project consists of deepening the main channel from the current depth of 45 feet to 53 feet. The proposed project would dredge approximately 8 million cubic yards of sediment from the Los Angeles main channel, West basin channel, West turning basin, East basin channel, East turning basin, Cerritos channel with disposal at Southwest Slip, Pier 300 expansion, Cabrillo Shallow Water Habitat expansion, and Pier 400.

AUTHORIZATION: Water Resources Development Act of 1986, Section 203; Water Resources Development Act of 2000, Section 101 (b)(5), Energy and Water Development Appropriations Act of 2004, H.R. 2754-3, Section 143; Energy and Water Development Appropriation Act of 2006, H.R. 2419-9, Section 119.

REMAINING BENEFIT - REMAINING COST RATIO: 25.4 to 1 at 7 percent.

TOTAL BENEFIT-COST RATIO: 3.2 to 1 at 7 percent.

INITIAL BENEFIT-COST RATIO: 4.0 to 1 at 6.125 percent.

BASIS OF BENEFIT-COST RATIO: Benefits are based on the Chief's Report - Port of Los Angeles Channel Deepening Project dated December 2000 at October 1999 price levels.

SUMMARIZED FINANCIAL DATA	ACCUM PCT OF EST FED COST	STATUS (1 JAN 2008)	PCT CMPL 98	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost	\$60,700,000			TBD
Estimate Non-Federal Cost	161,300,000		PHYSICAL DATA	
Cash Contribution	161,300,000			
Other Cost	0			
Total Estimated Project Cost	222,000,000		Dredge channel to 53 feet at the following locations: Main Channel West Basin Channel East Turning Basin	East Basin Channel Cerritos Channel West Turning Basin

SUMMARIZED FINANCIAL DATA (Continued)	ACCUM PCT OF EST FED COST	STATUS (1 JAN 2007)	PCT Cmpl 99	PHYSICAL COMPLETION SCHEDULE
Allocations to 30 September 2006	58,031,000			TBD
Allocation for 2007	175,000			
Allocation for 2008	1,609,000			
Conference Allowance for 2009	0			
Allocation for 2009	0			
Allocations through 2009	9,815,000	99		
Allocations Requested for 2010	885,000	100		
Programmed Balance to Complete after 2010	TBD			
Unprogrammed Balance to Complete after 2010	TBD			

PHYSICAL DATA

Create acres at the following areas:

Southwest Slip Fill	43 acres
Pier 300 Expansion	40 acres
Cabrillo Shallow Water Habitat	54 acres
Pier 400 Submerged Material	125 acres

JUSTIFICATION: Port of Los Angeles serves the entire Pacific Southwest with goods passing through the port either to or from all 50 states. Major commodities imported and exported include automobiles and containerized dry and liquid bulk cargoes. Total throughput at the Port of Los Angeles has increased from 44 million metric tons in 1989 to about 120 million metric tons in 2005. Growth in containerized cargo imports is the driving force behind the need for navigation improvements. For the period 1990 through 1996, the combined San Pedro Ports inbound containerized cargo grew from 12 million metric tons to approximately 18.5 million metric tons. In 1999, the Port of Los Angeles alone handled 3.8 million TEU's (Twenty-foot equivalent units, the standard for measuring containerized trade), an increase of 11.7 percent over the 1998 throughout. Vessels drafting more than 40 feet are potentially subject to tidal delays, given a 45 ft channel depth and a required 5 ft of underkeel clearance. Increasing the channel depth to 53 feet is expected to allow the largest containerships over 75,000 dead weight tons to fully load. Dredged material will be used to create new land for terminal development and to create shallow water habitat for environmental mitigation. Average annual benefits, all navigation, are \$53,730,000, at October 1999 price levels.

FISCAL YEAR 2009: No following on funding programmed.

FISCAL YEAR 2010: The requested amount will be applied as follows:

Complete Construction	\$ 700,000
Engineering and Design	44,000
Construction Management	141,000
<b>Total</b>	<b>\$ 885,000</b>



NON-FEDERAL COST: In accordance with the cost-sharing and financing concepts reflected in the Water Resources Development Act of 1986, as amended, the non-Federal sponsor must comply with the requirements listed below.

	Payments During Construction And Reimbursements	Annual Operation Repair Maintenance Rehabilitation And Replacement
Requirements of Local Cooperation		
Provide lands, easements, rights-of-way, and borrow and excavated or dredged material disposal areas.	\$125,000	
Modify or relocate utilities, roads, bridges (except railroad bridges), and other facilities, where necessary for the construction of the project.	36,600,000	
Pay 50 percent of the costs allocated to general navigation facilities during construction and pay 50 percent of the costs of incremental maintenance below 45 feet below mean low water.	60,700,000	128,000
Provide associated costs to include locally preferred disposal, berth dredging and wharf upgrades.	65,474,000	
Credit for Federal share of feasibility study cost in accordance with Section 203 of Water Resources Development Act of 1986.	-1,600,000	
<b>Total Non-Federal Costs</b>	<b>\$161,299,000</b>	<b>\$128,000</b>

The Non-Federal sponsor has also agreed to make all required payments concurrently with project construction and has been authorized to provide advanced contributions.

STATUS OF LOCAL COOPERATION: The feasibility report, prepared by the Port of Los Angeles, was submitted to the Assistant Secretary of Army (Civil Works) on March 6, 2000 and describes the commitment by the Port to cost share the project. The Port of Los Angeles will receive credit for the Federal share of the feasibility cost pursuant to section 203 of the WRDA 1986. The Project Cooperation Agreement was executed in July 2002.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of \$60,700,000 is above the initial estimate presented to Congress for appropriations. (See Other Information)

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The Environmental Impact Statement was completed in September 2000 and the Record of Decision was signed September 2001.

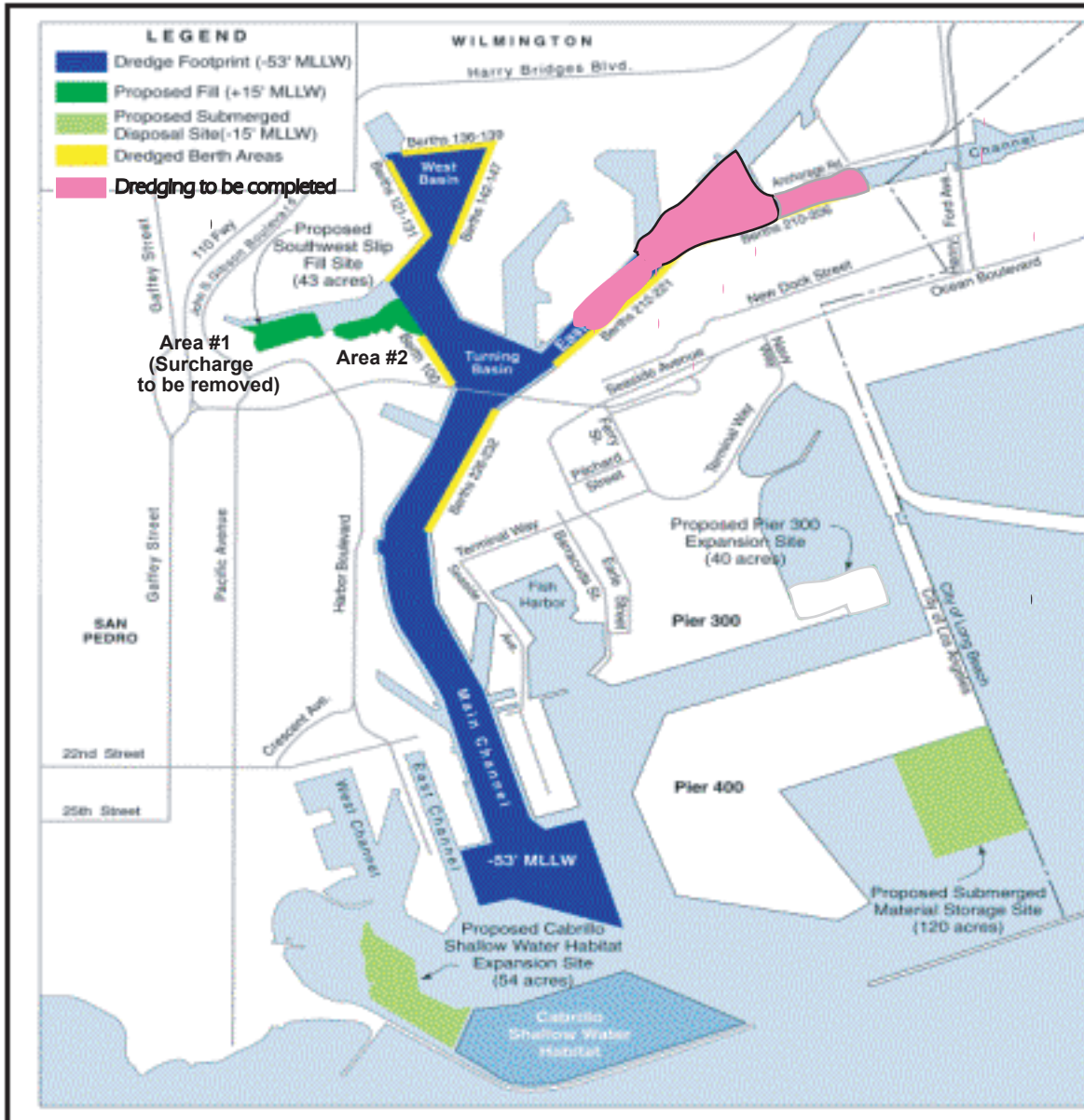
OTHER INFORMATION: Funds to initiate pre-construction, engineering and design were appropriated in FY 2001. Funds to initiate construction were appropriated in FY 2002. The Energy and Water Development Appropriations Act for FY 2004 directs the secretary to credit toward the non-federal share of the cost of the project the cost of planning, design, and construction work carried out by the non-federal interest before the date of the partnership agreement for the project if the Secretary determines the work is integral to the project.

Due to shortage of disposal capacity a new SEIS/SEIR is was developed to identify alternatives for added disposal sites. Signing of Record of Decision is was February 2008. Disposal alternative will finalize and provide a decision for additional disposal site needed in order to complete dredging of the main channel.

Authorized by section 101 (b)(5) of the Water Resources Development Act of 2000 (114 Stat. 277) is modified to authorize the Chief of Engineers to carry out the project at a total cost of \$222,000,000.

**U.S. ARMY ENGINEER DISTRICT**

**CORPS OF ENGINEERS**



CONSTRUCTION, GENERAL  
 PORT OF LOS ANGELES  
 CHANNEL DEEPENING  
 CALIFORNIA

LOS ANGELES DISTRICT  
 SOUTH PACIFIC DIVISION

January 1, 2009

APPROPRIATION TITLE: Construction - Channels and Harbors (Navigation)

PROJECT: Sacramento Deep Water Ship Channel, California (Continuing)

LOCATION: The project is located on the Sacramento River between Collinsville and the Port of Sacramento, a distance of about 43 miles, in the counties of Sacramento, Contra Costa, Solano, and Yolo, California.

DESCRIPTION: The project was authorized in 1989 to deepen the existing 30 feet Sacramento River from N.Y. Slough to the Port of Sacramento, a distance of about 43 miles, to 35 feet. Project provides for establishment of wetland habitat and upland habitat to mitigate losses. Construction was initiated in 1989, but stopped at the sponsor's request in 1990. Renewed interest by the Port of Sacramento initiated the Limited Reevaluation Report (LRR) in 2002, and their recent partnership with the Port of Oakland supports the early completion of the LRR and the construction of the deeper channel.

AUTHORIZATION: Supplemental Appropriations Act of 1985; Section 202(a) of the 1986 Water Resources Development Act; Section 305 of the 2000 Water Resources Development Act; Section 3030 of the 2007 Water Resources Development Act.

REMAINING BENEFIT - REMAINING COST RATIO: 11.26 @ 7 percent

TOTAL BENEFIT - COST RATIO: 8.35 @ 7 percent

INITIAL BENEFIT-COST RATIO: 2.5 to 1 @ 8 1/8 percent

BASIS OF BENEFIT - COST RATIO: Benefits are from the latest available evaluation in the General Design Memorandum, March 1986, approved in May 1987 at 1 Oct 1985 price levels. A Limited Reevaluation Report (LRR) is currently underway to verify to economic and environmental feasibility of continuing the authorized and partially constructed deepening project.

COMPLETION		ACCUM	STATUS	PCT	PHYSICAL
SUMMARIZED FINANCIAL DATA		PCT OF EST	(1 Jan 2008)	CMPL	COMPLETION
		FED COST			SCHEDULE
Estimated Federal Cost (COE)	\$ 27,980,000		Entire Project	16	To be determined
Estimated Federal Cost (USCG)	300,000				
Estimated Total Appropriation Requirement	28,280,000				
Estimated Federal Cost (Ultimate)	27,980,000				
Estimated Non-Federal Cost	\$ 29,060,000				
Cash Contribution	\$ 9,330,000				
Other Costs	19,730,000				
			PHYSICAL DATA		
			Channels: Deepen existing 30 feet Sacramento River from N.Y. Slough to the Port of Sacramento, a distance of about 43 miles, to 35 feet.		
			Fish and Wildlife Areas: Deposit suitable dredged material at Prospect Island		

7 May 2009

Total Estimated Project Cost	\$57,340,000		to aid in development of wetland and upland habitat for fish and wildlife mitigation and enhancement purposes
Allocations to 30 September 2006	9,304,000		
Allocation for FY 2007	0		
Allocation for FY 2008	1,266,000		
Conference Allowance for FY 2009	957,000		
Allocation for FY 2009	957,000		
Allocation through FY 2009	11,527,000	41	
Allocation Requested for FY 2010	10,000,000	77	
Programmed Balance to Complete after FY 2010	6,453,000		
Unprogrammed Balance to Complete after FY 2010	TBD		

JUSTIFICATION: Funds would be applied to update the economic and environmental feasibility of the project by completing the Limited Reevaluation Report and Supplemental Environmental Impact Statement/Subsequent Environmental Impact Report. Since the existing channel was completed in 1963, tonnages have increased as a result of increased productivity of the agricultural industry in the northern and central portions of California, increased exports of forest products from this region, and increased foreign demand for agricultural products. Imports, including nitrogenous fertilizers, bulk commodities, and general cargo have also increased during this period. In addition, the channel has provided deepwater access for industries in the service area. With the increase in the shipping industry, vessel sizes have also increased accordingly, although due to the channel depth restriction these larger vessels must currently carry only a partial load going to or from the Port of Sacramento. In 1992, 1,360,000 tons of commodities moved through the Port of Sacramento, and projected expansion in trade for the bulk commodities that move through Sacramento suggests potential justification for expanding the port to accommodate larger vessels. Once deepened, the Port would be able to accommodate 70% of the world's fleet at full design draft – currently it can accommodate only 20% of the world's fleet at design draft Average annual benefits at 1 October 1985 price level are \$10,620,000, all navigation.

FISCAL YEAR 2009: The requested amount will be applied as follows:

Planning, Engineering and Design	957,000
Total	\$957,000

FISCAL YEAR 2010: The requested amount will be applied as follows:

Planning, Engineering and Design	1,700,000
Complete Plans and Specifications for Phase 3 contract	1,000,000
Award Phase 3 construction contract	7,300,000
Total	\$10,000,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below:

Requirements of Local Cooperation	Payments During Construction And Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation, and Replacement Costs
Provide lands, easements, rights of way, and dredged material disposal areas.	\$ 10,365,000	N/A
Modify or relocate utilities, roads, bridges (except railroad bridges) and other facilities, where necessary for the construction of the project.	9,365,000	N/A
Pay 25 percent of the costs allocated to general navigation facilities during construction and pay 50 percent of the costs of incremental maintenance below 45 feet below mean low water.	9,330,000	
Total Non-Federal Costs	\$ 29,060,000	N/A

The non-Federal sponsor has also agreed to make all required payments concurrently with project construction.

STATUS OF LOCAL COOPERATION: The authorized project, to deepen the existing channel from a depth of 30- to 35-feet, was initiated in 1989 but work was suspended in 1990 at the request of the sponsor, the Port of Sacramento, due to utility relocation issues and their inability to continue financing their share of project costs. In 1998 Congress directed the Corps to perform a re-evaluation of the project that would serve as the basis for possible recommendation to resume construction. This re-evaluation was initiated in 2002; however, in 2005 the Port requested that the study be suspended until they could solidify their financial situation. Recently, the Port of Oakland has agreed to expand their operational model and help operate the Port of Sacramento. Both Ports fully support the deepening study, considered critical to the continued existence of the Port and vital to ensuring the safe navigation within the channel.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal estimate of \$27,980,000 is the same as last presented to Congress (FY 2009).

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The Environmental Impact Statement was filed on 8 May 1981; the Supplemental Environmental Impact Statement was filed on 2 January 1987. An Environmental Assessment addressing the environmental impacts of changes in design due to deleting portions of planned widening was completed 1 May 1988, and a Finding of No Significant Impact was signed 1 August 1988.

OTHER INFORMATION:

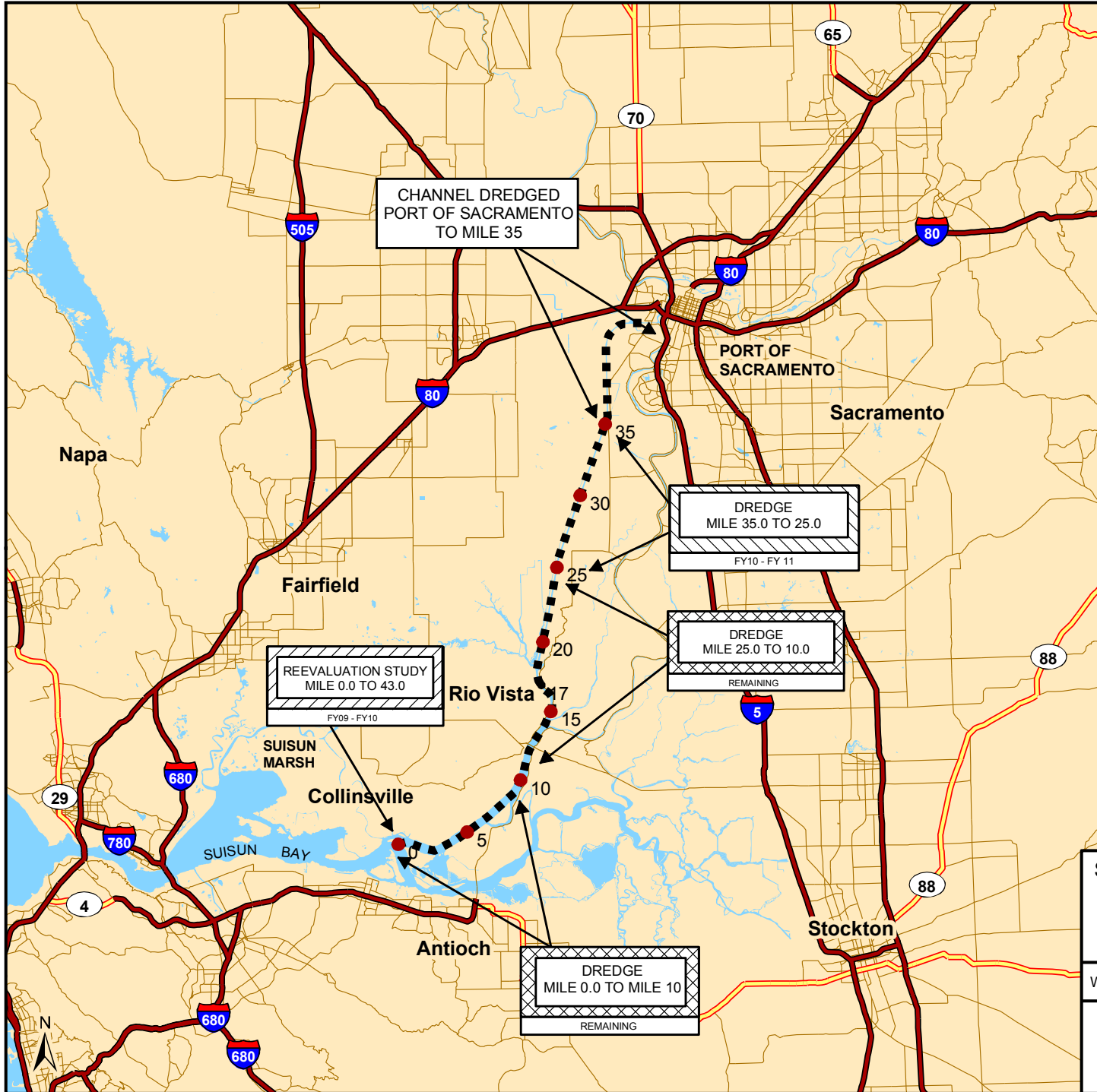
Funds to initiate preconstruction planning were appropriated in FY 1982 and to initiate construction in the FY 1985 Supplemental Appropriations Act. The first construction contract for deepening was awarded in February 1989.

The local sponsor requested a delay in construction during fiscal years 1993 and 1994 in order to resolve utility relocations issues and pursue the establishment of an assessment district and/or the sale of lands as a means of meeting their remaining financial responsibility for project completion.

The Water Resources Development Act of 1990 includes language directing the Corps to enforce Section 10 authority for relocation of utility lines on a reimbursable basis. However, the Port requested the Corps not pursue enforcement and expects to solve differences with the utility company through litigation procedures.

The Water Resources Development Act of 2007 directed the Corps to credit the local sponsor for planning and design work carried out by the local sponsor prior to the date of the partnership agreement.

LRR is scheduled to be completed in May 2010. The Project Partnership Agreement for construction is scheduled to be executed in September 2010. Plans and specifications for first of three remaining construction contracts will be awarded in late FY 2010.



**VICINITY MAP**

**LEGEND**

- COMPLETED WORK COMPLETED AS OF 30 SEPTEMBER 2008
- E&D FY09 WORK PROPOSED WITH FUNDS AVAILABLE FOR FY2009
- E&D FY10 WORK PROPOSED WITH FUNDS AVAILABLE FOR FY 2010
- REMAINING WORK REQUIRED TO COMPLETE THE PROJECT AFTER 2010

**SACRAMENTO RIVER DEEP WATER SHIP CHANNEL NAVIGATION CALIFORNIA**

WORK COMPLETED, IN PROGRESS AND PROPOSED

SAN FRANCISCO DISTRICT  
SOUTH PACIFIC DIVISION

1 JANUARY 2009



# ECOSYSTEM RESTORATION

7 May 2009

SPD - 99

# INVESTIGATIONS

COST-SHARED FEASIBILITY STUDY

APPROPRIATION TITLE: Investigations, Fiscal Year 2010

Division: South Pacific

	Total Estimated Federal Cost	Allocation Prior to FY 2007	Allocation FY 2007	Allocation FY 2008	Allocation FY 2009	Tentative Allocation FY 2010	Additional to Complete After FY 2010
California Coastal Sediment Master Plan Los Angeles District	\$7,100,000	\$810,000	\$490,000	\$340,000	\$822,000	\$900,000	TBD

The study area encompasses the entire California coastline, including the nearshore ocean environment and the coastal watersheds. California has approximately 1,100 miles of coastline, 86% of this valuable resource is actively eroding due to natural and human induced alteration in the sediments cycle. Navigation and shoreline structures, along with implementation of water control projects, have contributed significantly in affecting total yield and movement of sediments to and along the coast. The purpose of the study is to develop a comprehensive plan for the management, restoration, protection, and preservation of the sediment resources along the coast of California. The study will evaluate regional alternatives for reducing damages from coastal storms; increasing the natural sediment supply to the coast through dam removal and other means; restoring aquatic ecosystems; and identifying potential sources of sediment, such as material dredged from ports and harbors. The Master Plan will provide Federal and non-Federal entities with an adaptive, programmatic road map to plan and program potential future coastal resources projects. The Master Plan will allow these entities to develop water resources projects within a system-oriented context where data can be easily shared and technical expertise and tools can be efficiently directed to solve coastal resources problems on a regional basis. A Geographic Information System (GIS) -based decision support system for economic optimization will be developed to assist Federal, State, and local decision makers in identifying, ranking, and selecting projects for program investment that would yield significant regional benefits, relative to costs. Ultimately, the Master Plan will allow for minimizing the number of discrete water resources projects by regionalizing solutions that holistically address individual problem areas. Any subsequent regionalized projects recommended in the Master Plan will be considered in collaboration with other Federal and non-Federal agencies, including USEPA, California State Resources Agency, NOAA, regional and local governments, and USGS. The Feasibility Cost Sharing Agreement was signed in September 2005.

Fiscal Year 2009 funds are being used to continue the feasibility phase of the study. The funds requested for Fiscal Year 2010 will be used to continue the feasibility phase of the study, develop a web-based mapping system, continue building the GIS database and decision support applications, develop additional Regional Sediment Management Plans, including environmental documents to support these plans, incorporate state-led efforts and analysis started in Fiscal Year 2006, and hold State-wide multiple public involvement meetings.

Total Estimated Study Cost	\$14,000,000
Reconnaissance Phase (Federal)	200,000
Feasibility Phase (Federal)	6,900,000
Feasibility Phase (Non-Federal)	6,900,000

The reconnaissance phase was completed in September 2005. The feasibility study completion is to be determined.

COST-SHARED FEASIBILITY STUDY

APPROPRIATION TITLE: Investigations, Fiscal Year 2010

Division: South Pacific

	Total Estimated Federal Cost	Allocation Prior to FY 2007	Allocation FY 2007	Allocation FY 2008	Allocation FY 2009	Tentative Allocation FY 2010	Additional to Complete After FY 2010
Pima County (Tres Rios Del Norte) Los Angeles District	\$4,241,000	\$3,192,000	\$305,000	\$220,000	\$249,000	\$275,000	\$ 0

The study area is located in Pima County and encompasses the metropolitan area of Tucson, the second largest city in Arizona, Town of Marana and unincorporated Pima County. The study will investigate water resources development opportunities including environmental programs, incorporation of historical cultural features, flood control, and links recreational corridor in support of regional plans. This plan consists of six elements: ranch conservation, historic and cultural preservation, riparian restoration, mountain parks, habitat, biological and ecological corridor conservation, and critical and sensitive habitat preservation. The Bald eagle, Yuma clapper rail and Southwestern willow flycatcher will benefit from the restoration (USFWS). Arizona Game and Fish Department, 1993 lists 1/2 of non raptorial birds as special concern due to riparian losses. Organizations such as Defenders of Wildlife, Sierra Club, and civic groups support the conservation plan. Government agencies from local, state and Federal entities are also supportive of this effort. Pima County, City of Tucson and Town of Marana, the local sponsors, signed the Feasibility Cost Sharing Agreement in September 2001.

The estimated cost of the feasibility phase is \$7,983,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Federal costs are higher due the new Federal requirement of an Independent External Peer Review that is 100 percent Federal expense. A summary of study cost sharing is as follows:

Total Estimated Study Cost	\$8,108,000
Reconnaissance Phase (Federal)	125,000
Feasibility Phase (Federal)	4,116,000
Feasibility Phase (Non-Federal)	3,867,000

The reconnaissance phase was completed in September 2001. The feasibility study is scheduled for completion in Fiscal Year 2010.

PRECONSTRUCTION ENGINEERING AND DESIGN

APPROPRIATION TITLE: Investigations, Fiscal Year 2010

Division: South Pacific

Total Estimated Federal Cost	Allocation Prior to FY 2007	Allocation FY 2007	Allocation FY 2008	Allocation FY 2009	Tentative Allocation FY 2010	Additional to Complete After FY 2010
\$3,750,000	\$495,000	\$900,000	\$676,000	\$629,000	\$658,000	TBD

Va Shly-Ay Akimel Salt River  
Los Angeles District

The Va Shly-Ay Akimel (pronounced va sha lay akmel) project area involves approximately 8 miles of the Salt River in Arizona. The project area encompasses about 17,435 acres of the river between the Granite Reef Dam and the Pima Freeway (SR101). Most of the project area is on the Salt River Pima Maricopa Indian Community. The City of Mesa borders the south side of the area. The area along the river is severely degraded and has sustained a very large loss of riparian habitat. Riparian habitats have declined by 90% in the southwestern United States. Approximately 90% of all species in Arizona depend on riparian habitat for their survival. The proposed project will help reverse past damage and minimize future degradation to biological diversity. A feasibility report was completed in September 2004 and the Chief of Engineer's Report was signed January 2005. The recommended project, estimated to cost \$162.1 million with an estimated Federal cost of \$105.2 million and an estimated non-Federal cost of \$56.9 million includes restoring and improving 1,485 acres of habitat including four nationally significant habitat types; Cottonwood-Willow, Wetlands including River Bottom, Mesquite, and Sonoran Desert Shrub, one grade control structure, water delivery systems, and re-grading of the river for revegetation. The plan provides restoration benefits of 1,006 average annual functional capacity units (AAFCU), which results in an average annual cost per AAFCU of \$10,100. The project will provide benefits to the habitat for important bird species including the Yuma clapper rail, southwestern willow flycatcher, cactus ferruginous pygmy owl, California brown pelican, and bald eagle. The Salt River Pima Maricopa Indian Community and the City of Mesa, the local sponsors, signed the cost-sharing agreement in September 2006. Preconstruction engineering and design will ultimately be cost shared at the rate for the project to be constructed, but will be financed through the preconstruction engineering and design period at 25 percent non-Federal. Any adjustments that may be necessary to bring the non-Federal contribution in line with the project cost sharing will be accomplished in the first year of construction.

Total Estimated Preconstruction Engineering and Design Costs	\$5,000,000	Total Estimated Preconstruction Engineering and Design Costs	\$5,000,000
Initial Federal Share	3,750,000	Ultimate Federal Share	3,250,000
Initial Non-Federal Share	1,250,000	Ultimate Non-Federal Share	1,750,000

The project was authorized for construction by section 1001(6) of the Water Resources Development Act of 2007. The cost sharing for the ecosystem restoration features will be 65 percent Federal and 35 percent non-Federal in accordance with the Water Resources Development of 1996. Cost sharing for the recreation features will be 50-50. Funds requested for Fiscal Year 2009 will be used to continue preconstruction engineering and design. Funds requested for Fiscal Year 2010 will be used to continue preconstruction engineering and design to include preparation of the first set of plans and specifications. A completion date is being determined for the preconstruction, engineering and design phase.

# CONSTRUCTION

APPROPRIATION TITLE: Construction - Environmental Restoration

PROJECT: Napa River, Salt Marsh Restoration, CA (New)

LOCATION: Project is located in the northern portion of San Francisco Bay, approximately 45 miles north of San Francisco, California, adjacent to the lower reach of the Napa River in the counties of Napa, Solano, and Sonoma.

DESCRIPTION: The Napa River, Salt Marsh Wetlands originally encompassed 25,000 acres, but agriculture and development have reduced them to thirty-six percent of their former extent. In 1994 the Cargill Salt Company ceased production of salt and sold over 9,800 acres of lands in the study area to the State of California. The land is now managed by the California Department of Fish and Game (CaDFG). Project will restore wetlands through combination of water control structures and breaching existing berms. Construction of a recycled wastewater pipeline will provide fresh water to assist in desalinization of the high-salinity ponds.

AUTHORIZATION: Water Resources Development Act 2007; House Committee on Public Works Resolution, 28 Sept 1994

REMAINING BENEFIT - REMAINING COST RATIO: Not applicable.

TOTAL BENEFIT - COST RATIO: Not applicable.

INITIAL BENEFIT - COST RATIO: Not applicable.

BASIS OF BENEFIT - COST RATIO: Project justification is based on nonmonetary benefits or wetland habitat restoration.

SUMMARIZED FINANCIAL DATA		ACCUM PCT OF EST FED COST	STATUS (1 Jan 2008)	PERCENT COMPLETE	COMPLETION SCHEDULE
Estimated Federal Cost	\$87,500,000			0	TBD
Estimated Non-Federal Cost	47,000,000				
Cash Contribution	\$42,700,000				
Other Costs	4,300,000				
Total Estimated Project Cost	\$134,500,000				
Allocation to 30 September 2006	0				PHYSICAL DATA
Allocation for FY 2007	0				Restoration of eleven salt
Allocation for FY 2008	0				marsh wetlands;
Conference Allowance for FY 2009	0				breach existing berms;
Allocation for FY 2009	0				construct water
Allocation through FY 2009	0	0			control features;
					Construct recycled
					wastewater pipeline

SUMMARIZED FINANCIAL DATA (continued)		ACCUM PCT OF EST FED COST
Allocation Requested for FY 2010	\$ 6,750,000	8
Programmed Balance to Complete after FY 2010	TBD	
Unprogrammed Balance to Complete after FY 2010	TBD	

JUSTIFICATION: Human impacts have destroyed most of the original wetlands in the San Francisco Bay area. The degradation of fish and wildlife resources associated with the loss of these historic wetlands around San Francisco Bay has resulted in several species being listed as threatened or endangered. Project site includes 11 former salt production ponds that could be restored to valuable wetland habitat with emphasis on providing habitat for estuarine fish, endangered species, migratory waterfowl, etc. Wetland habitat restoration is the primary purpose of the project.

FISCAL YEAR 2009: None

FISCAL YEAR 2010: The requested amount will be applied as follows:

Complete Engineering and Design for Design Contract #1 (Ponds 7 & 7A)	\$1,000,000
Initiate Construction Contract #1 (Ponds 7 & 7A)	5,750,000
<b>Total</b>	<b>\$6,750,000</b>



NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the 2007 Water Resources Development Act (WRDA) , the non-Federal sponsor must comply with the requirements listed below:

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repairs, Rehabilitation, and Replacement Costs
Provide lands, easements, rights of way, and dredged material disposal areas.	\$ 4,300,000	N/A
Pay 28 percent of the construction costs allocated to fish and wildlife restoration/beneficial use of dredged material in cash to bring the non-Federal share of the project to 35 percent in accordance with the Water Resources Development Act.	42,700,000	N/A
Total Non-Federal Costs	\$47,000,000	N/A

The non-Federal sponsor has also agreed to make all required payments concurrently with project construction.

STATUS OF LOCAL COOPERATION: The California Department of Fish and Game (CaDFG) and Sonoma County Water Agency, the local sponsors for the construction phase, support the project. The California State Coastal Conservancy agreed to sponsor the feasibility study and PED phase but not the construction phase. They had requested a PED cost-share agreement deviation that would limit the total cost of PED several years ago, and recently again after authorization of WRDA 2007. OASA(CW) denied the requests. The sponsors are proceeding with design and construction and are seeking reimbursement language within Water Resources Development Act (WRDA). The current non-Federal cost estimate is \$47,000,000. The non-Federal sponsor has indicated it is financially capable and willing to contribute the non-Federal share.

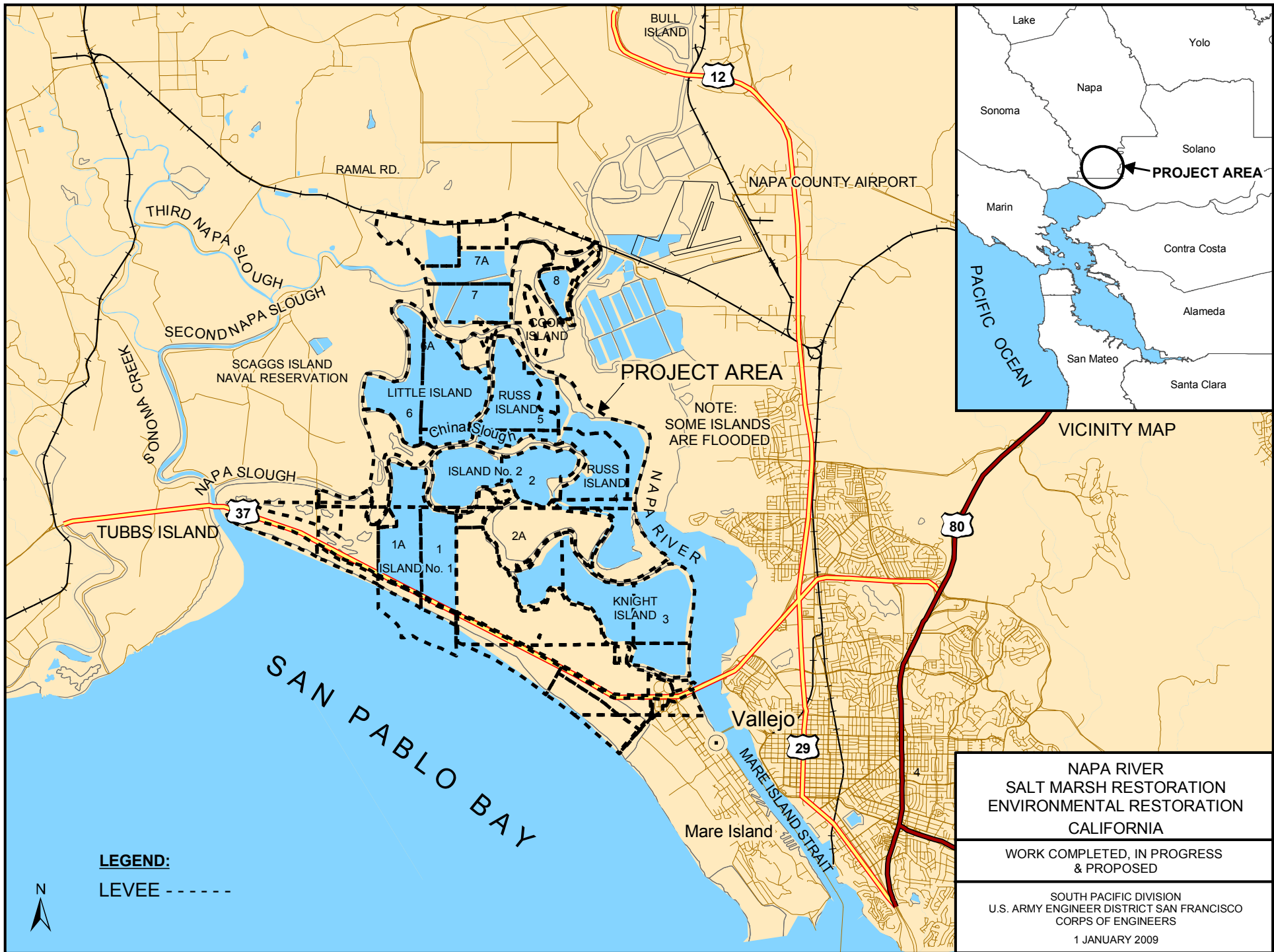
COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate is \$87,500,000.

Item	Amount
Price Escalation on Construction Features	\$ 0
Total	\$ 0

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: Environmental Impact Statement/Environmental Impact Report completed in 2004 Record of Decision signed 17 Nov 2005.

OTHER INFORMATION: Project sponsor has initiated design and some limited construction with own funds and at own risk prior to Water Resource Development Act (WRDA) 2007. Funds would be used to initiate construction of water control structures between the ponds. This would enable desalinization of highly saline ponds to begin immediately. Reduced salinity would immediately begin to improve habitat quality for much state and federally listed threatened and endangered species including the Delta smelt, Sacramento Splittail, and Sacramento River winter-run Chinook salmon, as well as at least five bird species and the salt marsh harvest mouse. The Delta pumping plant that draws water into the state and federal California water projects was shut down for several days in June 2007 due to concerns regarding the impacts to the Delta smelt catfish species. Project construction will restore Delta smelt habitat and assist in the species recovery.

The final Feasibility Report, completed in June 2004, recommended seven of the eleven salt ponds be restored to salt marsh wetlands. The Chief's report was signed in December 2004. OMB clearance was provided in December 2005. WRDA 2007 authorizes additional features to the recommended project, to include restoration of the Lower Ponds (1, 1A, 2, and 3), and the recycled wastewater pipeline. The State Coastal Conservancy initiated design and construction of many project features in anticipation of receiving credit under WRDA 2007. Design/construction of Ponds 1, 1A, 2, 3, 4, and 5 is complete. Design of the remaining ponds (6, 6A, 7, 7A, and 8) is 90% complete. Remaining work includes completion of the design and construction of Ponds 6 through 8, as well as, design and construction of the recycled wastewater pipeline (a policy non-compliant element of the project at this time).



APPROPRIATION TITLE: Construction – Environmental Restoration

PROJECT: Hamilton Airfield Wetlands Restoration, California (Continuing)

LOCATION: Hamilton Airfield Wetland Restoration Project is located 4 miles east of the city of Novato, on San Pablo Bay, Marin County, California.

DESCRIPTION: The project was originally authorized for construction in Water Resources Development Act of 1999 § 101(b)(3), Pub. L. No. 106-53, 113 Stat 269 (WRDA 99) and includes a 988-acre parcel consisting of a former military runway and the adjacent California State Lands Commission area. The site, currently protected by levees, has subsided below the elevation of surrounding properties including the tidal wetlands immediately adjacent to San Pablo Bay. This condition has resulted in the loss of valuable habitat for various waterfowl, fish and other wetland dependent species of plants and animals including at least two threatened and endangered species. Water Resources Development Act of 2007 § 3018, Pub. L. No. 110-114, 121 Stat. 1041 (WRDA 07) added the adjacent 1612-acres parcel of Bel Marin Keys Unit V, increasing the authorized project from 988 acres to approximately 2,600. The combined project provides for the restoration of both sites through the beneficial reuse of approximately 24.4 million cubic yards of dredged material. This includes 3 million cubic yards from the Oakland Harbor, CA (50-ft) deepening project being used as part of the effort to restore the Hamilton Airfield portion of the project. The project is an integral part of the long term management strategy (LTMS) for placement of dredged material in the San Francisco Bay region.

AUTHORIZATION: 1999 Water Resources Development Act, § 101(b)(3), Pub. L. No. 106-53, 113 Stat 269, *modified by* the 2007 Water Resources Development Act, § 3018, Pub. L. No. 110-114, 121 Stat. 1041.

REMAINING BENEFIT - REMAINING COST RATIO: Not applicable.

TOTAL BENEFIT - COST RATIO: As required, both a cost-effectiveness and an incremental cost analysis were performed in order to evaluate the efficiency of the restoration alternatives, and to help in the identification of the National Ecosystem Restoration Plan (NER).

The Hamilton Airfield Wetland Restoration Feasibility study identified the "best buy" action alternatives, and chose Alternative 5 as the NER plan for the Hamilton project on the basis of environmental significance, acceptability, completeness, and effectiveness. The Bel Marin Keys General Re-evaluation Report identified the "best buy" plans associated with the Bel Marin Keys Unit V Parcel and chose Revised Alternative 2 as the NER Plan for the Bel Marin Keys portion of the total project.

INITIAL BENEFIT – COST RATIO: Not applicable

BASIS OF BENEFIT - COST RATIO: Project justification is based on nonmonetary benefits for seasonal and tidal wetland ecosystem restoration.

SUMMARIZED FINANCIAL DATA			STATUS (1 Jan 2009)	PCT CMPL	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost		\$ 171,100,000	Entire Project	25	To be determined
Estimated Non-Federal Cost		\$ 57,000,000			
Cash Contribution	\$ 47,900,000				
Other Costs	9,100,000				
Total Estimated Project Cost		\$ 228,100,000			
					PHYSICAL DATA
					Placement of 24.4 million cubic yards of dredged material; Breach tidal levee; Construction of 65,000 linear ft of levees and wetland restoration of 2,600 acres
					ACCUM PCT OF EST FED COST
Allocation to 30 September 2006		25,874,000			
Allocation for FY 2007		10,000,000			
Allocation for FY 2008		8,512,000			
Conference Allowance for FY 2009		14,000,000			
Allocation for FY 2009		14,000,000			
Allocation through FY 2009		58,386,000	34		
Allocation Requested for FY 2010		14,250,000	42		
Programmed Balance to Complete after FY 2010		\$ TBD			

JUSTIFICATION: The Hamilton Airfield Wetland Restoration project area, currently protected by levees, has subsided below the elevation of surrounding properties, including the tidal wetlands immediately adjacent to San Pablo Bay. This condition has resulted in the loss of valuable habitat for various waterfowl, fish and other wetland dependent species of plants and animals including at least two threatened and endangered species. The principal purpose of the project is restoration of wetland habitat via beneficial reuse of dredged material from San Francisco Bay dredging projects and in line with the Long Term Management Strategy (LTMS) goal.

FISCAL YEAR 2009: The requested amount of \$4,900,000 will be applied as follows:

O&M dredged sediment placement incremental cost	\$4,000,000
Construction contracts	900,000

FISCAL YEAR 2010: The requested amount of \$14,250,000:

O&M dredged sediment placement incremental cost	\$11,000,000
Construction contracts	3,250,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the 1986 Water Resources Development Act (WRDA), the non-Federal sponsor must comply with the requirements listed below:

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repairs, Rehabilitation, and Replacement Costs
Provide lands, easements, rights of way, and dredged material disposal areas.	\$ 21,000,000	N/A
Modify or relocate utilities, roads, bridges (except railroads bridges), and other facilities, where necessary for the construction of the project.	3,600,000	N/A
Pay 14 percent of the construction costs allocated to fish and wildlife restoration/beneficial reuse of dredged material in cash to bring the non-Federal share of the project to 25 percent in accordance with Section 101(b) of the 1999 Water Resources Development Act.	32,400,000	\$ 725,000
Total Non-Federal Costs	\$57,000,000	\$ 725,000

The non-Federal sponsor has also agreed to make all required payments concurrently with project construction.

STATUS OF LOCAL COOPERATION: The California Coastal Conservancy (SCC), the local sponsor, supports the project. The initial Hamilton Project Design Agreement was executed in September 1999. The subsequent Project Cooperation Agreement (PCA) for the Hamilton portion of the project was signed in April 2002 and was amended in January 2005 to allow acceptance of advanced funds from the local Sponsor. The WRDA 2007 authorization, which folded the Bel Marin Keys Unit V parcel into the Hamilton project increased the projected total cost to \$228,000,000. The current estimated non-Federal cost is about \$57,000,000. The Corps and the non-Federal Sponsor are working on the second amendment to the April 2002 PCA to update the project scope and cost to represent the authorized WRDA 2007 cost of \$228,000,000. The non-Federal sponsor has indicated it is financially capable and willing to contribute the non-Federal share.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of \$171,100,000 is the same as the estimate presented to Congress (FY 2009) and is based on the Bel Marin Keys Chief's Report and is consistent with the Federal cost in the 2007 WRDA.

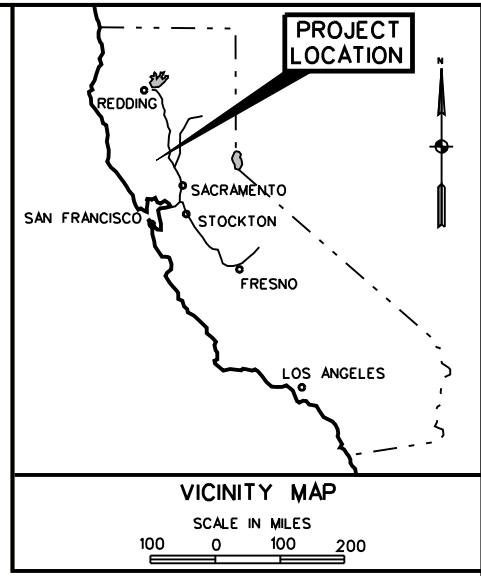
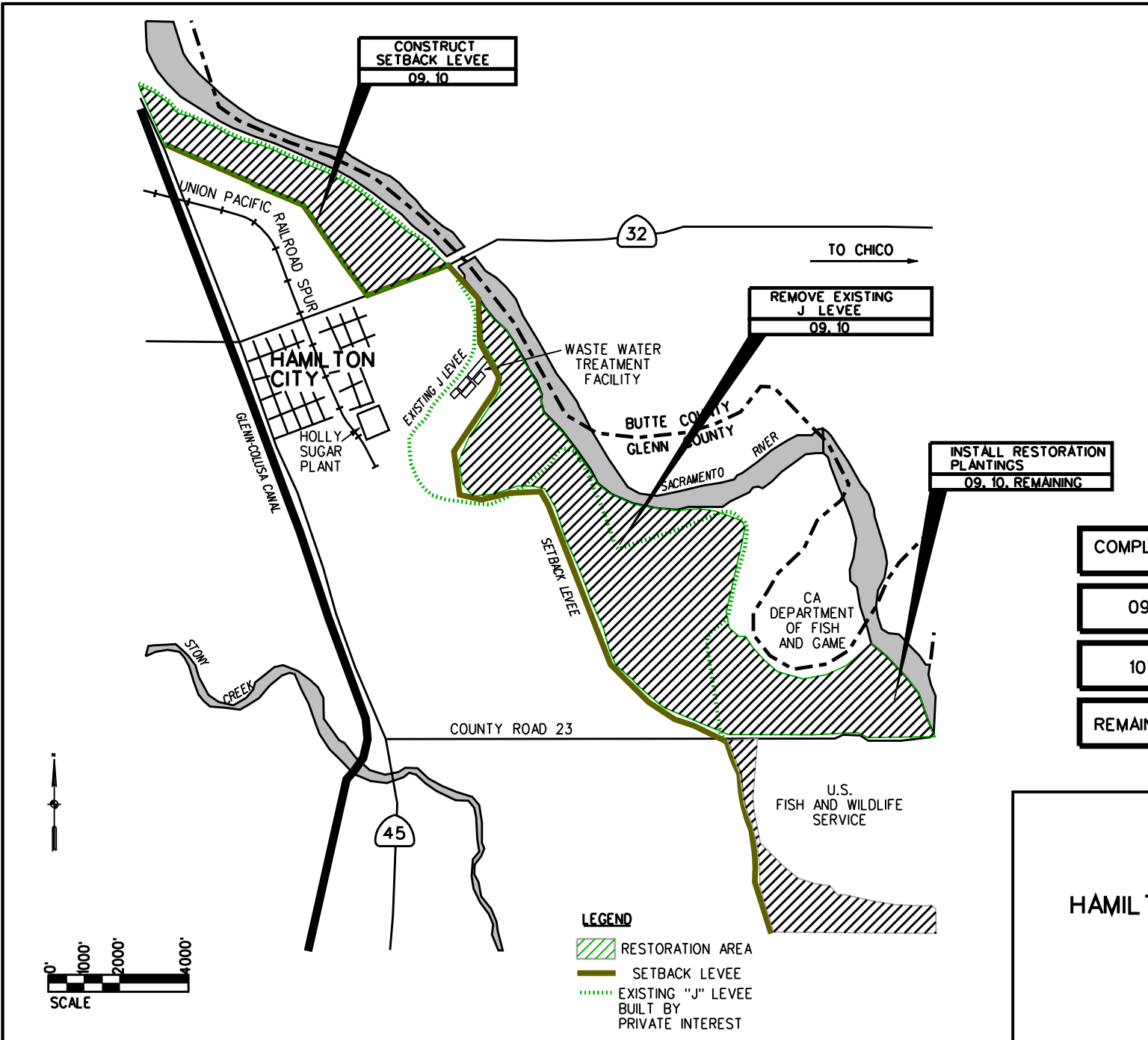
STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The Final Environmental Impact Statement was filed with Environmental Protection Agency in February 1999. A General Reevaluation Report (GRR) and Supplemental Environmental Impact Report/Environmental Impact Statement for Bel Marin Keys Unit V Expansion of the Hamilton Wetland Restoration Project was completed in April 2003. The GRR and Supplemental EIS/EIR recommended the inclusion of the Bel Marin Keys Unit V parcel into Hamilton Wetland Restoration Project. The Bel Marin Keys Chief's Report was signed 19 July 2004.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were reprogrammed to the project with Congressional approval in Fiscal Year 1999. Funds to initiate construction were appropriated in Fiscal Year 2001.

Inclusion of the Bel Marin Keys increment and the new overall project cost was authorized in the 2007 WRDA and an amendment to the current Project Partnership Agreement is being developed to include the Bel Marin Keys Parcel into the authorized project.

Army Base Realignment And Closure (BRAC) transfer of the Hamilton Airfield parcel to the State of California occurred in September 2003. However, BRAC still needs to provide a pump at the northwest corner of Cell 1 to provide water to the seasonal habitat of the Hamilton site.





**WORK STATUS**

<b>COMPLETED</b>	WORK COMPLETED AS OF 30 SEPTEMBER 2008
<b>09</b>	WORK PROPOSED WITH FUNDS AVAILABLE FOR 2009
<b>10</b>	WORK PROPOSED WITH FUNDS REQUESTED FOR FY2010
<b>REMAINING</b>	WORK REQUIRED TO COMPLETE THE PROJECT AFTER FY2010

FLOOD CONTROL  
ECOSYSTEM PROJECT

**HAMILTON CITY, CALIFORNIA**

SACRAMENTO DISTRICT  
SOUTH PACIFIC DIVISION  
1 JANUARY 2009

# SOUTHWESTERN DIVISION

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# FLOOD AND COASTAL STORM DAMAGE REDUCTION

# INVESTIGATIONS

APPROPRIATION TITLE: Investigations, Fiscal Year 2010

Southwestern Division

Study	Total Estimated Federal Cost \$	Allocation Prior to FY 2007 \$	Allocation FY 2007 \$	Allocation FY 2008 \$	Allocation FY 2009 \$	Tentative Allocation FY 2010 \$	Additional to Complete After FY 2010 \$
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SURVEYS – CONTINUING – ECOSYSTEM RESTORATION (144)

Lower Colorado River Basin, TX Fort Worth/Galveston Districts	11,966,000	6,073,000	500,000	439,000	406,000	425,000	TBD
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The Lower Colorado River basin encompasses a geographic area of approximately 21,000 square miles, and includes portions of the following counties in central and south Texas: Bastrop, Blanco, Burnet, Colorado, Fayette, Hays, Lampasas, Llano, Matagorda, Mills, San Saba, Travis and Wharton. The northernmost reaches of the study area include the Highland Lakes upstream of Austin, while the southernmost boundary is the Gulf of Mexico. The study area is bounded by the Guadalupe, Lavaca, and Colorado-Lavaca basins on the west, and the Brazos and Brazos-Colorado basins on the east. The major metropolitan areas within the study boundaries are Austin, Bastrop, Bay City, Columbus, LaGrange, Marble Falls and Wharton. In October 1998, widespread flooding and related damages occurred throughout the Lower Colorado River basin and served as the impetus for initiating this study in 1999. Subsequently, basin wide flooding has occurred in 2002, 2004, and most recently in June 2007, when the area around the city of Marble Falls received a history-making 19 inches of rainfall within a 24-hour period. A major watershed in the basin is Onion Creek, which originates in Blanco County, continues through Hays County, and then into Travis County, where the creek flows into the Colorado River. Onion Creek is the largest creek within the rapidly growing urban area of Austin, with a drainage area of 343 square miles, collecting flows from Williamson, Slaughter, Bear, Little Bear, Rinard, South Boggy, Marble and Cottonmouth Creeks and their tributaries. The creek has a long history of flooding, dating back to 1869 and most recently in 1981, 1991, 1998, 2001, 2002 and 2004. Onion Creek, Shoal Creek, Walnut Creek, Bastrop County, the Highland Lakes, and the city of Wharton have experienced increased flooding and alterations to wildlife habitat. The study identified approximately 34,000 structures in the Lower Colorado River floodplain with over \$25 million in expected average annual damages. The study also identified 25 potential sites for ecosystem restoration. Interim feasibility studies of Onion Creek and the city of Wharton were completed in December 2006, and authorized in the Water Resources Development Act of 2007 (Public Law 110-114). Interim feasibility studies for Walnut Creek, Williamson Creek, Bastrop County, and the Highland Lakes are currently underway. The Lower Colorado River Authority is the local sponsor for the Lower Colorado River Basin Study.

Fiscal Year 2009 funds are being used to continue the interim feasibility studies (IFS) for the Highland Lakes and Bastrop County, continue IFS for Williamson Creek, and initiate scope and project management plan development for the proposed Hays County IFS. Fiscal Year 2010 funds will be used to complete the Williamson Creek IFS; and continue the Highland Lakes, Bastrop County, and Hays County IFS. The preliminary estimated cost of the overall feasibility study is \$23,682,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. A summary of study cost sharing is as follows:

Total Estimated Study Cost	\$ 23,807,000
Reconnaissance Phase (Federal)	125,000
Feasibility Phase (Federal)	11,841,000
Feasibility Phase (Non-Federal)	11,841,000

The completion date for the interim feasibility studies, as well as, the overall basin wide study is to be determined.

APPROPRIATION TITLE: Investigations, Fiscal Year 2010

Southwestern Division

Study	Total Estimated Federal Cost \$	Allocation Prior to FY 2007 \$	Allocation FY 2007 \$	Allocation FY 2008 \$	Allocation FY 2009 \$	Tentative Allocation FY 2010 \$	Additional to Complete After FY 2010 \$
Rio Grande Basin, Texas Fort Worth District	1,103,000	364,000	120,000	219,000	96,000	304,000	0

The Rio Grande basin is located in the states of Colorado, New Mexico and Texas, and encompasses an area of over 160,000 square miles, from the headwaters of the Rio Grande in central Colorado to its mouth on the Gulf of Mexico near Brownsville, Texas. The study area includes the Rio Grande basin within the State of Texas. River flow regulation by two major international dams, Falcon and Amistad, for flood control and water delivery on the main stem has changed the historical flow regime of the Rio Grande. The reconnaissance study identified ecosystem degradation, flooding, and water conveyance and delivery as major issues in the basin. Conditions in the overall basin study show the need to improve water management in the Rio Grande basin in order to restore aquatic habitat, improve water quality and reduce flood damages. Additionally, there is a need to improve reliability of future municipal, industrial, and agricultural water supplies in accordance with international treaty requirements, and a need to dedicate water for items such as low flow releases, restoration of fish and wildlife habitat, and protection of endangered species such as ocelot, jaguarundi, bald eagle, least interior tern, brown pelican and peregrine falcon. The city of Laredo in Webb County is a major port of entry for international trade and tourism between the United States and Mexico. The Laredo feasibility study is focusing on the Chacon Creek watershed where development has caused significant changes in the basin hydrology, resulting in an increased flood risk for approximately 554 homes and 71 commercial and public structures along Chacon Creek. The study is evaluating both structural and non-structural measures to address significant and recurrent flooding along the creek. Ecosystem restoration and passive recreation opportunities within the Chacon Creek watershed are also being evaluated. A Feasibility Cost Sharing Agreement with the city of Laredo was signed on 29 September 2004.

Fiscal Year 2009 funds are being used to complete plan formulation and to develop the draft feasibility report. Fiscal Year 2010 funds will be used to complete the final Feasibility Report. The preliminary estimated cost of the Chacon Creek Feasibility Study is \$1,872,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. A summary of study cost sharing is as follows:

Total Estimated Study Cost	\$2,039,000
Reconnaissance Phase (Federal)	167,000
Feasibility Phase (Federal)	936,000
Feasibility Phase (Non-Federal)	936,000

The completion date for the Chacon Creek, Laredo Feasibility Study is September 2010.

# CONSTRUCTION



**APPROPRIATION TITLE:** Construction - Local Protection (Flood & Coastal Storm Damage Reduction)

**PROJECT:** Brays Bayou, Houston, Texas (Continuing)

**LOCATION:** The project is located in the metropolitan area of Houston, in Harris County, Texas.

**DESCRIPTION:** The authorized project provided for 3 miles of channel improvements, 3 flood detention basins, 7 miles of stream diversion, and recreation features including hike-and-bike trails, picnic facilities, sports fields, comfort stations and parking areas. As stated in the Water Resources Development Act of 1996, Section 211, subject to the approval of the Secretary of the Army, the non-Federal interest may design and construct an alternative to the diversion (downstream) component. The recommended plan developed by the sponsor includes all the features of the authorized plan with an alternative to the diversion (downstream) component that consists of 15.7 miles of earthen channel modifications, replacement and/or lengthening of 27 bridges, and 1,900 acre-feet of storm water detention on a tributary (Willow Waterhole).

**AUTHORIZATION:** Water Resources Development Act of 1990.

**REMAINING BENEFIT-REMAINING COST RATIO:** 15.8 to 1 at 7 percent for Upstream Component and 3.0 to 1 at 7 percent for Downstream

**TOTAL BENEFIT-COST RATIO:** 5.1 to 1 at 7 percent for Upstream Component and 3.0 to 1 at 7 percent for Downstream

**INITIAL BENEFIT-COST RATIO:** 3.9 to 1 at 7 3/8 for Upstream Component and 2.97 to 1 at 7 5/8 percent for total project (FY 1998)

**BASIS OF BENEFIT-COST RATIO:** Benefits for the Upstream Element are from the latest economic analysis included in the Design Memorandum #1, dated September 1997 with October 1996 price levels. Benefits for the Downstream Element are from the General Reevaluation Report, dated December 2008, and approved 3 April 2009, with October 2009 price levels. Benefits for the total project are from the economic analysis included in the comprehensive Feasibility Report for Buffalo Bayou and Tributaries, dated July 1990 with October 1989 price levels.

**Division:** Southwestern

**District:** Galveston

**Project:** Brays Bayou, Houston, Texas

**7 May 2009**

<b>SUMMARIZED FINANCIAL DATA</b>			<b>ACCUM PCT OF EST FED COST</b>	<b>STATUS (1 Jan 2010)</b>	<b>PCT Cmpl</b>	<b>PHYSICAL COMPLETION SCHEDULE</b>
Estimated Federal Cost		\$366,300,000		Upstream Component	88%	To be Determined
				Downstream Component	5%	To be Determined
Estimated Non-Federal Cost		189,480,000				
Cash Contributions	31,200,000			Entire Project	45%	To be Determined
Other Costs	158,280,000					
<b>Total Estimated Project Cost</b>		<b>\$555,780,000</b>				
Allocations to 30 September 2006		42,876,000		(Upstream Component)		
Allocation for FY 2007		16,237,000		Channel Improvements – 3.7 miles		
Allocation for FY 2008		13,453,000		Detention Basins - 3		
Conference Allowance for FY 2009		5,011,000		(Downstream Component)		
Allocation for FY 2009		5,011,000		Detention Basins - 1		
Allocations through FY 2009		77,577,000	21%	Channel Improvements – 15.7 miles		
Allocation Requested for FY 2010		7,300,000	23%	Bridge replacements/modifications – 27		
Programmed Balance to Complete after FY 2010		TBD		Recreation facilities Hike-and-bike trails with picnic facilities, sports fields, and other day-use facilities.		
Unprogrammed Balance to Complete after FY 2010		0				

Division: Southwestern

District: Galveston

Project: Brays Bayou, Houston, Texas

7 May 2009

**JUSTIFICATION:** Brays Bayou drains about 137 square miles in the south-central portion of the Buffalo Bayou watershed. The area is subject to rainstorms throughout the year and urban flooding is a common occurrence. About 53,400 homes and businesses are currently subject to flooding by the Standard Project Flood (SPF), and about 25,000 of these properties would be subject to flooding by a 100-year frequency flood. On an average annual basis, stream flooding could cause nearly \$46,000,000 in damages per year to existing properties. The plan would reduce the existing 100-year frequency floodplain area by about 97 percent. Average annual flood damages would be reduced by about 95 percent. The recreational development will partially satisfy existing demand in the area. Average annual benefits, annualized at a 7-3/8% interest rate and based on October 1996 prices are as follows:

<b>Annual Benefits</b>	<b>Amount</b>
<b>Upstream Component:</b>	
Flood Damage Prevention	\$ 69,642,300
Recreation	1,623,700
Subtotal	71,266,000
<b>Downstream Component:</b>	
Flood Damage Prevention	65,800,000
Recreation	1,509,457
Subtotal	67,309,457
<b>Total</b>	<b>\$138,575,457</b>

**FISCAL YEAR 2009:** The requested amount of \$5,011,000 will be used to reimburse the Harris County Flood Control District (non-Federal Sponsor) for the Federal share of construction work performed during fiscal year 2009 in accord with Section 211 (f) of the Water Resources Development Act of 1996 and the associated Engineering and Design and Construction Management costs as follows.

**Upstream Component:**

Partial Reimbursement for completed FY09 work for Discrete Segment #16	
Eldridge Road Basin	\$ 4,891,000
Federal Oversight	120,000
Total	\$ 5,011,000

**FISCAL YEAR 2010:** The requested amount of \$7,300,000 will be used to reimburse the Harris County Flood Control District (non-Federal Sponsor) for the Federal share of construction work performed during fiscal year 2010 in accord with Section 211 (f) of the Water Resources Development Act of 1996 and the associated Engineering and Design and Construction Management costs as follows.

**Upstream Component:**

Final Reimbursement for completed FY10 work for Discrete Segment #16	
Eldridge Road Basin	\$ 7,180,000
Federal Oversight	120,000
Total	\$ 7,300,000

**NON-FEDERAL COST & REQUIREMENTS:** Brays Bayou has been identified as a demonstration project by Section 211(f) of the Water Resources Development Act of 1996 (P.L. 104-303). This Act authorized the non-Federal sponsor to accomplish the work and be subsequently reimbursed for the Federal share of completed discrete segments, in accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, as listed below:

<b>Requirements of Local Cooperation</b>	<b>Payments During Construction and Reimbursements</b>	<b>Annual Operation, Maintenance, Repair, Rehabilitation, and Replacement Costs</b>
<b>Upstream Component</b>		
Provide lands, easements, rights-of-way, and borrow and excavated or dredged material disposal areas.	58,560,000	
Modify or relocate, utilities, roads, bridges (except railroad bridges), and other facilities, where necessary for the construction of the project.	1,710,000	
Pay one-half of the separable costs allocated to recreation and bear all cost of operation, maintenance, repair, rehabilitation and replacement of recreation facilities.	3,115,000	300,000
Pay 5 percent of the costs allocated to flood control, and bear all costs of operation, maintenance, repair, rehabilitation and replacement of flood control facilities.	10,803,000	247,480

**Division: Southwestern**

**District: Galveston**

**Project: Brays Bayou, Houston, Texas**

**7 May 2009**

Requirements of Local Cooperation (cont'd)	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation, and Replacement Costs
<b>Downstream Component</b>		
Provide lands, easements, rights-of-way, and borrow and excavated or dredged material disposal areas.	46,890,000	
Modify or relocate, utilities, roads, bridges (except railroad bridges), and other facilities, where necessary for the construction of the project.	51,120,000	
Pay one-half of the separable costs allocated to recreation and bear all cost of operation, maintenance, repair, rehabilitation and replacement of recreation facilities.	675,000	57,300
Pay 5 percent of the costs allocated to flood control, and bear all costs of operation, maintenance, repair, rehabilitation and replacement of flood control facilities.	16,607,000	371,220
<b>Total Non-Federal Costs</b>	<b>189,480,000</b>	<b>976,000</b>

The non-Federal sponsors must also agree to make all required payments concurrently with project construction.

**STATUS OF LOCAL COOPERATION:** The sponsor for the flood damage reduction project is Harris County, acting through the Harris County Flood Control District. The Project Cooperation Agreement (PCA) for the flood control portion of the Upstream (Detention) Component was executed on March 3, 2000, and included the provision of Section 211, WRDA 96. The current non-Federal cost estimate of \$73,410,000 for this portion is an increase of \$3,230,000 from the non-Federal cost estimate of \$70,180,000 noted in the PCA. In accordance with Section 211(f) of the Water Resources Development Act of 1996, the sponsor has investigated the Downstream (Diversion) Component in an effort to find an alternative to the authorized project. Their General Reevaluation Report (GRR), dated December 2008, was submitted to the Assistant Secretary of the Army, Civil Works (ASA(CW)), and was approved April 3, 2009. The recommendation of the GRR includes a provision to treat the two separable elements as one project. An amendment to the existing PCA is being prepared and is anticipated to be executed in September 2009. There is currently no sponsor for the recreation features of the project.

**COMPARISON OF FEDERAL COST ESTIMATES:** The current Federal cost estimate of \$366,300,000 is an increase of \$20,250,000 from the latest estimate (\$346,050,000) presented to Congress (FY 2009). This change includes the following items.

Item	Amount
Price Escalation on Construction Features for Upstream Component	(+ \$4,425,000
Price Escalation on Construction Features for Downstream Component	(+ \$15,825,000
Total	(+ \$20,250,000

**STATUS OF ENVIRONMENTAL IMPACT STATEMENT:** The Environmental Impact Statement was filed with the Environmental Protection Agency in September 1988. The Environmental Assessment (EA) for the Detention Component was completed on 3 April 1998 with the signing of the Finding of No Significant Impacts (FONSI).

**OTHER INFORMATION:** Funds to initiate preconstruction engineering and design were appropriated in Fiscal Year 1990, and funds to initiate construction were appropriated in Fiscal Year 1998.

The authorized project for Brays Bayou is divided into two separable elements – a detention element and a diversion element. Because the diversion element was not supported by the Sponsor nor the local residents, an alternative to the diversion element was reformulated in the General Reevaluation Report (GRR) approved by the ASA (CW) on April 3, 2009. The recommended plan within the GRR includes 15.7 miles of earthen channel modifications, replacement and/or lengthening of 27 bridges, and 1,900 acre-feet of storm water detention on a tributary (Willow Waterhole). The alternative to the diversion element is referred to as the downstream component of Brays Bayou. The upstream component of Brays Bayou (which is the detention element as defined in the separable element analysis) comprises features of the authorized plan that have already been designed and, for most of the features, constructed – 8,800 acre-feet of storage in 3 detention basins, 3 in-channel control structures, and 3.7 miles of channel improvements. Construction on the upstream component began in FY98. Upon execution of the PCA Amendment, the upstream component and downstream separable elements will be implemented as one project.

The project was included in the Water Resources Development Act of 1996 (Section 211(f)(6)) as a demonstration project to show advantages and effectiveness of non-Federal interests to undertake planning, design, and construction of Federal Flood Control projects. The HCFCD will receive reimbursement upon completion and approval of discrete segments of the authorized project. Each discrete segment's work will be audited prior to reimbursement. Funds being appropriated will be used to reimburse the sponsor and to pay Corps oversight costs.

Harris County experienced a major flooding event on October 15 through 16th, 2006. Harris County Flood Control District reported that completed discrete segments of the Brays Bayou project (3 regional detention basins) located upstream of the Sam Houston Tollway stored more than 3,500 acre-feet of water (equivalent to 1.1 billion gallons of water or 2.2 Astrodomes), which reduced residential and commercial flooding within the watershed.

**Division: Southwestern**

**District: Galveston**

**Project: Brays Bayou, Houston, Texas**

**7 May 2009**

**UPSTREAM ELEMENT:**

**SUMMARIZED FINANCIAL DATA**

Estimated Federal Cost		\$ 148,100,000
Estimated Non-Federal Cost		74,190,000
Cash Contributions	13,920,000	
Other Costs	60,270,000	
Total Estimated Costs for Upstream		\$ 222,290,000

**REMAINING BENEFIT-REMAINING COST RATIO:** 15.8 to 1 at 7 percent.

**TOTAL BENEFIT-COST RATIO:** 5.1 to 1 at 7 percent.

**DOWNSTREAM ELEMENT:**

**SUMMARIZED FINANCIAL DATA**

Estimated Federal Cost		\$ 218,200,000
Estimated Non-Federal Cost		115,290,000
Cash Contributions	17,280,000	
Other Costs	98,010,000	
Total Estimated Costs for Downstream		\$ 333,490,000

**REMAINING BENEFIT-REMAINING COST RATIO:** 3.0 to 1 at 7 percent.

**TOTAL BENEFIT-COST RATIO:** 3.0 to 1 at 7 percent.

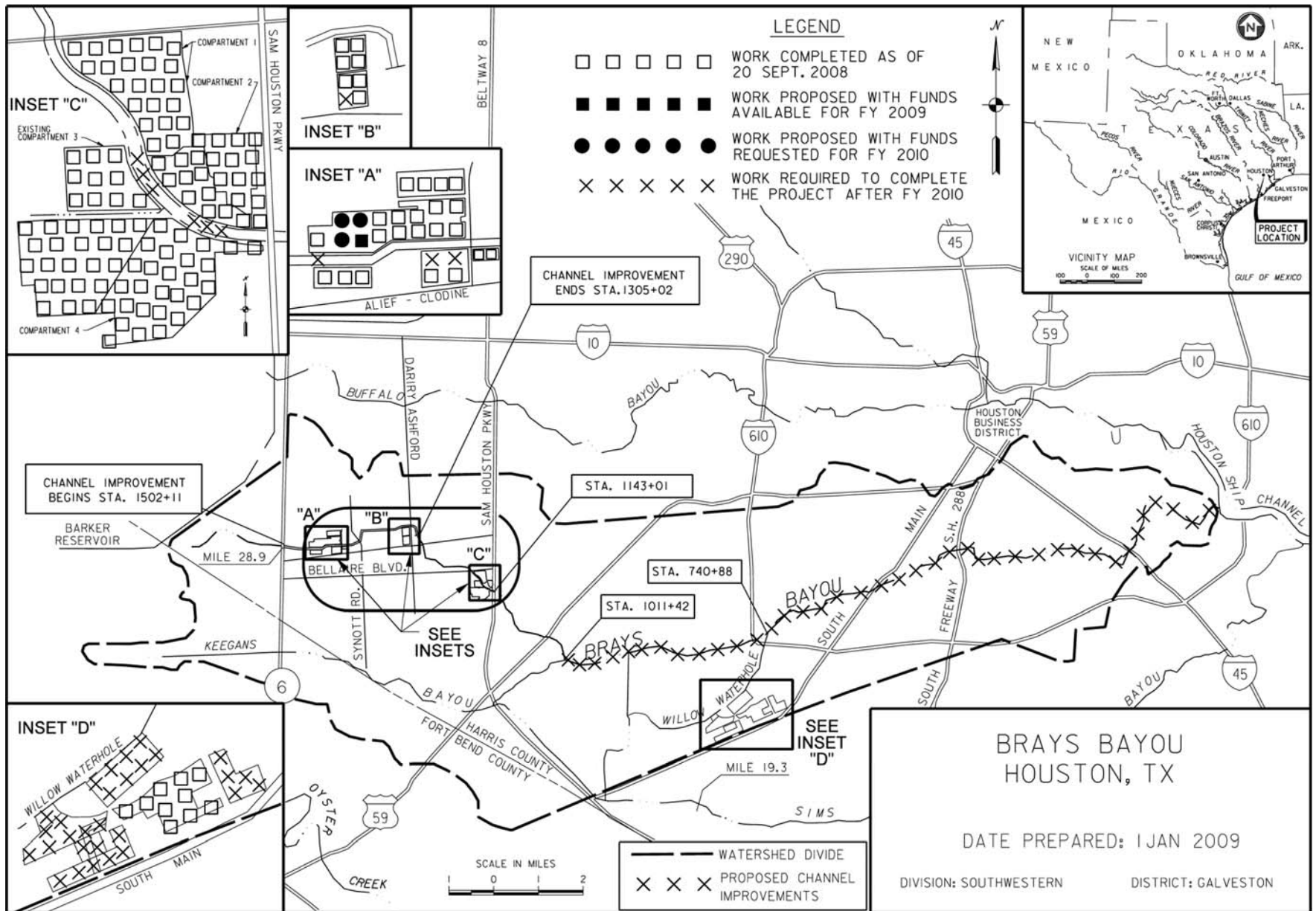
**Division: Southwestern**

**District: Galveston**

**Project: Brays Bayou, Houston, Texas**

**7 May 2009**





Division: Southwestern

District: Galveston

Project: Brays Bayou, Houston, Texas

7 May 2009

**APPROPRIATION TITLE:** Construction, General - Dam Safety Assurance.

**PROJECT:** Canton Lake, Oklahoma, (Dam Safety), (Continuing)

**LOCATION:** The project is located on the North Canadian River about 2 miles north of Canton in Blaine County, Oklahoma.

**DESCRIPTION:** Construction of the project was completed in May 1948. The dam consists of a rolled earth fill embankment with a gate controlled, concrete gravity chute-type spillway located in the right abutment. The outlet works consist of three sluices through the spillway weir, which are controlled by broome-type gates. The recommended plan for resolution of the dam safety deficiencies consists of anchoring the existing spillway to improve sliding stability, relocating Highway 58A, constructing an auxiliary spillway to increase the discharge capacity required during a probable maximum flood event, and placing the excavated material from the spillway excavation at the toe of the earthen dam to resolve the seismic and seepage deficiencies as an additional benefit.

**AUTHORIZATION:** Flood Control Act of 1938.

**REMAINING BENEFIT-REMAINING COST RATIO:** Not applicable.

**TOTAL BENEFIT-COST RATIO:** Not applicable since the project is a dam safety assurance project.

**INITIAL BENEFIT-COST RATIO:** Not applicable since the project is a dam safety assurance project.

**BASIS OF BENEFIT-COST RATIO:** Not applicable since the project is a dam safety assurance project.

**Division:** Southwestern

**District:** Tulsa

**Project:** Canton Lake, Oklahoma  
(Dam Safety)

**7 May 2009**

**SUMMARIZED FINANCIAL DATA**

**Original Project**

Actual Federal Cost	\$ 11,210,000
Actual Non-Federal Cost	\$ 0
Cash Contributions	0
Total Original Project Cost	\$ 11,210,000

**Remedial Works or Project Modification**

Estimated Total Appropriation Requirement	\$ 133,189,000
Future Non-Federal Reimbursement	5,094,000
Estimated Federal Cost (Ultimate)	128,095,000
Estimated Non-Federal Cost	5,094,000
Cash	\$5,094,000
Other	\$0
Total Estimated Remedial or Modification Cost	133,189,000
Total Estimated Project Cost	\$ 144,399,000

Allocations to 30 September 2006	9,505,000	<u>1/</u>
Allocation for FY 2007	6,000,000	
Allocation for FY 2008	17,023,000	
Conference Allowance for FY 2009	20,288,000	
Allocation Requested for FY 2009	20,288,000	
Allocation through FY 2009	52,816,000	41%
Allocation Requested for FY 2010	24,250,000	60%
Programmed Balance to Complete	TBD	
Unprogrammed Balance to Complete after FY 2009	0	

1/ Funds of \$750,000 provided in the FY 2002 Construction, General Appropriation, Dam Safety and Seepage Program line item for the Dam Safety Report are not included in the project cost.

**Division: Southwestern**

**District: Tulsa**

**Project: Canton Lake, Oklahoma  
(Dam Safety)**

**7 May 2009**

**ACCUM.  
PCT. OF EST.  
FED. COST**

**STATUS  
(1 Jan 2009)**

**PERCENT  
COMPLETE**

**PHYSICAL  
COMPLETION  
SCHEDULE**

Entire Project

30%

To be Determined

**PHYSICAL DATA**

Dams

- Anchor Stabilization of Existing Spillway Structure
- New Auxiliary Spillway and Channel
- New Auxiliary Spillway Bridge

**JUSTIFICATION:** The Dam Safety Assurance Report, approved in 2002, indicated two serious and interrelated hydrologic deficiencies occurred at the existing Canton Lake. The deficiencies included inadequate factors of safety against spillway sliding and uncontrolled embankment overtopping by the Probable Maximum Flood. In 2005 Canton was included in Screening Portfolio Risk Assessment which indicated that Canton was within the top ten percent highest at risk dams with regard to failure by uncontrolled seepage. In 2005 a Seismic Safety Review was conducted which indicated that the embankment could move during a seismic event. The population at risk is 60,000 people with potential economic losses estimated between \$1.75 and \$2.64 Billion.

**FISCAL YEAR 2009:** The requested amount of \$20,288,000 will be applied as follows:

Continue construction on the existing contract to excavate the auxiliary spillway channel, construct diaphragm channel walls, spoil placement, ground water control, and cutoff wall	18,000,000
Engineering and Design for the control wet well and weir	1,144,000
Construction Management S&A	<u>1,144,000</u>
 Total	 \$20,288,000

**FISCAL YEAR 2010:** The requested amount of \$24,250,000 will be applied as follows:

Complete construction on the existing contract to excavate the auxiliary spillway channel, construct diaphragm channel walls, spoil placement, ground water control, and cutoff wall	15,350,000
Initiate fully funded auxiliary spillway bridge contract	6,000,000
Engineering and Design for weir and complete the control wet well and hydraulic piping	1,350,000
Construction Management S&A	<u>1,550,000</u>
 Total	 \$24,250,000

Division: Southwestern

District: Tulsa

Project: Canton Lake, Oklahoma  
(Dam Safety)

7 May 2009

**NON-FEDERAL COST:** In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below.

<b>Requirements of Local Cooperation</b>	<b>Payments During Construction</b>	<b>Annual Operation, Maintenance, Repair Rehabilitation and Replacement Costs</b>
Pay 15 percent of cost assigned to project purposes in accordance with the cost allocation in effect for the project at the time of initial project construction. Water supply storage is 25.5 percent of the joint-use costs.	\$ 3,033,000	0
Total Non-Federal Costs	\$ 3,033,000	0

The non-Federal sponsor will reimburse its share of construction costs over a period not to exceed 30 years following completion of construction.

**STATUS OF LOCAL COOPERATION:** The city of Oklahoma City has 100 percent of the water supply storage under contract. Water supply storage is 25.5 percent of the joint-use costs. Reimbursement payments will be initiated at the completion of construction.

**COMPARISON OF FEDERAL COST ESTIMATES:** The current Federal cost estimate of \$133,189,000 is an increase of \$53,889,000 from the last estimate presented to Congress (FY 2009). This change includes the following items.

<b>Item</b>	<b>Amount</b>
Price Escalation on Construction Features	(+) 4,207,000
Post Contract award and other Estimating Adjustments	(+) 49,682,000
Total	(+) 53,889,000

**STATUS OF ENVIRONMENTAL IMPACT STATEMENT:** Not required. The provisions of Section 404 of the Clean Water Act do not apply because the project improvements do not involve the placement of fill material or the discharge of dredge material in the waters of the United States.

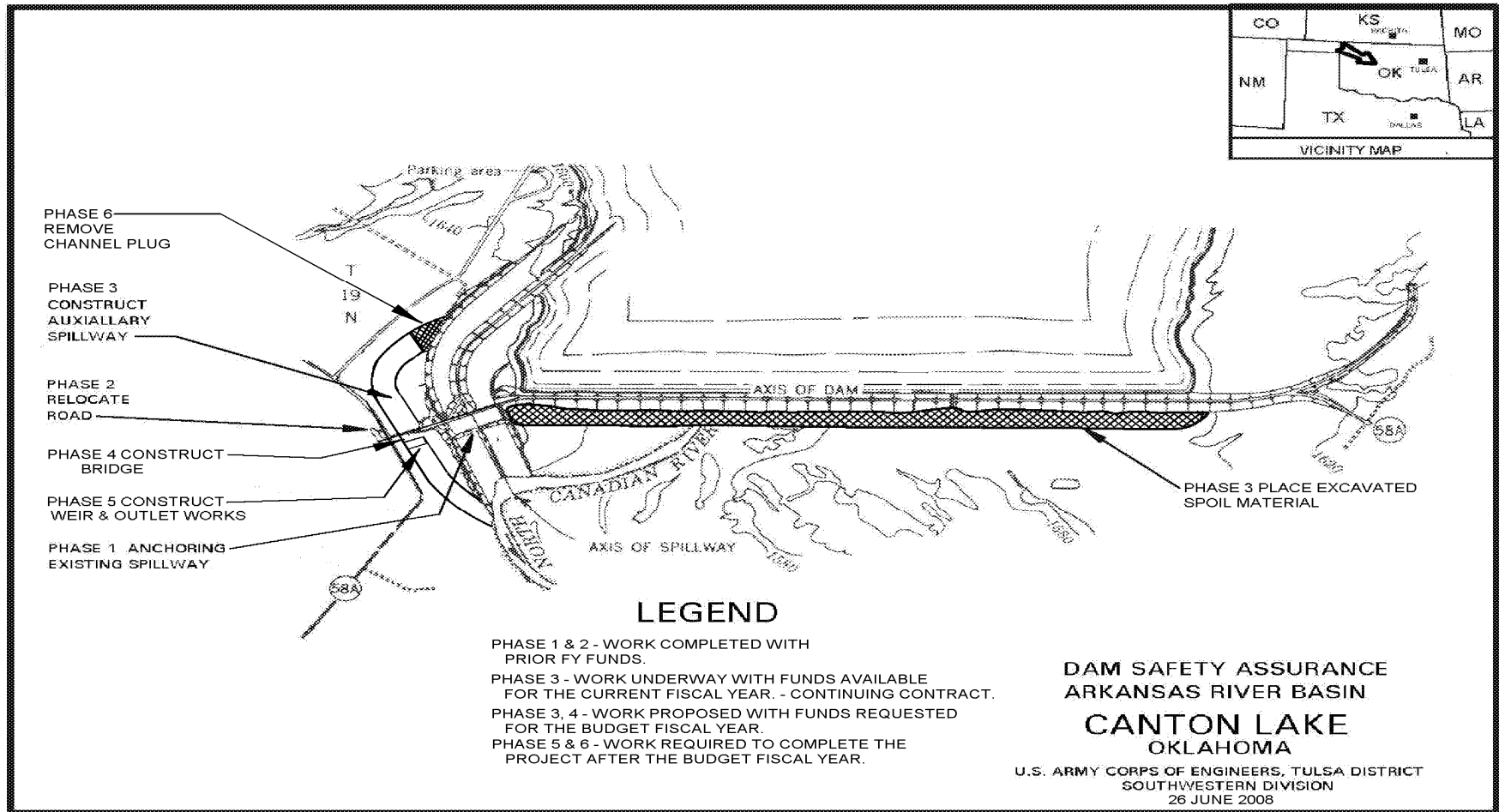
**OTHER INFORMATION:** A Dam Safety Assurance Program Evaluation Report was approved in March 2002. Construction funds were first appropriated for this project in Fiscal Year 2003. During FY06 a seismic and seepage study was performed in addition to the Design Document Report (DDR), which required the relocation of the auxiliary spillway from the Left Abutment to the Right Abutment areas of Canton Dam due to foundation issues.

**Division: Southwestern**

**District: Tulsa**

**Project: Canton Lake, Oklahoma  
(Dam Safety)**

**7 May 2009**



Division: Southwestern

District: Tulsa

Project: Canton Lake, Oklahoma  
(Dam Safety)

7 May 2009

SWD - 21

APPROPRIATION TITLE: Construction – Major Rehabilitation (Reservoirs)

PROJECT: Clearwater Lake Major Rehabilitation, Missouri (Continuing)

LOCATION: Clearwater Lake is located on the Black River in Wayne and Reynolds Counties in southeast Missouri.

DESCRIPTION: The project provides for the construction of a concrete cutoff wall along the entire length of the dam, through the impervious core trench, and into bedrock to prevent seepage and piping of materials through and under the dam. The project purpose is flood damage reduction and 100% of storage is for this purpose.

AUTHORIZATION: Flood Control Act of 1938 (Public Law 761, 75<sup>th</sup> Congress, 3<sup>rd</sup> Session).

REMAINING BENEFITS-REMAINING COST RATIO: Not Applicable.

TOTAL BENEFIT-COST RATIO: Not Applicable.

INITIAL BENEFIT-COST RATIO: Not Applicable

BASIS OF BENEFIT-COST RATIO: Not Applicable

SUMMARIZED FINANCIAL DATA	ACCUM PCT OF EST FED COST	STATUS (1 Jan 2008)	PCT CMPL	PHYSICAL COMPLETION SCHEDULE
Estimated Federal Cost	\$248,526,000	Entire Project	27%	To Be Determined
Estimated Non-Federal Cost	0			
Total Estimated Project Cost	\$248,526,000			
		PHYSICAL DATA		
		Concrete Cutoff Wall approximately 1,000,000 square feet		
Allocations to 30 September 2006	20,025,000			
Allocation for FY 2007	22,650,000			
Allocation for FY 2008	22,745,000			
Conference Allowance for 2009	23,924,000			
Allocation for FY 2009	23,924,000			
Allocations through FY 2009	89,344,000	36%		
Allocation Requested for FY 2010	40,000,000	52%		
Programmed Balance to Complete after FY 2010	TBD			
Unprogrammed Balance to Complete after FY 2010	0			

JUSTIFICATION: Clearwater Dam has experienced seepage related issues, extending back to shortly after completion of original construction. Over the course of the dam's history, various methods have been employed to remediate or reduce seepage related issues. In spite of all these efforts and expenditures, the problem has worsened. A sinkhole developed in the upstream face of the dam in January 2003, calling into question the integrity of the dam embankment and potentially the clay core. Continuing to defer a long-term solution to the seepage problem increases the risk of a dam failure. Noteworthy is the fact that conditions of earth dams have the potential to deteriorate quickly, with little evidence. Continuing to utilize O&M funding to monitor and band-aid the problem is no longer viable. The area that would be affected by a dam failure primarily extends from the dam downstream to Poplar Bluff, MO. If dam failure occurs, there would be very little warning time before Piedmont, MO is cutoff and inundation begins; adverse impacts to Poplar Bluff, MO would occur within one day. The limited state highways follow the valley where flooding will occur, making egress and response assistance to the population at risk very difficult. Many smaller towns affected by flooding have only one egress route. The rural nature of the area makes emergency notification difficult. Failure of Clearwater Dam would negate the benefits for which the project was originally approved. The risk-based economic analysis indicates property damages of up to \$200,000,000 and potentially 369 deaths. Clearwater Lake is an important economic resource for the area, primarily through recreational usage. Failure of the dam and loss of the lake would result in the loss of its economic value to the area. Though residents might return to salvage their property following a failure, decreased property values, loss of jobs, income losses, and loss of wealth due to flood induced expenses would have negative economic effects. Average annual benefits are as follows:

Annual Benefits	Amount
Emergency Action	\$ 162,500
Flood Damage	2,563,900
Foregone Recreation	82,500
Dam Repair	4,363,900
Traffic Delay	-330,978
Total	\$6,841,822

FISCAL YEAR 2009: The allocated amount of \$23,924,000 will be applied as follows:

Continue Construction of Cutoff Wall – Phase Ib & II	\$21,924,000
Complete Seismic Study	400,000
Planning, Engineering, and Design	600,000
Construction Management	1,000,000
Total	\$23,924,000

FISCAL YEAR 2010: The requested amount of \$40,000,000 will be applied as follows:

Continue Construction of Cutoff Wall – Phase II	\$36,400,000
Refurbish Access Bridge	150,000
Revise Water Control Plan	950,000
Planning, Engineering, and Design	1,000,000
Construction Management	1,500,000
Total	\$40,000,000



NON-FEDERAL COST: This major rehabilitation project is 100% federally funded.

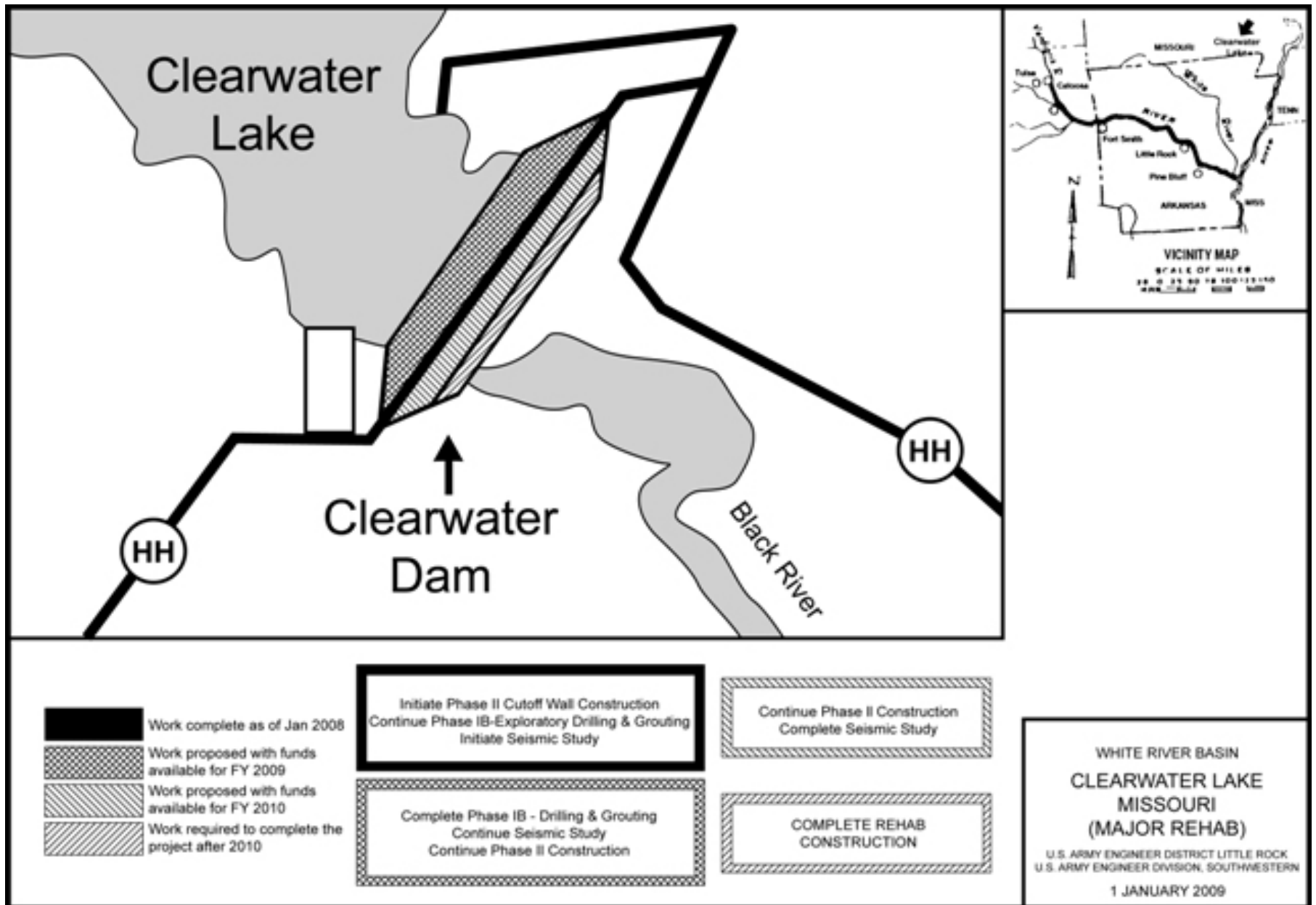
STATUS OF LOCAL COOPERATION: There are no cost sharing or repayment requirements applicable to this project.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of \$248,526,000 is an increase of \$73,395,000 from the latest estimate (\$175,131,000) presented to Congress (FY 2008). This change includes the following items.

Item	
Price Escalation on Construction Features	\$ 9,602,000
Design Changes	35,969,000
Authorized Modifications	16,592,000
Other Estimating Adjustments	11,232,000
Total	\$73,395,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT COMPLIANCE: An environmental assessment of the project was completed in May 2004, with signature of the Finding of No Significant Impact in June 2004.

OTHER INFORMATION: The Major Rehabilitation Report was submitted in June 2004 and approved by the Assistant Secretary of the Army for Civil Works in August 2004. Funds to initiate construction were appropriated in Fiscal Year 2006. The on-going construction phase of the project consists of a Phase I drilling and grouting program to identify and treat subsurface features that would ultimately impact construction of the cutoff wall, as well as refine the parameters of the cutoff wall. The Phase I contract was awarded in January 2006, and completed in October 2007. A second Phase I contract, Phase Ib – Completion of Exploratory Drilling and Grouting, was awarded in August 2007 with NTP in October 2007. Fiscal year 2007 funds were used to award the Phase Ib contract, initiate additional seismic evaluation and monitoring of the dam, and conduct interim risk reduction measure planning. Phase II of the project will consist of construction of the cutoff wall, and the contract was awarded in September 2008. Fiscal year 2008 funds were used to continue Phase Ib construction. The Phase Ib construction has experienced unexpectedly large quantity increases and cost escalation due to the poor condition of the rock underlying the dam. This has resulted in an extension of Phase Ib completion, currently estimated in September 2009, and a delay in the start of the Phase II cutoff wall construction. Fiscal year 2009 funds will be used to continue Phase Ib construction and begin construction of Phase II cutoff wall. Fiscal year 2010 funds will be used to continue construction of Phase II and perform other dam safety requirements. Completion of the project is currently scheduled for fiscal year 2013. A preliminary seismic evaluation of the dam for the operating basis earthquake was conducted during the design of Phase I. Additional evaluation of the dam for the maximum credible earthquake is necessary to determine if the dam meets Corps dam safety criteria, which is being conducted concurrent with the cutoff wall project.



**APPROPRIATION TITLE:** Construction - Local Protection (Flood and Coastal Damage Reduction)

**PROJECT:** Sims Bayou, Houston, TX (Continuing)

**LOCATION:** The project is located in Harris County, in the southern portion of Houston, Texas.

**DESCRIPTION:** The project provides flood damage reduction and consists of 19.3 miles of channel enlargement, rectification, and erosion control measures. Environmental quality measures, riparian habitat improvements, and recreational features are also included in the project.

**AUTHORIZATION:** Water Resources Development Act (WRDA) of 1986, Energy and Water Development Appropriations Act of 1990, and WRDA of 1992.

**REMAINING BENEFIT-REMAINING COST RATIO:** 83.1 to 1 at 7 percent.

**TOTAL BENEFIT-COST RATIO:** 8.5 to 1 at 7 percent.

**INITIAL BENEFIT-COST RATIO:** 9.3 to 1 at 8 5/8 percent (FY 1990).

**BASIS OF BENEFIT-COST RATIO:** Benefits are from Supplement 1 to the General Design Memorandum dated May 1993 at October 1992 price levels. Costs are based on the GDM Supplement 1 at October 1992 price levels.

<b>SUMMARIZED FINANCIAL DATA</b>		<b>ACCUM PCT OF EST FED COST</b>	<b>STATUS (1 Jan 2010)</b>	<b>PCT CMPL</b>	<b>PHYSICAL COMPLETION SCHEDULE</b>
Estimated Federal Cost	275,756,000		Entire Project	85%	To be Determined
Estimated Non-Federal Cost	127,494,000				
Cash Contribution	23,835,000				
Other Costs	103,659,000				
<b>Total Estimated Project Cost</b>	<b>403,250,000</b>				
Allocations to 30 September 2006	173,536,000				
Allocations for FY 2007	22,400,000				
Allocations for FY 2008	20,075,000				
Conference Allowance for FY 2009	19,426,000				
Allocation for FY 2009	25,926,000 <u>1/</u>				
Allocations through FY 2009	241,937,000	88%			
Allocation Requested for FY 2010	25,700,000	97%			
Programmed Balance to Complete after FY 2010	TBD				
Unprogrammed Balance to Complete after FY 2010	4,080,000 <u>2/</u>				

**PHYSICAL DATA**

Channels:  
    Sims Bayou - 19.3 miles

Relocations:  
    Railroad bridges

Utilities  
    Roads

Recreation facilities:  
    Hike-and-bike trails with picnic and  
    other day-use facilities

1/ Includes \$6,000,000 Supplemental funds received for repair of storm damages.

2/ Unprogrammed Balance to Complete is for the recreation facilities.

**JUSTIFICATION:** The project will reduce stream flooding from 14,800 acres of urban lands and beneficially affect nearly 78,000 persons living in 29,000 homes. The 100-year flood plain would be reduced to 2,300 acres outside the required rights-of-way. The recreational development will partially satisfy existing demand in the area. Average annual benefits, annualized at an 8-5/8% interest rate and based on October 1992 prices are as follows:

<b>Annual Benefits</b>	<b>Amount</b>
Flood Damage Prevention	219,344,700
Recreation	945,300
<b>Total</b>	<b>220,290,000</b>

**FISCAL YEAR 2009:** The requested amount of \$25,926,000 will be applied as follows:

Complete construction of Reach 8a (Bathurst to South Post Oak)	\$ 17,000,000
Initiate and complete sediment removal and repairs from Reach 7 To Interstate 45	5,300,000
Planning, Engineering, and Design	1,726,000
Construction Management	<u>1,900,000</u>
Total	\$ 25,926,000

**FISCAL YEAR 2010:** The requested amount of \$25,700,000 will be applied as follows:

Initiate and complete construction of Reach 8b (South Post Oak to Upstream of Heatherbrook)	\$ 15,000,000
Initiate and complete construction of Reach 8c (Upstream of Heatherbrook to Croquet)	4,000,000
Reimbursement for 20% of Credited Work from Port Terminal Railroad to I-45.	3,200,000
Planning, Engineering, and Design	1,000,000
Construction Management	<u>2,500,000</u>
Total	\$ 25,700,000

**NON-FEDERAL COST:** In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below:

<b>Requirements of Local Cooperation</b>	<b>Payments During Construction and Reimbursements</b>	<b>Annual Operation, Maintenance, Repair, Rehabilitation, and Replacement Costs</b>
Provide lands, easements, rights-of-way, and borrow and excavated or dredged material disposal areas.	45,026,000	
Modify or relocate, utilities, roads, bridges (except railroad bridges), and other facilities, where necessary for the construction of the project.	58,293,000	
Pay one-half of the separable costs allocated to recreation and bear all cost of operation, maintenance, repair, rehabilitation and replacement of recreation facilities.	4,080,000	139,000
Pay 5 percent of the costs allocated to flood control, and bear all costs of operation, maintenance, repair, rehabilitation and replacement of flood control facilities.	19,755,000	331,000
Credit for preparation of the dredged material disposal area for the Mouth to PTRR reach and completed miscellaneous engineering and design activities.	340,000	
<b>Total Non-Federal Costs</b>	<b>127,494,000</b>	<b>470,000</b>

The non-Federal sponsors must also agree to make all required payments concurrently with project construction.

**STATUS OF LOCAL COOPERATION:** The sponsor for the flood control project is Harris County. The current non-Federal cost estimate of \$127,494,000 for flood control, which includes a cash contribution of \$23,835,000, is an increase of \$40,894,000 from the non-Federal cost estimate of \$86,600,000 noted in the Local Cooperation Agreement (LCA), which reflected a cash contribution of \$13,800,000. In a letter dated 19 September 1991, the non-Federal sponsor indicated that it is financially capable and willing to contribute the increased non-Federal share. Analysis (dated 31 October 1991) of the non-Federal sponsor's financial capability to participate in the project reaffirms that the sponsor has a reasonable and implementable plan for meeting their financial commitment as expressed in the LCA. In 1993, the City of Houston indicated its desire to sponsor the recreation features for the project. In April 1999 the City provided a letter indicating its renewed interest in sponsorship. The recreational features have been developed and compiled in a Limited Reevaluation Report (LRR), which underwent an Independent Technical Review (ITR) in June 2005. The LRR is anticipated to be approved in January 2010.

**COMPARISON OF FEDERAL COST ESTIMATES:** The current Federal cost estimate of \$275,756,000 is an increase of \$21,776,000 from the latest estimate (\$253,980,000) presented to Congress (FY 2009). This change includes the following items.

Item	Amount
Repairs and Sediment Removal from Storm Damage	(+ 6,000,000)
Price Escalation on Construction Features	(+ 3,992,000)
Post Contract award and other Estimating Adjustments	(+ 11,784,000)
 Total	 (+ 21,776,000)

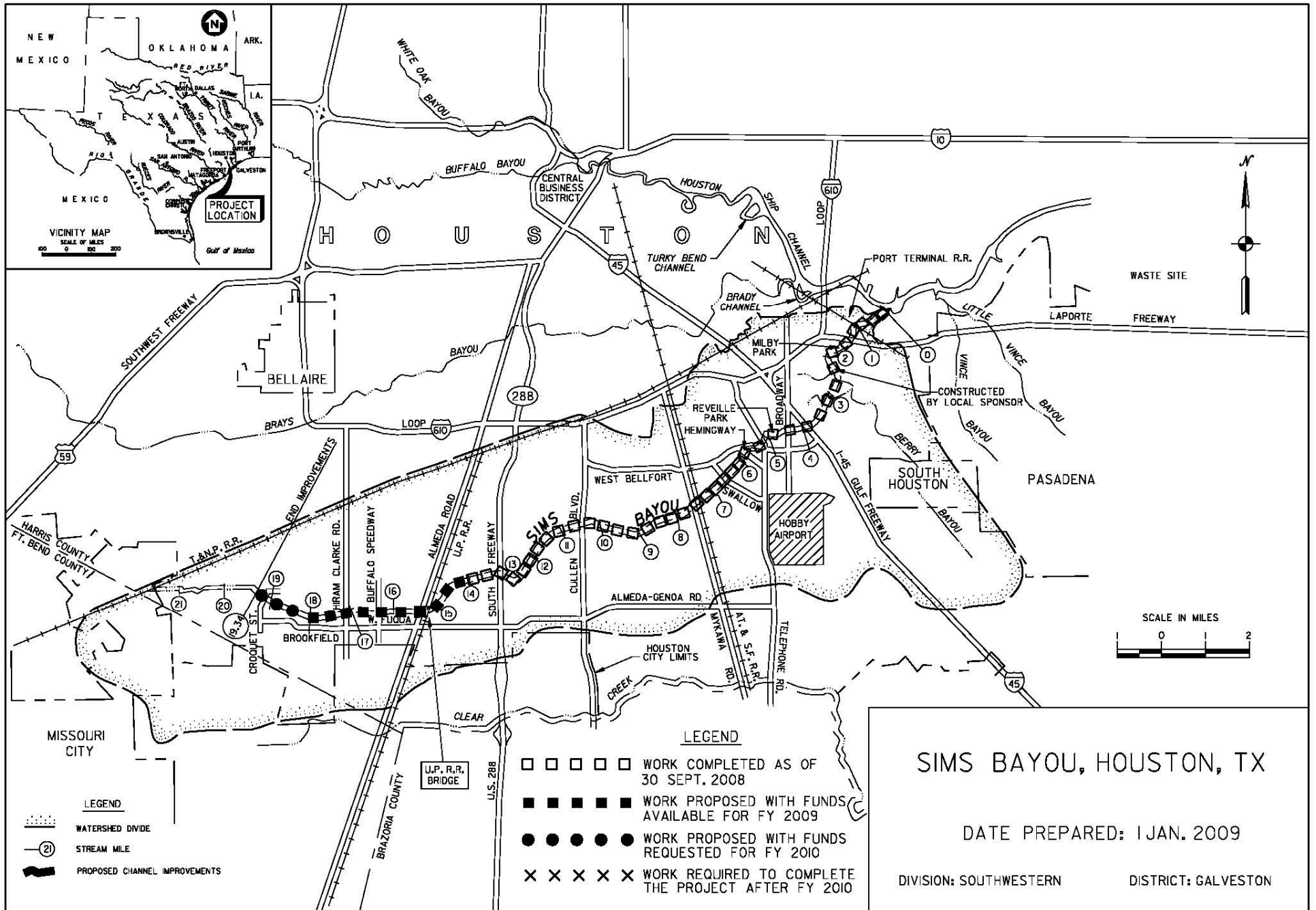
**STATUS OF ENVIRONMENTAL IMPACT STATEMENT:** The final Environmental Impact Statement was filed with the Environmental Protection Agency in September 1983.

**OTHER INFORMATION:** Funds to initiate preconstruction planning were appropriated in Fiscal Year 1986 and funds to initiate construction were appropriated in Fiscal Year 1990.

The Assistant Secretary of the Army for Civil Works has approved the sponsor's request for credit for work performed by the local sponsor. This credit is currently estimated at \$20,070,000, exclusive of lands and is being reimbursed during the period of construction. The project authorization was amended by the Energy and Water Development Appropriations Act of 1990 as the project cost estimate exceeded the maximum cost growth as described in Section 902 of the Water Resources Development Act of 1986. The authorization has been further modified by WRDA '92, Section 102 (66), to include, to the extent practicable, measures to improve environmental quality and riparian habitat.

The previously approved recreation plan as presented in the General Design Memorandum of 1989 is being revised to reflect revisions to the plan requested by the Local Sponsor. A Limited Reevaluation Report (LRR) is being prepared and the updated plan includes 12.3 miles of new multipurpose trails along the banks of the channel with trails connecting to six existing park sites and a future biking facility. Additional features in parks will serve as rest stops and activity nodes for the greenbelt trail system. The LRR is scheduled to be approved in January 2010. The Sponsor, the City of Houston, has indicated their desire to cost-share in the recreation features. Upon approval of the LRR, and appropriation of funds specified for Recreation, a Project Partnership Agreement will be executed.

Harris County experienced excessive rainfall over a 12-24 hour period October 15<sup>th</sup> through 16<sup>th</sup>, 2006. Harris County Flood Control District reported that channel conveyance improvements virtually completed from State Highway 225 upstream to State Highway 288 helped reduce residential and commercial flooding along Sims Bayou.





# NAVIGATION

# INVESTIGATIONS

ILLUSTRATION A-2.2  
COST-SHARED FEASIBILITY STUDY

APPROPRIATION TITLE: Investigations, Fiscal Year 2010

Division: Southwestern

Study	Total Estimated Federal Cost \$	Allocation Prior to FY 2007 \$	Allocation FY 2007 \$	Allocation FY 2008 \$	Allocation FY 2009 \$	Tentative Allocation FY 2010 \$	Additional to Complete After FY 2010 \$
Brazos Island Harbor, Texas Galveston District	3,508,000	892,000	500,000	394,000	478,000	526,000	TBD

The Brazos Island Harbor project provides deep draft access from the Gulf of Mexico through a jettied entrance channel to Brownsville, a side channel, authorized to 36 feet, and shallow draft Fishing Boat Harbor near Port Isabel. The project is 22.8 miles in length. The authorized depths are 42 feet for the main channel and 44 feet through the jetties outer bar. Increased port traffic is direct result of the North American Free Trade Agreement (NAFTA) as a majority of the increased traffic meets industrial needs in Mexico. The Port of Brownsville is the only U.S. deep draft port available to the industry along the U.S. – Mexico border. The Study is located in the area of the Laguna Madre, a pristine aquatic and marine life habitat. The area also serves as a feeding and breeding area for colonial and migratory birds and is highly sensitive to salinity changes. Studies will be conducted to determine any impacts that the project may have on salinity changes, sediment deposits, aquatic sea grasses and plants, and wildlife within the area and minimize the impacts that the project may create. Approximately 6,500 acres of tidal marsh and brush habitat associated with the feeding, breeding and wintering of colonial and migratory water birds was destroyed in the mid-20<sup>th</sup> century due to loss of tidal connection by surrounding development. In anticipation of project construction, authorization was received in the FY 2003 Consolidation Appropriations Act to credit work proposed to be accomplished by the Port of Brownsville for restoration of the Bahia Grande as wetland areas for mitigation against the non-Federal costs of deepening the Brazos Island Harbor channels, if it is determined to be integral to the deepening project. The proposal would achieve improved flow and enhanced circulation associated with a wider and deeper channel. This would be especially beneficial with respect to tidal flow and circulation patterns for protected rookery island, and in San Martin Lake. The non-Federal Sponsor for the project is the Port of Brownsville. The Feasibility Cost Share Agreement (FCSA) was executed in June 2006.

Fiscal Year 2009 funds will be used to narrow alternatives, continue ship simulation, hydrodynamic, shoaling, and Sediment Analysis modeling. Fiscal Year 2010 funds could be used to develop the National Economic Development Plan; select the Recommended Plan; and continue the draft feasibility report, draft Environmental Impact Statement and Engineering Appendix. The preliminary estimated cost of the feasibility phase is \$6,721,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. A summary of the study cost is as follows:

Total Estimated Study Cost	\$6,868,000
Reconnaissance Phase (Federal)	147,000
Feasibility Phase (Federal)	3,361,000
Feasibility Phase (non-Federal)	3,360,000

The reconnaissance phase was completed in June 2006 with the execution of the Feasibility Cost Sharing Agreement. The scheduled completion date of the feasibility phase of the study is to be determined.

7 May 2009

APPROPRIATION TITLE: Investigations, Fiscal Year 2010

Division: Southwestern

Study	Total Estimated Federal Cost \$	Allocation Prior to FY 2007 \$	Allocation FY 2007 \$	Allocation FY 2008 \$	Allocation FY 2009 \$	Tentative Allocation FY 2010 \$	Additional to Complete After FY 2010 \$
Freeport Harbor, Texas Galveston, TX	3,841,000	1,575,000	500,000	709,000	382,000	675,000	0

The Freeport Harbor project is located along the mid to upper Texas coast, and is formed by the improvement of the Brazos River, Texas, from the mouth about 6 miles upstream to Freeport, Texas. It provides for a 47 foot deep, 400 foot wide entrance channel; 45 foot deep, 400 foot wide main channel; 45 foot deep, 750 foot diameter turning basin; a 45 foot deep, 1000 foot diameter Brazos Port Turning Basin; a 45 foot deep, 1200 foot diameter Upper Turning Basin, 36 foot deep, 200 foot wide Brazos Harbor channel; and 36 foot deep, 750 foot diameter Brazos Harbor turning basin. The local sponsor, the Brazos River Harbor Navigation District, is interested in examining the feasibility of improvements to the existing deep draft navigation channel and to determine the Federal interest in expanding the reach of the navigation channel to the Stauffer Channel and turning basin. Freeport Harbor is an important port for imported petroleum products, exported petrochemicals, and general cargo. The existing channel is not sufficiently deep to fully load the existing tanker fleet serving Freeport Harbor. Further, the 400-foot wide entrance and main channels limit Freeport Harbor to one-way traffic for all vessels and daylight-only operation for larger vessels. The light-loading, one-way traffic and daylight-only operation result in significantly higher cost to users than would be experienced if the harbor were enlarged and deepened. Average annual benefits due to the improved efficiency of using larger vessels are currently estimated at over \$20 million from deepening the channel and over \$4 million for widening the channel. The Brazos River Harbor Navigation District signed a Feasibility Cost Sharing Agreement (FCSA) in July 2003.

The National Economic Development (NED) plan contained in the draft Feasibility Report provides for a 60 to 62 foot deep, 400 to 1,350 foot wide channel; and extends the Stauffer Channel to 30 to 45 foot depth, and 200 to 300 foot width. The Benefit to Cost Ratio for the NED Plan is 1.5 (4.625% discount rate). The non-Federal sponsor is interested in constructing a 55 foot deep channel which is less costly than the NED plan; therefore, the recommended project is the Locally Preferred Plan (LPP), which provides a 57 foot deep, 600 foot wide entrance channel; 55 foot deep, 600 foot wide main channel; 55 foot deep turning basins (750 foot, 1,350 foot, and 1,200 foot diameter); extension of the navigation channel to the Stauffer Channel; widen the lower reach of the Stauffer Channel to 300 foot and deepen to 50 foot; and return the upper Stauffer Channel to authorized dimensions of 30 foot depth and 200 foot width. The average annual benefits for this plan amount to \$32.1 million, all for navigation, based on the latest economic analysis dated January 2009. Crude oil represents 90% of the benefits for the locally preferred plan; containers account for 7% of the benefits; and offshore – 3%. The project is estimated to cost \$322.8 million which consists of a Federal cost of \$128.2 million and a non-Federal cost of \$194.6 million. For safety reasons, the Port is seeking a permit to expedite widening the channel prior to the completion of the Federal project to provide for safe passage of large Liquefied Natural Gas (LNG) ships that are expected to use the Port as soon as ongoing construction of a LNG processing facility is complete. The Port Freeport is pursuing assumption of maintenance under Section 204(f) of the Water Resources Development Act of 1986 for a proposed improvement to the Freeport Harbor Channel. Fiscal Year 2009 funds are being used to continue the feasibility phase of the study to complete the draft Feasibility Report. Fiscal Year 2010 funds could be used to complete the final feasibility report, including the environmental impact statement, the associated public and Washington reviews. The preliminary estimated cost of the feasibility phase is \$7,432,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. A summary of the study cost is as follows:

Total Estimated Study Cost	\$ 7,557,000
Reconnaissance Phase (Federal)	125,000
Feasibility Phase (Federal)	3,716,000
Feasibility Phase (Non-Federal)	3,716,000

The reconnaissance phase was completed in July 2003. The completion date for the feasibility phase of the study is June 2010.

APPROPRIATION TITLE: Investigations, Fiscal Year 2010

Division: Southwestern

Study	Total Estimated Federal Cost \$	Allocation Prior to FY 2007 \$	Allocation FY 2007 \$	Allocation FY 2008 \$	Allocation FY 2009 \$	Tentative Allocation FY 2010 \$	Additional to Complete After FY 2010 \$
Gulf Intracoastal Waterway - High Island to Brazos River (Realignments), Texas Galveston District	2,255,000	221,000	17,000	0	191,000	200,000	TBD

The study area includes approximately 85 miles of the Gulf Intracoastal Waterway (GIWW) in Galveston and Brazoria Counties, from High Island, Texas, to the Brazos River. Tonnage transported along this section of the GIWW totaled nearly 74 million tons in 2006, with a commercial value of over 25 billion dollars. Petrochemicals are the major commodity shipped along this reach of the waterway. Some of the problems identified by users along this reach include difficulties negotiating the two 90-degree bends west of the Highway 124 bridge at High Island causing steerage problems for tows, making it difficult for even one way traffic; high shoaling rates and associated transit delays at Rollover Pass; the area at Sievers Cove experiences periods of high wind and current causing navigation problems due to the limited clearance between the GIWW and placement area #41, limiting the barges ability to compensate for the wind and current; and problems arise at the Texas City Channel (west wye) due to width restrictions and defective channel markers. Waterway users often continue to the intersections of the Texas City Channel and the GIWW before turning towards Texas City creating an unsafe condition due to currents as tows maneuver a 120 degree turn into a congested area used by ocean-going, deep draft vessels. The cut through Pelican Island provides the last protected area for eastbound traffic before crossing the Galveston causeway. Tows often stop during fast moving tides and high winds, causing congestion at the Pelican Island mooring facility as vessels wait for safe passage through the Galveston causeway. Additionally, moored barges often extend out into the channel making passing through the area difficult requiring extreme care. Additional moorings are needed west of the Galveston causeway, as during periods of high winds, tows must push onto the bank in the sheltered area near Greens Lake and wait, sometimes for several days. The four miles between Cow and Halls bayous are areas of severe erosion where shoaling often reduces the channel width, limiting traffic to one way. The problem is compounded by cross currents. The GIWW is designated as part of the Nation's Inland Waterway System, and qualifies for 50-50 cost sharing from the Inland Waterways Trust Fund for construction of navigation improvements. An initial appraisal of the entire 423-mile Texas Section of the GIWW was completed in November 1989. The GIWW High Island to Brazos reconnaissance study completed in February 1995 concluded that modifications to the existing GIWW were economically feasible from reduction in delay benefits. Investigations to identify potential solutions to resolve the navigation issues along this reach of the GIWW have been divided into two interim feasibility studies. The GIWW-High Island to Brazos River, Texas study was completed in 2007, and authorized in the Water Resources Development Act of 2007. The study addressed potential improvements to the waterway between Rollover Pass and West Bay. The second interim study, the High Island to Brazos River Realignment Interim Feasibility, includes evaluation of navigation improvements in negotiating two 90-degree bends near High Island; difficulties negotiating a double "S" curve near Freeport; difficulties negotiating the intersection within the Chocolate Bayou Channel; and developing long range disposal plans.

Fiscal Year 2009 funds will be used to continue the Interim Feasibility Study. Fiscal Year 2010 will be used to continue feasibility studies on select alternatives at High Island Bend to include a detailed economic, engineering, and environmental analysis. The completion date for the feasibility phase of the study is to be determined.

7 May 2009

# CONSTRUCTION

**APPROPRIATION TITLE:** Construction - Channels and Harbors (Navigation)

**PROJECT:** Texas City Channel, TX (Continuing)

**LOCATION:** The project is located on the mainland of Texas on the west side of Galveston Bay, about 10 miles northwest of the city of Galveston.

**DESCRIPTION:** The project provides for deepening of 6.75 miles of Texas City channel from Houston Ship Channel to the Texas City Turning Basin. The channel and Turning Basin will be deepened to 45 feet, maintaining the present 400 foot channel and turning basin width. Five semi-confined open water dredged material placements areas will be constructed and converted into emergent marsh. A 50-foot project was authorized under WRDA 1986 but was never built because the non-Federal sponsor, the city of Texas City was unable to secure funding to initiate plans and specifications in 1989.

**AUTHORIZATION:** Water Resource Development Act of 1986

**REMAINING BENEFIT-COST RATIO:** 8.9 to 1 at 7 percent.

**TOTAL BENEFIT-COST RATIO:** 5.94 to 1 at 7 percent.

**INITIAL BENEFIT-COST RATIO:** 8.5 to 1 at 4-7/8 percent (2008).

**BASIS OF BENEFIT-COST RATIO:** Benefits and costs are from the economic analysis included in the approved General Reevaluation Report and Environmental Assessment, dated October 2007.

**Division:** Southwestern

**District:** Galveston

**Project:** Texas City Channel, Texas

**7 May 2009**

**SUMMARIZED FINANCIAL DATA**

Estimated Federal Cost (Corps of Engineers)	\$ 60,251,000	
Estimated Non-Federal Cost (Sponsor)	20,084,000	
Cash Contribution	\$20,084,000	
Other Costs:		
Lands	0	
Relocations	0	
Berthing Areas	0	
<b>Total Estimated Project Cost</b>	<b>\$ 80,335,000</b>	
Allocations to 30 September 2006	\$ 2,891,000	1/
Allocation for FY 2007	900,000	2/
Allocation for FY 2008	2,460,000	
Conference Allowance for FY 2009	1,914,000	
Allocation for FY 2009	46,000,000	
Allocations through FY 2009	52,251,000	87%
Allocation Requested for FY 2010	8,000,000	100%
Programmed Balance to Complete After FY 2010	0	
Unprogrammed Balance to Complete After FY 2010	0	

**ACCUM.  
PCT. OF EST  
FED. COST**

**STATUS  
(1 Jan 2010)**

**PERCENT  
COMPLETE**

**PHYSICAL  
COMPLETION  
SCHEDULE**

Entire Project      75%      September 2010

**PHYSICAL DATA**

Channels:

    Main Ship Channel – 6.75 miles  
    Turning Basin – 1,000 feet to 1,200 feet wide and 4,253 feet long

Dredged Material Placement Areas converted to emergent marsh:

    Aquatic Plant and Marine Habitat – 5 sites

1/ Reflects \$1,500,000 reprogrammed from the project.



**JUSTIFICATION:** The project benefits are based on reductions in transportation costs stemming from more efficient vessel loading and a higher utilization of larger vessels. The average annual benefits for the project are \$28,058,000, all commercial navigation, based on October 2005 price levels.

<b>Annual Benefits</b>	<b>Amount</b>
Navigation:	\$28,058,000
Total	\$28,058,000

**FISCAL YEAR 2009:** Funds in the amount of \$46,000,000 will be used in FY09 as follows:

Initiate and complete Westfield Recovery	\$ 1,000,000
Initiate and complete a Design/Build construction contract for Sta. 1+ 493 10 to Sta. 31+ 000 (Includes PA2)	42,750,000
Planning, Engineering, and Design	1,000,000
Construction Management	1,250,000
Total	\$ 46,000,000

**FISCAL YEAR 2010:** Funds in the amount of \$8,000,000 will be used in FY 10 as follows:

Initiate and complete construction contract for Sta. 31+000 to Sta. 37+430	\$ 7,300,000
Planning, Engineering, and Design	200,000
Construction Management	500,000
Total	\$ 8,000,000

**Division: Southwestern**

**District: Galveston**

**Project: Texas City Channel, Texas**

**7 May 2009**

**NON-FEDERAL COST:** In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, as amended, the non-Federal sponsor must comply with the requirements listed below:

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, Repair, Rehabilitation, and Replacement Costs
Provide lands, easements, rights-of-way, and borrow and excavated or dredged material disposal areas.	\$ 0	
Modify or relocate, utilities, roads, bridges (except railroad bridges), and other facilities, where necessary for the construction of the project.	0	
Pay a percentage of the costs allocated to navigation improvements, and to mitigate the project's adverse environmental impacts.,	20,084,000	\$139,000
<b>Total Non-Federal Costs</b>	<b>\$ 20,084,000</b>	<b>\$139,000</b>

**STATUS OF LOCAL COOPERATION:** The Non-Federal sponsor for the project is the City of Texas City. The Project Partnership Agreement (PPA) with the city of Texas City was executed July 28, 2008.

**COMPARISON OF FEDERAL COST ESTIMATES:** The current Federal (Corps of Engineers) cost estimate of \$60,251,000 has not previously been presented to Congress.

**STATUS OF ENVIRONMENTAL IMPACT STATEMENT:** Environmental Assessment statement of findings and Finding of No Significant Impact was signed October 4, 2007.

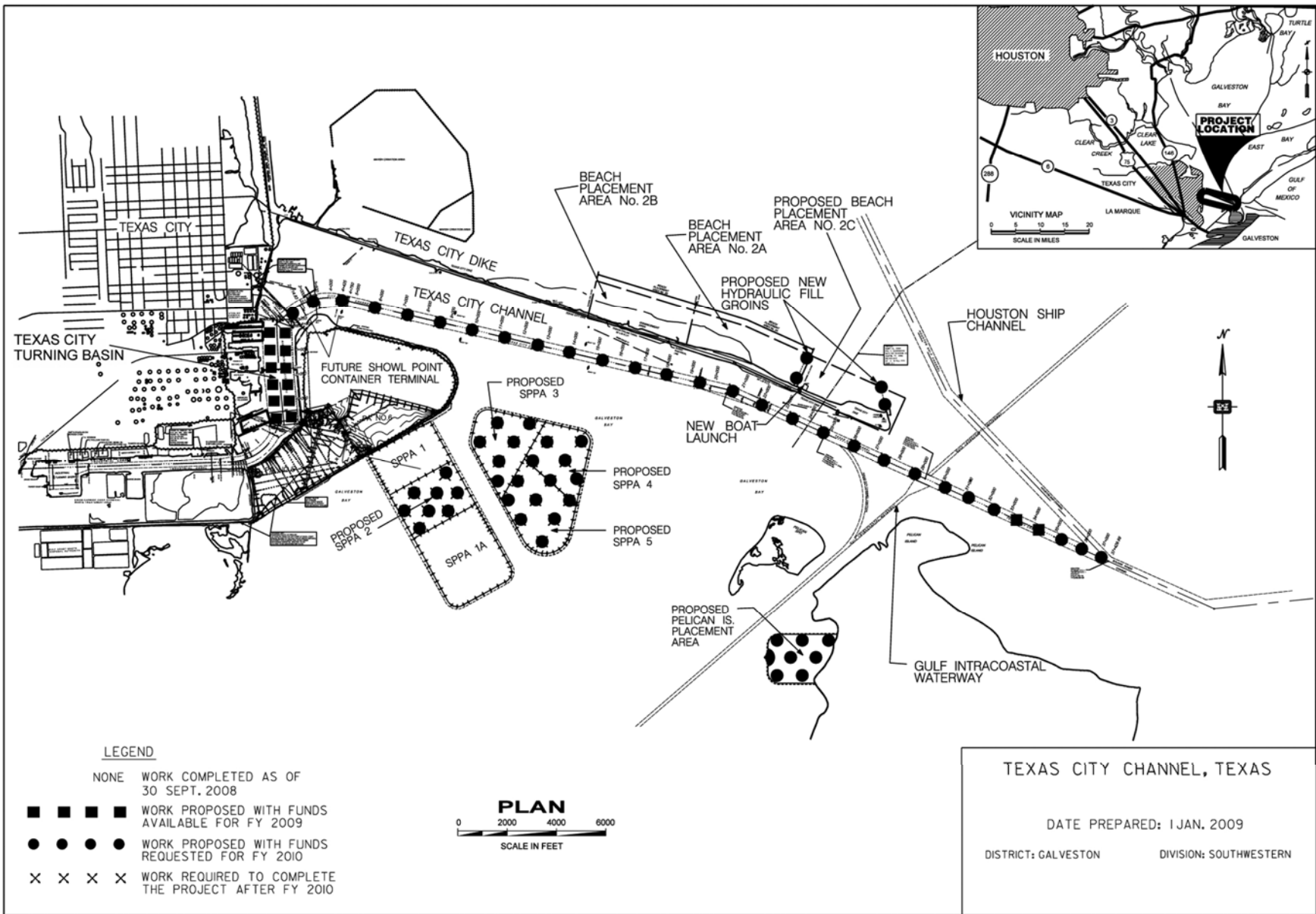
**OTHER INFORMATION:** The Non-Federal sponsor for the existing project, the City of Texas City, has actively participated throughout the planning process. Their primary concern has been to initiate and complete construction as soon as possible. Funds to initiate preconstruction engineering and design were appropriated in FY2002 and funds to initiate construction were appropriated in FY 2008.

**Division: Southwestern**

**District: Galveston**

**Project: Texas City Channel, Texas**

**7 May 2009**



Division: Southwestern

District: Galveston

Project: Texas City Channel, Texas

7 May 2009

# AQUATIC ECOSYSTEM RESTORATION

# INVESTIGATIONS

APPROPRIATION TITLE: Investigations, Fiscal Year 2010

Southwestern Division

Study	Total Estimated Federal Cost \$	Allocation Prior to FY 2007 \$	Allocation FY 2007 \$	Allocation FY 2008 \$	Allocation FY 2009 \$	Tentative Allocation FY 2010 \$	Additional to Complete After FY 2010 \$
Guadalupe and San Antonio River Basins, Texas Fort Worth/Galveston Districts	8,382,000	2,593,000	620,000	793,000	382,000	423,000	TBD

The study area of the Guadalupe and San Antonio River basins intersects the Edwards Plateau ecological region in south central Texas and extends approximately 110 miles southeasterly from the headwaters in Kerr and Bandera Counties, to the Gulf of Mexico in Refugio and Calhoun Counties. The Guadalupe basin has a drainage area of 6,700 square miles, and the San Antonio River basin 4,180 square miles. Flooding within various portions of the Guadalupe and San Antonio River basins was severe in 1972, 1978 and 1997, when portions of the river basins were declared disaster areas. Major flood events also occurred in 1998, 2000, 2002, and 2004. In October 1998, one of the largest of all recent flood events within the region, accounted for at least 31 deaths and caused damages estimated at \$800 million. Many communities experienced inundation to rooftop levels, with water velocities great enough to completely demolish brick homes. The July 2002 event was estimated to be near the 500-year event in certain portions of the watershed. Nine deaths occurred and more than 45,000 homes were damaged or destroyed by floodwaters, with property damage estimates of \$1 billion. During the most recent flood event in June 2004, another three lives were lost. The flooding also had a negative impact on the tourism industry, a major source of income along the Guadalupe River. The study consists of an investigation of the Guadalupe and San Antonio River basins to address improvements in the interest of flood and coastal storm damage reduction (flood risk management), ecosystem restoration, water quality, water supply, recreation and other allied purposes. In response to Texas Senate Bill 1 (1997), alternatives to enhance water supply would include recharge to the Edwards Aquifer. Such alternatives, if adopted, could provide dual benefits of ecosystem restoration and water supply. Both structural and nonstructural solutions are being investigated. There are currently three interim feasibility studies (Cibolo Creek, Leon Creek, and Salado Creek) under the Guadalupe-San Antonio River Feasibility Study. The Cibolo Creek, Leon Creek, and Salado Creek Interim Feasibility Studies are multipurpose studies addressing flood risk management, ecosystem restoration, water quality and water supply.

Fiscal Year 2009 funds are being used to continue plan formulation for the Cibolo Creek Interim Feasibility Study and evaluate alternatives for the Leon Creek Interim Feasibility Study. Fiscal Year 2010 funds would be used to complete the draft reports for the Cibolo Creek and Leon Creek Interim Feasibility Studies. The preliminary estimated cost of the overall feasibility study is \$15,692,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. A summary of study cost sharing is as follows:

Total Estimated Study Cost	\$16,228,000
Reconnaissance Phase (Federal)	536,000
Feasibility Phase (Federal)	7,846,000
Feasibility Phase (Non-Federal)	7,846,000

The completion date for the interim feasibility studies is to be determined.

APPROPRIATION TITLE: Investigations, Fiscal Year 2010

Southwestern Division

Study	Total Estimated Federal Cost \$	Allocation Prior to FY 2007 \$	Allocation FY 2007 \$	Allocation FY 2008 \$	Allocation FY 2009 \$	Tentative Allocation FY 2010 \$	Additional to Complete After FY 2010 \$
Nueces River and Tributaries, Texas Fort Worth and Galveston Districts	6,001,000	1,094,000	400,000	461,000	574,000	250,000	TBD

The Nueces River basin, which lies in the southern part of Texas, has an overall length of approximately 235 miles, a maximum width of 115 miles, and a total drainage area of 17,075 square miles. The Nueces River flows in a southeasterly direction and enters Nueces Bay near Corpus Christi, Texas. The watershed includes portions of three major aquifers – the Edwards, Carrizo-Wilcox, and Gulf Coast. The Edwards Aquifer is the major source of water for the San Antonio and Bexar County metropolitan areas. This aquifer accounts for about 20 percent of the basin and is recognized as having high potential for groundwater recharge. The watershed also crosses many political, jurisdictional, and geographical boundaries and pits groundwater systems management against surface water systems management within the same basin. Poor land use practices, recent droughts, and conflicting water resource management issues have resulted in significant environmental degradation. The lack of fresh-water inflows into the Nueces Bay has resulted in hyper-saline conditions that have severely diminished the habitat suitability of approximately 20,000 acres of the Nueces delta area. In addition, the lowering of the Edwards Aquifer due to drought conditions and withdrawal of water from the aquifer has reduced spring flows from San Marcos and Comal Springs causing degradation of these rare and unique habitats, threatening the continued existence of eight endangered species endemic to these habitats. During a Nueces River basin feasibility study workshop held on 10 June 2007, which was attended by over 50 individuals representing 20 Federal, state and local water and environmental resource agencies, all parties agreed that the efforts to model the hydraulics and hydrology and the significant ecosystems of the Nueces watershed are extremely important, not only for the watershed study, but also for the region and Texas' State Water Planning efforts, including the development of environmental flow parameters for the protection of riverine, and bay and estuary aquatic ecosystems. The study sponsors are the Nueces River Authority, San Antonio Water System, San Antonio River Authority, Guadalupe-Blanco River Authority and the city of Corpus Christi, Texas. The Feasibility Cost Sharing Agreement was signed on 24 September 2004.

Fiscal Year 2009 funds are being used to continue development of the mid- and lower basin hydrological and hydraulic models and initiate development of ecologic models. Fiscal Year 2010 funds will be used to complete these models. The estimated cost of the feasibility phase is \$11,602,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. A summary of study cost sharing is as follows:

Total Estimated Study Cost	\$11,802,000
Reconnaissance Phase – Federal	200,000
Feasibility Phase – Federal	5,801,000
Feasibility Phase - non-Federal	5,801,000

The completion date for the Nueces River and Tributaries, Texas feasibility study is to be determined.

APPROPRIATION TITLE: General Investigations, Fiscal Year 2010

Division: Southwestern

Study	Total Estimated Federal Cost \$	Allocation Prior to FY 2007 \$	Allocation FY 2007 \$	Allocation FY 2008 \$	Allocation FY 2009 \$	Tentative Allocation FY 2010 \$	Additional to Complete After FY 2010 \$
Sabine Pass to Galveston Bay, Texas Galveston District	6,164,000	2,261,000	270,000	98,000	382,000	200,000	TBD

The study area consists of approximately 90 miles of Gulf of Mexico shoreline in Jefferson, Chambers, and Galveston Counties along the upper Texas coast from Sabine Pass to San Luis Pass at the western end of Galveston Island. In the entire study area, over 200 houses and up to 40,000 people are affected by shore erosion. The major problems identified in the reach to the north of Galveston Bay are potential destruction of nationally significant wetlands; damage to homes and commercial property; and significant damage to State Highway 87, caused by shoreline erosion. Interest has been expressed in a project to stabilize the shoreline and thus protect nationally significant wetlands and other resources. The area traverses 12 miles of the 81,700-acre McFaddin Marsh National Wildlife Refuge and approximately 2-1/2 miles of the 15,100-acre Sea Rim State Park. Sea Rim State Park is located in the easterly portion of the study area, approximately 10 miles west of Sabine Pass with McFaddin Marsh Refuge immediately to the west. Along the Galveston Island, Texas reach of the study area, erosion rates in excess of 8 feet per year are occurring beyond the limits of the seawall in Galveston, Texas. This erosion, if continued, will result in damages to several beach communities. It has been demonstrated that an economically feasible project could be developed as a result of studies completed in the mid-1980s for a Galveston Island Beach Erosion Study. On September 13, 2008 Hurricane Ike moved directly over the entire study area with category two storm winds of 110 mph (sustained) and an estimated category four storm surge ranging between 10-15 feet above normal tides. The entire study area was significantly altered both physically and economically. The northern portion of the study area (Bolivar Peninsula) was completely devastated. A number of alternatives have been proposed, including beach nourishment and stone protection. The non-Federal Sponsors for the project are Galveston and Jefferson Counties. The Feasibility Cost Sharing Agreement was executed on 6 September 2001.

Fiscal Year 2009 funds will be used to reanalyze the future without project conditions and the environmental baseline report. Fiscal Year 2010 funds will be used to continue the feasibility phase of the study, which includes continuing the reanalysis of the future without project conditions. The preliminary estimated cost of the feasibility phase is \$12,158,000, which will be shared on a 50-50 percent basis by the Federal and non-Federal interests. A summary of the study cost sharing is as follows:

Total Estimated Study Cost	\$12,243,000
Reconnaissance Phase (Federal)	85,000
Feasibility Phase (Federal)	6,079,000
Feasibility Phase (non-Federal)	6,079,000

The scheduled completion date of the feasibility phase of the study is to be determined.



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# REGULATORY

APPROPRIATION TITLE: Regulatory Program, FY 2010

AUTHORIZATION: Rivers and Harbors Act of 1899, Sections 9, 10 and 13  
Clean Water Act, Section 404  
Marine Protection, Research and Sanctuaries Act, Section 103

SUMMARIZED FINANCIAL DATA:

Budget Request for Fiscal Year 2010	\$190,000,000
Budget Request for Fiscal Year 2009	\$180,000,000
Proposed Increase in FY 2010 over FY 2009	\$ 10,000,000

JUSTIFICATION:

Background. The Corps of Engineers has been regulating specific activities in the Nation's waters since 1890. The Corps' Regulatory program is highly decentralized with most of the authority for administering the program delegated to District and Division Commanders. Scrutiny on the Corps' regulatory program has increased as development pressures mount and public awareness of the aquatic environment and the involvement of state and Federal resource agencies continue to grow. Sensitivity to wetlands has resulted in greater direct input from the public and environmental interest groups, leading to greater scrutiny and controversy in the review of permit proposals. While this tends to add time to the permit review process, it insures balance in the overall review. Interagency cooperation in the management and protection of the nation's wetlands has greatly improved over the last ten years, resulting in improved efficiency and effectiveness of the Corps Regulatory program. The Corps has worked to implement program changes to enhance efficiency, enabling more timely response to permit applicants while also improving its ability to ensure protection of the aquatic environment. The Corps works with state, tribal, and local governments to develop mechanisms that give them greater responsibility for aquatic resources including wetland regulation. This is achieved primarily through programmatic and regional general permits, designed to reduce Federal regulation of activities with only minimal adverse impacts on the aquatic environment. Strategies also include joint federal-state permit applications and processing procedures as well as work-sharing agreements to eliminate duplication of effort with state and local governments. State Programmatic General Permits are becoming an increasingly effective mechanism for giving states a greater role in administering minor permit actions over large areas, thus freeing up Corps resources for more complex permit actions. States may assume Section 404 authority (in non-navigable waters) where the state or local regulatory program is able to implement appropriate regulatory controls. Since 1984, only Michigan and New Jersey have chosen to assume this aspect of the program (Michigan has recently initiated preliminary discussions to relinquish their program). The Corps is working to improve inter-agency coordination in efforts to share resources and spatial data. Since 2002, the Corps has cooperated with the other agencies to improve all aspects of mitigation managed by the program.

Types of Activities Regulated by the Corps:

- a. Construction and other work in waters of the United States including wetlands;
- b. Construction of fixed structures and artificial islands on the outer continental shelf;
- c. Discharges of dredged or fill material, including those associated with construction and land-clearing activities, into the waters of the United States, including wetlands;
- d. The transportation of dredged material for the purpose of disposal in ocean waters.

APPROPRIATION TITLE: Regulatory Program, FY 2010

Evaluation Criteria. The decision whether to issue a permit is based on an evaluation of the probable impacts of proposed activities on the aquatic environment, including wetlands, and other aspects of the public interest. In order to issue a permit, District Commanders must determine that activities are not contrary to the public interest. In addition, for Section 404 permits, the Corps must determine compliance with the Clean Water Act, Section 404 (b)(1) guidelines. Corps permits must also be in compliance with other federal laws, including the Endangered Species Act and National Historic Preservation Act.

ACCOMPLISHMENTS: In FY 08, the Corps authorized more than 56,000 activities and completed more than 84,000 jurisdiction determinations. Of the approximately 56,000 permits, more than 95 percent were authorized by Regional and Nationwide general permits with the remainder authorized by the more complex individual permits. The Corps continues to depend on its nationwide permit program to help manage its regulatory workload. Without regional and nationwide general permits, all activities would have to be evaluated by the time consuming individual permit process. Although the evaluation process for an individual permit is typically greater than that for a general permit, most general permit authorizations also involve substantive evaluation and determination of necessary mitigation. The Corps reissued the Nationwide permits in FY 2007 and continues to re-evaluate data for their renewal in 2012.

The Corps has been a driving force in the inter-agency group working to improve the success of compensatory mitigation. This effort began with the Regulatory Guidance Letter RGL 02-02 which led to the multi-agency Mitigation Action Plan (MAP). In April 2008, the Corps and EPA released the Compensatory Mitigation Rule, greatly improving implementation, monitoring and performance of mitigation requirements. The new rule establishes performance standards, sets timeframes for decision making, and to the extent possible, establishes equivalent requirements for the three mitigation sources.

The Corps continues to protect the nation's aquatic environment, while working to provide fair and equitable decisions in a reasonable period of time. Because of a substantial increase in the total number of written permit authorizations over the last ten years as well as increasing complexity and program review requirements and legal challenges, the Corps has not been able to maintain its evaluation time for the more complex permit actions. In FY 08, 82% of all General Permits were authorized in less than 60 days, and slight increase from FY07 (80%). Performance in evaluating the more complex projects that require individual permits has continued to decrease. With nationwide and regional general permits authorizing most actions, only the most difficult permits are left to be handled through standard permits. In FY 08, 49% of individual permits were completed within 120 days, compared to 53% in FY07, 61% in FY 06 and 50% in FY05. Standard permits represent approximately 5% of all permits in numbers but utilize almost a third of all Corps man-days expended on permit actions. The environmental review of all standard permits continues to be extensive and time consuming, as proposed projects that are large and have significant impacts on the aquatic environment have a more stringent review under the National Environmental Policy Act (NEPA) and a higher probability of involving endangered species, historic resources, and compensatory mitigation. The impact of these problems increases each year as development pressure persists or increases and applicants are forced to consider building in or near higher value aquatic areas, including wetlands. For these reasons, more permit decisions, whether issued or denied, are resulting in litigation. The potential for litigation increases the need for more-in-depth review and documentation on complex permits.

Uncertainty about the program's jurisdiction has been a major theme in the program since the 2001 Supreme Court decision (SWANCC) on non-navigable, intrastate, isolated waters. This has been exacerbated by a second Supreme Court decision in June 2006 on two cases, Carabell and Rapanos. This complex decision led to publication of interagency guidance in 2007 that requires more extensive documentation for the majority of the more than 80,000 jurisdictional determinations made by the Corps each year. After almost two years since the guidance was released, this unfunded mandate continues to have a negative impact on permit processing times and strain an already overburdened workforce. Funds are being shifted to permitting and the Corps is evaluating a number of options to avoid increasing permit delays and maintain current permit processing times without reducing environmental protection of aquatic resources (including wetlands). Some relief has been provided to Districts with the release of RGL 08-02 in Jan 2008 to allow for more preliminary jurisdictional determination decisions, which are less labor intensive. Increased awareness, familiarity and automation advances have also provided relief, which may be apparent in upcoming FYs.



APPROPRIATION TITLE: Regulatory Program, FY 2010

FISCAL YEAR 2010: The request of \$190 million is 10 million more than the FY 09 budget. The funding amount will allow the Corps to provide some of the new documentation required for jurisdictional determinations and should enable the Corps to maintain processing times at or near the current levels for standard permits and General Permits. Funds will be allocated for compliance inspections of permitted activities, including monitoring of compensatory mitigation. The Corps has been criticized by the National Academy of Sciences and others for inadequate compliance monitoring. The change to improve the management of compliance is part of an overall initiative to demonstrate program improvements through new performance standards developed in cooperation with the Office of Management and Budget using the Program Assessment Rating Tool. Enforcement funding has been separated from compliance funding and will remain at current levels.

In FY 08, the Corps implemented the mitigation rule and developed accompanying guidance on the evaluation of impacts and mitigation based on a holistic watershed approach. The watershed approach will enable consideration of impacts and compensatory mitigation within entire aquatic ecosystems to help expedite permit actions and manage aquatic resources in sensitive areas. Where watershed studies and evaluations of the impacts of future permits in an aquatic system are undertaken, more permit decisions can be made faster with better environmental review and documentation. The watershed approach will enable the Corps to work cooperatively with other federal agencies, state and local governments, regional and local nongovernmental organizations, private property owners and other stakeholders to ensure sound use of watershed aquatic resources. As part of this effort, the Regulatory program will actively seek state partners to develop State Programmatic General Permits that will utilize these watershed data and streamline the permit process.

Other program management efforts will continue, including specialized training of Corps personnel and technical assistance to Corps districts by the Engineer Research and Development Center (ERDC). For FY 2010, approximately \$500,000 would be allocated to ERDC for its direct technical assistance with complex and sensitive permit cases. ERDC is also producing a series of regional wetland delineation manuals that will improve decision-making and consistency in wetland delineations by taking into account regional variations in wetlands. In addition, a similar funding amount may be allocated to the Institute for Water Resources to address special program management issues such as studies of mitigation banking, improvement of the ORM data system to track program workload and wetland acreage, and assessment of impacts due to program changes. The new spatial database, ORM-2 (installed in FY 07), will track workload statistics and program performance and significant information on mitigation including habitat type and success information, critical for insuring the “no net loss” of wetlands goal. The database will also have spatial data on all permits, which will be made available to the public and our state and local partners. Funds also will be used to pay for the review of environmental impact statements (EIS’s); some districts are now dealing with unusually large and controversial projects requiring EIS’s. Examples of complex permit applications include port expansion projects in Los Angeles and Charleston, “windfarms” in New England, surface coal mining in Appalachia, and programmatic EIS’s in south Florida.

The \$190 million will be applied as follows:

Permit Evaluation and Jurisdictional determinations	\$156,000,000
Enforcement & Resolution	\$ 13,400,000
Administrative Appeals	\$ 1,100,000
Studies (SPGP’s) and Wetlands Technical Support	\$ 6,400,000
Environmental Impact Statements	\$ 1,100,000
<u>Compliance for Authorized Activities &amp; Mitigation</u>	<u>\$ 12,000,000</u>
TOTAL	\$190,000,000

ENVIRONMENT

FORMERLY USED SITES REMEDIAL ACTION PROGRAM

(FUSRAP)

APPROPRIATION TITLE: Formerly Utilized Sites Remedial Action Program, Fiscal Year 2010  
(\$000)

State	Allocated	FY 2010	Remaining Requirement	
Project Name	through FY 2009	Request	Low Estimate	High Estimate
<b>Connecticut</b>				
CE, Windsor, CT	9,877	0	25	25
<b>Iowa</b>				
Iowa Army Ammunition Plant, Middletown, IA	7,310	5,000	TBD	TBD
<b>Maryland</b>				
W. R. Grace, Baltimore, MD	13,645	700	3,000	4,000
<b>Massachusetts</b>				
Shpack Landfill, Norton, MA	42,019	1,000	400	400
<b>Missouri</b>				
Downtown, St. Louis, MO	198,277	13,000	13,840	13,840
Latty Avenue, St. Louis, MO	122,867	22,000	41,969	41,969
St. Louis Airport Vicinity Properties, St. Louis, MO	57,905	10,000	39,052	39,052
St. Louis Airport, St. Louis, MO	305,680	200	500	500
<b>New Jersey</b>				
Dupont Chambers Works, Deepwater, NJ	19,790	1,000	1,420	8,840
Maywood, NJ	402,363	40,000	450,737	460,737
Middlesex, NJ	110,244	200	1,615	4,615
<b>New York</b>				
Colonie, NY	190,614	200	2,620	11,516
Guterl, Lockport, NY	5,835	3,000	TBD	TBD
Linde Air Products, Tonawanda, NY	255,700	2,500	TBD	TBD
Niagara Falls Storage Site, NY	55,393	7,500	269,145	369,558
Seaway Industrial Park, Tonawanda, NY	9,565	750	28,739	79,145
Sylvania Corning, Hicksville, NY	8,070	4,500	TBD	TBD
Tonawanda Landfill Vicinity Property	750	1,000	TBD	TBD
<b>Ohio</b>				
Former Harshaw Chemical Company, Cleveland, OH	12,495	1,500	TBD	TBD
Luckey, OH	16,366	1,550	45,650	45,650
Painesville, OH	29,707	200	21,700	21,700
<b>Pennsylvania</b>				
Shallow Land Disposal Area, Parks Township, PA	14,590	17,000	34,420	34,420
Superior Steel, Scott Township, PA	225	50	TBD	TBD
<b>Potential Sites</b>	3,784	1,150	TBD	TBD
	<b>1,893,089</b>	<b>134,000</b>		

APPROPRIATION TITLE: Formerly Utilized Sites Remedial Action Program, Fiscal Year 2010

North Atlantic Division

CONNECTICUT

Site	Total Estimated Federal Cost \$	Allocation Prior to FY 2007 \$	Allocation FY 2007 \$	Allocation FY 2008 \$	Allocation FY 2009 \$	Requested Allocation FY 2010 \$	Additional to Complete After FY 2010 \$
Combustion Engineering Windsor, CT New England District	9,877,000	9,477,000	250,000	100,000	50,000	0	0

The Combustion Engineering (CE) site is a 600-acre area in Windsor, Connecticut. CE, under contract to the Atomic Energy Commission (AEC), fabricated nuclear fuel assemblies using highly enriched uranium (HEU) from 1958 to 1961. CE also conducted licensed commercial nuclear activity on the site from the early 1960's to 1993. Although the commercial nuclear fuel fabrication ceased in 1993, CE is still licensed by the Nuclear Regulatory Commission (NRC) for other commercial nuclear activities and the facility is still operating today. HEU is the primary radiological contaminant of concern at the site, which may be addressed by Formerly Utilized Sites Remedial Action Program (FUSRAP). Only limited site characterization work had been performed when FUSRAP was transferred from the Department of Energy (DOE) to the Corps for execution. Since then, the Corps has performed a gamma survey of the site, completed site characterization (SI), completed an investigation action at the "Rapaport Building", completed a Remedial Investigation Report and completed a draft Feasibility Study.

CE's NRC license was expanded to cover the FUSRAP waste in FY07. CE will now be responsible for addressing any FUSRAP waste as part of their site decommissioning efforts.

In FY 2008 and FY2009 funds are being used to monitor NRC and CE actions associated with the site.

In FY2010 prior year funds will be used to continue our monitoring of site activity. The schedule for completion of site remediation is unknown at this time. We expect to prepare a no further action decision document upon CE completing their site decommissioning.

7 May, 2009

APPROPRIATION TITLE: Formerly Utilized Sites Remedial Action Program, Fiscal Year 2010

Mississippi Valley Division

IOWA

Site	Total Estimated Federal Cost \$	Allocation Prior to FY 2007 \$	Allocation FY2007 \$	Allocation FY2008 \$	Allocation FY 2009 \$	Requested Allocation FY 2010 \$	Additional to Complete After FY 2010 \$
Iowa Army Ammunition Plant Middletown, IA St. Louis District	TBD*	1,325,000	100,000	1,885,000	4,000,000	5,000,000	TBD*

The Iowa Army Ammunition Plant (IAAAP) is a secured, operational, Army-owned facility located on approximately 19,100 acres near Burlington in Des Moines County, in southeastern Iowa. During its use as an Army facility, portions of the IAAAP were occupied by tenant organizations including the Atomic Energy Commission (AEC). From 1947 to 1975, the AEC operated areas of the plant as the Burlington Atomic Energy Commission Plant (BAECP). In 2002 a Preliminary Assessment was completed for the BAECP and the IAAAP was included in FUSRAP. The Preliminary Assessment included a review of AEC historical documents, site visits, examination of the results of an indoor radiological survey, and performance of a limited radiological walkover survey at two firing site areas. Evidence of a release was found and additional investigation to determine the nature and extent of AEC associated contamination was recommended. It is believed that approximately 1,600 acres within the IAAAP may have been potentially impacted by AEC operations. Limited survey data and existing sampling data (from other Army activities) indicate radiological (primarily depleted uranium), chemical, and explosives contamination exists. The nature and extent of this contamination will be investigated and defined during the Remedial Investigation (RI), which is the next step in the planning process. The primary regulators/stakeholders include the Environmental Protection Agency Region VII, Iowa Department of Public Health, Iowa Army Ammunition Plant (Army) and the IAAAP Restoration Advisory Board. The site was placed on the National Priority List in 1990.

In FY 2008, the Corps issued the Remedial Investigation report and began the Feasibility Study for the former AEC areas (excluding Line 1 and the West Burn Pads South areas). FY 2008 funds were also used to begin excavation of explosives contaminated soils from Line 1 and the West Burn Pad South areas in accordance with an existing Army Record of Decision.

FY 2009 funds are being used to address the Line 1 and West Burn Pads South areas. Activities consist of removing and depositing approximately 4800 cubic yards in the on-site Army Disposal Area (IDA) and shipping approximately 1,500 cubic yards to an approved out-of-state licensed disposal facility. Remediation of these two areas is being conducted under a prior Army Record of Decision. FY 2009 funds are also being used to develop and issue the Feasibility Report, Proposed Plan and Record of Decision for remaining AEC areas of the Plant

FY 2010 funds will be used to finalize the Record of Decision, prepare designs and initiate remediation.

The schedule for completion of site remediation is to be determined.\*\*

\*A preliminary cost estimate for site remediation will be determined during the Feasibility Study phase. The completion schedule will depend on the cleanup standards established for this site and on overall funding constraints.

7 May, 2009

APPROPRIATION TITLE: Formerly Utilized Sites Remedial Action Program, Fiscal Year 2010

North Atlantic Division

MARYLAND

Site	Total Estimated Federal Cost \$	Allocation Prior to FY 2007 \$	Allocation FY 2007 \$	Allocation FY 2008 \$	Allocation FY 2009 \$	Requested Allocation FY 2010 \$	Additional to Complete After FY 2010 \$
W.R. Grace Site	17,295,589*	11,443,000	702,589	750,000	750,000	700,000	3,000,000*
Baltimore, MD	18,295,589*						4,000,000*
Baltimore District							

The W.R. GRACE site is situated within a 260-acre property owned by W.R. Grace-Davidson Chemical Manufacturing Company (GRACE) and located in south Baltimore City on an industrialized peninsula. Currently, GRACE manufactures and produces specialty chemicals at this facility. Contamination at the site is located in two separate and distinct areas of concern. The first is located in the southwestern corner of Building 23 which housed the thorium extraction process and has contaminated surfaces which were impacted by this process. The second area is the approximately 7-acre Radioactive Waste Disposal Area (RWDA) located east of the plant proper. This area received the process byproducts and spent monazite sand and gangue from the thorium extraction process. The Department of Energy (DOE) conducted radiological surveys at the site; however, no characterization or remediation had been performed. The Corps has finalized the remedial investigation/feasibility study (RI/FS) and Record of Decision (ROD) for Building 23. The RWDA RI/FS is complete.

A Site-Wide Settlement Agreement was signed in 21 April 2008 by the District of Delaware, Bankruptcy Court. The agreement states that financial liability shall be shared between GRACE and the Government in a 40/60 split and giving GRACE the site lead to obtain, manage and direct the site cleanup according to the Records of Decision for each respective area of concern. GRACE is given the right to seek cost reimbursement from the Government, through the Department of Justice Settlement Fund, for those funds spent on the Government's behalf (60%) in conducting the cleanup work.

In FY 2008 the funds were used to complete the Feasibility Study at RWDA.

In FY 2009, funds are being used to complete the RWDA Proposed Plan and technical oversight of Building 23 Remedial Action work conducted according to the Settlement Agreement.

FY 2010, funds will be used to complete the Proposed Plan and Record of Decision for RWDA and technical oversight of Building 23 and RWDA Remedial Action work according to the Settlement Agreement.

The schedule for completion of site remediation is to be determined.\*\*

\* The total cost will depend upon the specific cleanup standards established for this site, taking into account input from federal, state, and local regulators, the general public, and other stakeholders. Once a final cleanup plan for the site is approved in a Record of Decision, it will be possible to provide a more definitive estimate.

\*\* The completion schedule will depend on the cleanup standards established for this site and on overall funding constraints.

APPROPRIATION TITLE: Formerly Utilized Sites Remedial Action Program, Fiscal Year 2010

North Atlantic Division

MASSACHUSETTS

Site	Total Estimated Federal Cost \$	Allocation Prior to FY 2007 \$	Allocation FY 2007 \$	Allocation FY 2008 \$	Allocation FY 2009 \$	Requested Allocation FY 2010 \$	Additional to Complete After FY 2010 \$
Shpack Landfill Norton/Attleboro, MA New England District	43,419,000	16,019,000	6,000,000	10,000,000	10,000,000	1,000,000	400,000

The Shpack site is an 8-acre abandoned domestic and industrial landfill, which operated from 1946 to 1965. It is located along the Norton/Attleboro town boundary line with approximately 5.5 acres in Norton and 2.5 acres in Attleboro. The Town of Norton and Attleboro Landfill, Inc. owns the property. FUSRAP-related radioactive contamination is believed to have come from Metals and Controls, Inc. (now Texas Instruments), which had used the landfill to dispose of trash and other materials from 1957-1965. The General Plate Division of Metals and Controls began to fabricate enriched uranium foils at their Attleboro plant in 1952. In 1959 it merged with Texas Instruments, which continued the operations until 1981, using enriched and natural uranium for the fabrication of nuclear fuel for the U.S. Navy and commercial customers. The site was also listed on the National Priority List (NPL) in 1986, primarily to address other contaminants on site. The Environmental Protection Agency (EPA) has signed an Administrative Order by Consent with a group of Settling Parties (which includes Texas Instruments) for the performance of a remedial investigation/feasibility study (RI/FS). This study was completed in FY04 and a Record of Decision (which addressed the radiological contamination) was signed on 30 September 2004. The Corps has completed a gamma walk-over survey, site characterization, and potentially responsible party (PRP) investigations and completed a draft Engineering Evaluation/Cost Analysis (EE/CA). In FY 2005, the Corps initiated the remedial action in accordance with EPA's Record of Decision. Quantities of contaminated soil have increased significantly over those in the Record of Decision requiring a significant increase in funding to complete the project

In FY 2008 funds were used to continue the remedial action.

In FY2009 funds are being used to continue the remedial action.

In FY2010 funds will be used to complete the remedial action.

7 May, 2009

APPROPRIATION TITLE: Formerly Utilized Sites Remedial Action Program, Fiscal Year 2010

Mississippi Valley Division

MISSOURI

Site	Total Estimated Federal Cost \$	Allocation Prior to FY 2007 \$	Allocation FY 2007 \$	Allocation FY 2008 \$	Allocation FY 2009 \$	Requested Allocation FY 2010 \$	Additional to Complete After FY 2010 \$
St. Louis Downtown Site St. Louis, MO St. Louis District	225,117,000	151,677,000	15,400,000	15,600,000	15,600,000	13,000,000	13,840,000

The St. Louis Downtown Site and vicinity properties are located in St. Louis, Missouri. The site is comprised of an operational chemical manufacturing facility (Mallinckrodt Inc.) and 36 surrounding properties used by a variety of interests for industrial and commercial purposes. The primary contaminants of concern are radium-226, thorium-230, uranium-238, metals, and organic compounds. The extent of contamination includes 17 acres where contaminated soils are accessible for remediation (17 buildings, subsurface soil, and vicinity properties). The primary regulators/stakeholders include the U.S. Environmental Protection Agency Region VII, Missouri Department of Natural Resources, and the St. Louis Oversight Committee. In 1998, a Record of Decision (ROD) for the accessible areas was signed to allow the removal of approximately 87,000 cubic yards of contaminated soils. The total estimated Federal cost shown above does not reflect possible costs of addressing contamination in inaccessible soils. The inaccessible soils remain to be addressed by CERCLA documentation including a Record of Decision.

In FY 2008, in accordance with the Record of Decision, the Corps completed the response action for two vicinity properties and began remediation of the Plants 6 area of the Mallinckrodt facility. A total of 22,900 cubic yards of contaminated soils was removed. In addition, the Corps completed a draft work plan for the sampling of the inaccessible areas at the St. Louis Downtown Site.

FY 2009 funds are being used to remediate approximately 15,000 cubic yards from the Plant 6 West and a vicinity property and to finalize the sampling work 000000plan and complete the Remedial Investigation sampling of inaccessible soils.

FY 2010 funds will be used to remediate approximately 13,000 cubic yards and to issue the Remedial Investigation and Feasibility Reports for the Inaccessible areas.

The completion schedule will depend on the overall funding constraints.

7 May, 2009



APPROPRIATION TITLE: Formerly Utilized Sites Remedial Action Program, Fiscal Year 2010

Mississippi Valley Division

Site	Total Estimated Federal Cost \$	Allocation Prior to FY 2007 \$	Allocation FY 2007 \$	Allocation FY 2008 \$	Allocation FY 2009 \$	Requested Allocation FY 2010 \$	Additional to Complete After FY 2010 \$
Latty Avenue Properties/Hazelwood Interim Storage Site, Berkeley, MO St. Louis District	186,836,323	68,128,000	16,700,000	17,539,000	20,500,000	22,000,000	41,969,323

The Latty Avenue Properties site is comprised of several different tracts of land in North St. Louis County, Missouri. The project includes an 11-acre site, encompassing the Hazelwood Interim Storage Site (HISS) and Futura Coatings on Latty Avenue, and the Latty Avenue Vicinity Properties, which are at various nearby locations. The Hazelwood Interim Storage Site and Futura Coatings were placed on the National Priority List in 1989. The primary contaminants of concern are radium-226, thorium-230, and uranium-238. Surface and subsurface soils are known to be contaminated at levels which pose an unacceptable human health risk based on projected future land use scenarios. The primary regulators/stakeholders include the Environmental Protection Agency Region VII, Missouri Department of Natural Resources, and the St. Louis Oversight Committee.

In FY 2008, in accordance with the Record of Decision, the Corps removed and shipped approximately 35,500 cubic yards from three Latty Avenue properties. Remedial action was completed on two of the properties. Remedial action was initiated on the HISS/FUTURA property. Design efforts were begun for Vicinity Property 2(L).

FY 2009 funds will be used to excavate and ship approximately 25,000 cubic yards of contaminated soil from the HISS/FUTURA property.

FY 2010 funds will be used to excavate and ship approximately 25,000 cubic yards of contaminated soil. Remedial action will be completed on one property.

The completion schedule will depend on overall funding constraints.

7 May, 2009

APPROPRIATION TITLE: Formerly Utilized Sites Remedial Action Program, Fiscal Year 2010

Mississippi Valley Division

Site	Total Estimated Federal Cost \$	Allocation Prior to FY 2007 \$	Allocation FY 2007 \$	Allocation FY 2008 \$	Allocation FY 2009 \$	Requested Allocation FY 2010 \$	Additional to Complete After FY 2010 \$
St. Louis Airport Site, Vicinity Properties, St. Louis, MO St. Louis District	106,957,504	43,273,000	4,655,000	5,977,000	4,000,000	10,000,000	39,052,504

The St. Louis Airport Site (SLAPS) Vicinity Properties consists of 78 properties in North St. Louis County, Missouri. The contaminated sites include former ball fields (located directly north of SLAPS), areas along haul roads, and Coldwater Creek. The primary contaminants of concern are radium-226, thorium-230, and uranium-238. Dispersion of radioactive material occurred by direct migration from SLAPS via air or water, or as a result of transport along the roadways between the St. Louis Airport Site and the HISS/Latty Avenue Site. This is the case for most of the roadway, shoulder, and ditch contamination. The properties are used for residential, commercial, industrial, recreational and transportation (road easement) purposes. The primary regulators/stakeholders include the Environmental Protection Agency, Region VII, Missouri Department of Natural Resources, and the St. Louis Oversight Committee. The Record of Decision for this site was finalized in FY 2005. A Potentially Responsible Party investigation is underway.

In FY 2008, the Corps remediated five properties by removing and shipping approximately 7,038 cubic yards, began design work on three properties, and issued final status survey documents which released nine vicinity properties.

FY 2009 funds are being used to complete final status survey documents for eight properties, initiate a design for an additional property and initiate removal of contaminated material on one vicinity property. Approximately 2,000 cubic yards will be removed and shipped off site for disposal.

FY2010 Funds will be used to remove and ship approximately 6,000 cubic yards and return two properties to beneficial use.

The completion schedule will depend on overall funding constraints.

7 May, 2009

APPROPRIATION TITLE: Formerly Utilized Sites Remedial Action Program, Fiscal Year 2010

Mississippi Valley Division

Site	Total Estimated Federal Cost \$	Allocation Prior to FY 2007 \$	Allocation FY 2007 \$	Allocation FY 2008 \$	Allocation FY 2009 \$	Requested Allocation FY 2010 \$	Additional to Complete After FY 2010 \$
St. Louis Airport Site, St. Louis, MO St. Louis District	308,964,000	298,236,000	6,945,000	199,000	300,000	200,000	500,000

The St. Louis Airport Site (SLAPS) consists of 21.7 acres north of Lambert International Airport in North St. Louis County, Missouri. The site is bordered by McDonnell Boulevard on the north and east, Coldwater Creek on the west, Banshee Road and Norfolk and Western Railway on the south. The ditches immediately adjacent to the north and south of SLAPS are considered part of this location. The primary contaminants of concern are radium-226, thorium-230, and uranium-238. The St. Louis Airport Authority owns the property. The primary regulators/stakeholders include the U.S. Environmental Protection Agency Region VII, Missouri Department of Natural Resources, and the St. Louis Oversight Committee. A Potentially Responsible Party Investigation is underway. The site was placed on the National Priority List in 1989. In spring 2008, the Corps completed remediation of this site in accordance with the 2005 Record of Decision.

In FY 2008, the Corps began development of a report documenting the remedial action for closeout. In addition, post remedial action monitoring began.

FY 2009 funds are being used to coordinate review of the post remedial action document with regulators (State of Missouri and U.S. Environmental Protection Agency) and to issue a final version of this document. Additionally, groundwater monitoring and long term management activities are occurring in accordance with the Record of Decision.

FY 2010 funds will be used to perform groundwater monitoring and long term management activities in accordance with the Record of Decision.

APPROPRIATION TITLE: Formerly Utilized Sites Remedial Action Program, Fiscal Year 2010

North Atlantic Division

NEW JERSEY

Site	Total Estimated Federal Cost \$	Allocation Prior to FY 2007 \$	Allocation FY 2007 \$	Allocation FY 2008 \$	Allocation FY 2009 \$	Requested Allocation FY 2010 \$	Additional to Complete After FY 2010 \$
DuPont Chambers Works Deepwater, NJ Philadelphia District	22,210,000 – 29,630,000*	16,090,000	1,700,000	1,000,000	1,000,000	1,000,000	1,420,000 – 8,840,000*

The DuPont Chambers Works site is a 700-acre active chemical plant located in Pennsville and Carneys Point Townships on the southeastern shore of the Delaware River, north of the I-295 Delaware Memorial Bridge, and adjacent to the residential community of Deepwater, N.J. The plant is owned and operated by E.I. Dupont de Nemours & Company. Operations involving uranium at the Chambers Works site began in 1942. As part of its work on the Manhattan Engineer District (MED) Program, DuPont worked on developing a process for converting uranium oxide to produce uranium tetrafluoride and small quantities of uranium metal. The major contaminant is U-238 found in both soil and water samples. Through FY2004, the Corps continued site characterization and Remedial Investigation / Feasibility Study (RI/FS) activities for soil contamination and investigation of possible groundwater contamination, conducted Technical Project Planning sessions with the stakeholders including the New Jersey Department of Environmental Protection, held Restoration Advisory Board Meetings, conducted extensive coordination with the landowner, and completed work-plans for on-site investigations and completed soil sampling and well installation.

In FY 2008, the Corps completed the final Intrusive Site Soil Contamination Investigation and analysis on Operable Unit #3. The Corps began incorporating this data into the Site-Wide Remedial Investigation and Risk Assessment. The groundwater investigation was continued.

In FY 2009, the Corps shall complete the Draft RI and Risk Assessment (RA) reports for Regulator review and comment and initiate the Site-Wide Feasibility Study.

Requested funds for 2010 will be used to continue the site-wide Feasibility Study and Proposed Plan.

The schedule for completion of site remediation is to be determined.\*\*

\*The total cost will depend upon the specific cleanup standards established for this site, taking into account input from federal, state, and local regulators, the general public, and other stakeholders. Once a final cleanup plan for the site has been approved in a Record of Decision, it will be possible to provide a more definitive estimate. Current project completion schedules and cost estimates do not include any remedial design or remediation action for potential ground-water contamination.

\*\* The completion schedule will depend on the cleanup standards established for this site and overall funding constraints.

7 May, 2009

APPROPRIATION TITLE: Formerly Utilized Sites Remedial Action Program, Fiscal Year 2010  
 North Atlantic Division

Site	Total Estimated Federal Cost \$	Allocation Prior to FY 2007 \$	Allocation FY 2007\$	Allocation FY 2008 \$	Allocation FY 2009 \$	Requested Allocation FY 2010 \$	Additional to Complete After FY 2010 \$
Maywood Site Maywood, N.J. New York District	893,000,000- 903,000,000*	307,163,000	30,000,000	30,000,000	35,200,000	40,000,000	450,737,000- 460,737,000*

The Maywood site is included on the Environmental Protection Agency Superfund National Priorities List. The Corps is currently working under the Federal Facilities Agreement (FFA) signed by DOE and EPA, while we negotiate a Corps/EPA FFA. Site consists of 140 acres of residential, commercial and industrial property totaling 88 commercial and residential properties, located 20 miles north of Newark adjacent to Interstate 80 and State Route 17. There are approximately 281,000 cubic yards of subsurface contaminated material containing thorium-232, radium-226, and uranium-238. The United States owns 11.7 acres of the site, which is being used as a staging area during cleanup operations. The Stepan Company occupies part of the site and operates a chemical factory processing a patented product. Sears operates a large central distribution warehouse (leased) on the site. In the mid-1980's, 25 residential vicinity properties were remediated. In 1994 an Engineering Evaluation/Cost Analysis (EE/CA) by the Department of Energy approved a further interim removal action to remediate an additional 39 vicinity properties. As of the end of FY 00, all of the 39 vicinity properties included in the 1994 EE/CA have been remediated, including 23 completed by the Corps (15 in FY 98, 7 in FY99, and 1 in FY00). Additionally, the Corps has completed a Remedial Investigation/Feasibility Study/Proposed Plan, Record of Decision, Remedial Design (RI/FS/PP/ROD/RD) for soils and buildings on the remainder of the site, prepared an EE/CA for an interim removal action involving 10 commercial properties impacted by New Jersey Department of Transportation projects, initiated remedial action for the remainder of soils and completed potentially responsible party (PRP) negotiations through the Department of Justice with the Stepan Company. A complete review of the cost estimate prepared in 2003 has identified inconsistencies with what we presently know. A new cost estimate has been prepared and the funding information above has been revised accordingly.

In FY 2008, funds were used to continue remedial action for the remainder of the soils. In addition, the Corps continued to develop the groundwater feasibility study and proposed plan.

In FY 2009, the Corps continues the remedial action under the soils ROD, completes the feasibility study and proposed plan and initiates the groundwater ROD.

In FY 2010, funds will be used to continue the remedial action under the soils ROD and to complete the groundwater ROD.

The schedule for completion of site remediation is to be determined.\*\*

\*The total cost will depend upon the specific groundwater cleanup standards established for this site, taking into account input from federal, state, and local regulators, the general public, and other stakeholders. Once a final cleanup plan for the site has been approved in a groundwater Record of Decision, it will be possible to provide a more definitive estimate.

\*\*The completion schedule will depend on the groundwater cleanup standards established for this site and overall funding constraints.

7 May, 2009

APPROPRIATION TITLE: Formerly Utilized Sites Remedial Action Program, Fiscal Year 2010  
 North Atlantic Division

Site	Total Estimated Federal Cost \$	Allocation Prior to FY 2007 \$	Allocation FY 2007 \$	Allocation FY 2008 \$	Allocation FY 2009 \$	Requested Allocation FY 2010 \$	Additional to Complete After FY 2010 \$
Middlesex Sampling Plant Middlesex, NJ New York District	112,059,000- 115,059,000*	84,609,000	16,700,000	7,935,000	1,000,000	200,000	1,615,000- 4,615,000*

The Middlesex site is a Federal government-owned site located in Middlesex, NJ. There are also 36 Vicinity Properties (VPs). Primary contaminants are Uranium-232, Radium-226, and Thorium-232. The Manhattan Engineer District (MED) established the Middlesex Sampling Plant (MSP) in 1943 for use in sampling, storage, and shipment of uranium, thorium, and beryllium ores. MED operations ended in 1955, and the Atomic Energy Commission (AEC) later used the site for storage and performed limited sampling of thorium residues. In 1967, the AEC terminated activities at the MSP and decontaminated onsite structures to meet criteria then in effect. From 1969 to 1979, the site served as a US Marine Corps training center. In 1980, the MSP was returned to the Department of Energy (as AEC's successor), which designated it for clean up under FUSRAP. MSP was used for interim storage of two piles of radioactively contaminated soils removed from the vicinity properties (VPs) and from the Middlesex Municipal Landfill (MML). The Middlesex site was added to the Environmental Protection Agency Superfund National Priorities List (NPL) in FY 1999. Through the end of FY 2001, the Corps has removed and disposed of the MML pile and the VP pile. Additionally, the Corps has completed a Remedial Investigation/Feasibility Study/Proposed Plan, Record of Decision, Remedial Design (RI/FS/PP, ROD/RD) for soils on the remainder of the site. Coordination with Federal and state agencies, and local communities is continuing.

In FY 2008, the Corps completed the soils remediation and continued the Groundwater Feasibility Study and Proposed Plan.

In FY 2009, the Corps continues the Groundwater Feasibility Study and Proposed Plan and initiates a Groundwater ROD.

FY 2010 funds will be used to complete the Groundwater ROD.

The schedule for completion of site remediation is to be determined.\*\*

\* The total cost will depend upon the specific cleanup standards established for this site, taking into account input from federal, state, and local regulators, the general public, and other stakeholders. Once a final cleanup plan for the site has been approved in a Record of Decision, it will be possible to provide a more definitive estimate.

\*\* The completion schedule will depend on the cleanup standards established for this site and overall funding constraints.

7 May, 2009

APPROPRIATION TITLE: Formerly Utilized Sites Remedial Action Program, Fiscal Year 2010  
 North Atlantic Division

NEW YORK

Site	Total Estimated Federal Cost \$	Allocation Prior to FY 2007 \$	Allocation FY 2007 \$	Allocation FY 2008 \$	Allocation FY 2009 \$	Requested Allocation FY 2010 \$	Additional to Complete After FY 2009 \$
Colonie Site Colonie, NY New York District	193,434,000 – 202,330,000*	183,104,000	6,110,000	400,000	1,000,000	200,000	2,620,000- 11,516,000*

The Colonie site consists of a total area of 11.2 acres plus 56 vicinity properties (VPs). The primary site was owned and operated by National Lead Industries (NL) from 1937-1984. The facility was used for electroplating and manufacturing various components from uranium and thorium. Radioactive materials released from the plant exhaust stacks spread to site buildings, portions of the grounds, and the 56 commercial and residential VPs. NL also dumped contaminated casting sand into the former Patroon Lake. By order of a New York State Court the NL plant shut down in 1984. Coordination is ongoing with the New York State Department of Environmental Conservation, and local leaders. The transfer of the property from NL to the Federal government in 1984 contained "hold harmless" language, which precludes holding NL as a PRP. At the time of transfer of FUSRAP execution to the Corps, the Department of Energy (DOE) had completed remediation of the vicinity properties; and in 1995 finalized an Engineering Evaluation/ Cost Analysis (EE/CA), authorizing a removal action to address soils contamination at the former NL property itself. Through FY 2002, the Corps disposed, off-site, stockpiled materials and excavated contaminated soils, in accordance with the DOE EE/CA; completed a reevaluation of the DOE EE/CA and issued an amended EE/CA and revised action memorandum; and continued the groundwater investigations. Additionally, the Corps has completed the removal action under the revised Action Memorandum.

In FY 2008, funds were used to continue the groundwater Feasibility Study/Proposed Remedial Action Plan for the main site.

In FY 2009, the Corps completes the groundwater Feasibility Study/Proposed Remedial Action Plan and prepares a combined soil and groundwater Record of Decision (ROD).

FY 2010 funds will be used to complete a combined Soil and Groundwater ROD.

The schedule for completion of site remediation is to be determined.\*\*

\* Once a final groundwater proposed plan for the site has been approved, it will be possible to provide a more definitive estimate.

\*\* The completion schedule will depend on the cleanup standards established for this site and overall funding constraints.

7 May, 2009

APPROPRIATION TITLE: Formerly Utilized Sites Remedial Action Program, Fiscal Year 2010

Great Lakes and Ohio River Division

NEW YORK

Site	Total Estimated Federal Cost \$	Allocation Prior to FY 2007 \$	Allocation FY 2007 \$	Allocation FY 2008 \$	Allocation FY 2009 \$	Requested Allocation FY 2010 \$	Additional to Complete After FY 2010 \$
Guterl Specialty Steel Lockport, NY Buffalo District	TBD*	865,000	2,720,000	1,750,000	500,000	3,000,000	TBD*

The former Guterl Specialty Steel site, a.k.a. Simmonds Saw and Steel Corporation, comprises about 70 acres in the City of Lockport, New York, approximately 20 miles north of Buffalo, New York. The site is bordered by residential and commercial properties to the north, State Route 93 to the west, and the New York State Barge Canal to the south. An active steel plant adjacent to the site is currently being operated by ALLVAC, a business unit of the Allegany Technologies, Inc. Currently, employment is approximately 60 people. The site was used to perform rolling mill operations on about 35-million pounds of uranium metals and 40-thousand pounds of thorium metals between 1948 and 1955 under contracts issued by the Atomic Energy Commission (AEC). The buildings used to support the AEC process encompass about 9 acres, and are abandoned. The site also includes a 9-acre landfill. The Guterl project is being coordinated with the New York State Department of Environmental Conservation.

FY 2008 funds were used to complete field sampling and testing and continue activities required to prepare the Remedial Investigation Report.

In FY2009 funds will be used to complete the Remedial Investigation Report and initiate feasibility studies of remedial alternatives to clean up the contaminants of concern. \*\* Is this correct for 500k?

FY 2010 funds will be used to continue the feasibility study.

The schedule for completion of site remediation is to be determined.\*\*

\*A preliminary cost estimate for site remediation will be developed during the Feasibility Study phase.

\*\* The completion schedule will depend on the cleanup standards established for this site and overall funding constraints.

7 May, 2009



APPROPRIATION TITLE: Formerly Utilized Sites Remedial Action Program, Fiscal Year 2010

Great Lakes and Ohio River Division

NEW YORK

Site	Total Estimated Federal Cost \$	Allocation Prior to FY 2007 \$	Allocation FY 2007 \$	Allocation FY 2008 \$	Allocation FY 2009 \$	Requested Allocation FY 2010 \$	Additional To Complete After FY 2010 \$
Linde Air Products Tonawanda, NY Buffalo District	245,900,000	180,250,000	16,950,000	33,500,000	25,000,000	2,500,000	TBD in June 2009

The Linde site is located in the Town of Tonawanda, a suburb north of Buffalo, NY.

The project consists of two distinct areas: the original Linde site that is now owned and occupied by Praxair, Inc.; and a designated vicinity property, the Tonawanda Landfill and Mudflats area that is located about 1.5 miles north of Praxair. The Linde site is a former industrial complex in an urban area that now serves as the worldwide research and development facility for Praxair. Currently, employment is approximately 1,400 people. A public elementary school and numerous residential properties adjoin the property. Radioactive contamination generated by former Manhattan Engineering District activities, in the soils, buildings, and groundwater at the Linde site are being evaluated and remediated, as required under CERCLA. The principal radionuclides of concern are radium, thorium, uranium, and their decay products. Project activities are coordinated with the New York State Department of Environmental Conservation, the New York State Department of Health, and the U.S. Environmental Protection Agency. The Corps is currently analyzing costs associated with increased volume estimates and additional real estate acquisitions required to complete the project and from these analyses will determine the additional funds required to complete.

The Tonawanda Landfill and the Mudflats Area is a separately designated vicinity property located about 1.5 mile north of the Linde site. Remedial investigations of this property have been completed. As a result of public and elected official response to the Proposed Plan (PP), the Corps is re-evaluating the baseline risk assessment and the determination of Federal liability. Beginning in FY2009 the Tonawanda Landfill and Mudflats Area will be budgeted for separately.

FY 2008 funds were used to continue Linde soils remedial action, complete the Record of Decision on the Linde Groundwater Operable Unit, and complete the Proposed Plan for the Tonawanda Landfill and Mudflats vicinity property.

In FY 2009, the Corps continues the Linde soils remedial action.

FY 2010 funds will be used to continue the Linde soils remedial action.

\* Total estimated Federal cost will be determined in June 2009.

\*\*The completion schedule will depend on overall funding constraints, and the results of the groundwater operable unit investigation and Record of Decision  
7 May, 2009

APPROPRIATION TITLE: Formerly Utilized Sites Remedial Action Program, Fiscal Year 2010

Great Lakes and Ohio River Division

Site	Total Estimated Federal Cost \$	Allocation Prior to FY 2007 \$	Allocation FY 2007 \$	Allocation FY 2008 \$	Allocation FY 2009 \$	Requested Allocation FY 2010 \$	Additional To Complete After FY 2010 \$
Tonawanda Landfill Vicinity Property Tonawanda, NY Buffalo District	TBD*	N/A	N/A	N/A	750,000	1,000,000	TBD*

The Tonawanda Landfill Vicinity Property is located in the Town of Tonawanda, a suburb north of Buffalo, NY. The Tonawanda Landfill Vicinity Property consists of two separate parcels of property, or Operable Units; the Tonawanda Landfill Operable Unit (OU) and the Mudflats OU, both located about one mile north of the Linde Site. Both Operable Units are owned by the Town of Tonawanda. The Tonawanda Landfill OU was operated as a municipal landfill by the Town of Tonawanda from the 1930s through 1989, and accepted a variety of waste including incinerator ash, sewage sludge, construction debris, municipal waste, and yard waste. The Mudflats OU is a vacant property, apparently used in the past for pasture or agricultural purposes, and most recently used by the Town of Tonawanda for temporary storage of yard waste, mulch, road repair debris, etc. The Town of Tonawanda is currently planning to develop the Mudflats for commercial use. Early investigations by the Department of Energy (DOE) found isolated locations at the site with Formerly Utilized Remedial Action Program (FUSRAP) material; however, no documentation has been found indicating where the material came from or how it was placed at the site. The U.S. Army Corps of Engineers completed a Remedial Investigation in 2005, and issued a Proposed Plan for the site in 2007, which recommended No Action for both the Tonawanda Landfill and Mudflats OUs. Based on public comments received on the Proposed Plan, the Corps intends to conduct additional sampling in the Tonawanda Landfill OU. Project activities are coordinated with the New York State Department of Environmental Conservation, the New York State Department of Health, and the U.S. Environmental Protection Agency.

Activities in FY 2008 included review of public comments on the Proposed Plan, and completion of the Record of Decision (ROD) for the Mudflats Operable Unit (OU).

In FY 2009, the Corps completes a scope of work for sampling in the Tonawanda Landfill OU, awards a sampling contract and initiates sampling.

FY 2010 funds will be used to complete the sampling of the Tonawanda Landfill OU, and update the Baseline Risk Assessment.

\* A preliminary cost estimate for site remediation will be developed during the Feasibility Study phase.

APPROPRIATION TITLE: Formerly Utilized Sites Remedial Action Program, Fiscal Year 2010

Great Lakes and Ohio River Division

Site	Total Estimated Federal Cost \$	Allocation Prior to FY 2007 \$	Allocation FY 2007 \$	Allocation FY 2008 \$	Allocation FY 2009 \$	Requested Allocation FY 2010 \$	Additional To Complete After FY 2010 \$
Niagara Falls Storage Site Lewiston, NY Buffalo District	326,236,000 – 426,636,000	45,967,814	2,775,000	3,650,000	3,000,000	7,500,000	269,154,400 - 369,558,400

The Niagara Falls Storage Site (NFSS) is a 191-acre Federally-owned site with significant environmental impacts from past activities supporting the nation's early atomic weapons programs under the Manhattan Engineer District (MED) and Atomic Energy Commission (AEC). The NFSS is located in the Town of Lewiston, 19 miles north of Buffalo, NY. The USACE investigations, decisions, and response actions for the environmental impacts at the NFSS will have long term implications for the Towns of Lewiston and Porter and Niagara County. The USACE mission at the NFSS consists of three components. First, the USACE serves as the federal site operator and maintains the facilities and grounds to ensure physical and environmental security. Second, the USACE conducts an environmental surveillance program to ensure that the high activity radioactive wastes stored in a 10-acre underground Interim Waste Containment Structure (IWCS) are not migrating off site or subjecting the public to a radioactive dose exceeding federal standards. Third, the USACE is conducting a comprehensive environmental investigation of the IWCS, site soils, groundwater, facilities and infrastructure to evaluate the nature and extent of contamination, the associated human health and ecological risks, and the cleanup alternatives to mitigate risk for long term future land use. The USACE works closely with local, state, and federal law enforcement and homeland security specialists to ensure the site's physical security. The USACE coordinates environmental and health issues with the New York State Department of Environmental Conservation, New York State Department of Health, and U.S. Environmental Protection Agency.

FY 2008 accomplishments include completion and public release of The NFSS Remedial Investigation Report in December 2007. The Corps also executed two public information sessions to present findings, solicit concerns, and engage in outreach discussions with affected community members, elected officials and regulatory agencies. The Corps received over 400 comments on the report from the public. The Corps completed the annual Environmental Surveillance Technical Memorandum, completed two Technical Project Planning sessions for the NFSS Feasibility Studies, completed contract negotiations and awards for remedial investigations, feasibility studies, and site operations and maintenance.

In FY 2009, the Corps completes The NFSS Interim Waste Containment Structure Feasibility Study Workplan and several Technical Memoranda supporting the identification and evaluation of cleanup alternatives and technologies. The Corps will award new contracts supporting the completion of remedial investigations and feasibility studies, site operations and maintenance, and physical and electronic security upgrades. The Corps will continue the annual environmental surveillance program and prepare the annual NFSS Environmental Surveillance Technical Memorandum. The Corps will continue regular preventative maintenance and repairs to the Interim Waste Containment Structure (IWCS), site infrastructure and facilities.

FY 2010 funds will be used to award the contract to complete and publicly release the The NFSS Interim Waste Containment Structure Feasibility Study; execute public information sessions and outreach activities on the FS, and initiate work on the Proposed Plan (PP); install electronic security and monitoring technology, and accomplish annual environmental surveillance and maintenance tasks.

7 May, 2009

\* The scope of this project includes seven Operable Units (NFSS-IWCS, NFSS Soils, NFSS Groundwater, NFSS Off-Site Underground Utilities Impacts, and the Off-Site Vicinity Properties E, E-Prime, and G). The estimated federal cost range of \$326-\$426M shown reflects the USDOE estimated for a long-term in-place remedy for the NFSS-IWCS Operable Unit only. An updated Federal cost for the NFSS-IWCS is expected to be completed in 2011 with the completion of the IWCS Feasibility Study. The ultimate Federal project cost for closing out all Operable Units will be known upon completion of Records of Decision for all seven Operable Units.

7 May, 2009

APPROPRIATION TITLE: Formerly Utilized Sites Remedial Action Program, Fiscal Year 2010

Great Lakes and Ohio River Division

Site	Total Estimated Federal Cost \$	Allocation Prior to FY 2007 \$	Allocation FY 2007 \$	Allocation FY2008 \$	Allocation FY 2009 \$	Requested Allocation FY 2010 \$	Additional To Complete After FY 2010 \$
Seaway Site Tonawanda, NY Buffalo District	39,665,000 – 89,665,000*	8,665,000	400,000	400,000	100,000	750,000	28,739,500 – 79,145,200**

The Seaway Site, a closed sanitary landfill, is a privately owned 93-acre site in the Town of Tonawanda, 10 miles north of downtown Buffalo, New York. The Seaway Site is contaminated, principally on 16 acres, with radiological waste, including thorium, uranium and radium. The waste that was disposed of at the site originated from the Linde Air Products plant, where uranium ore was processed. There are six areas associated with the Seaway Site; Areas A, B, C, D, and Seaway Southside and Seaway Northside. Cleanup of accessible (i.e., outside of the landfill) Area D soils was included in the Record of Decision (ROD) for the remediation of the Ashland 1 and 2 Sites. During remediation of the Ashland 1 and 2 Sites contamination was identified that extends beyond the fence line to the north and south sides of the Seaway Site that is considered as part of the Seaway Site. The Seaway project is being coordinated with the New York State Department of Environmental Conservation, the New York State Department of Health, and the U.S. Environmental Protection Agency.

FY 2008 funds were used to complete the Feasibility Study Addendum (FSA) and the Proposed Plan.

In FY 2009, the Corps completes the Record of Decision (ROD).

FY 2010 funds will be used to begin preparation of the scope of work for remediation.

\*The total cost will depend upon the specific cleanup standards established for this site, taking into account input from Federal, state, and local regulators, the general public, and other stakeholders. Once a final cleanup plan for the site has been approved in a Record of Decision, it will be possible to provide a more definitive estimate. The low end of the range is based on a containment alternative (closing the landfill), while the upper limit is based on an estimate for partial excavation of FUSRAP-contaminated materials. Total estimated costs are based on the current Proposed Plan estimates.

\*\* The completion schedule will depend on the cleanup standards for the site established in the Record of Decision and overall funding constraints.

APPROPRIATION TITLE: Formerly Utilized Sites Remedial Action Program, Fiscal Year 2010  
 North Atlantic Division

Site	Total Estimated Federal Cost \$	Allocation Prior to FY 2007 \$	Allocation FY 2007 \$	Allocation FY 2008 \$	Allocation FY 2009 \$	Requested Allocation FY 2010 \$	Additional to Complete After FY 2010 \$
Sylvania Corning Plant Hicksville, NY New York District	TBD*	1,470,000	1,500,000	2,100,000	3,000,000	4,500,000	TBD*

The Hicksville site consists of a total area of 10.5 acres divided into three separate properties located at 70, 100, and 140 Cantiague Rock Road. The Verizon entities, current owners of the 140 and 70 properties and lessees of the 100 property, are the corporate successors to the Atomic Energy Commission's (AEC) contract operator. The facility was used for two distinct but similar operations. The first operation (1952-1965) was under contracts with the AEC for research, development and production primarily in support of the Government's nuclear weapons program. The other operation (1952-1967) was AEC licensed work primarily for the production of reactor fuel, and other reactor core components. Radioactive materials, metals and volatile organic compounds were discharged to the plant sumps, which contaminated site soils and groundwater. Coordination is ongoing with the New York State Department of Environmental Conservation, and Verizon entities.

In FY 2008, funds were used to continue a Remedial Investigation and Baseline Risk Assessment and to coordinate with stakeholders.

In FY 2009, the Corps continues a Remedial Investigation and Baseline Risk Assessment and stakeholder coordination.

FY 2010 funds will be used to complete the Remedial Investigation and Baseline Risk Assessment.

\*Study costs only, a preliminary cost estimate for site remediation, if necessary, will be determined during the development of the Feasibility Study. The completion schedule will depend on the cleanup standards for the site established in the Record of Decision and overall funding constraints.

APPROPRIATION TITLE: Formerly Utilized Sites Remedial Action Program, Fiscal Year 2010

Great Lakes and Ohio River Division

OHIO

Site	Total Estimated Federal Cost \$	Allocation Prior to FY 2007 \$	Allocation FY 2007 \$	Allocation FY 2008 \$	Allocation FY 2009 \$	Requested Allocation FY 2010 \$	Additional to Complete After FY 2010 \$
Former Harshaw Chemical Company Cleveland, OH Buffalo District	38,970,000 – 51,950,000 *	8,245,000	1,950,000	1,450,000	850,000	1,500,000	TBD*

The former Harshaw Chemical Company is a privately owned, 40-acre site located approximately 5 miles southwest of downtown Cleveland, Ohio. The area is predominately an industrial setting bordering the on Cuyahoga River. From 1944 through 1959, the Manhattan Engineering District (MED) and the Atomic Energy Commission (AEC) contracted Harshaw for the purpose of supporting the Nation's early atomic energy program. Various forms of uranium were produced for shipment to Oak Ridge, Tennessee, for isotopic separation and enrichment. In 1960, the site was released for unrestricted use by the AEC, following decontamination efforts by Harshaw, under the guidance of the AEC. The Harshaw project is being coordinated with the Ohio Environmental Protection Agency, the Ohio Department of Health, and the U.S. Environmental Protection Agency.

FY 2008 funds were used to prepare the Revised Remedial Investigation (RI), dispose of investigative derived waste (IDW) from the RI field activities, and initiate annual groundwater monitoring.

In FY 2009, the Corps completes the Revised RI Report, initiates the Feasibility Study (FS), and prepares Proposed Plan (PP) and ROD for Investigative Area (IA) 06.

FY 2010 funds will be used to complete the FS Report and prepare the Proposed Plan (PP) for the balance of the site.

The schedule for completion of the site remediation is to be determined.\*\*

\*The total cost will depend upon the specific cleanup standards established for this site, taking into account input from federal, state, and local regulators, the general public, and other stakeholders. Once a final cleanup plan for the site has been approved in a Record of Decision, it will be possible to provide a more definitive estimate.

\*\* The completion schedule will depend on the cleanup standards established for this site and overall funding constraints.

APPROPRIATION TITLE: Formerly Utilized Sites Remedial Action Program, Fiscal Year 2010

Great Lakes and Ohio River Division

NEW YORK

Site	Total Estimated Federal Cost \$	Allocation Prior to FY 2007 \$	Allocation FY 2007 \$	Allocation FY2008 \$	Allocation FY 2009 \$	Requested Allocation FY 2010 \$	Additional To Complete After FY 2010 \$
Luckey Site Luckey, OH Buffalo District	58,466,000	14,966,000	500,000	400,000	500,000	1,550,000	45,650,000

The Luckey Site is a privately owned 40-acre site located approximately 22 miles southeast of Toledo, Ohio. FUSRAP contamination on site consists of both radiological and chemical wastes. The primary radiological contaminants at the site include radium, uranium and thorium. The primary chemical contaminants at the site are beryllium and lead. In 1949, the Atomic Energy Commission constructed a beryllium production facility at the site. The waste solutions and sludge from the beryllium production operations were stored in lagoons on the plant property. Waste solutions were also discharged into Toussaint Creek. In 1951 and 1952, the site operator purchased 1,000 tons of radiologically contaminated scrap steel from the Lake Ontario Storage Area. The scrap steel is believed to be the source of the radiological contamination. In 1958, beryllium production operations ceased. The Luckey project is being coordinated with the Ohio Environmental Protection Agency, Ohio Department of Health, and the U.S. Environmental Protection Agency.

FY 2008 funds were used to complete the ROD for the Groundwater Operable Unit, conduct annual groundwater sampling, and begin remedial design.

In FY 2009, the Corps continues remedial design, decommissions background monitoring wells, and conducts annual groundwater sampling.

In FY 2010 funds will be used to complete field characterization to support contaminated soil volume estimate, complete remedial design, award remedial action contract and conduct annual groundwater sampling.



APPROPRIATION TITLE: Formerly Utilized Sites Remedial Action Program, Fiscal Year 2010

Great Lakes and Ohio River Division

Site	Total Estimated Federal Cost \$	Allocation Prior to FY 2007 \$	Allocation FY 2007 \$	Allocation FY2008 \$	Allocation FY 2009 \$	Requested Allocation FY 2010 \$	Additional To Complete After FY 2010 \$
Painesville Site Painesville, OH Buffalo District	51,607,000	16,200,000	6,300,000	6,207,000	1,000,000	200,000	21,700,000*

The Painesville Site is a privately owned 30-acre site located approximately 22 miles northeast of Cleveland, Ohio. In the early 1940's, the Defense Plant Corporation financed construction of a magnesium production facility on property acquired by the Federal Government. The Diamond Magnesium Company received approximately 1,650 tons of FUSRAP-related radiologically contaminated scrap steel from the Lake Ontario Storage Area, which resulted in contamination of the site. The site is contaminated with radiological waste, including uranium, radium, thorium, and their natural decay products. This site is currently owned by Chemtura, Inc. Uniroyal Rubber Co., Inc., a predecessor to Chemtura, closed this facility in July 1999. The plant has been demolished and the owner is performing environmental remediation for chemical contamination. 1,330 cubic yards of contaminated soils were removed from the site in the fall of 1998 under an Engineering Evaluation/Cost Analysis (EE/CA) and Action Memorandum. Circumstances did not permit complete removal of radiological contamination under the EE/CA so the Corps initiated a focused Remedial Investigation/Feasibility Study (RI/FS) to determine the extent of additional contamination and establish the final cleanup criteria. The Corps completed the Proposed Plan in 2005, and the Record of Decision was signed in 2006 establishing the remedy of excavation and off site disposal of radiological contaminants exceeding the cleanup criteria. Site remediation was initiated in 2007; however, additional soil contamination found during the site remediation effort required that remediation be halted in 2008, due to funding and contract capacity constraints. The total estimated volume of contaminated soil has increased from 5,800 cubic yards (cy) to 24,400 cy, which will require a funding increase of \$22,707,000 to complete site remediation. To date, 9,400 cy of contaminated soil have been excavated and disposed of from the site. The Painesville site is being coordinated with the Ohio Environmental Protection Agency, the Ohio Department of Health, and the U.S. Environmental Protection Agency.

FY 2008 funds were used to continue site remediation, conduct site sampling, demobilize the remediation contractors, review site data and soil volume estimates, and prepare a scope of work and award a contract for transportation and disposal of stockpiled contaminated soil.

In FY 2009, the Corps transports and disposes of stockpiled contaminated soil, conducts soil volume confirmation sampling, and prepares a scope of work and awards a contract for the remaining remediation work.

FY 2010 funds will be used to monitor site until remediation can continue.

\*The completion schedule will depend on the overall funding constraints.

7 May, 2009

APPROPRIATION TITLE: Formerly Utilized Sites Remedial Action Program, Fiscal Year 2010

Great Lakes and Ohio River Division

PENNSYLVANIA

Site	Total Estimated Federal Cost \$	Allocation Prior to FY 2007 \$	Allocation FY 2007 \$	Allocation FY2008 \$	Allocation FY 2009 \$	Requested Allocation FY 2010 \$	Additional To Complete After FY 2010 \$
Shallow Land Disposal Area (SLDA) Parks Township, PA Pittsburgh District	66,010,000*	8,840,000	1,000,000	1,250,000	3,500,000	17,000,000	34,420,000

The Shallow Land Disposal Area (SLDA) site encompasses 44-acres of land located in Parks Township, Pennsylvania located about 23 miles northeast of Pittsburgh, Pennsylvania. A nuclear fuel production facility located in Apollo, Pennsylvania generated wastes that were emplaced into a series of 10 trenches at the Shallow Land Disposal Area (SLDA) from the period 1960 to 1970. The contamination is believed to consist primarily of uranium and thorium associated with production of nuclear materials at the Apollo facility. The 10 trenches occupy an area of about 1.2 acres of the 44-acre Shallow Land Disposal Area. The site is currently owned by BWX Technologies and operates under a Nuclear Regulatory Commission (NRC) license. Any future U. S. Army Corps of Engineers (USACE) activities at the site will be consistent with the Memorandum of Understanding (MOU) between the USACE and the NRC for coordination on cleanup and decommissioning of the FUSRAP sites with NRC-licensed facilities, dated July 5, 2001. This project is being coordinated with Pennsylvania Department of Environmental Protection, Pennsylvania Department of Health and USEPA.

FY 2008 funds were used to prepare the draft remediation work plans and complete necessary real estate actions.

In FY 2009, the Corps completes the remediation work plans and initiates site remediation.

FY 2010 funds will be used to continue site remediation.

\*Based on cost estimate for site remediation contained in the ROD (September 2007) plus the administrative cost developed in December 2007.

APPROPRIATION TITLE: Formerly Utilized Sites Remedial Action Program, Fiscal Year 2010

Great Lakes and Ohio River Division

Site	Total Estimated Federal Cost \$	Allocation Prior to FY 2007 \$	Allocation FY 2007 \$	Allocation FY 2008 \$	Allocation FY 2009 \$	Requested Allocation FY 2010 \$	Additional To Complete After FY 2010 \$
Superior Steel Site Scott Township, PA Buffalo District	TBD*	215,000	10,000	0	0	50,000	TBD*

The former Superior Steel Site is located in Scott Township, PA about 5 miles southwest of downtown Pittsburgh. The Superior Steel Site property is a 25-acre site which has five interconnected warehouse buildings (known as "Building 23") with uranium-contaminated building surfaces and subsurface contamination and a collection of investigation-derived waste from a previous remediation by the current site owner, Superbolt, Inc., a small manufacturing firm. The site processed uranium metal in support of the Atomic Energy Commission (AEC) fuel element development program between 1952 and 1957. In addition, the site was commercially licensed by the AEC in 1956 to "...receive possession of thorium metal for rolling and cutting"; that license expired in 1958. Any residual radioactive contamination associated with commercial operations involving thorium metal is not eligible for cleanup under FUSRAP. Project activities will be coordinated with the Pennsylvania Department of Environmental Protection and the U.S. Environmental Protection Agency.

In 2009 the Superior Steel Site was added to the FUSRAP Program.

FY 2010 funds will be used to do technical project planning for remedial investigation.

\* Study costs only, a preliminary cost estimate for site remediation, if necessary, will be determined during the development of the Feasibility Study. The completion schedule will depend on the cleanup standards for the site established in the Record of Decision and overall funding constraints.

APPROPRIATION TITLE: Formerly Utilized Sites Remedial Action Program, Fiscal Year 2010

NATIONAL

Site	Total Estimated Federal Cost \$	Allocation Prior to FY 2007 \$	Allocation FY 2007 \$	Allocation FY2008 \$	Allocation FY 2009 \$	Requested Allocation FY 2010 \$	Additional To Complete After FY 2010 \$
Potential Sites / Contingencies	TBD*	\$2,674,000	10,000	0	1,100,000	1,150,000	TBD*

The Department of Energy (DOE) considered several hundred sites in the public and private sectors for the potential for residual radioactive contamination as a consequence of work accomplished in support of nuclear energy technology development that began in the early 1940s by the Manhattan Engineer District (MED). Of these considered sites, a limited number initially were designated for remediation under FUSRAP and the others were eliminated from further consideration at that time. Thereafter, the DOE notifies the Corps of new information changing the status of eliminated sites to that of eligible according to FUSRAP criteria.

FY2009 funds will be used to complete preliminary assessments at a number of sites referred by DOE, and if necessary, site inspections or other activities to determine if there is a release or threat of a release of a hazardous substance into the environment that will present an imminent and substantial danger to public health or welfare, and whether the site should be added to FUSRAP for further study and remediation.

FY2010 funds will also be used to complete preliminary assessments at a number of sites referred by DOE.

\*To Be Determined (TBD). Any new sites added to FUSRAP as a result of the preliminary assessment/site inspection performed with these funds will be included in future budgets.

# RECREATION

Appropriation Title: Operation and Maintenance – Fiscal Year 2010

**National (Multi Project) Natural Resources Management Activities**

SUMMARIZED FINANCIAL DATA:

Estimated Annual Cost for Continuing Program	\$4,230,000
Appropriation for FY 2009	3,326,000
Allocation Requested for FY 2010	4,230,000
Increase in FY 2010 from FY 2009	904,000

AUTHORIZATION: This program is conducted under the general authority of PL 78-534, the Flood Control Act of 1944 (58 Stat. 887).

JUSTIFICATION: On December 10, 1996, House and Senate appropriations subcommittee staff determined it was appropriate to allocate a portion of Civil Works projects appropriated funds to conduct certain, specified operations and maintenance activities that benefit all or a majority of operating Civil Works projects. This determination was formalized in appropriations language in FY 2002. Funding these multiple project activities as single entities, rather than on a project-by-project basis, is efficient and cost effective, reducing administration costs and providing for efficient management and oversight. An example of such an activity is the procurement of park ranger uniforms through a contract administered by the National Park Service. Providing a nationwide funding source for centralized procurement of these items used by all operating projects having a natural resources management program precludes the need for funds to be transferred by each project or district to a single procurement agent, a savings of from 60 to 300 transactions a year.

PROPOSED ACTIVITIES FOR FY 2010:

Nationwide (multiple-project) activities that will be accomplished in FY 2010 with these funds include the following activities:

1. Environmental Management System (EMS) Implementation. The EMS has been implemented at 42 designated projects. Funding this as a nationwide activity will allow USACE auditors to review and validate EMS implementation completion at required facilities without transferring funds from each project to a central source. The development of case studies and outreach materials for lessons learned provide initiative and support for other facilities/projects wishing to implement EMS in FY10 and future years.
2. Natural Resources Management Career Development/Training Support and Material Development. Funds are used to address training and career development issues for the Natural Resources Management Community. The needs of all 2,000 NRM field staff in the Corps are served through the development of numerous products, including a number of exportable training courses to meet established training requirements. Funding this as a nationwide activity is appropriate because all NRM field staff benefit equally from the work accomplished.
3. Park Ranger/Manager Uniforms. The Corps purchases uniforms for field personnel through an inter-agency contract administered by the National Park Service. Funding this as an inter-agency effort and as a nationwide activity reduces the administrative costs by eliminating the requirement to transfer funds from each individual project to the NPS. Significant economies of scale have been achieved through this arrangement since 1984. Costs include the authorized employee allowance funds (including an HQ-approved increase in replacement allowance), NPS contract administration costs, buy out of discontinued items, program management/committee support, and the purchase of required emblems.

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4. Printing and Publishing - Printing of forms, brochures, and similar materials used by all Corps projects achieves economies of scale and reductions in total administrative and procurement costs. Materials include Annual Day Use Passes and Brochures. Printed materials are stored at the Corps Publications Depot for distribution to all projects upon request.
5. Sign Standards Manual and Software Update and MCX Operation. A Mandatory Center of Expertise provides technical support and assistance to all projects in the operation of the Corps Sign Standards Program, through the maintenance of the Sign Standards Program Manual and software and providing technical assistance to field users. These efforts allow the Corps to maintain a consistent image that we present to the visiting public. Funding this as a nationwide activity assures competent and timely assistance to users, which increases the consistency, effectiveness and efficiency of the sign program.
6. Volunteer Clearinghouse Operation. The Volunteer Clearinghouse is operated under contract with Goodwill Industries to support volunteer efforts at all Corps projects. Funding this as a nationwide activity achieves economies of scale through the use of a single contract and reduces administrative costs by eliminating the need to transfer funds from all projects to the single contracting element.
7. Water Safety Products. The Corps Water Safety National Operating Center produces and distributes water safety products and programs to all Corps projects. Products educate and inform visitors of the dangers associated with water-oriented recreation. Significant economies of scale have been realized through the centralized administration of this program that assures current and critical topics are covered, using effective media targeted to high-risk groups. Drownings and associated lawsuits have been reduced significantly since the implementation of this program in the mid 1980's. Current command emphasis is requiring an even further reduction of fatalities during the next two years.
8. Other Nationwide NRM Activities. The following additional NRM Activities are recommended for funding to achieve cost efficiencies at the national level. Challenge Partnership Seed Funds; Critical Incident Stress Management (CISM) Program; Natural Resources Management Awards; Operations CoP Gateway; Partnership Advisory Committee; Property Protection Program; RecBEST Coach, Assist and Train Team; Recreation Facilities and Customer Service Standards National Operations Center; Visitor Center Initiative/Corps Story; Bilingual Support Team.

ACCOMPLISHMENTS IN PRIOR YEARS: The allocation of project operations and maintenance funds to conduct specified nationwide (multiple-project) activities to improve the efficiency and cost effectiveness of the Corps NRM program has been employed, with subcommittee staff knowledge and concurrence, since the early 1990s for activities similar to those identified for FY 2010.

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Appropriation Title: Operation and Maintenance – Fiscal Year 2010

**RecreationOneStop (R1S) National Recreation Reservation Service**

SUMMARIZED FINANCIAL DATA:

Estimated Annual Cost for Continuing Program	1,130,000
Appropriation for FY 2009	1,049,000
Allocation Requested for FY 2010	65,000
Change of FY 2010 from FY 2009	(1,065,000)

AUTHORIZATION: These programs are conducted under the general authority of PL 78-534, the Flood Control Act of 1944 (58 Stat. 887).

JUSTIFICATION: At the direction of Office of Management and Budget (OMB), Recreation.gov, Volunteer.gov and National Recreation Reservation Service (NRRS) was combined and is now under the umbrella of RecreationOneStop, a priority Egov initiative on the President’s Management Agenda. Also, at OMB’s direction, an NRRS contract was awarded to provide comprehensive services for RecreationOneStop to include a portal for public recreation information services, trip planning and reservations. The USDA Forest Service administers the contract, which services the needs of the Forest Service, the Corps and the Department of Interior (DOI) agencies. The DOI serves as the Managing Partner for RecreationOneStop.

PROPOSED ACTIVITIES FOR FY 2010: RecreationOneStop allocation requested for FY 2010 is a decreased requirement. Funding obligations include: Recreation.gov - \$50,000: an interagency website providing public information about recreation opportunities on federal lands. Cost is an annual fee for service payment to DOI to manage, operate and maintain the website; and Volunteer.gov - \$15,000: an interagency website coordinating volunteer activities among federal agencies. Cost is an annual fee for service payment to DOI to manage, operate and maintain the website. NRRS - \$0: all NRRS contract and management costs will be paid from use fees collected as authorized by the Omnibus Appropriations Act, Division C--Energy And Water Development And Related Agencies Appropriations Act, 2008: General Provisions, Corps Of Engineers--Civil: Sec. 121. Appropriated funds not needed as long as authority to reimburse costs from use fees collected remains in effect.

ACCOMPLISHMENTS IN PRIOR YEARS: Launched website, Recreation.gov in fiscal year 2007. NRRS has been providing reservation services for the Corps and the Forest Service since 1999. The website supports the National Recreation Reservation Service (NRRS) which brings together the capability to reserve sites managed by the Army Corps of Engineers, National Park Service, Bureau of Land Management, US Fish and Wildlife Service, and the Forest Service. In FY08 this program provided management oversight of NRRS contract with the NRRS processing over \$35.3 million in gross fee revenue for the Corps. Recreation.gov provides a customer friendly recreation portal with information for viewing and planning visits on over 4,000 Corps recreation sites and activities, reserve and make payment on line. Volunteer.gov provides a comprehensive clearinghouse of Corps volunteer opportunities. The public can enter geographic information about where they want to get involved and areas of interest to access volunteer opportunities offered by the Corps. Nearly 60,000 volunteers at Corps projects worked more than 1.9 million hours, providing \$37.5 million value of service in fiscal year 2008.



Appropriation Title: Operation and Maintenance – Fiscal Year 2010

**Stewardship Support Program \$750,000**

AUTHORIZATION: This program is conducted under the authority of ER 1130-2-540, Chapter 7.

JUSTIFICATION: The Stewardship Support Program was established in FY 02 to provide broad support to Environment-Stewardship function at operating projects by assisting in the identification of national program needs, the development of new national program activities, strategic program planning, and the recommendation of national stewardship program funding priorities. Support will be provided in refining the Environment–Stewardship business program strategic plan and goals, and budget processes, to address the targeted outcomes of the overall Corps CW Strategic Plan, using input from the Stewardship Advisory Team, other associated Corps business programs and stakeholders. Goals and objectives have been refined, and actions will be identified to achieve them. Funding this program from a single source reflects the nationwide application and supports standardization in program direction and outputs.

The SSP supports the Environment–Stewardship program by addressing issues or initiatives that have a broad applicability to many USACE Civil Works projects. The three basic components of the SSP are:

(1) Focused Management Actions and Studies. These activities are to implement a course of action or practice within field office activities, a region, or nationwide. Examples of management actions might include developing/ assembling an array of management practices for establishing riparian habitat, or creating a forum to share common experiences, build teams, and disseminate information. Examples of management studies might include the riparian corridors research or conducting studies on management of threatened and endangered species.

(2) Policy Guidance and Management Support. Such activities relate to the development and/ or implementation of guidance. Examples of policy guidance included facilitating cooperative agreements with stewardship non-governmental organizations, or amending the annual Budget Engineer Circular to provide emphasis on conducting inventories of regionally or nationally significant resources.

(3) Information Exchange. These activities are designed to build, integrate, and share our knowledge base to support greater understanding of the environment and the impacts of program work.

PROPOSED ACTIVITIES FOR FY 2010:

The SSP will conduct focused management action studies and recommend guidance to address high priority program efficiency and effectiveness concerns, including responses to findings that result from an independent assessment of the stewardship business program area. Efforts will continue in support of performance based budgeting including further development of performance measures, development of strategies to improve program outputs and outcomes, and refinement of E-S BEST and related guidance to monitor program performance. The increase of \$250,000 in the Stewardship Support Program funding will be to provide national support for two areas of strategic and performance priority within the Environmental Stewardship program. Identifying threats and significance of natural resources across the nation will provide a better evaluation and achievement of national strategic goals. Under the additional funding new technologies and national data sets will be utilized to more objectively and accurately evaluate threats and significance. Funding will also assist in the completion of the level one natural resources inventory and assessing conditions of project lands. Progress in recent years on developing standards, published protocols and web-based data entry programs have resulted in improvements in advancing completion of the inventories. Increased technical support to the field will provide training and guidance to assist in completion of the level one inventories during 2010. This funding will result in completion of one of the PART measures and allow focus of 2011 funding to be targeted to other high priority needs.

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The SSP will also continue support of the Environment-Stewardship Community of Practice (CoP) including further development of the NRM Gateway for information and technology exchange. These activities will provide benefits in increased program effectiveness through implementation of assessment recommendations. Improved program performance will be facilitated through increased CoP access to best practices and policy guidance, and effective development and execution of performance based budgets.

ACCOMPLISHMENTS IN PRIOR YEARS: The allocation of project operations and maintenance funds to conduct specified nationwide (multiple project) activities to improve the efficiency and cost effectiveness of the Environment-Stewardship business program has been employed, with subcommittee staff knowledge and concurrence, since the late 1990s for activities similar to those identified for FY 2009. Past products of the Stewardship Support Program include the initial set of Environment-Stewardship program performance measures, which are in accord with the Government Performance and Results Act and used to measure and monitor priority program outputs and outcomes; the Stewardship module of the Operations and Maintenance Business Information Link (OMBIL), which receives and stores selected data concerning the stewardship of project natural resources, and which provides for retrieval of that information by all levels of the Corps; the pilot version of the Environment-Stewardship Budget Evaluation System (E-S BEST) used to assist in developing budget scenarios and ranking budget proposals. Components of the Environment–Stewardship portion of the Natural Resources Management (NRM) Gateway, a knowledge management tool for the NRM community, have been completed and others are underway. Support to Headquarters was provided to develop and refine; the Environment-Stewardship business program strategic plan and 5-year development plan, the program management plan for the Environment-Stewardship Community of Practice, and the annual Environment-Stewardship program development guidance.

**Recreation Management Support Program    \$1,650,000**

**AUTHORIZATION:** This program is conducted under the general authority of PL 78-534, the Flood Control Act of 1944 (58 Stat. 887).

**JUSTIFICATION:** The recreation program serves almost 400 million recreation visitors and generates about \$40 million in revenue annually. Visitors spend over \$12 billion annually to engage in recreation at Corps projects; over 500,000 full and part time jobs are associated with this spending.

The RMSP supports the recreation program through the conduct of focused management studies to improve operational efficiencies and the provision of technical assistance, to include technology transfer and technology support and maintenance for recreation specific automated information systems. The RMSP supports strategic planning for and performance monitoring of the Corps recreation business program, subject to the Government Performance and Results Act (GPRA).

The RMSP has 3 major components, which together provide comprehensive support to the Corps Recreation Business Program:

1. **Focused Management Studies.** RMSP provides focused management studies and reports to acquire and analyze information about recreation trends, accessibility, emerging issues, user conflicts, visitor diversity, use fee impacts and similar elements affecting the Corps recreation program. Analyses are conducted to support the recreation area modernization program, implementing facility and service standards, and in similar product delivery improvement efforts. Information and technology transfer pursuant to these studies is funded by the RMSP. Ongoing trends analysis provides valuable data on which to base decisions about necessary short and long term adjustments to the program to meet public needs.
2. **Management/Technical Assistance.** RMSP provides technical assistance to the Recreation Community of Practice in the development of management tools, which quantify recreation program outputs and relate them to customer needs and budget allocations for the purpose of measuring performance. This includes

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gathering and analyzing information about customer satisfaction with the Corps recreation program. RMSP assures the field workforce is equipped with "state-of-the-art" skills and knowledge to deal with a rapidly changing public. RMSP provides technical support and maintenance of performance based budgeting tools, visitation monitoring and analysis systems, fee collection and reporting, economic analysis, facility inventory and condition assessment, and similar automated information programs. RMSP provides short-term assistance to projects in solving specific technical problems.

3. Support to Recreation Program Strategic Planning. Funding to support the activities of the Recreation Leadership Advisory Team (RLAT) is included in this program. The RLAT is composed of representatives from the division, district and project levels of the Corps natural resources management program. It provides input, advice and support to the Corps strategic planning for the recreation business program.

PROPOSED ACTIVITIES FOR FY 2010: Minimum/Recommended Program: The Recreation Budget Evaluation System (RecBEST) will be refined to increase the capability to monitor and report Recreation performance measures and evaluate and prioritize budget submissions in response to OMB guidance. The Recreation module of the Natural Resource Management Gateway will be further developed to address high priority needs. Demonstrations will be conducted to identify and communicate the benefits of the Corps recreation program and improve effectiveness in addressing the needs of ethnic minority visitors. Emphasis will be placed on improving recreation use monitoring procedures that will be incorporated into recreation performance measures. Customer satisfaction survey methods and benchmarking capabilities will be refined and fully integrated into program performance measures. Technical support will be provided to field staff to implement improved procedures. Support will be provided to standing NRM committees and task forces including: Recreation Program Performance Improvement Initiative, Recreation Entrance Fee Policy Development, Partnerships Demonstration Program, Water Safety, Career Development etc. Support will be provided to Headquarters Recreation program staff regarding strategic planning, development of program evaluations and other high priority Headquarters initiatives. The increase from \$1600k to \$1650k will provide resources for evaluation tasks associated with the implementation of the Recreation Strategic Plan.

ACCOMPLISHMENTS IN PRIOR YEARS:

Past products include Recreation Budget Evaluation System (RecBEST), visitation estimation methodology and data collection and reporting tools, economic impact methodology and analysis tools, customer satisfaction survey and benchmarking tools implemented at all CE projects, studies on recreation preferences of ethnic groups including cross-cultural communication issues, and support for development of a strategic context as a foundation for transitioning to a performance based environment, to include performance based budgeting. The Natural Resources Management Gateway was developed as a knowledge management tool for the NRM community and is compatible with other Corps KM and Community of Practice initiatives. The Corps Lakes Gateway was developed and provides information to millions of visitors annually on recreation opportunities at Corps projects. The Corps Lakes Gateway also delivers Corps recreation information to the interagency RecreationOneStop project in support the Administration's E-GOV initiative. Guidance and appropriate tools were developed to improve interpretive services associated with the CE recreation program that advance the public's understanding of the environment and the Corps Environmental Operating Principles. Support to Headquarters was provided to refine the recreation business program strategic plan, utilizing input from the RLAT and stakeholders. Goals and objectives were refined, and actions identified to achieve them. Innovative partnership approaches were developed and field guidance prepared to improve stakeholder participation. Stakeholder outreach was conducted to develop partnerships for strategic initiatives.

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# EMERGENCY MANAGEMENT

APPROPRIATION TITLE: Flood Control and Coastal Emergencies (FCCE), FY 2010

SUMMARIZED FINANCIAL DATA:

Annual Appropriation FY 2006	\$	0
Emergency Supplemental FY2006	\$	5,407,989,000
Annual Appropriation FY 2007	\$	0
Emergency Supplemental FY2007	\$	1,561,000,000
Annual Appropriation FY 2008	\$	0
Emergency Supplemental FY2008	\$	226,855,000
Emergency Supplemental FY2008	\$	415,600,000
Emergency Supplemental FY2008	\$	2,926,000,000
Annual Appropriation FY 2009	\$	0
Budget for FY 2010	\$	41,000,000

DISASTER PREPAREDNESS: This activity consists of functions required to ensure that USACE activities are ready to respond to a broad range of disasters and emergencies. It includes coordination, planning, training, and the conduct of response exercises with key local, state and federal stakeholders/partners under the Corps' statutory authorities and in support of the Federal Emergency Management Agency, Department of Homeland Security. It also allows the Corps to purchase and stockpile critical supplies and equipment and support facilities (Emergency Operations Centers), including the purchasing and upgrading deployable tactical operations systems (DTOS). DTOS allows USACE to provide immediate emergency aid to a disaster stricken community; these upgrades will be undertaken over a 3-year period. These activities ensure USACE personnel assigned to emergency assistance are trained and equipped to accomplish their missions. This includes, but not limited to, personnel assigned to Emergency Operations Centers, Crisis Management Teams, Crisis Action Teams, Regional Response Coordination Centers, Planning and Response Teams, Special Cadres, Levee Inspection Teams and general response personnel.

Major preparedness efforts include reviewing and updating response plans based on lessons learned from recent disasters; training of personnel and teams to develop critical skills which enhance the capability to respond under adverse conditions; procuring and prepositioning critical supplies and equipment (i.e., sandbags, pumps) which likely would be otherwise unavailable during the initial response stages; periodic exercises to test and evaluate plans, personnel, and training; inspection of non-Federal flood control projects to ensure their viability to provide flood protection and assess their eligibility for post-flood rehabilitation; laboratory support for field operations; serving as a liaison to state and local governments and other federal agencies; and effective management to ensure workable, coordinated efforts to meet the needs of disaster victims. The funding identified under All-Natural Hazards Preparedness Activities reflects expanded national and regional planning, training and coordination to support response to all natural disasters that includes disasters under the umbrella of the National Response Framework.

FISCAL YEAR 2010: The Budget funds this program at \$41 million for preparedness, only. This represents an increase of about 2.5 percent in preparedness funding compared to the FY 2009 budget. The decision to seek these funds is partially an outcome of an analysis using the Program Analysis Rating Tool (PART), which recommended that planning and preparedness funding should be sought as part of the regular budget process, instead of relying on emergency supplementals.

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**National Emergency Preparedness Program (NEPP)**

SUMMARIZED FINANCIAL DATA:

Estimated Annual Cost of Continuing Program	\$8,000,000
Appropriation for FY 2009	5,458,000
Allocation Requested for FY 2010	7,000,000
Change in FY 2010 from FY 2009	1,542,000

AUTHORIZATION: Executive Orders 10480 and 12656, which cite several acts including The Stafford Act.

JUSTIFICATION: The budget request will enable the Corps to be prepared to accomplish its continuity of operations and continuity of government responsibilities during national/regional crises. This entails support of civil government through coordinated execution of federal agency plans and the planning/conducting of limited exercises to test readiness to provide such support. Executive Orders 10480 and 12656 and the Department of Homeland Security (DHS), Federal Emergency Management Agency (FEMA) under the Robert T. Stafford Disaster Relief and Emergency Assistance Act, 42 USC 5121 et seq. are the basis of the National Response Plan/Framework. The cited executive directives assign significant responsibilities for such preparation (planning, training, research and testing) to the Corps. This includes responsibility for development of comprehensive national level preparedness plans and guidance for response to all regional/national emergencies, whether caused by natural phenomena or acts of man, plans for response(s) to acts of terrorism, and the local preparedness necessary to support Corps continuity of operations. The Corps provides engineering and construction support to state and local governments in response to catastrophic natural/technological disasters. Rapid response to disasters of a regional/national magnitude requires that extensive pre-emergency planning and preparedness activities be conducted to assure the availability of a work force capable of shifting from routine missions to crisis operations and the organizational command and control structure(s) necessary to provide a coordinated and comprehensive response in the critical early stages of a catastrophic disaster.

This program provides the activities necessary to prepare for response to catastrophic natural and technological disasters requiring major Federal support of state and local governments overwhelmed by a disaster event, and for national level emergency water planning. The preparation requires the development of plans, training of employees, conducting training exercises, including support to FEMA exercises and coordination within DOD and with other Federal agencies and state and local governments. Unlike the Corps Civil Works programs related to individual project planning, development and operations and maintenance, the NEPP requires the development of an integrated command planning and response capability. Corps divisions have a key role in the planning, coordination and operational control of multi-district response(s) and the integrated preparedness effort required for accomplishing this response. Preparation also includes the Headquarters sponsored Corps-wide programs necessary to provide the capabilities and operational command and control required by Corps field commands in order to accomplish their NEPP responsibilities, both routinely and in specific emergency response situations. NEPP also provides USACE with the ability to engage and coordinate readiness with other agencies at the National level on programs of Federal primacy or interests.

The NEPP is complementary to the Flood Control and Coastal Emergencies (FCCE) appropriation. Although both programs are related to emergency situations, there is a distinct separation of responsibilities. The NEPP provides for the planning, training, and testing activities necessary to develop the capability to meet essential requirements associated with local continuity of operations and response(s) to scenario specific national/regional crises. The FCCE, on the other hand, provides preparedness and response related to emergency flood fighting, post-

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flood repair and restoration of flood and shore protection works damaged or destroyed by floods, hurricanes or wave action and Corps preparedness associated with National Response Plan/Framework mission requirements.

PROPOSED ACTIVITIES FOR FY 2010: The FY 2010 program will provide for continuing the implementation of the National Emergency Preparedness Program. The FY 2010 program will continue the process of catastrophic disaster planning and exercising to enable the Corps to rapidly respond to a broad spectrum of emergencies, with emphasis on natural disaster and terrorists' events that have regional and national implications, such as the Homeland Security Council's National Planning Scenarios. An effort will be made to satisfy increasing demands on the program to support multi-agency (Federal, state, and local government) requests to exercise plans focusing on regional catastrophic natural and man made disasters. Increasingly, Federal, state and local agencies are looking to the Corps in this area. Lessons learned from events such as Senior Leader Seminars, the National Capitol Region workshops, Hurricane Katrina, and the evolving New Madrid earthquake scenario, clearly indicate that the current system does not adequately provide for a response to catastrophic disasters that is timely enough or comprehensive. The Corps has initiated a program that uses the deliberate planning process to develop scenario specific catastrophic disaster plans. This will result in more detailed planning and should provide for a more comprehensive response to national/regional catastrophic disasters to include terrorist attacks. More extensive coordination with Federal, state and local entities will be incorporated into plan development. In this regard, following FEMA's program focus, USACE will continue to play a key role in national security planning such as supporting Homeland Security strategic planning efforts, development of the National Capitol Region Response Plan, catastrophic hurricane and earthquake responses, and other man-made contingencies with national implications. Completing plans for the New Madrid Earthquake are critical in FY 2010 as a national level exercise is planned by DHS for FY 2011. Additional efforts will focus on continuing to strengthen COOP readiness and conducting exercises, aligned with the highest national priorities, within the scope of available funding during FY 2010, improved catastrophic disaster response planning and emergency management technical assistance program for technology support, development and transfer of knowledge.

ACCOMPLISHMENTS IN PRIOR YEARS: The Corps continued to emphasize a program that uses the deliberate planning process to develop scenario specific catastrophic disaster plans. Extensive coordination with Federal, state and local entities has been incorporated into plan development. In this regard, following FEMA's program focus, USACE has continued to play a key role in national security planning such as supporting Homeland Security strategic planning efforts, development of the National Capitol Region Response Plan and other plans such as the New Madrid Earthquake, the New Orleans Hurricane, the Los Angeles Earthquake and other contingencies with national implications, such as the fifteen national planning scenarios developed by the Homeland Security Council. Additional efforts focus on continuing to strengthen COOP readiness. Exercises, involving federal, state and local officials, have contributed to a more timely and effective execution of Corps responsibilities during disasters that have national impacts. In FY 2007, USACE made a concerted effort to assist NORTHCOM in preparing for timely, effective and comprehensive engineering support in response to potential disasters. In FY2008 Pacific Ocean Division hosted a Regional Exercise incorporating cold weather impacts for an Anchorage Earthquake CDRP event. Objectives, which were met, were to prepare USACE to respond to a no-notice cold weather event and capture lessons learned to improve future responses. Urban Search and Rescue (US&R) Training was conducted to recertify cadre members to advanced Structures Specialists, to provide US&R-level weapons of mass destruction training to meet FEMA requirements, to prepare and conduct a new recruit Structures Specialist training course and to purchase associated equipment for the support teams. Seminars, workshops, and exercises, such as mentioned above, have strengthened partnerships and promoted mutual understanding of the roles, responsibilities and interests of USACE, FEMA, other Federal agencies, and State and local governments involved in natural disasters and terrorists' responses. They have provided an excellent opportunity to examine contingency plans, capabilities, and communications at federal, state and local levels. Also, region-specific issues have been identified and addressed at exercises such as Ardent Sentry and Golden Guardian. National level interagency coordination continued through participation in exercises such as TOPOFF4. FY 2009 accomplishments will be addressed later this year.

# WATER SUPPLY



Appropriation Title: Operation and Maintenance – Fiscal Year 2010

**National Portfolio Assessment for Reallocations**

SUMMARIZED FINANCIAL DATA:

Estimated Annual Cost of Continuing Program (for 2-years)	\$871,000
Appropriation for FY 2009	300,000
Allocation Requested for FY 2010	571,000
Decrease of FY 2010 from FY 2009	0

AUTHORIZATION: Specific project authorizations, Section 216 of the River and Harbor and Flood Control Act of 1970.

JUSTIFICATION: The National Portfolio Assessment for Reallocations was a two year appraisal of the portfolio of existing Corps of Engineer multipurpose projects and was used as a screening tool to identify the best candidates for opportunities for operational changes and/or reallocation opportunities. During the development of the survey for this assessment, the Corps was considering two other national surveys, one on the water management aspects of Corps reservoir projects and another on sedimentation management concerns. Recognizing that gains could be made from both monetary and district responsive aspects, these three efforts were combined into one. This two year survey and assessment has now been completed and resulted in:

- (1) the development of a portfolio of Corps projects that identified the best candidates for opportunities for operational changes and/or reallocation opportunities to ensure existing Corps reservoirs contribute to enhance economic and ecosystem values as water demands evolve and a better understanding of global warming issues is gained.,
- (2) a paper on alternative funding arrangements for water supply reallocation studies,
- (3) a database to examine the status of Corps water management from local, regional, and national perspectives,
- (4) an engineering and scientific foundation for a national adaptive management program,
- (5) a baseline data set for investigating the evolution of operational water management policies,
- (6) an assessment of sediment infilling, its impacts to operating purposes and management practices, and
- (7) a database for sediment data collection efforts.

The Corps of Engineers had previously launched a Sustainable Rivers Project in 2002. The purposes of this effort are to assess ecosystem needs downstream of Corps projects and to evaluate water management opportunities for potential operational changes and/or reallocations to enhance ecosystem values while maintaining or improving primary project purposes (e.g. flood risk reduction, water supply, and hydropower). In addition to the development of new modeling tools to support these assessments, this effort resulted in the initiation of pilot projects in eight river basins. These pilot projects seek to define ecological needs, model potential operational changes, and implement and monitor ecological outcomes resulting from the changes to the project's operation. These site-based efforts complement the national portfolio assessment by evaluating water management aspects of reservoir projects and demonstrating an adaptive management approach that can be used to ensure Corps projects maintain their existing purposes while contributing to and/or enhancing economic and ecosystem values as water demands evolve.

A report entitled "A Strategy for Federal Science and Technology to support Availability and Quality in the United States" was published by the Executive Office of the President of the United States in September 2007. This report was a product of the Subcommittee on Water Availability and Quality of the National Science and Technology Council's Committee on Environment and Natural Resources. This committee was charged

Appropriation Title: Operation and Maintenance – Fiscal Year 2010

with: (1) identifying science and technology needs to address the growing issues related to fresh water supplies, (2) developing a coordinated, multi-year plan to improve research to understand the process that control water availability and quality, and (3) enhancing the collection and availability of the data needed to ensure an adequate water supply for the Nation's future. As a result of the information obtained from the completed two year survey and from the initial success of the Sustainable Rivers Project pilot sites, it is clear that it would be desirable to continue the assessment and pilot demonstration efforts to address the national needs as identified in 2007 report from the Executive Office of the President of the United States.

PROPOSED ACTIVITIES FOR FY 2010: The recommended level of funding in the amount of \$571,000 includes not only the initial funding program but includes an additional funding increment in the amount of \$271,000 to be used for a Sustainable Rivers increment. The Sustainable Rivers increment will be used to support definition of environmental flow needs, model application, implementation of operational changes, and monitoring at selected Sustainable Rivers Project pilot sites. In addition, this effort will include development of new tools and models for evaluating operational changes and/or reallocation, training Corps staff in uses of these tools, guidance and technical support to apply tools at existing pilot sites, and support of emerging sites. The experience at existing sites will be used to inform other efforts to modify project operations and refine the practices for evaluating evolving water demands.

ACTIVITIES IN FY 2009: Funding in the amount of \$300,000 was used to complete the first stage of the Portfolio Assessment for Reallocations. This effort focused on the projects earlier identified as being the most likely to provide operational changes and/or reallocation opportunities to provide additional water supply without the construction of new projects. This study also focused on identifying those beneficiaries willing to fund follow-up studies under alternative funding arrangements.

7 May 2009

**EXPENSES**

Justification of Estimates for Civil Functions Activities  
Department of the Army, Corps of Engineers  
Fiscal Year 2010  
(\$000)

APPROPRIATION TITLE: Expenses

	<u>FY 2009 Appropriation</u>	<u>FY 2010 Request</u>	<u>Change FY 2009-2010</u>	<u>Percent Change</u>
1. Expenses for Headquarters & Major Subordinate Commands (MSC)				
a. Headquarters, U.S. Army Corps of Engineers				
(1) Base level Operating Expenses	\$ 76,300	\$ 80,600	\$ 4,300	5.3%
(2) Program Account	<u>12,400</u>	<u>12,400</u>	<u>0</u>	<u>0%</u>
<b>SUB-TOTAL</b>	<b>\$ 88,700</b>	<b>\$ 93,000</b>	<b>\$ 4,300</b>	<b>5.3%</b>
b. Major Subordinate Commands	\$ 70,400	\$ 72,500	\$ 2,100	2.9%
2. Administrative Expenses for Field Operating Activities (FOA)				
a. Humphreys Engineer Center Support Activity (HECSA)	\$ 6,250	\$ 6,450	\$ 200	3.1%
b. Institute of Water Resources (IWR)	4,700	4,800	100	2.1%
c. U.S. Army Engineer Research & Development Center (ERDC)	250	250	00	0%
d. USACE Finance Center (UFC)	900	1,000	100	10.0%
e. USACE Logistics Activity	3,900	4,000	100	2.5%
f. Army Corps of Engineers – Information Technology (ACE-IT)	<u>1,900</u>	<u>2,000</u>	<u>100</u>	<u>5.0%</u>
<b>SUB-TOTAL</b>	<b>\$17,900</b>	<b>\$ 18,500</b>	<b>\$ 600</b>	<b>3.8%</b>
<b>TOTAL:</b>	<b>\$177,000</b>	<b>\$184,000</b>	<b>\$ 7,000</b>	<b>4.0%</b>

The Expenses appropriation funds all work necessary for general administration and related civil works functions in the Headquarters, U.S. Army Corps of Engineers and in major subordinate commands, and the costs of those elements of field operating activities providing direct support to those functions. Expenses activities include the exercise of command and control of USACE civil works operations; development, coordination and issuance of policy that guides regional and field execution and operations; program management in developing, defending and executing all major Civil Works programs; national and regional level coordination with elements of the Administration, Congress, and other agencies and national stakeholders; and quality assurance to ensure that the civil works program is being executed in accordance with law, regulation and policy.

The FY 2010 Budget of \$184 million for Expenses account is \$7 million more than FY 2009 of \$177 million. The increase, \$3.7 million is to fund price level changes for labor and other cost factors in the Corps of Engineers Expenses function, and \$3.3 million for an adequate level of funding for fixed and variable costs; primarily travel, training and critical support services.

1. General Administration

The FY 2010 Budget will provide for a total staffing level for the U.S. Army Corps of Engineers of 895 Full Time Equivalents (FTE) that is spread across the Headquarters, Major Subordinate Commands (MSC), and Support Activities. The general administration is the command and control, policy formulation, program management, national and regional coordination, and quality assurance of the Civil Works Program. This Corps' mission is decentralized across the Corps of Engineers in 37 districts, eight (8) MSCs, several field operating activities (FOA), two (2) technical Centers and one (1) Engineering Research and Development Center made up of seven (7) laboratories. The budget will enable the Corps to accomplish its priority objectives, such as management efficiency programs, CFO audits, asset management, and e-Government initiatives.

a. <u>Headquarters, U.S. Army Corps of Engineers</u>	FY 2010 <u>Request</u>
(1) Base level Operating Expenses:	\$ 80,600
(2) Program Account:	<u>12,400</u>
	\$ 93,000

(1) The Headquarters, U.S. Army Corps of Engineers is responsible for providing policy, guidance, and oversight of a comprehensive Civil Works Program. The headquarters assists the field command by providing command and control, policy formulation, national programs management, national coordination, quality assurance, preparation of the annual budget and legislative submission, national and international interface, resource distribution and oversight of execution, and performance measurement.

- The amount requested for the headquarters for FY 2010 consists of two components: the base-level operating expenses of \$80,600 and the Civil Works Program Account amounting to \$12,400. The headquarters has an active program to manage its personnel resources. Positions have been prioritized and, as opportunities arise, least important positions are eliminated and new positions are being created to respond to evolving challenges. Through this prioritization process, the headquarters is planning to strengthen its future capabilities in contract management, asset management, program management for development, defense and execution of the Civil Works program, and the execution of project cooperation agreements.

(2) The Program Account provides for initiatives essential to supporting the Civil Works mission that are deemed appropriate for direct-funding from the Expenses account and benefits HQ, MSCs and FOAs. Typically, many of the Program Accounts provide funding for non-headquarters staff that are normally project funded. Under Government Performance and Results Act (GPRA), each agency is required to establish a Strategic Plan. The Corps' implementation of its Strategic Plan is called the Campaign Plan. For FY 2010, the Program Account investments are aligned with the Corps' Campaign Plan goals. These goals are: Goal #1. Deliver USACE support to combat, stability, and disaster operations through forward deployed and reach-back capabilities; Goal #2 Deliver enduring and

essential water resource solutions through collaboration with partners and stakeholders; Goal #3 Deliver innovative, resilient, sustainable solutions to the armed forces and the Nation, and Goal #4 Build and cultivate a competent, disciplined, and resilient team equipped to deliver high quality solutions.

➤ Program Account Goal #1 total to \$760K for four (4) programs;

1) Civil military preparedness and emergency management international (CMEP/CMI) \$75K. The CMEP/EMI program supports activities such as project planning and development, project and program management, financial management and coordination with multiple stakeholders including Army, the Defense Security Cooperation Agency and partners from OCONUS emergency management agencies. It supports capacity development and improved theater security cooperation by developing and encouraging civilian and military cooperation, as well as multi-national force capability to plan for humanitarian response to all forms of disaster.

2) Civil disaster planning and operations \$245K funding supports four (4) separate developmental assignments for the USACE Civil Emergency Management (CEM) program and one emergency management community of practice workshop. These assignments will foster team member development on a continuing basis to meet both the immediate and long-range USACE requirements. This includes providing both job-related and long-range developmental training, and encouraging team member development.

3) USACE concept development, experimental and exercise program for contingency operations \$400K that directs USACE and its subordinate elements in the planning, preparation, and execution of concept development, analysis and experimentation that in turn support Army, FEMA, national and international missions. Within the context of ongoing strategic commitments while at the same time transforming to meet future challenges, USACE will anticipate requirements through the use of capability experiments to best inform and shape the directions of USACE for both the military environment as well as civil support to national and international missions. A continuous cycle of innovation, experimentation, testing, exercises, and updates will enable USACE to improve its capabilities to provide support to the Joint Force and Nation now and in the future.

4) Family readiness \$40K provides support to USACE military and civilian members and their families who are deployed with civil emergencies. Four (4) project delivery teams of 10-12 USACE employees across USACE are developing USACE policies. Funding is needed to support invitational travel orders for non-employee spouses, and to reimburse USACE districts for their employee's travel to meetings, USACE and Army Family Readiness conferences, and to train USACE activities in the implementation of the Family Readiness program that is developed.

➤ Program Account Goal 2 investments total \$4,070M for eight (8) programs;

1) Continued implementation of the Water Resources Development act of 2007 \$250K by updating the Principals and Guidelines including the associated procedures and complete implementation guidance for provisions identified in WRDA 07 as directed by congress.

2) Updating the Civil Works Strategic Plan \$250K. Water Resources management is the purpose of the Civil Works program and water resources is one of the five corporate mission areas. The Corps will continue to use the strategic planning process for the development of the next Civil Works Strategic Plan for Fiscal Years 2009-2015 to ensure that the plan's goals, objectives and strategies are designed to meet the program's future strategic direction. The Strategic Goals provide efficient and effective implementation of needed public engineering services for the Armed Forces and the Nation, while enhancing our flexibility and responsiveness to homeland and national security contingencies. The programs that support the goals direct USACE and its subordinate elements in the planning, preparation, and execution of experiments and exercises that in turn support preparation for Army, FEMA, national and international missions and with the integration of existing relevant capabilities.

3) The Civil Works guidance maintenance program (GUMP) \$2.0M is a necessary part of developing and updating technical guidance, design and construction standards and criteria documents critical to our Civil Works mission. The average age of these documents is 12 years. This funding pays for labor of Corps subject matter experts who are normally project funded for the period of time they are working to benefit the Corps as a whole by updating the documents.

4) The Native-American (Tribal Nations) program \$30K program mandate is the implementation of DoD/Corps American Indian/Alaska Native policy nation-wide. Program encourages partnerships with Tribes in water resource projects and programs, increasing Tribal economic capacity, while fulfilling Corps missions. Program supports Corps visibility at national and regional Tribal conferences as well as training to Corps employees that is free of charge, building a workforce that is competent, disciplined and resilient, able to offer high quality solutions to water resources issues to Tribal Nations, a rapidly growing population.

5) Development of sound water resource solutions \$282K to improve and enhance corporate processes including policies, processes, and methods and supporting technology Corps-wide in support of the Army and the nation.

6) Actions for Change \$1,175M continued application of lessons learned from hurricane Katrina and subsequent hurricanes under theme areas of comprehensive systems-based approaches, risk management, risk communication, and technical competency. Funds will be used to continue development of the multidisciplinary planning and engineering guidance for local protection systems and the Minimum Safety, Reliability and Resilience requirements, and additional guidance and policy developed as Actions for Change driven technologies and R&D results are ready for field application

7) The Unified national program for floodplain management \$20K funds the USACE portion of a multi-Federal agency effort in support of the Association of State Floodplain Managers development and management of a certification program for floodplain managers. Funds USACE participation in two (2) working meetings of the Certification Board of Regents, as well as specific activities as identified by the Regents.

8) The Chief of Engineers environmental advisory board \$63K funds the EAB who provide the Chief of Engineers with outside, expert and independent advice on environmental issues facing the Corps.

➤ Program Account Goal 3 investments total \$2.040M for five (4) programs;

1) Asset Management \$1.0M Contract support for Asset Management (\$1.0M) will allow the Corps to continue to implement the asset management program that will merge the agency's vision for performance and efficiency along its business line missions with a proactive lifecycle investment strategy. The funds will be utilized to reconcile and close all data gaps and performance measures and provide continual data validation of the asset inventory; support the condition assessment methodology development and implementation across portfolio of infrastructure assets; develop metrics, identify best management practices and benchmarks to develop a risk-based process for prioritizing maintenance and capital improvement investments, and continue to meet OMB requirements and monitor progress by updating the quarterly scorecard.

2) The Corps' dam safety program \$250K provides support for dam safety professional workshop and conference participation by Corps team (district) members with emphasis on technical competency. Supports team members as representatives on national and international committees writing technical criteria.

3) Unique identification (UID) for personal property \$170K a unique item identifier is mandated for all items if the unit acquisition cost is over \$5,000, serially managed, mission essential, controlled inventory, or a consumable item or material where permanent identification is necessary. Assets that met the UID criteria must be entered as an item in the UID beginning in FY 2007 and complete physical marking NLT 31 Dec 2012 for legacy inventory.

4) Corps-wide efficiency initiatives \$620K to conduct business process reengineering activities for achieving corps-wide efficiency initiatives, post competition accountability on completed competitions, cost tracking and performance evaluation and reporting to congress and OMB.

➤ Program Account Goal 4 investments total \$5.583M for fourteen (14) programs;

1) IM/IT services management and governance \$2.5M provides civil funds to match military funding for USACE internal governance of e-government initiatives which includes information assurance, privacy, quality management, test and evaluation, architecture, infrastructure, records management, and portfolio management. Business cases for the major IT investments are located at <http://www.usace.army.mil/CECI/Pages/OMB300.aspx>.

2) Automated Information Systems (AIS) direct costs total \$177K made up of four (4) sub-programs a) the Standard procurement system/procurement desktop defense (SPS/PD2) enhancement (\$40K), (Addition of reports align this standard Department of Defense system with Corps Civil Works requirements) b) Implementation of warrant management system (WAMAS) (\$40K), (Provides the ability for USACE to track warrants of contracting officers as new people come on board) c) Technical Excellence Network (TEN) (\$20K) (Portal for the Science and Engineering community to access information) and d) USACE Learning Network (ULN) (\$77K). (Electronic access to courses that USACE develops and provides to its employees)

3) CorpsMap (enterprise GIS (eGIS)) and Corps project notebook database (CPN) \$250K supports national viewing and database component for many AIS systems as part of the USACE enterprise geospatial metadata repository as required by EO 12906.

4) Management of the planner's improvement course \$100K, allows the Corps to update lesson plans and course objectives keeping the Planners Improvement course current with the latest technology and community of practice.

5) E-Government totaling \$320K made up of three (3) sub-programs a) Geospatial Lines of Business (\$75K) provides cost efficient acquisition, processing and access to geospatial data and information. This program will eventually provide a more coordinated approach to producing, maintaining, and using geospatial

data, and will ensure sustainable participation from Federal partners to establish a collaborative model for geospatial-related activities and investments; b) Recreation One-Stop (\$50K) is one of the E-Government initiatives to improve the effectiveness, efficiency, and customer satisfaction for planning visits to Federal recreation sites. This covers an annual payment to the Department of Interior, managing partner for Recreation One-Stop, for costs to manage, operate and maintain the Recreation.gov legacy website; and c) The Budget Formulation and Execution (\$95K) initiative is an agreement between the U.S. Department of Education and the Corps in support of the OMB implementation of the Program Management Office operations. This program focuses on building the “budget of the future” by promoting information sharing across government agency budget offices.

6) Organizational memberships \$360K provides funding for USACE participating in the activities of professional and government organizations. This supports long-standing relationships and partnering efforts of USACE. This program is designed to corporately learn from other and contribute to the improvement of the Engineering/Construction/Operations (ECO) industry of the nation. Participation in these organizations allows interaction with public sector and private companies, enabling recruitment, technical transfer and knowledge sharing, development of relationships and trust, situational awareness, sharing research and best practices, educational and developmental opportunities and benchmarking.

7) Capitol Hill assignments/Civil Works professional development \$250K provides for detail assignments of Corps members to the House and/or Senate, or both sub-committees responsible for the oversight of the authorization and appropriation process of the Civil Works program. Detrailees participate in the development of policy legislation, Water Resource Development Acts, annual appropriations and Developmental assignments in Civil Works.

8) Chief of Engineers design and environmental awards program and professional awards program \$40K developed to recognize design excellence in USACE work. It also provides funding to support the Federal Agency Interview Program booth at professional conventions.

9) Career Program 18 leadership development, \$300K provides civilian professional development as part of the Army's Career Program 18, Engineers & Scientist (Construction) This program expands the civilian professional's knowledge and abilities to prepare them for future advancement as future leaders in the Army organization. The developmental assignments and coursework taken by mid-level career candidates broaden their base of knowledge and expertise in different functional and geographic areas. Completion of the CP-18 LDP prepares the candidates for assuming positions of increasing responsibility with the Army engineering community.

10) Competitive professional development (LTT) \$400K supports tuition, travel and per diem for twelve (12) civil works funded employees to obtain academic degree training across the command. Without this centralized funding for civil works funded employees there will be an inequity in training opportunities between civil and military funded employees.

11) Competent, disciplined and resilient teams under the National Technical Competency Team (NTCT) \$500K to continue the work of the NTCT to assess current technical status identify future requirements, tools and methods for managing technical competencies and conduct a pilot test of results in one or more region with the goal of deploying the program across USACE.

12) Project management business process (PMBP) assessment \$226K. Over that past several years, the Corps has invested in standardizing our business processes Corps-wide which in effect will also centralize and consolidate our legacy Automated Information Systems (AIS) and the management of data from an enterprise perspective. The FY 2010 investment will allow the Corps to implement best practices/innovations, making use of knowledge management tools and improving the Corps' Corporate business process manual. Funds would be used for aligning our business processes to such initiatives such as the centralized Quality Management System (QMS), the Enterprise Data Warehouse (EDW), and refinements/clarifications/implementation guidance to the overarching Business Process Regulation, ER 5-11-1.

13) The Planning community of practice (PCoP) support to learning organization and knowledge management \$60K supports significant initiatives of the Planning CoP for the Corps-wide planning community such as corporate model certification and planners tool box; project risk management and Actions for Change; professional development seminars and conferences; support for long-term training opportunities within HQ Planning and Policy Division and development of planner's resource website and lesson learned.

14) Science and Engineering Technology (SET) \$100K a USACE initiative to establish common Science and Engineering (S&E) practices and tools across Regional Business Centers that focuses on computer-based technologies, identification and coordination of computer platforms to support technical missions, and support of integration of Building Information Technology in USACE.



The Headquarters staffing level for FY 2010 is 370 civilian FTE and reimburses Department of Army for 44 civil funded uniformed military spaces. The breakout of costs for the Headquarters by major category is shown below.

\$ 56,104	Civilian Personnel Compensation and Benefits
14,800	Fixed Costs
(9,500)	(Rent, utilities, AIS, communication, critical support services, etc.)
(5,300)	(Reimbursement to Department of Army for Uniform Military salaries)
9,696	Variable Costs (Transportation, printing, travel, training, supplies and equipment)
<u>12,400</u>	Program Account
\$ 93,000	

b. Major Subordinate Commands

FY 2010  
Request  
\$ 72,500

Eight Major Subordinate Commands provide command and control, program management, regional coordination, quality assurance and technical oversight of subordinate district offices. In addition, the MSCs are responsible for program coordination among district offices to ensure the most efficient program execution, establishment and oversight of technical centers of expertise, and workload and workforce planning. The civilian FTE staffing level for FY 2009 in the MSCs is 405 and reimburses Department of Army for 16 civil uniformed military positions. The civilian FTE level for each MSC varies from 49 to 63 based upon the scope of their Civil Works responsibilities, with the exception of Pacific Ocean Division which has 17 FTE.

\$ 56,100	Civilian Personnel Compensation and Benefits
11,330	Fixed Costs
( 8,830)	(Rent, utilities, training, travel, communication, critical support services, etc.)
( 2,500)	(Reimbursement to Department of Army for Uniform Military salaries)
<u>5,070</u>	Variable Costs (Transportation, printing, training, travel, supplies and equipment, and admin support from districts)
\$ 72,500	

2. Administrative Expenses for Field Operating Activities

FY 2010  
Request  
\$18,500

Expenses appropriation support activities include the following FOAs: the Humphreys Engineer Center Support Activity (HECSA) which provides administrative support to Corps tenants of the Humphreys Engineer Center and to Corps Headquarters; the Institute for Water Resources (IWR) which provides a variety of water management functions such as conducting and managing national studies, special studies in support of the Civil Works mission, data collection and distribution, and technical support to other Corps offices in matters dealing with water resources management; the Engineering Research and Development Center (ERDC) which provides support to the Coastal Engineering Research Board (CERB); the U.S. Army Corps of Engineers Finance Center (UFC) which provides centralized finance and accounting activities; the US Army Corps of Engineers Logistics Activity (ULA) responsible for centralized management of logistics operations; and the US Army Corps of Engineers – Information Technology (ACE-IT) that provides information technology services to the Corps. The FOAs have 120 civilian (no uniformed military positions) FTE in FY 2010.

\$ 14,600	Civilian Personnel Compensation and Benefits
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2,200	Fixed Costs (Rent, utilities, communication, critical support services, etc)
<u>1,700</u>	Variable Costs (Transportation, printing, supplies and equipment, training, travel, and contract support)
\$ 18,500	

Account Summary:

	HQ	MSC	FOA	TOTAL
Civilian Personnel Compensation and Benefits	\$ 56,104	56,100	14,600	\$126,804
Fixed Costs	\$ 14,800	11,330	2,200	\$ 28,330
(Rent, utilities, communication, critical support services, etc.	(\$ 9,500	8,830	2,200	\$ 20,530)
(Reimbursement to Department of Army for Uniform Military salaries	(\$ 5,300	2,500	0	\$ 7,800)
Variable Costs (Transportation, travel and training, supplies, district services, etc	\$ 9,696	5,070	1,700	\$ 16,466
Civil Works Program Account	<u>\$ 12,400</u>			<u>\$ 12,400</u>
<b>TOTAL</b>	<u>\$ 93,000</u>	<u>72,500</u>	<u>18,500</u>	<u>\$184,000</u>

# REVOLVING FUND

APPROPRIATION TITLE: Revolving Fund- Plant Replacement and Improvement Program (PRIP)

1. Explanation of Revolving Fund. The Revolving Fund, established by Congress in 1953 (P.L. 83-153, 67 Stat. 199), replaced the Plant Allotment Account authorized by the Secretary of War, on 13 December 1934, which had in turn replaced the Plant Program - Appropriation Basis that was used prior to 1934. Prior to the establishment of the Revolving Fund, accounting procedures necessitated by the two previous systems were cumbersome and resulted in a distorted picture of costs when plant was transferred from one appropriation to another.

a. Essentially, P.L. 83-153 provided that the Revolving Fund assumed the total capital value of \$127.9 million in 1953, consisting of the unexpended cash balance (\$25.3 million) and the net value (\$102.6 million) of the assets and liabilities of the plant accounts. The Revolving Fund would finance all future services as a separate entity within its own resources. The Plant Replacement and Improvement Program of the Revolving Fund (PRIP), has proven to be an effective means of providing equipment and materials needed on more than one project. Some advantages of the system are that it: (1) Simplifies funding and accounting procedures; (2) Provides consideration for plant replacement costs and inflation; (3) Eliminates distorted project costs when plant is used on multiple projects throughout its economic life; and (4) Permits plant availability on a timely basis to meet requirements.

b. The Revolving Fund operates within its own resources rather than from recurring annual appropriations. The Fund owns land, structures, dredges, floating plant, aircraft, fixed and mobile land plant, tools, office furniture, special equipment, computers and automated systems, which serve two or more projects or appropriation accounts. In order for the Revolving Fund to acquire and replace assets, plant or equipment items, it is necessary that the user, project, or appropriation be charged a fee when equipment or services are consumed. This fee consists of operating and fixed costs. The operating costs are reimbursed without a surcharge. The fixed costs include straight-line depreciation and a PRIP surcharge to provide for price growth and inflation. When planned expenditures exceed the income producing capability of the Fund, additional direct appropriations are requested.

c. When the Revolving Fund was established, Congress authorized a capital fund limitation or ceiling of \$140.0 million. The capital fund value or corpus consists of the total assets, less liabilities and reserves. The initial corpus ceiling was adequate until 1965, when rising workload and inflation forced the Corps of Engineers to begin requesting annual increases of the corpus. These requests were generally granted, because the ceiling limited the income generating capability, which in turn, adversely affected the overall management of the Fund. Therefore, the Corps recommended and Congress granted the request in FY 1979, that annual capital-expenditure ceilings be substituted for the corpus ceiling. Then in FY 1985, expenditure ceilings were replaced by expenditure estimates. Starting in FY 1994, the Corps replaced the estimate of expenditures with an estimate of obligations in accordance with recommendations by the General Accounting Office.

2. The Revolving Fund accounts for facilities, payroll, and operations throughout the Army Corps of Engineers at its divisions, districts, separate field offices, and laboratories including its Engineer Research and Development Centers like the Waterways Experiment Station. The fund incurs expenses for acquisition, rehabilitation, operation, and maintenance of multiple use structures such as warehouses, shops and garages, as well as general-purpose plant, such as dredges, tugs, launches, trucks, cranes, bulldozers, drill rigs and other construction equipment. It also, provides for reimbursement of the general and administrative expenses of District offices.

3. The FY 2010 PRIP includes 19 New Major Items and 48 Continuing Major Items from FY 2009. Eighteen Continuing Major Items have revised cost estimates greater than ten percent above those that were previously reported. Seven projects have been identified as new projects that have an out-of-cycle request for FY 2009. The tables that follow provide cost estimates for the New Major Items and the revised cost estimates in excess of ten percent for the Continuing Major Items.

7 May 2009

APPROPRIATION TITLE: Revolving Fund- Plant Replacement and Improvement Program (PRIP)

FY 2010 New Major Items	Page	Total Estimated Cost (\$000)
1. New HQ Building, Engineer Research and Development Center (ERDC)	7	30,000
2. Service Base Mooring Replacement, Pile Clusters, MDC 2768, St. Louis District	7	19,000
3. Applied River Engineering Center (AREC), St. Louis District	7	2,354
4. Procurement of JADWIN Dredge Pump, MDC 2820, Memphis District	12	4,100
5. Dam Stilling Basin Dewatering Box and Barge, MDC 2811, Nashville District	16	5,150
6. Crane Barge BROWN Replacement, MDC 2554, Louisville District	16	12,000
7. Snag Barge, MDC 2800, Memphis District	16	12,600
8. Two Striker Barges, MDC 2686, Rock Island District	16	7,100
9. Crane Barge (Strong Vessel), MDC 2733, Memphis District	16	9,000
10. Clinton Replacement, MDC2688, Rock Island District	17	10,600
11. Replacement of Survey Boat Gillette, Wilmington District	17	1,100
12. Caterpillar LGP Wide-Track Bulldozers (3 EA), Philadelphia District	17	900
13. Six Work Barges, MDC 2791, Mobile District	17	5,080
14. Electronic Document Management System, Corps HQ	18	8,586
15. ACE-IT Server Refresh, Corps HQ	18	25,000
16. Enterprise Data Warehouse (EDW), Corps HQ	18	6,650
17. Test and Evaluation Program, Corps HQ	19	28,900
18. Water Management Enterprise Architecture (WMeA) Project, Corps HQ	19	3,975
19. Furniture Purchase, Seattle District	19	3,775
		Total: \$195,870.00

APPROPRIATION TITLE: Revolving Fund- Plant Replacement and Improvement Program (PRIP)

Continuing Major Items with Revised Cost Estimates in Excess of 10%	Page	Previous Estimated Cost (\$000)	Revised Estimated Cost (\$000)	Total Cost Increase (\$000)
1. Ship Tow Simulator Building, Engineer Research and Development Center	5	1,550	2,500	950
2. New Gate and Access Road, ERDC – Notification letter dated 20 June 2008	5	2,000	3,723	1,723
3. Quachita Greeson Degray Project Management Office, Vicksburg District	6	4,970	7,248	2,278
4. Environmental Laboratory Building, Waterways Experiment Station – Notification letter dated 20 June 2008	6	11,500	18,257	6,757
5. Dredge YAQUINA Repowering, MDC 2507, Portland District	8	11,236	18,211	6,975
6. Dredge YAQUINA Dredging System Improvement, MDC 2727, Portland District	9	4,726	9,176	4,450
7. Dredge YAQUINA Ship Service Generators, MDC 2726, Portland District	8	1,432	3,032	1,600
8. Dredge POTTER Flexible Discharge, MDC 2717, St. Louis District	9	6,000	8,000	2,000
9. Dredge MCFARLAND Asbestos/Lead Abatement, MDC 2603, Philadelphia District	9	3,500	6,000	2,500
10. Dredge POTTER Texas Deck Rehab, MDC 2738, St. Louis District	10	5,500	8,500	3,000
11. Dredge WHEELER Repowering, and ICMS, MDC 2620, New Orleans District	10	23,850	54,200	30,350
12. Replacement of Shallow Draft Dredge FRY, MDC 2609, Wilmington District	10	11,076	20,000	8,924
13. Dredge ESSAYONS, Repowering, MDC 2548, Portland District – Notification letter dated 30 October 2008.	11	31,100	37,100	6,000
14. Dredge ESSAYONS, Replacement of Engine Room ICMS, MDC 2651, Portland District - Notification letter dated 30 October 2008	11	2,004	2,579	575
15. Dredge Ladder Extension for the HURLEY, MDC 2450, Memphis District	12	13,500	17,800	4,300
16. Procurement of POTTER Dredge Pump, MDC 2769, St. Louis District	12	2,258	4,100	1,842
17. Dredge POTTER Control System, MDC 2767, St. Louis District	12	1,500	2,300	800
18. M/V Strong Replacement, MDC 2730, Memphis District	15	12,000	14,000	2,000

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APPROPRIATION TITLE: Revolving Fund- Plant Replacement and Improvement Program (PRIP)

New Projects with FY 2009 Out-of-Cycle Requests	Page	Total Estimated Cost (\$000)	FY09 Scheduled Amount (\$000)
1. Clock Tower Replace Cooling Tower and A/C, Rock Island District	8	761	761
2. Emergency Navigation Lock Closure Caisson, Nashville District – Notification Letter Dated 14 November 2008	8	3,300	3,300
3. Wilmington District Headquarters Building – Notification letter dated 20 June 2008	8	6,500	1,878
4. Dredge MCFARLAND Ready Reserve, MDC 2802, Philadelphia District – Notification Letter dated 20 June 2008	13	9,500	3,300
5. Replace Hopper Steel Plating for Dredge WHEELER, New Orleans District – Notification letter dated 20 June 2008	13	9,805	798
6. Excavator (Replace 1988 Manitowoc 3900W), Rock Island District – (Project should have been included in FY 2009 Budget).	16	1,900	1,900
7. Crane Replacement and Crane Barge LEONARD Reinforcement, St. Paul District – Notification letter dated 20 June 2008	17	3,800	3,800

PRIP Category  
Land and Structures  
Dredges

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8

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Other Floating and Mobile Land Plant	13
Fixed Land Plant and Automated Systems	17
Tools, Office Furniture and Equipment	19

4. FY 2009 and FY 2010 (Items costing \$700,000 or more)

**a. Land and Structures:**

**(1) Ship/Tow Simulator Building – Engineering Research and Development Center (Continuing).** The Coastal and Hydraulics Laboratory (CHL) in Vicksburg, Mississippi, was formed in FY97 through the merger of two of the Army Engineer Research and Development Center (ERDC) laboratories, the Hydraulics Laboratory and the Coastal Engineering Research Center. Within the CHL mission of supporting the Corps water resources related needs of the Department of Defense, an ever increasing level of sophistication, integration, and comprehensiveness in technical tools and solutions is required. The CHL Navigation Branch operates the only Corps vessel simulator, which is the primary means to evaluate and optimize proposed changes to Federal navigation channels. With the ability to function as a ship, towboat, or small craft, it can be used for deep and shallow draft projects and small boat harbors. The simulator operates in real time and is used by actual mariners to help finalize Corps channel designs. This building is required to house the new ship/tow simulators which are scheduled to be built at the lab. Total estimated cost has increased from \$1,550,000 in FY 2007 to \$2,500,000. The cost increase is primarily due to a required change in the location of the building and project delays. The project is currently on hold pending special Congressional authorization. Total estimated cost: \$2,500,000. FY 2009: \$2,500,000. This project requires special authorization before any funds can be expended.

**(2) Ship/Tow Simulator System – Engineering Research and Development Center (Continuing).** The Coastal and Hydraulics Laboratory (CHL) in Vicksburg, Mississippi, was formed in FY97 through the merger of two of the Army Engineer Research and Development Center (ERDC) laboratories, the Hydraulics Laboratory and the Coastal Engineering Research Center. Within the CHL mission of supporting the Corps water resources related needs of the Department of Defense, an ever increasing level of sophistication, integration, and comprehensiveness in technical tools and solutions is required. The CHL Navigation Branch operates the only Corps vessel simulator, which is the primary means to evaluate and optimize proposed changes to Federal navigation channels. With the ability to function as a ship, towboat, or small craft, it can be used for deep and shallow draft projects and small boat harbors. The simulator operates in real time and is used by actual mariners to help finalize Corps channel designs. Total estimated cost: \$5,300,000. FY 2009: \$5,050,000. FY2010: \$250,000. This project requires special authorization before any funds can be expended.

**(3) New Gate and Access Road – Engineer Research and Development Center (Continuing).** The purpose of this project is to provide direct, internal roadway access to the Information Technology Laboratory (ITL) site from the remainder of the Army Engineer Research and Development Center in Vicksburg, Mississippi. The ITL presently can only be accessed by using a public street system. Among the four laboratories at the site, the ITL is the only one separated from the others by a public road. With the increase in the security posture of the facility, some gates were closed permanently and guards were posted at the others. Travelers now have to exit the main facility and enter another gate just to move between the labs. A new gate and access road will allow secure access between all four facilities. Total estimated cost has increased from \$2,000,000 to \$3,723,000. The increase is due to increased construction costs and modifications to the design due to enhanced security requirements and refinement of the road layout. In addition, the original plan involved purchasing 4 acres of a 21 acre tract of land that is currently for sale. ERDC recently received written notification from the property owner stating that they were unwilling to partition the tract. ERDC seeks to acquire the entire 21 acres which is an increase of \$223,000 from the original purchase amount for the 4 acres. Total estimated cost: \$3,723,000. FY 2009: \$3,723,000. Congressional authorization to use PRIP funds to construct a new Environmental Laboratory and provide improvements to the Information Technology Laboratory was provided in Section 107 of the Consolidated Appropriations Act, 2008 (Public Law 110-161).

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**(4) Additions and Betterment to Information Technology Lab – Engineer Research and Development Center (Continuing).** Additions and betterments are needed to expand the Information Technology Lab (ITL) to accommodate a new Department of Defense purchased supercomputer. The Engineer Research and Development Center (ERDC) examined all of its requirements for computer acquisitions in the next five years in order to determine the new building requirements. Along with the building expansion, extensive increases in power and cooling requirements are included in the project. The design of the addition to the facility will also allow employees who currently work in adjoining trailers to move into the building. The initial estimate for this project was submitted in 2005 in the amount of \$27,500,000. Due to a significant increase in construction costs for a similar facility awarded in January 2009, it is anticipated that an additional \$2,000,000 will be needed to complete this facility. The additional funding will be used for completion of the building, parking, and parking access road. Total estimated cost: \$29,500,000. Previous years: \$15,300,000. FY 2009: \$12,200,000. FY 2010: \$2,000,000. Congressional authorization to use PRIP funds to construct a new Environmental Laboratory and provide improvements to the Information Technology Laboratory was provided in Section 107 of the Consolidated Appropriations Act, 2008 (Public Law 110-161).

**(5) Mississippi River Project Office – Rock Island District (Continuing).** Construct a Mississippi River Project Office to accommodate office and administrative staff currently housed in two separate buildings located at the LeClaire Service Base. Building #1 is an antiquated 1920's era concrete walled warehouse converted 25 years ago for office use while Building #2 houses office staff in the attic of a large motor shop which was built in 1953 and modified in 1981 to accommodate the five people who made up the staff at that time. There are significant safety and health issues associated with both buildings. Building # 1 is located at the back of the service base complex requiring staff, visitors, and the general public to travel through a dangerous construction area utilized by maintenance crews and heavy equipment involved in repair of lock and dam structures and components. Serious blind spots and hazards exist for both pedestrian and vehicular traffic that must have access to this office. This office is also located immediately adjacent to the sandblasting and painting operation. Building #1 is in on the verge of condemnation and will be demolished as soon as a new office is constructed. Building # 2 became severely overcrowded in 1995 when Operations Division reorganized under a nationwide mandate to consolidate functions, and the office staff increased from 5 to 13 people. The only interior access to this upstairs office is by stairway from the open motor shop where maintenance and repair of heavy equipment takes place daily. Several employees have developed respiratory problems due to the diesel, welding, and paint fumes which rise up and constantly enter the upstairs office space. Both of the existing buildings lack adequate office space and are not compliant with the Americans with Disabilities Act (ADA). The new Mississippi River Project Office will serve to bring all staff together in a central location while providing the necessary and accessible focal point for our customers and stakeholders. It will provide needed space for files, supplies, office equipment, and room to hold meetings and training. Most importantly it will eliminate the serious health and safety problems associated with the existing configuration. Total estimated cost: \$3,385,000 Prior Years: \$3,255,000. FY 2009: \$130,000 to complete construction.

**(6) Renovate Docks A and B – U.S. Moorings - Portland District (Continuing).** Refurbishing Docks A and B would bring them up to modern load bearing standards. The U.S. Government moorings facility, Docks A and B has been in existence since 1903 to provide berthing during the winter repair period for minimum fleet hopper dredges ESSAYONS and YAQUINA. The last major refurbishment of the docks was in 1964. Since then, the dock surfaces have been re-decked and shear piles replaced periodically due to normal wear and tear. The stringers have rotted and several pile cap timbers have extensive dry rot up to four feet back from the exposed ends. Total estimated cost: \$6,200,000. This project is currently on hold. No money has been committed or obligated in FY 2006 or FY 2007. An environmental cleanup is required at the site and a number of options are currently being considered. One of the options would require removal of the docks. As a result, refurbishment of the docks is on hold until a decision has been made.

**(7) Environmental Laboratory Building – Waterways Experiment Station (Continuing).** New building is required to enable consolidation of the staff in a central location to maximize efficient operations of the Environmental Laboratory. The Environmental Laboratory is currently dispersed throughout several buildings at four different locations within the Waterways Experiment Station. Management, administration, and coordination of research activities are difficult and inefficient under the present arrangement. Renovation of existing buildings was investigated, however, it was found that force protection measures which are now required made the addition and betterment option cost prohibitive when compared to new building construction. Total estimated cost: \$18,257,000. Prior Years: \$1,000,000. FY2009: \$17,257,000 Congressional authorization to use PRIP funds to construct a new Environmental Laboratory and provide improvements to the Information Technology Laboratory was provided in Section 107 of the Consolidated Appropriations Act, 2008 (Public Law 110-161).

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**(8) Ouachita-Greenson-DeGray Project Management Office - Vicksburg District (Continuing).** The need for the new Ouachita-Greenson-DeGray Project Management Office building has evolved around the three Arkansas Lake and power plant projects and their associated mission-essential operational facilities. Today, there are 155 Government employees and 74 contract employees working out of this office. The existing facility space being utilized is not adequate for current staff, essential employee training purposes or joint meeting requirements. Employees are required to attend joint meetings, training courses, and conference sessions several times annually. Personnel are left with no adequate facility available for these purposes based on the remote location of these projects. The building currently occupied by the Ouachita Project Management Office will be turned over to the contractor for their use; shop personnel will utilize the building currently occupied by the Lake Ouachita Field Office. All other shop and maintenance space will continue to be used as is. Ouachita Project Management Office and Lake Ouachita Field Office personnel will use the new facility as office space. The Ouachita Project Management Office and its subordinate Lake Field Offices and Power Plants will also use the facility for conferences, meetings, and classroom/training space. The new facility will conform to employee space utilization/requirements specified in AR 405-70, provide space for all employees to meet in a central location, fill ongoing need for classroom/training space, provide storage for supplies and equipment, and meet current technological requirements for communications and electrical systems that can be upgraded in the future. The cost increase is a result of rising construction costs brought on by higher energy/fuel costs, Hurricanes Katrina/Rita, and the mid-west floods. Total estimated cost: \$7,247,794. Prior Years: \$885,638. FY 2009: \$5,815,362. FY 2010: \$546,794 to complete construction.

**(9) Port Arthur Boat Basin Bulkhead and Breakwater, Galveston District (Continuing).** Replace the Port Arthur boat basin bulkhead and breakwater. The 51-year-old structure is used to provide docking and mooring facilities for the Port Arthur Residence Office floating plant whose primary mission is to maintain the Sabine-Neches Waterway. The bulkhead was constructed with salvage sheet piling, which has become corroded and has severe lamination over much of its surfaces. Holes in the sheet piling have allowed water intrusion and have caused sinkholes behind the bulkhead. In addition, the breakwater cannot prevent wave action from coming into the basin. Total estimated cost: \$1,925,409 Prior Years: \$907,659 FY 2009: \$973,000. FY2010: \$45,000 to complete construction.

**(10) Energy Improvements District HQ, Alaska District (Continuing).** The District Headquarters building complex consists of 86,000 square feet of office space. The building is made up of two main structures, the original 69,000 square foot wood frame structure and a newer 17,000 square foot Annex separated by an atrium. The original structure was constructed in 1946 while the Annex was occupied in 2000. The windows and siding on the original structure were replaced in 1977-78 while the interior was renovated in the mid-1980s. This project is to improve the overall energy efficiencies of the Headquarters office building complex by reducing energy losses, lessening heat gains due to solar energy, replacing outdated steam heating systems with more efficient heated glycol systems, modifying the building's ventilation systems, and connecting all of the energy systems with a centralized Building Energy Management System. All of the activities are part of an integrated approach to reduce energy consumption and improve the quality of life within the building while at the same time improving the life expectancy of the building structure. The bulk of the activities will be performed within the original office structure rather than within the newer Annex. Total estimated cost: \$2,051,000. FY2009: \$1,916,000. FY2010: \$120,000. FY2011: \$15,000.

**(11) New Engineer Research and Development Center (ERDC) Headquarters Building (New).** ERDC Headquarters, Command Staff Division, and assembly facilities are currently housed in five separate facilities that are aging and energy-inefficient. The current buildings do not comply with "Green standards" set by the Leadership in Energy and Environmental Design (LEED) Certification Program or anti-terrorism standards and some buildings contain asbestos. The proposed facility would replace several buildings and would provide office, meeting, training, reception, technical support, and quality of life space for ERDC headquarters and administrative personnel and tenant organizations in a modernized facility that complies with DoD minimum antiterrorism standards for buildings. The new facility would increase productivity, reduce operating costs, improve morale and synergy among the staff, enhance force protection, and promote efficiency and enhanced management control through co-location of functions and personnel currently located in a number of widely separated buildings on the 700-acre Vicksburg installation. Preliminary estimates are that approximately 120,000 square feet would be sufficient to replace the current approximately 169,000 square feet in five separate outmoded buildings. Note: Before this project is executed, it will require special Congressional authorization for the use of PRIP funds. Total estimated cost: \$30,000,000. FY2010: \$5,600,000. FY2011: \$13,200,000. Future Years: \$11,200,000.

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**(12) Service Base Mooring Replacement, Pile Clusters, MDC 2768, St Louis District (New).** This project addresses safety, environmental conditions and mission requirements associated with the St. Louis District mooring facility due to the failure of four out of twelve wood pile clusters and the compromised southern mooring fleet area. The scope of work includes design and replacement of the piling system, removal of the existing pilings and replacing the trestle. The piling system supports the mooring facility at Mississippi River Mile 276. Currently, the southern wood pile clusters have failed and fleet barges are resting against a minimal number of remaining wood pile clusters. The replacement of the pile system will provide the St. Louis District fleet with mooring facilities designed to meet Coast Guard and marine safety criteria. Total estimated cost: \$19,000,000. Prior year: \$86,000. FY 2009: \$560,000 for design. FY 2010: \$12,014,000 for construction. Future years: \$6,340,000.

**(13) Applied River Engineering Center (AREC), St. Louis District (New).** The project involves designing and constructing a replacement facility for the current Applied River Engineering Center (AREC). The current facility is an old marine shop converted in 1999 into office, storage, and lab space. The work conducted at AREC covers all aspects of applied river engineering including navigation design, preparation of plans and specifications for construction, various studies, independent technical reviews etc. In addition, the facility has evolved into a high visibility Corps interface with the public. Visitors come to the facility on a weekly basis ranging from international visitors, Federal and State agency staff, teachers and students. Staff and workload has been steadily increasing and has outgrown the current facility. As a result, AREC has been unable to keep up with the increased workload. Total estimated cost: \$2,354,000. FY 2009: \$250,000 for design. FY2010: \$2,104,000 for construction.

**(14) Clock Tower Replace Cooling Tower and Air Conditioning, Rock Island Arsenal (New).** This project will replace the chiller, cooling tower and associated equipment with a new air-cooled condensing unit and associated equipment and controls. Approximate age of the current equipment is 25 years which is nearing the end of its useful life. Leaks and equipment failures are occurring more frequently and could result in total failure and displacement of employees. The air handling units provide cooling for approximately 50,000 square feet of office space for approximately 410 employees of the Rock Island District, located in the Rock Island Arsenal office building. The replacement of the equipment will also result in a change to more environmentally-friendly refrigerant. This was originally a minor item but cost increases required this project to be reclassified as a major item. Over the last year material costs and labor rates have increased due to extreme economic conditions. Recent site security measures have added a fence which impacted the design and recent planned office space expansion has increased the cooling load demand and caused the selection of a larger chiller plant capacity. Total estimated cost: \$761,000. Prior year: \$385,000 FY 2009: \$376,000

**(15) District Headquarters Building, Wilmington District (New).** The project involves preparing a GSA leased facility to house the Wilmington District staff and records. The current GSA lease has expired and along with the fact that the current facility will not meet Uniform Facilities Code (UFC), the District must relocate. A two year lease extension was negotiated in 2008 to allow for time to prepare a new office. The new space must be constructed with private offices (53), conference rooms (5), cubicles (180), and equipped with standardized work stations and chairs, conference room and office furniture, and computer cabling and equipment. The new facility will meet the new UFC guidelines for leased facilities and provide for "green" space utilization. Total estimated cost: \$6,500,000. FY 2009: \$1,878,000. FY 2010: \$3,412,000. Future Years: \$1,210,000

**(16) Emergency Navigation Lock Closure Caisson, Nashville District (New).** The project involves fabricating a navigation lock emergency closure caisson to replace the existing 80-year old Poiree Dam closure structure that is failing and unsafe. The replacement caisson would be available to dewater all nine locks in the Nashville District in order to conduct maintenance activities and for emergency closures. The nine locks are parts of three separate projects, the Tennessee River (seven locks), Barkley Dam and Lake (one lock) and Cheatham Lock and Dam (one lock). **This project was an out-of-cycle request for FY 09. Notification letter is dated 14 November 2008.** Total estimated cost: \$3,300,000. FY2009: \$3,300,000.

**b. Dredges:**

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**(1) Dredge YAQUINA Repowering – MDC Project 2507 Portland District (Continuing).** The dredge YAQUINA entered service in 1981. It is based in Portland, Oregon, and is part of the Corps hopper dredge fleet. The dredge operates on the West Coast to maintain Federal navigation channels. The main engines and ancillary systems have been in continuous service for twenty eight years. The main engines are no longer manufactured and it is becoming increasingly difficult to locate and procure replacement parts. Replacement of the main engines and ancillary systems is required in order to assure continued operation of the vessel. In addition, due to the ever increasing stringent emission standards, the engines should be replaced with more efficient marine diesels. The Estimated cost for this project has increased from \$11,263,000 to \$18,211,086. This is primarily due to the estimate being re-worked using risk-based scheduling methods. The new estimate provides an 80% confidence level that the work will not exceed the current estimate. In addition, the schedule for this project had to be extended by an additional year for installation of the equipment. Equipment installation can only be done during a short window when the dredge is not in operation. This window of down time was recently shortened in order to have the dredge back in operation in time to meet environmental windows for dredging West Coast ports. As a result, some of the installation will be delayed until after the next dredging season. This will ultimately result in some additional costs since installing the equipment in stages rather than all at once will cause some inefficiency. Total estimated cost: \$18, 211,086. Prior Years: \$4,238,400. FY2009: \$5,180,000. FY 2010: \$5,510,000. Future years: \$3,282,600.

**(2) Dredge YAQUINA Ship Service Generator Replacement MDC Project 2726 – Portland District (Continuing).** The dredge YAQUINA entered service in 1981. It is based in Portland, Oregon, and is part of the Corps hopper dredge fleet. The dredge operates on the West Coast to maintain Federal navigation channels. The ship service generator engines and ancillary systems have been in continuous service for twenty eight years. The engines are no longer manufactured and it is becoming increasingly difficult to locate and procure replacement parts. Replacement of the generator engines and ancillary systems is required in order to assure continued operation of the vessel. In addition, due to the ever increasing stringent emission standards, the engines should be replaced with more efficient marine diesels. The schedule for this project was recently reviewed by the Portland District and it was decided that an additional year would be needed to complete the installation of equipment. This is due to the tight window available to install equipment each year in order to have the dredge back in operation and meet the environmental windows for dredging West Coast ports. Estimated cost is increasing from \$1,432,000 to \$3,032,000. Total estimated cost: \$3,032,000. Prior Years: \$459,200. FY 2009: \$807,000. FY 2010: \$760,000. Future years: \$1,005,800.

**(3) Dredge YAQUINA Dredging System Improvement MDC Project 2727 – Portland District (Continuing).** The dredge YAQUINA entered service in 1981. It is based in Portland, Oregon, and is part of the Corps hopper dredge fleet. The dredge operates on the West Coast to maintain Federal navigation channels. The dredge pump engines, reduction gears, dredge pumps, hopper distribution system, and ancillary systems have been in continuous service for twenty eight years. The dredge pump engines are no longer manufactured and have been rebuilt several times. It is becoming increasingly difficult to locate and procure replacement parts. Replacement of the dredge pump engines and ancillary systems is required in order to assure continued operation of the vessel. The hopper distribution system is dated and will require redesign in order to maximize the settling and loading times from the new engine and more efficient dredge pump combinations. In addition, due to the ever increasing stringent emission standards the engines should be replaced with more efficient marine diesels. The schedule for this project was recently reviewed by the Portland District and it was decided that an additional year would be needed to complete the installation of equipment. This is due to the tight window available to install equipment each year in order to have the dredge back in operation and meet the environmental windows for dredging West Coast ports. Total estimated cost: \$9,176,000. Prior Years: \$1,089,400. FY 2009: \$2,510,000. FY 2010: \$550,000. Future Years: \$5,026,600.

**(4) Dredge YAQUINA Drag Arm Winches Replacement MDC Project 2676 – Portland District (Continuing).** The dredge YAQUINA entered service in 1981. It is based in Portland, Oregon, and is part of the Corps hopper dredge fleet. The dredge operates on the West Coast to maintain Federal navigation channels. The winches, winch motors, drives, controls, and ancillary systems have been in continuous service for twenty eight years. These pieces of equipment are no longer manufactured and it is becoming increasingly difficult to locate and procure replacement parts. Replacement of the winches and associated systems is required in order to assure continued operation of the vessel. Total estimated cost: \$1,828,000. Prior Years: \$828,300. FY 2009: \$928,000. FY 2010: \$58,000. Future: \$13,700.

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**(5) Dredge POTTER Flexible Discharge – MDC Project 2717 St. Louis District (Continuing).** This project entails the purchase of a flexible discharge floating pipeline, a spill and store barge, and handling gear for the Dredge POTTER. The new floating pipeline will provide the ability to better perform environmental dredging on the Mississippi River. Environmental dredging requires the use of fixed point discharge equipment in order to place dredged materials in specific locations to build beaches, islands, and underwater islands. A review of the current cost estimate has resulted in an increase from \$6,000,000 to \$8,000,000. The increase is primarily due to the actual cost of the floating hose being much more than the initial cost estimate. Total estimated cost: \$8,000,000. Prior Years: \$5,502,500. FY 2009: \$50,000. FY 2010: \$28,000. Future Years: \$2,419,500.

**(6) Dredge McFARLAND Asbestos/Lead Abatement MDC 2603 – Philadelphia District (Continuing).** Abate asbestos and red lead paint to achieve current occupational safety standards in active crew spaces: forward and aft crew quarters (pilothouse, galley etc.); aft engine and machinery rooms; and the forward dredge pump rooms. The dredge McFarland was built in 1967 when both asbestos and red lead paint were in wide use. Asbestos is present throughout the McFarland in the fireproof crew space joinery (sheathing, ceiling, and paneling); pipe insulation; and structural fireproof insulation on steel bulkheads. Red lead paint was used throughout the ship as the corrosion resistant base primer coat on all interior hull and steel. The aged vessel has asbestos fragments lodged in inaccessible areas behind the joinery panels. The vessel and its crew of 60 have two missions: (1) emergency and national defense dredging worldwide and (2) planned dredging in commercial waterways, mainly Federal navigation projects along the Atlantic and Gulf Coasts. Cost estimate was reevaluated and adjusted upward to \$6,000,000 from \$3,500,000. Recent asbestos abatement work on the dredge has provided real-time actual data that has allowed MDC to more accurately project the cost of the remaining asbestos work on the dredge. Additional support for the crew has also been added to include replacement of impacted systems such as room air handling equipment, and furniture that is built into the original asbestos-containing joinery. The increased amount provides a higher level of confidence that the project can be completed within budget. Total estimated cost: \$6,000,000. Prior Years: \$1,036,400. FY 2009: \$1,810,000. FY 2010: \$1,140,000. Future Years: \$2,013,600.

**(7) Dredge POTTER Texas Deck Rehab MDC2738 – St. Louis District (Continuing).** This project entails the refurbishment of the forward quarters and pilot house for the Dredge POTTER. The dredge is a 2,400 horsepower dustpan dredge which maintains 300 miles of the Mississippi River. The project will provide for more usable and habitable crew space and remove all lead based paint and asbestos. The pilot house has become crowded with all of the new electrical and electronic equipment, controls, and navigation aids that are required for modern day dredging and navigation. The present pilot house is a 1932 vintage design and is very narrow. The captain and crew must go outside during operations in all kinds of weather in order to avoid hitting obstructions. The Texas Deck also was designed in 1932 and it is where the offices are located on the dredge. The Second Deck is where the messing area and bunkrooms are located. The contaminants need to be removed from this area for the health and safety of the crew. The estimated cost has increased from \$5,500,000 to \$8,500,000. The increase resulted from a recent market survey that determined that constructing the deck house in a shipyard posed less schedule and cost risk. The original estimate included a prefab deck house that would be installed at a Government or commercial dock facility. The survey indicated that this approach was a risky due to a lack of contractors capable of managing the entire construction effort. Total estimated cost: \$8,500,000. Prior Years: \$480,800. FY 2009: \$4,300,000. FY2010: \$450,000. Future Years: \$3,269,200.

**(8) Dredge ESSAYONS Hopper Distribution System (MDC 2615) – Portland District (Continuing).** The Dredge ESSAYONS is scheduled to have improved excavator style drag heads installed as a separate project with installation scheduled for FY2010. It is therefore imperative that the existing hopper distribution system be redesigned in order to maximize the retention of the increased amount of material that will be placed in the hoppers due to the more efficient drag heads. Installation of the new distribution system will result in increased retention and reduced loading time. A further benefit will be the reduction in annual maintenance costs for the new system by virtue of the use of highly abrasion resistant materials now coming into use in the dredging industry. Current cost estimate is a preliminary estimate. It is expected that a more accurate estimate will be possible as the design progresses. Adjustments if any will be made during the next yearly budget cycle. Total estimated cost: \$960,000. Prior Years: \$43,000. FY2009: \$530,000. FY2010: \$260,000. Future Years: \$127,000.

**(9) Dredge ESSAYONS Drag head Improvements and Jetting System Modification MDC Project 2542 – Portland District (Continuing).** The proposed excavator type drag heads produce much greater specific gravities over the California type currently in use. This equates to an increase in the total solids transported

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which will boost the production of the dredge ESSAYONS. Excavator drag heads have been on the market for several years and are a proven technology. The new drag heads will be put into service in FY2010, at which time the dredge will have twenty four years of remaining life. Modifications to the jetting system will also be required in order to take full advantage of the new style drag heads as well as improve hopper jetting and reduce dumping times. Current cost estimate is a preliminary estimate. It is expected that a more accurate estimate will be possible as the design progresses. Adjustments if any will be made during the next yearly budget cycle. Total estimated cost: \$2,315,000. Prior years: \$170,300. FY 2009: \$320,000. FY2010: \$1,804,000. Future Years: \$20,700.

**(10) Dredge WHEELER Repowering and Integrated Control and Monitoring System, MDC Project 2620 – New Orleans District (Continuing).** Repowering by installing four replacement diesel engines is considered an addition and betterment to the WHEELER, due to the anticipated increase in fuel efficiency and the lowering of exhaust emissions for the vessel. A horsepower increase for propulsion is feasible. The engines currently in service are aged and recurring component wear and failure problems with these engines, combined with the manufacturer inability to provide replacement spare parts in a timely manner have warranted their replacement. If the WHEELER is not repowered, the engines currently in service are likely to suffer catastrophic damages as they have in the past. The high maintenance and high fuel consumption for the engines will continue. If one of the engines should become unserviceable, the vessel would likely be out of service for a period of three years in order to affect such major repairs. The vessel is primarily to support the navigation mission by dredging on the Mississippi River, Southwest Pass, and other Federal waterways. The ICMS is to be added in FY2009. The current system is obsolete and many of the electronic components are unsupportable with regard to repair or direct replacement. The benefits of repowering the WHEELER would be significantly reduced if the current ICMS is not replaced due to the decreased reliability of the vessel. An increased cost estimate for the WHEELER has resulted due to project delays in the Government Furnished Equipment award, extremely long major equipment lead times (30 months), and a recent review of expenditures during repowering of the ESSAYONS. Total estimated cost has increased from \$23,850,000 to \$54,200,000. Total estimated cost: \$54,200,000 Prior Years: \$197,800. FY2009: \$22,600,000. FY2010: \$450,000. Future Years: \$30,952,200.

**(11) Dredge FRY Shallow Draft Dredge Replacement (MDC2609) - Wilmington District (Continuing).** Purchase a new shallow-draft hopper dredge in order to maintain shallow coastal inlets along the Atlantic coast while adhering to environmental restrictions on side cast dredges. The dredge FRY was built in 1944 as a U.S. Navy seaplane wrecking derrick and converted to a side-casting dredge in 1972 when acquired by the Corps. Theoretically, the FRY has a remaining useful life of 9 years but in reality, it is virtually worn out and does not meet current environmental standards. Regulatory agencies have restricted its use due to the disturbance created by the discharge of dredged materials. In 2002, the dredge crane failed resulting in emergency maintenance and more downtime. Alternatively, a crane replacement and a propulsion system upgrade would require lengthy shipyard work. It has been determined by the Marine Design Center that it would be more economical to replace the vessel FRY with a new shallow draft hopper dredge than to continue repairs/upgrades. In addition, a new dredge would be compliant with new environmental restrictions on side cast dredging. The cost estimate for this project has increased from \$11,076,000 to \$20,000,000 due to the delay of the project solicitation brought on by a review by HQ of the dredging mission. Total estimated cost: \$20,000,000. Prior Years: \$939,100. FY 2009: \$12,650,000. FY 2010: \$1,110,000 Future Years: \$5,300,900.

**(12) Dredge ESSAYONS – Replacement of Engine Room Instrumentation, Control, and Monitoring System (MDC 2651) - Portland District (Continuing).** Replace the engine monitoring and control system during the current overhaul effort in order to properly monitor the new power plant being installed. The existing control and monitoring system on the dredge ESSAYONS is becoming unsupportable due to non-availability of spare parts. The dredge ESSAYONS is being repowered in 2008. Without the system in operating order, the dredge ESSAYONS will not be able to carry out its mission. Total estimated cost: \$2,578,700. Prior Years: \$1,963,100. FY2009: \$575,000. FY2010: \$22,300. Future Years: \$18,300

**(13) Dredge JADWIN MDC Project 2618 – Pontoon Pipeline Replacement - Vicksburg District (Continuing).** Acquire floating discharge pipeline pontoon barges to replace the discharge pipeline originally furnished with the dredge JADWIN. The dredge JADWIN was built in 1933 and performs maintenance dredging on the Mississippi River. This pipeline is over 70 years old with maintenance and repair costs increasing to keep it serviceable. The normal economic life of a pipeline is 25 years. Total estimated cost: \$4,392,000. Prior Year: \$4,372,000. FY 2009: \$20,000 to complete construction.

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**(14) Dredge JADWIN MDC Project 2619 – Anchor Barge Replacement - Vicksburg District (Continuing).** Acquire a new anchor barge to provide the same handling services but operate more efficiently, with less maintenance, and comply with safety requirements. The existing barge is 75 years old, far exceeding its normal economic useful life of 40 years. The new barge will be used to support the dredge JADWIN on the Mississippi River. Total estimated cost: \$1,427,700. Prior Years: \$1,372,700. FY 2009: \$55,000 to complete construction.

**(15) Dredge ESSAYONS Bow Discharge System Replacement MDC 2576 – Portland District (Continuing).** Replace the Bow Discharge System on the dredge ESSAYONS to improve the mission capability, expand its usefulness, allow for safer operations and more efficiently support the full range of current and future dredging projects. The original side-mounted pump-ashore connections on the dredge ESSAYONS are no longer the industry standard to conduct pump-ashore projects. The existing connection system is not suitable for safe operations in areas exposed to wave action, such as Benson Beach at the mouth of the Columbia River, or beach replenishment projects of southern California. Modern hopper dredges use over the bow pump-ashore connections that are safer and more efficient for working in all conditions. There are pump-ashore projects being developed in Portland, Seattle, San Francisco and Los Angeles, which will require the dredge ESSAYONS. Benefit/Cost ratio is 25.5 to 1. Total estimated cost: \$795,000. Prior Years: \$45,400. FY 2009: \$10,000. FY 2010: \$10,000 to complete design. Future Years: \$729,600 for construction.

**(16) Dredge ESSAYONS Repowering MDC 2548 - Portland District (Continuing).** Install new, more efficient, low emission diesel engines to save fuel, reduce the crew size and lower permitting (air resources board) cost. The original engines have been in service for 20 years, rebuilt numerous times, and are near the end of their economic lives. The engines do not lend themselves to effectively decrease exhaust emissions and to comply with emission standards. The engines will fail and the dredge would be removed from service without the repowering. The dredge ESSAYONS is one of four seagoing hopper dredges that comprise the minimum fleet, authorized by Public Law 95-269 and a U.S. Coast Guard certified vessel capable of going anywhere in the world. During the dredging season, the vessel operates 24 hours per day, seven days per week. Its primary mission is dredging harbors and coastal regions along the West Coast of the United States, Alaska, and Hawaii. It would take approximately three years to repower the existing engines at a loss of revenue equal to \$46.9 million as compared to new engines at a cost of \$37 million. Total estimated cost: \$37,100,100. Prior Years: \$29,400,100. FY 2009: \$7,600,000. FY 2010: \$50,000. Future Years: \$50,000 to complete construction.

**(17) Dredge WM. A. THOMPSON Quarters Barge MDC 2652 – St. Paul District (Continuing).** Build a quarters barge to accommodate crewmembers onboard; daily shift rotations can be made on schedule thereby reducing overtime; sick leave adjustments are readily adapted to; and there is no risk that the government will not be able to find the necessary rooms in small communities. Galley services will also provide for well-balanced nutritious meals at the same or less cost than the travel order alternative. The dredge Wm. A. Thompson performs maintenance dredging along the Upper Mississippi River from Minneapolis, Minnesota, to St. Louis, Missouri. The Corps of Engineers Most Efficient Organization (MEO) is to dredge 24 hours per day, 7 days a week. This requires crewmembers to work 12-hour shifts for 7 days followed by 7 days off while replacement crews work their 7-day duty. An economic analysis considered two alternatives for providing lodging and meals to crewmembers; put the crew on travel orders and let them stay in commercial facilities, or build a quarters barge. The analysis showed the costs were virtually the same over a 30-year period with the quarters barge providing significantly better management and personnel conveniences to the dredge operations. The quarters barge alternative would cost \$36,058,046 (net present value), while the travel order alternative would cost \$37,058,462. Total Cost: \$14,577,000. Prior Years: \$14,567,000. FY 2009: \$10,000.

**(18) Dredge Ladder Extension for the HURLEY, MDC 2450 - Memphis District (Continuing).** Make modifications to increase the dredging depth of the HURLEY from 40' to 75'. This involves lengthening the existing dredge ladder, extending the hull to accommodate the longer ladder, and modifying the ladder hoisting mechanism. As presently equipped, the HURLEY can effectively be utilized only to dredge the shallow draft channel of the Mississippi River. The ladder extension will allow the HURLEY to be used to maintain the deep draft channel from Baton Rouge to New Orleans, extending its useful dredging season to about 250 days per year. Additional ladder hoisting and forward hull propulsion and maneuverability requirements associated with the longer hull form are included. Modifications will be accomplished during the lay up period, which normally runs from December to June. This project has been on hold for several years in order to allow for a review of the approach to the

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dredging mission including the need to coordinate with private industry. Due to the delays, the total estimated cost has increased from \$13,500,000 to \$17,800,000. The cost increase is primarily due to price increases in steel and other commodities, labor rates, and volatility in the ship repair market. Total estimated cost: \$17,800,000. Prior Years: \$4,097,500. FY 2009: \$1,350,000. FY 2010: \$7,400,000. Future years: \$4,952,500 to complete construction.

**(19) Procurement of POTTER Dredge Pump, MDC 2769, St. Louis District (Continuing)** - This project comprises the design, manufacture, delivery, and installation of a new dredge pump to improve the performance, dredging efficiency, and maintenance costs of the Dustpan Dredge POTTER. The purpose of the new dredge pump will be to: a. Minimize maintenance required on the dredge pump. b. Increase dredging efficiency by reducing fuel consumption and increasing suction performance (NPSH). c. Permit longer discharge pipelines. The existing dredge pump consists of a 1932 casing design with a 1999 impeller and suction liner design. The casing is in three pieces, which inherently causes issues with the mating surfaces/flanges after hard facing or repair. The three-piece casing also allowed the pump to be disassembled into smaller pieces of less weight, requiring lighter capacity lifting gear in the pump room. The modern pumps are all designed with single-piece hard white-iron castings, and require much less labor to maintain or handle during routine maintenance. The alternatives considered in this analysis are as follows: 1. Continue operating and maintaining the Dredge Potter with the existing 1932 three-piece casing design pump system. 2. Replace with a modern and efficient dredge pump system designed with single-piece hard white iron casting, with minimized maintenance requirement, lower fuel consumption and more reliable operation for longer discharge pipelines. Total estimated cost has increased from \$2,258,000 to \$4,100,000. Cost increase is based on recent experience with a similar project. The project cost estimate is \$4,100,000. FY2009: \$1,708,000. FY2010: \$500,000. Future Years: \$1,892,000.

**(20) Dredge POTTER Control System, 2767, St. Louis District (Continuing).** The purpose of the project is to replace the current control system which is becoming unreliable and is obsolete. Not replacing the current system risks down time due to lack of support for the outdated system. The current system has outdated computer equipment and software. The current owner of the rights to the software is Sperry, Inc. and Sperry has not responded to numerous requests for support. Therefore, converting this control system to a supportable platform and software is critical to maintaining long term reliability. The total estimated cost has increased from \$1,500,000 to \$2,300,000. The cost increase is a result of recent experience with a similar project requiring a new control system. Total estimated cost: \$2,300,000. FY2009: \$50,000. FY2010: \$1,400,000. Future Years: \$850,000.

**(21) Procurement of JADWIN Dredge Pump, MDC 2820, Vicksburg District (New).** The current dredge pump consists of a 1932 design which is obsolete. A new dredge pump system will minimize maintenance required, increase dredging efficiency by reducing fuel consumption and increasing performance, and permit longer discharge pipelines. Total estimated cost: \$4,100,000. FY 2009: \$100,000. FY 2010: \$3,400,000. Future Years: \$600,000.

**(22) Dredge McFARLAND Ready Reserve, MDC 2802, Philadelphia District, (New).** The Hopper Dredge McFARLAND is one of four Corps seagoing hopper dredges, which comprise the minimum fleet, authorized by PL 95-269. Section 2047(a) of the Water Resources Development Act of 2007 (Public Law 110-114) directed the Secretary of the Army to place the McFARLAND in ready reserve status not earlier than October 1, 2009 and not later than December 31, 2009. The dredge requires a number of upgrades and renovations to its mechanical and electrical systems in order to be reliable and meet all regulatory requirements. Total estimated cost: \$9,500,000. FY 2009: \$3,300,000. FY2010: \$5,500,000. Future Years: \$700,000.

**(23) Dredge WHEELER, Replace Hopper Steel Plating, New Orleans District, (New).** This project was submitted as an out-of-cycle request in FY 2008 and included in a congressional notification letter dated 20 June 2008. During an inspection performed in 2008 by the U.S. Coast Guard, in conjunction with the American Bureau of Shipping, hopper beams and hopper shell plating were identified as being in need of replacement. The plating had worn to a point that the structural integrity of the ship had been compromised. Due to the severity of the deterioration of the plating the dredge was pulled from service until the plating could be replaced. Total estimated cost: \$9,805,000. FY 2008: \$9,001,351. FY2009: \$803,649.

**c. Other Floating and Mobile Land Plant:**

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**(1) Replacement of the Towboat STEPHENSON MDC Project 2729 – Kansas City District (Continuing).** The aging towboat STEPHENSON needs to be replaced by a newer, larger, and more powerful towboat that can handle the larger barges that have been acquired in recent years. That would allow the operator to experience less difficulty in stopping a loaded barge. The continued use of the aged towboat is a serious safety concern, especially when working around bridges and rock pile dikes. The STEPHENSON was placed in service in 1971 and has not had an overhaul since that time. Even with a major overhaul the life of the boat would only be extended another fifteen years. Total estimated cost: \$4,670,000. Prior Years: \$82,500. FY 2009: \$4,260,200. FY 2010: \$195,000. Future Years: \$132,300.

**(2) Revetment Crane Barge MDC Project 2690 – Memphis District (Continuing).** The existing barge is of a 1958 series and is leaking badly and beyond repair. The crane barge is a vital part of the revetment operation on the Mississippi River where articulated concrete mats are placed on the banks of the river during low water to prevent scour and erosion. This operation has been ongoing for about one hundred years. There are two cranes and one of the cranes is used for the land clearing operation prior to the placement of the mats. The other crane is used for placement of gravel. The existing 100-ton capacity crawler cranes will be placed on the barge after it has been constructed. The barge typically has a pilothouse for shelter and a storage hold. As well as providing a work platform, the barge is used to transport equipment and debris to and from the work sites. Total estimated cost: \$10,000,000. Prior Years: \$436,800. FY 2009: \$9,200,000. FY 2010: \$240,000. Future Years: \$123,200.

**(3) M/V GRIZZLY Replacement – San Francisco District (Continuing).** The debris boat GRIZZLY has the mission to accomplish drift removal, hydrographic surveys, project condition surveys, water and sediment sample collection, project inspections, site visits, wreck and channel obstruction location and marking, and support of District diving missions within the San Francisco Bay and delta areas. Previous studies and reports on drift removal operations have included recommendations to gain efficiency by replacing the Grizzly, a fifty five foot tugboat, with a larger, faster vessel. The size, slow speed and age of the 46 year old Grizzly are the reasons for the replacement of the vessel. Critical to the drift removal mission is the efficient extraction of floating hazards to navigation. While imperative to ships, it is increasingly important for the newer, fast ferries and other vessels, which are increasing on the Bay. Due to the new ferries higher speed capabilities, their points of origin are also increasing in distance from the San Francisco terminals. Total estimated cost: \$6,580,000. FY2008: \$6,580,000.

**(4) M/V BLACKBURN Replacement – Galveston District (Continuing).** A new aluminum hydrographic survey boat is required to replace the existing boat which was placed into service in 1974. The existing boat originally supported land survey crews by ferrying them to locations only reachable by water. It was also used to enable government inspectors and project engineers to visit pipeline dredge operations. The boat was converted to a hydrographic survey boat in the 1980s with some modifications. The boat has exceeded its 30 year life and is in need of a complete overhaul to continue in service. An economic analysis has indicated that replacement is far superior to making the necessary repairs to the vessel. The customers of the Galveston District are some of the busiest ports and channels in the Nation, and the equipment is needed to carry out the considerable navigation mission. Total estimated cost: \$836,000. FY2008: \$821,000. FY 2009: \$15,000

**(5) Construction of Deck Barges MDC Project 2629 – Nashville District (Continuing).** Three barges of like design support maintenance activities on 19 locks and 1170 miles of navigation channel within the Nashville District. The barges are used as floating work platforms and to transport equipment and components related to lock and dam maintenance activities, such as mobile cranes, generators, air compressors, sheet piling, lock closure structures, and mooring cell templates. The three barges currently in use are in need of replacement and have been in service since 1954. Further use of these vessels would require maintenance expenditures that would exceed the value of the barges. Use of flat deck barges is vital to the accomplishment of the district mission of maintaining navigable waterways on the Tennessee and Cumberland Rivers and their tributaries. The barges used in this district are smaller than the industry standard but they are preferred for their flexibility and exceptional service for the maintenance fleet. Alternatives were studied for continued use, rent/lease, and contracting for deck space. Fabrication and purchase of new barges was found to be the best alternative. Total estimated cost: \$2,772,800. Prior Years: \$2,582,700. FY2009: \$115,100. Future Years: \$75,000.

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**(6) Survey Boat RODOLF Replacement MDC 2440 – Portland District (Continuing).** Replace the Survey Boat RODOLF because the vessel will not support the upcoming Columbia River deepening project. This surface effect ship (SES), placed in service in 1980, and has become less reliable. The engines are nearing the end of their economic useful life and will require replacement in the next several years. The rubberized components that make up the SES capability of the vessel are expensive and available solely from the original manufacturer. In fact, some of these specialized and proprietary components no longer are manufactured due to the low demand. The RODOLF performs surveys of the Columbia and lower Willamette Rivers up to the Bonneville Dam for the dredges ESSAYONS and YAQUINA, and commercially contracted dredges. Total estimated cost: \$3, 300, 000. Prior Years: \$2,497,000. FY 2009: \$494,500 to continue construction. FY 2010: \$30,000. Future Years: \$278,500 to complete construction.

**(7) Survey Boat HICKSON Replacement MDC 2441 – Portland District (Continuing).** Replace the Survey Boat HICKSON, placed in service in 1968, because the engines and ancillary machinery are increasingly unreliable and at the end of their economic useful life. The 36-years old, two-stroke engines lack adequate exhaust conditioning to reduce emissions and greenhouse gases. The hull of the vessel will require extensive repairs in a few years. The HICKSON performs ocean port surveys and other surveys for dredging along the Oregon coast and is the only survey vessel in the Corps with size and power to transit rough seas between Pacific ports. Total estimated cost: \$3,300,000. Prior Years: \$2,492,200. FY 2009: \$485,300 FY 2010: \$30,000. Future Years: \$292,500.

**(8) Crane Barge KEWANEE Replacement MDC 2481 – Rock Island District (Continuing).** Replace the KEWANEE crane barge, which is 88 years old, because it has suffered corrosion combined with normal wear and tear that has deteriorated it to the point where repairs are no longer feasible. A breakdown of the KEWANEE crane barge causes costly delays to accomplishment of the mission. The KEWANEE is used to support the Quad Cities crane barge during gate changes and to provide daily support to structural maintenance gate repairs. The cranes and barges are vital to the operation of the maintenance unit for repairs to the miter gates. The barge, constructed in 1913, was converted to a crane barge in 1981. The crane is near the end of its life. Total estimated cost: \$9,787,000. Prior Years: \$9, 400,000. FY 2009: \$370,000. FY2010: \$17,000 to complete construction.

**(9) Crane for Cranebarge VELER 2782, Detroit District (Continuing):** This crane is essential to the obstruction removal operations in the Great Lakes connecting channels and other critical channel maintenance activities of the Detroit District. The crane is mounted onboard the cranebarge VELER and is the primary tool for removing rock obstructions in the hard bottom channels in the Detroit and St. Clair Rivers. The existing 100 ton Manitowoc 3900 crane onboard the Cranebarge VELER was built in 1961 and was placed on the VELER in 1991. Previously it was on the Cranebarge MICHIGAN, which was fully depreciated and disposed of in 1991. The crane has been heavily utilized in various operations for 48 years. Due to the age of the existing crane, the maintenance and repair challenges have increased and impacted productivity. Lost time and adverse impact on obstruction removal operations will increase as the crane is beyond its estimated operational life. Safety issues will also become critical if the crane is not replaced in the near future. Total estimated cost: \$1,840,000. Prior Year: \$40,000. FY2009: \$1,800,000.

**(10) Two Cranes for Illinois Waterway, 2707, Rock Island District (Continuing).** The Cranes will be used for lifting work at the 8 Locks and Dams on the Illinois Waterway. The cranes will enable the crews to work in and around the lock chambers and dams doing major repair and maintenance work in a safe and efficient manner. This project entails development of crane technical specifications and GSA procurement of cranes to meet the operational requirements of lifting 100,000 pounds fully rotating at 38 feet. The cranes will be replacing aging 1989 and 1990 Manitowoc M-80 crawler cranes that are obsolete and no longer made. Repair costs are mounting and parts are getting harder to find. The control levers are worn causing a lot of slop in operations, the load indicators need to be replaced, the machines need to be repowered, the crane cabs are rusting out, and the electrical wiring is outdated and becoming a fire hazard. The cranes are increasingly down for repairs. Total estimated cost: \$3,500,000. Prior years: \$18,500. FY2009: 3,440,000. FY2010: 41,500.

**(11) Motor Vessel STRONG Replacement, 2730. Memphis District, (Continuing).** \_The Motor Vessel Strong has been called on various occasions to assist the Revetment Unit, Mat Sinking Unit, and Dredge Hurlley in towing of plant because of emergency conditions or equipment breakdown during the Revetment Season. The exact timing for any one of these missions is virtually impossible because they are dependent on river levels and/or breakdown of other government or leased vessels. In the aftermath of Hurricane Katrina, the availability of motor vessels and barges for lease has become much more difficult. The increased horsepower and height of the new

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vessel will allow it to more safely and effectively respond to the needs of the Memphis District. The work includes development of a suitable progression of design and construction of one 2200-2500 BHP, self-propelled towboat. Due to changes in mission a larger vessel with more horsepower is required. The increased funding will cover the additional construction costs for a larger vessel. Total estimated cost has increased from \$12,000,000 to \$14,000,000. Total estimated cost: \$14,000,000. Prior year: \$29,100. FY2009: \$11,165,000. FY2010: \$360,000. Future Years: \$2,445,900.

I **(12) Motor Vessel MUSCATINE Replacement, 2687, Rock Island District (Continuing).** The towboat is used to push maintenance barges for strike removal, rock placement, and repairs to structures. The towboat will replace the MV Muscatine, which was placed in service in 1976. The propulsion system and other major components have reached the end of their service where maintenance requirements are expected to ramp up in order to keep the vessel in operation. The new towboat will be based on an existing design, which was used for the MV DAVENPORT. The towboat is an essential component required to achieve mission responsibilities. Strike removal and repairs to control structures in the Mississippi require maneuvers in areas where strong currents can jeopardize the safety of the operation. The vessel is at times required to operate in perilous conditions near dams and other control structures where reliability and performance is mandatory to minimize risk to crews and other floating plant. The "state of art" design takes advantages of modern hull design and engine refinements which will reduce operating costs and simultaneously improve performance. Total estimated cost: \$12,000,000. Prior Years: \$27,800. FY2009: \$11,165,000. FY2010: \$360,000. Future Years: \$447,200.

**(13) Mobile Crane Replacement, Ft. Mifflin Distribution Center, Philadelphia District (Continuing).** Funding is required to replace the existing mobile crane with a state of the art, structurally sound and safer piece of equipment. Our intent is to procure a crane with increased capacity, from the current 60 ton to a 90-100 ton rating. The boom length will also be increased from the existing 100 ft. to 160-180 feet in length. These upgrades would enable a greater and safer lifting capacity on very heavy and critical lifts such as heavy castings, propellers, shafts, pump cases, spuds, trunnions, and elbows. The increased capacity will also enable reaches to the Port side of the Dredge McFarland when docked to assist with critical repairs. It would also be able to reach high enough to clear the side-cast boom of the dredge with parts and materials, which would greatly enhance the support to the vessel. The increased capacity will also allow it to reach areas of the floating plant which are currently inaccessible and be capable of making out-of-water lifts for repairs to larger survey vessels which can then be performed without having to rent or lease a crane and will save the expense of a drydock facility. Total estimated cost: \$1,000,000. FY2009: \$1,000,000.

**(14) 110 Ton Crawler Crane, Russellville Project Office, Little Rock District (Continuing).** The new crane is needed to replace a 110 Ton crawler crane (originally project owned) that was surplus several years ago for safety reasons. Since that time a smaller mobile crane (the vintage 1968, rehabbed in 1999, American 62 Ton mobile) loaded onto a barge has been used to perform the day-to-day work. The current crane has limited use and cannot handle larger jobs, which must be deferred until the River Fleet (Shorty Baird) is available. The current crane does not comply with the latest standards provided by the American National Standards Institute (especially critical for making personnel hoists) and has become more unreliable with breakdowns happening more frequently. Repairs are costly and require leasing a temporary crane costing between \$8,000 and \$10,000 per month plus delivery fees (approx \$10,000). Total estimated cost: \$920,000. FY 2009: \$920,000.

**(15) Replace Manitowoc 3900W Crane with Tracked Excavator, Mississippi River Project Office, Rock Island District, (New).** The project involves replacing a lattice boom crane purchased in 1988 with a modern hydraulic excavator. The excavator will operate from the existing crane barge and is a key component to many projects. Primary activities this machine is required to support include mechanical dredging and rock placement. In addition, the excavator is utilized to reopen the navigation channel when closures occur due to heavy silt. It is essential that this machine be reliable and ready to respond to emergencies. Total estimated cost: \$1,900,000. FY 2009: \$1,900,000.

**(16) Dam Stilling Basin Dewatering Box and Barge, MDC 2811, Louisville District (New).** The dewatering box and transport/storage barge will be used to repair dam stilling basins at multiple Ohio River projects in the Louisville District. Deterioration of the current stilling basins has been observed and documented by diving inspections and show the loss of concrete is increasing. Many of these have exposed and missing rebar. The purchase of the dewatering box would permit the repair of stilling basins in a dry condition, providing a means for a more permanent and safer repair. The Louisville District has 54 stilling basins where the dewatering box can be

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used. The dewatering box and barge is a highly specialized piece of equipment that is not available on the commercial or surplus market. As a result, it is not possible to perform the required work by contract. Total estimated cost: \$5,150,000. FY 2010: \$100,000. FY2011: \$5,000,000. Future Years: \$50,000.

**(17) Crane Barge BROWN Replacement, MDC 2554, Louisville District (New).** The project involves the rehab/replacement of the Crane Barge BROWN. The barge will be used at all Louisville District projects on the Green River to perform major maintenance. The current barge was purchased in 1975 and is the most frequently used piece of equipment in the repair fleet. Due to the heavy usage and age of the boat, there have been several recent major breakdowns resulting in delays to lock repair projects. The BROWN no longer meets the Corps safety standards since it is an older design. The new barge will be larger and have an increased capacity that will permit the vessel to make lifts from one lock chamber to another without shutting the open chamber down to make a lift. This will reduce lock closure time and increase efficiency. Total estimated cost: \$12,000,000. Prior Years: \$80,000 for design. FY 2009: \$25,000 to continue design. FY 2010: \$5,000 to continue design. Future Years: \$11,890,000 for construction.

**(18) Revetment Crane Barge - Snag Barge, MDC 2800, Memphis District (New).** There are currently two barges but because of escalating costs only one barge will be replaced at a time. The first barge to be replaced is believed to be a 1958 series barge. The hull has deteriorated because of corrosion and harsh operating conditions. The barge has experienced leakage due to normal deterioration and extreme service. Loss of either barge could adversely impact the overall revetment mission. Total estimated cost of the first barge: \$12,600,000. FY 2009: \$300,000 for design. FY 2010: \$11,775,000 to finish design and begin construction. Future Years: \$525,000.

**(19) Two Striker Barges, MDC 2686, Rock Island District (New).** The project involves designing and constructing two new barges to replace the existing barges which have developed serious structural problems with the deck and deck support members. The current barges were under-designed for the purpose for which they are used and have deteriorated much faster than anticipated. The new barges are being designed to properly handle the loading that these barges receive to ensure better longevity and serviceability. In addition, the new design has much greater capacity which will reduce towing costs and thereby enhance efficiency. An economic analysis has been performed which shows that purchasing new equipment is the most cost effective solution. Total estimated cost: \$7,100,000. Prior Years: \$12,200 for design. FY 2009: \$50,000 to continue design. FY 2010: \$5,887,000. Future Years: \$1,150,800

**(20) Crane Barge (Strong Vessel), MDC 2733, Memphis District (New).** The project involves the design and construction of one crane barge. The current barge was obtained as salvage from the Coast Guard and will not be compatible with the motor vessel Strong replacement due to be delivered in FY09. The existing barge is narrower than the Strong replacement vessel and will create problems when setting buoys. The new barge will also have enhanced firefighting capabilities. Total estimated cost: \$9,000,000. Prior Years: \$4,600 for design. FY 2009: \$25,000 to continue design. FY 2010: \$8,500,000. Future Years: \$470,400.

**(21) Motor Vessel CLINTON Replacement, MDC 2688, Rock Island District (New).** The project involves design and construction of a replacement towboat. The current vessel was placed in service in 1974 and the propulsion system and other major components have reached the end of their useful life. The towboat is used to push maintenance barges for strike removal, rock placement, and repairs to structures. The vessel is required to operate at times in perilous conditions near dams and other control structures where reliability and performance is essential in order to minimize risk to crews and other floating plant. Total estimated cost: \$10,600,000. Prior Years: \$12,600 for design. FY 2009: \$5,000 to continue design. FY 2010: \$8,100,000. Future Years: \$2,482,400.

**(22) Replacement of Survey Boat Gillette, Wilmington District (New).** The project involves replacement of the current survey vessel which was built in 1971 and is beyond its useful life. The current vessel has developed a considerable amount of corrosion over the years and has a large amount of plate that needs to be replaced. The main diesel engines used in the boat do not meet the new environmental requirements and should be replaced with new fuel efficient and more

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environmentally friendly units. The replacement boat would have a wider beam which would provide a more stable platform for the Wilmington Harbor project surveys. Total estimated cost: \$1,100,000. FY 2010: \$1,100,000.

**(23) Caterpillar LGP Wide-Track Bulldozer Replacement, Philadelphia District, (New).** This request involves replacing two bulldozers and one front end loader with three wide-track bulldozers. The primary mission of this equipment is maintenance and construction activities at the Fort Mifflin Field Office Facilities. Uses include the fabrication of sluices, ditching and ditch maintenance, earth moving operations and dredge pipeline and lumber relocation. The existing equipment is ten years old and becoming obsolete. Replacement parts are becoming more costly or unavailable. Restoring the existing equipment to a viable and safe condition would be economically unfeasible and would require a complete overhaul at a cost estimated to exceed 80% of the value of the plant. The new dozers provide more efficient operation and standard safety features not currently present on the old equipment. Total estimated cost: \$900,000 (\$300,000 per dozer). FY 2010: \$900,000.

**(24) Six Work Barges, MDC 2791, Mobile District (New).** The Mobile District possesses a fleet of deck barges that are used for performing navigation missions throughout the district's waterways to include three river systems, twenty two locks and dams and portions of the Gulf Intracoastal Waterway. A number of these barges have exceeded the expected useful life of forty years and are in need of major rehabilitation for continued use. The six barges will be direct replacements for two barges already excessed and the four oldest deemed too unsafe for continued service. Total estimated cost: \$5,080,000. FY 2009: \$5,000 for design. FY 2010: \$4,815,000 to complete design and construction. Future Years: \$260,000.

**(25) Crane Replacement and Crane Barge LEONARD Reinforcement, St. Paul District (New).** This project involves replacing a 300 ton hydraulic lattice boom crane and reinforcement of the barge on which the crane is mounted. The crane is used for lifting gates during lock chamber dewatering projects. The work needs to be initiated as soon as possible to address safety issues that were identified after a crane accident prompted a thorough review of the district's Link-Belt cranes. Disposal of all Link-Belt cranes with the same hydraulic control system was recommended. A total of eleven cranes will be removed from service, nine of which are smaller cranes that are used infrequently. Through proper scheduling, the new 300 ton crane can perform the work previously performed by the other eleven cranes. The cost of the 300 ton crane is estimated to be \$2,500,000. Reinforcement of the deck of the Crane Barge LEONARD is estimated to cost an additional \$1,300,000. Total estimated cost: \$3,800,000. FY 2009: \$3,800,000.

**d. Fixed Land Plant and Automated Systems:**

**(1) Real Estate Management Information System (REMIS) – Corpswide (Continuing).** The Army Corps of Engineers is the responsible agent for the acquisition and disposition of real estate for the Army Civil Works and Military projects and for the Air Force. REMIS is the tool that the Corps uses to administer and manage property that is out-granted at civil projects, Army bases and Air Force installations. REMIS is the official, auditable database of record for the Corps Civil Works Real Property Inventory (RPI) of public lands, buildings and structures... REMIS supports e-Gov as the official database of record for the real property inventory of Army and Air Force land holdings. Base Realignment and Closure (BRAC) actions are administered by the Corps and recorded in REMIS. REMIS serves as a Chief Financial Officer compliant subsidiary ledger to CEFMS (Corps of Engineers Financial Management System), and provides annual accountability reports to the GSA (General Services Administration). The current version of REMIS has performance gaps relating to: full compliance with the DoD Real Property Inventory Requirements (RPIR), DoDI 4165.14 Instructions, DoD Real Property Unique Identification Registry (RPUIR), and Geographic Information System (GIS) capability, Graphical User Interface, Data Sharing, Document Administration and Disposal. Closure of these performance gaps will enable REMIS to become a more competent tool for life-cycle accountable asset management. Total estimated cost: \$6,900,000 FY 2007: \$1,000,000 FY 2008: \$3,000,000 FY 2009: \$2,900,000

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**(2) P2: Corps of Engineers Programs and Project Management System – Corpwide (Continuing).** This project represents scope and cost changes to the Corps of Engineers automated information management system, P2. The P2 project was completed and deployed in 2004. It was designed to support the business processes of Programs and Project Management for all districts, divisions, and the Corps headquarters. P2 currently uses two primary commercial off the shelf applications, which include Oracle Projects and Primavera software. There is also software which provides an interface between the two systems. Since deployment the system has experienced performance and reliability problems and is highly maintenance intensive. The Corps commissioned studies which resulted in the recommendation for an upgraded version of the system. Due to advances in commercial software it was found that with some additional programming Primavera could stand alone. This will simplify the system resulting in lower license fees, faster and more efficient response time, and greater system security. The user interface will be less complex resulting in greater productivity and provide a more useful tool. Total estimated cost: \$29,945,000. Through FY 2007: \$25,800,000. FY 2008: \$2,749,000. FY 2009: \$1,351,000. Future Years: \$45,000.

**(3) Facilities and Equipment Maintenance System (FEMS) – Corpwide (Continuing).** FEMS is a Department of Defense migratory Computerized Maintenance Management System (CMMS). The Joint Logistics Systems Center (JLSC) developed the system to meet the needs of DoD maintenance organizations. This system was designated as a DoD migratory system in 1995. FEMS is the Corps tailored version of MAXIMO Enterprise Base Systems (MRO Software, Inc.), which is a Commercial-Off-The-Shelf-System (COTS) package. FEM is deployed at the Corps' two consolidated data processing centers, and integrates O&M business processes into a cost-effective asset management program. It supports and consolidates functions within each O&M business line providing the capability to track life cycle costs of all assets. FEMS was deployed in FY05/FY06 within the Northwestern Division. Development is ongoing to meet the requirements of E.O.13327 for asset management and to update the COTS product to web-based applications. This maintenance management system is the keystone to the development of a Sustainable Infrastructure Program for all Corps assets. Aging locks and dams and flood damage reduction structures, as well as coastal structures such as jetties, break walls and groins are in need of rehabilitation, repair and increased maintenance to prevent failure or major breakdown of navigation and flood protection systems. The FEMS will establish optimal preventive maintenance criteria to effectively reduce risk and improve reliability. Total estimated cost: \$13,300,000. Through FY 2006: \$9,255,000 for development. FY 2007: \$ 1,805,000 to begin implementation. FY 2008: \$440,000. FY2009: \$900,000. FY2010: \$900,000 to complete implementation.

**(4) Electronic Document Management System (EDMS) - Corpwide (New).** Project involves purchasing and installing software for the Corps to implement a document management system and comply with Federal regulations. This document and records management initiative will establish policies, standards, and procedures to identify, classify, archive, preserve, and destroy documents. Total estimated cost: \$8,586,000. FY 2010: \$8,586,000.

**(5) Army Corps of Engineers Information Technology (ACE-IT) Server Refresh - Corpwide (New).** Project includes purchasing hardware for the Corps enterprise information technology requirements over the next 5 years (technology refresh). The servers that are currently running the existing enterprise programs such as Program and Project Management System (P2), Corps of Engineers Financial Management System (CEFMS), and Operations and Management Business Information Link (OMBIL) are becoming obsolete and need to be replaced. In addition, servers will be purchased for emerging requirements such as the Enterprise Data Warehouse and, the Facilities and Equipment Management System (FEMS). Total estimated cost: \$25,000,000. FY 2010: \$5,000,000. Future Years: \$20,000,000.

**(6) USACE Enterprise Data Warehouse (EDW) - Corpwide (New).** The project involves development and implementation of the Enterprise Data Warehouse (EDW). The EDW provides a means for storing data from the various Corps systems in a standard format and a central location. The EDW supplements and will ultimately replace multiple legacy automated information system databases that provide only summary roll up reporting. These local systems provide analytical reporting solutions outside of the approved systems. The EDW will provide USACE leadership with an improved reporting capability, producing more comprehensive standardized analysis allowing for more informed decision-making. The EDW has attained a three-year authority to operate through the Army accreditation process. Since the inception of the EDW initiative the project has successfully completed a prototype, pilot, and limited production phase. Successful implementation of the EDW requires accurate analysis

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and re-design of USACE data structures. This enables the implementation of effective data sharing and data integration across USACE systems as well as with outside agencies. The EDW improves the Corps ability to monitor and report on the planning, budgeting and execution of projects across the organization, offering the USACE community increased functionality at a lower cost through the adoption of Enterprise information technology solutions. Total estimated cost: \$6,650,000. Prior Years: \$650,000 for design. FY 2010: \$6,000,000.

**(7) Test and Evaluation Program - Corpwide (New).** The USACE Test and Evaluation (T&E) program will centralize all automated information system application testing and technology research and evaluations. The test and evaluation program will be developed as the agency's "One-Stop" testing, evaluation, validation and verification authority for all information technology resources. The program will conduct testing of information technology hardware, commercial "Off-the-Shelf" software, and all enhancements to AIS legacy applications - including design, development, compatibility, interoperability, security, operational, regulatory compliance as well as product acceptance testing and verification. The program will be comprised of a complete in-house hardware and software infrastructure which creates a common operating picture (COE) for all test tools, reporting tools and verification and validation toolsets that will be used while conducting test operations. The program also creates all common business processes and procedures relative to the execution of testing operations - including test planning, test reporting, validation and verification of test results, data generation, media, and business processes relative to configuration management of AIS legacy applications and corporate data. Currently USACE tests and evaluates prospective technology and software solutions through highly decentralized processes using a myriad of non-standard hardware, software and business processes. As a result, it is increasingly difficult for USACE to have transparency and any accuracy or accounting into the legacy application development process - the current development/test environment does not enable the agency to accurately align developmental efforts with strategic business objectives on an incremental basis. Total estimated cost: \$28,900,000. FY 2010: \$5,900,000. FY 2011: \$5,600,000. Future Years: \$17,400,000

**(8) Water Management Enterprise Architecture (WMeA) Project – Corpwide (New).** The project involves developing and deploying a standard water management system at offices with a current water management mission which includes approximately 35 Corps districts and division offices. In addition to deploying hardware/software to the district and division offices, hardware and software will be deployed at the processing centers where a national Water Management Continuity of Operations Plan (COOP) spell out and a national Water Management Database will reside. The current system is decentralized and has been found to be lacking by divisions and HQ during emergency situations. A new centralized system will allow sharing of data with other Corps automated information systems and optimize the ability of the Corps information technology service provider to service and manage the Corps water management assets. Total estimated cost: \$3,975,000. FY 2010: \$1,840,000. Future Years: \$2,135,000.

**e. Tools, Office Furniture, and Equipment**

**(1) Furnish Renovated Bolling Federal Building, Kansas City District (Continuing).** The Kansas City District office is scheduled to relocate within the Bolling Federal Building. The furniture is required to accommodate the newly renovated space. The current furniture is over ten years old and cannot be used in the renovated space due to condition, age, and the variation in sizes. The new furniture will provide for standardized workstations for all employees. The funding will provide for 492 individual work stations, 33 private offices, and 9 conference rooms. An additional \$28,700 in funding is required in FY09 in order to purchase new monitor arms and purchase an additional work station. Total estimated cost: \$4,050,000. FY 2008: \$4,021,300. FY2009: \$28,700.

**(2) Purchase Furniture, Seattle District (New).** The district office is currently scheduled to relocate within the Seattle area starting in FY 2010. The furniture is required to accommodate the newly renovated space. The current furniture is over 10 years old and is not compatible with the new office space. The new furniture

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provides standardized work stations and work areas. The order includes 505 work stations. Total estimated cost: \$3,775,000. FY 2010: \$125,821. FY2011: \$255,832. Future years: \$3,393,347.

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REMAINING ITEMS  
INVESTIGATIONS

**Coordination Studies With Other Agencies**

FINANCIAL DATA:

Estimated Annual Cost of Continuing Program	\$3,000,000
Appropriation for FY 2009	\$0
Allocation Requested for FY 2010	\$750,000
Change in FY 2010 from FY 2009	\$750,000

**Access to Water Data (New)**

AUTHORIZATION: Water Resources Development Act 2007; Section 2017.

JUSTIFICATION: Through this effort USACE will provide access to water resources data and related water quality data to the public and all stakeholders for integrated water resources decision making. This will include access to data generated in water resources project development and regulation under section 404 of the Federal Water Pollution Control Act (33 U.S.C. 1344); and appropriately employ geographic information system technology and linkages to water resource models and analytical techniques. To the maximum extent practicable, this effort shall develop partnerships; including cooperative agreements, with State, tribal, and local governments and other Federal agencies.

Funds are requested to conduct a survey of existing data management practices, develop standard business processes, procedures and database models to manage water quality and quantity data generated by the full range of Corps water resources activities. This may include water quality/quantity information associated with stream gages, water quality gages and other monitoring devices and water resources model and analytical tool output. These data include variables such as precipitation, water chemistry, temperature, evaporation, sedimentation, biological and habitat data, riverine discharges and stages, reservoir storage, inflows and outflow. This will include developing QA/QC processes and criteria for collected data. Water quantity and water quality data will be made available to the public through a standard web interface in a downloadable format as soon as quality assurance/quality control has been conducted by the USACE.

PROPOSED ACTIVITIES FOR FY 2010: Initiate the development of policy and guidance regarding public access to Corps water quality and water management data; make data on the permits issued under the authority of the USACE (Clean Water Act and Rivers and Harbors Act) available to the public; initiate the development of tools and processes for pulling water control data into a central database and develop a Concept Plan addressing water quality data.

ACCOMPLISHMENTS IN PRIOR YEARS: FY10 is first year of funding.

**Coordination Studies With Other Agencies**

**m. Committee on the Marine Transportation System**

SUMMARIZED FINANCIAL DATA:

Estimated Five-Year (FY 2010-2014) Program Cost	\$ 900,000
Appropriation for FY 2009	98,000
Allocation Requested for FY 2010	100,000
Change in FY 2010 from FY 2009	2,000
Balance to Complete Five-Year Program after FY 2010	800,000

AUTHORIZATION: Established as directed by the President in the *Ocean Action Plan – The Administration’s Response to the U.S. Commission on Ocean Policy* – 17 December 2004.

JUSTIFICATION: The Committee on the Marine Transportation System (CMTS) was elevated to an interagency Cabinet-level committee by the President’s Ocean Action Plan, December 2004. The CMTS held its first meeting in July 2005 and continues to meet 2-3 times per year. The Assistant Secretary of the Army (Civil Works) has been named as the Department of Defense (DOD) representative to the CMTS. The Chief of Engineers was selected to be the initial chair of the CMTS Coordinating Board, which advises and implements directives of the CMTS. An interagency Executive Secretariat supports the day to day activities of the CMTS on behalf of the Coordinating Board. The Corps is providing a full-time GS-15 liaison to the CMTS Executive Secretariat. This position reports to the Chief of Operations, HQUSACE, and HQ Operations has had the lead in CMTS coordination. The Corps has also been tasked by the CMTS to lead an interagency team to conduct an Assessment of the Current and Future State of the U.S. Marine Transportation System. This Assessment was initiated in FY 07 using reprogrammed UFR funds in the amount of \$175,000 and interagency contributions, but the principal activities will continue through FY 10. CMTS funds will also be used to support the DOD share of other initiatives requested by the Committee, including development of an MTS National Strategy, MTS Data and Information Portal, and MTS Emergency Response Coordination. The need to support CMTS activities will continue annually with increased funding in future years as the Corps assumes the leadership role of the CMTS Coordinating Board. Dedicated funding to support Corps participation in the CMTS is essential if the Corps and DOD are to be full participants with other Cabinet Departments and agencies in Committee activities and initiatives. Corps participation in CMTS is a priority for the ASA(CW), the Chief of Engineers and the Director of Civil Works.

PROPOSED ACTIVITIES FOR FY 2010:

- Complete interagency review and publication of Assessment of the current state of the U.S. Marine Transportation System.
- Coordinate an interagency review of the Harbor Maintenance Trust Fund.
- Assess capability gaps for both the present and future state of the MTS.
- Coordinate with other Departments and agencies participating in CMTS and provide support for studies and initiatives requested by the Cabinet-level CMTS.

ACCOMPLISHMENTS IN FY 2009:Continued Corps-led Integrated Action Team on an Assessment of the Marine Transportation System. Supported senior leaders and ASA(CW) participation in CMTS cabinet-level and Coordinating Board meetings and activities. Participated in interagency working groups and reviews.

APPROPRIATION TITLE: Investigations, Fiscal Year 2010

## **Coordination Studies With Other Agencies**

### **Other Coordination Programs**

(a) The CALFED request is \$100,000, which is a portion of the CALFED coordination funds cited in section 103(f)(4)(A) of PL 108-361, the CALFED Act. The funds will be used to continue program support, coordination, and USACE representation efforts in the Federal and State CALFED process in Fiscal Year 2010. The CALFED Record of Decision named the Corps and State of California as implementation co-mangers of the CALFED Levee System Integrity program. As stated in section 103(f)(4)(A) of PL 108-361, the CALFED Act, the Corps requests funds for program management, oversight, and coordination. Activities stated in the Act include: program support; program-wide tracking of schedules, finances, and performance; multi-agency oversight and coordination of program activities to ensure program balance and integration, development of interagency cross-cut budgets and a comprehensive finance plan to allocate costs in accordance with the Record of Decision; coordination of public outreach and involvement, including tribal, environmental justice, and public advisory activities in accordance with the Federal Advisory Committee Act; and development of annual reports.

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APPROPRIATION TITLE: Investigations, Fiscal Year 2010

1. SURVEYS

e. Cooperation with Other Federal Agencies, States, and Non-Federal Interests

(b) Chesapeake Bay Program. The amount of \$75,000 is requested to continue, increase, and invigorate activities initiated under Special Investigations. The Chesapeake Bay Program (CBP) is an interagency program, initiated by the US Environmental Protection Agency (EPA), for the protection and restoration of the bay's natural resources. These natural resources have tremendous environmental and economic significance to the northeast region and to the Nation. Following extensive Corps of Engineers investigations and EPA studies in the 1970's and early 1980's, it became increasingly clear that the Chesapeake Bay as a system was under intense pressure from development and overuse and was undergoing degradation in water quality, living resources and other ecological indicators. With the funds requested, the Baltimore District will continue participation and provide leadership involvement in the CBP Implementation Committee; the Federal Agencies Subcommittee; the Living Resources, Monitoring, Modeling and Toxics Subcommittee; and numerous workgroups addressing various subjects such as regional sediment management, wetlands, submerged aquatic vegetation, and land stewardship.

ASA(CW) was a signatory on a Special Tributary Strategy for Federal Lands in the District of Columbia agreement that commits the Corps to develop stormwater pollution prevention and nutrient management plans. The Baltimore District will play a keyrole on this Special Tributary Strategy as well as initiate activities to enhance stewardship of Corps -owned land within the Bay watershed. Many of these actions affect Corps authorized missions in the Chesapeake Bay.

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**Coordination Studies With Other Agencies**

**Other Coordination Programs (Continued)**

(c) The Coordination with Other Water Resources Agencies request is \$200,000. Cooperation with the Department of Agriculture (USDA) is under the Watershed Protection and Flood Prevention Act of 1954 (Section 5 of PL 566-83), as amended; the Flood Control Act of December 22, 1944 (Section 1 of PL 534-78), as amended; and the National Environmental Policy Act of 1969 (PL 91-190). Executive Order No. 10913, dated 18 January 1961, requires that cognizance be taken of constructed and contemplated upstream and downstream USDA works, and that plans be submitted to the Secretary of the Army for review and comment prior to their transmission to the Congress through the President. As the agency responsible for the flood control features of basin program, the Corps of Engineers must provide the Department of Agriculture with information on proposed Corps projects, including their effect on contemplated watershed programs. The Corps is also required by Section 102 (2)(c) of the National Environmental Policy Act of 1969 to review the environmental impacts that would result from installation of USDA project features. Cooperation with the Bureau of Reclamation of the Department of the Interior includes preparation of estimates of flood control requirements, and benefits, and reservoir operating criteria for storage reservoirs to be constructed with Federal funds, in accordance with Sections 1 and 7 of PL 534-78 and Section 7 of PL 984-84, as amended. Studies made by the Bureau of Reclamation of the flood control features of proposed reclamation projects are submitted to the Corps of Engineers for review and determination of the flood control benefits. The Corps of Engineers uses the data collected by the Bureau but makes an independent evaluation of the project. The Secretary of the Interior uses the report of the Chief of Engineers in making allocation of project costs to flood control. Corps representation is required for cooperation with Federal and state agencies such as River Basin Compact Commissions; Interstate River Basin Compacts; and Regional Planning Commissions in authorized, but unfunded investigations.

## **Coordination Studies With Other Agencies**

### **Other Coordination Programs (Continued)**

(d) The request is \$100,000 for FY 2010 to continue the CORPS' participation in the Gulf of Mexico Program (GMP). A Corps staff member serves as liaison to the GMP Office (GMPO). Funds are used to support participation by Corps personnel from the 5 Gulf districts and three Gulf divisions in the Ocean Action Plan: Gulf of Mexico Alliance - Governor's Action Plan. The GMP, administered by EPA, is a long-established collaborative partnership of state representatives from the five Gulf States, several Federal agencies, non-Government organizations, business, academia, as well as citizen and local government interests. The GMP responds to action issues identified by the five Gulf States. In conjunction with its business, education and project linkages with the Coastal America (CA) partnership, the GMP and CA partnership use a cross-cutting approach to formulate and implement creative, place-based, non-regulatory solutions to economic and environmental issues with Gulf-wide and national implications. From the GMP/CA venue, the Corps is readily able to engage and advance the restoration and stewardship components of the Corps Environmental Mission relative to evolving Administration (eg, Ocean Action Plan) and Gulf of Mexico regional priorities as stipulated in the Gulf of Mexico Alliance - Governor's Action Plan (particularly, wetland restoration and regional sediment management). Alliance, GMP/CA outputs include advancing regional sediment management, coastal habitat restorations and enhancements, community awareness, reductions of hypoxia/nutrient enrichments, reductions of water quality impairments, and improved public health, all complimented by education and outreach efforts. The Corps staff member also serves as Co-chair, CA - Gulf Regional Implementation Team (CA-GRIT), alternate Corps representative to the GMP Management Committee, alternate DoD representative to the GMP Policy Review Board and member/local coordinator of Corps participation in the Governor's Action Plan. These administrative functions position the Corps to support participation in the Governor's Action Plan, influence the projects, policies and activities of the GMP and CA partnerships, and identify, activate and coordinate added value roles for staff from the five Gulf districts affiliated with the Southwestern, Mississippi Valley and South Atlantic Major Subordinate Commands. The requested funds will ensure the continued participation of the Corps in the GMP and CA partnerships and the Gulf Alliance/Governors Action Plan.

## Coordination Studies With Other Agencies

### Other Coordination Programs (Continued)

(e) The Interagency and International Support request is \$700,000.

(1) Funds of \$200,000 will allow the Corps of Engineers to support other Federal agencies, international organizations and foreign governments to address problems of national significance to the United States under the authority of Section 234, WRDA 1996. The Corps of Engineers has widely recognized expertise and experience in water resources, infrastructure planning and development, and environmental protection and restoration. Other Federal agencies, particularly the State Department, the Agency for International Development, and international organizations such as the World Bank, can benefit from use of the Corps talents. In many cases the Corps abilities to perform its civil works mission, promote opportunities in the U.S. private sector, promote national security interests and contribute to Overseas Contingency Operations are also enhanced. The program funds will be used to support the State Department on international water issues, the World Water Council, USACE involvement on various interagency and international task forces and conferences, assisting US Embassies with strategic interactions with foreign governments, and other initiatives..

(2) Funds of \$300,000, also under the authority of Section 234, will support the Corps' International Center for Integrated Water Management (ICIWaRM) under the auspices of UNESCO, technical coordination and management of the hydrologic science and integrated water resources management (IWRM) related activities of the US National Committee for the UNESCO International Hydrological Programme (IHP), of which USACE is an agency member, scientific interaction with UNESCO's global and regional water centers, including those for which the Corps has Memorandum's of Understanding (MOU's): the Center for Arid and Semi-Arid Zones in Latin America and the Caribbean (CAZALAC); the Institute for Water Education (IHE); the International Center Hazards and Risk Management (ICHARM) and other UNESCO water centers and IHP initiatives. In FY10 ICIWaRM will continue efforts to support USG interests by providing training and capacity development for water managers and technical assistance for water security in developing and emerging nations, with focus-area initiatives in Africa, Latin America & the Caribbean, and Asia. Also in FY10, USACE plans to continue its multilateral engagement with the United Kingdom, the Netherlands and Japan on the sharing of technical knowledge on: flood risk management methods and tools, approaches for integrated water resources management (IWRM) at the river basin level, and incorporating water resources adaptation strategies for climate change as applied to water management and systems operations. FY10 products will include IWRM guidelines at the river basin level and water resources adaptation strategies for sustainable water resources management

(3) Funds of \$125,000 will support Corps collaboration with the Netherlands Rijkswaterstaat to continue to gain knowledge from the Dutch in a number of areas. This exchange initiated in FY 2005 has been particularly useful in the wake of our coastal hurricanes and the Dutch have been quite responsive and helpful to us. The following are thrust areas that have been mutually identified. Dredging: The Dutch have extensive experience in this area and we stand to benefit greatly from their technologies and lessons learned. Sample targeted areas for sharing include: Re-suspension of sediments due to dredging; contaminated sediments: risk assessment, remediation options, confined disposal, and beneficial use; and methods to reduce dredging costs through contracting and market forecasting. Coastal Zone Management: The Dutch have devised an extensive range of structural and non-structural approaches related to coastal zone management. Their Room for the River process involves a number of innovative techniques designed to improve floodplain management. They have built an impressive network of storm surge barriers, flood gates, reinforced levees and flood walls. Risk and Reliability: The Dutch have worked closely with us on post-Katrina support and they have developed a unique approach to addressing flood and storm safety. The two nations have much to share in terms of taking the notion of risk and reliability to a higher level. The exchange includes the New Orleans and Sacramento Districts to focus on initiatives useful to their interests.

(4) Funds of \$75,000 will be used to continue our water resources technical exchange of information with Japan's Ministry of Land, Infrastructure and Transport (MLIT). Under the terms of the 2008 agreement on cooperation, USACE and MLIT alternate with annual visits to each agency. The agreement has not only fostered the exchange of water resources technical and management information, but also may be considered part of the growing relationship on cooperation on addressing large scale disasters, improving water conditions that lead to country stability, and the overall US-Japan relationship so



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important to our security interests in Asia. In FY10 USACE plans to pursue a multi-lateral agreement with Japan and the Netherlands to develop internationally agreed-upon standards for levee evaluation and construction. This initiative was proposed by the MLIT at the FY09 technical exchange meeting, and expands the participation in existing separate agreements between the Dutch and the US and the Dutch and Japan.

**Coordination Studies With Other Agencies**

**Other Coordination Programs (Continued)**

(f) The Interagency Water Resources Development request is \$955,000. This amount provides \$750,000 for Corps of Engineers district activities, not otherwise funded, that require coordination effort with non-Federal interests. These activities include items such as meeting with City, County and State officials to help them solve water resources problems when they have sought advice or to determine whether Corps programs are available and may be used to address the problems. This will also cover costs of meeting with potential study sponsors before studies are budgeted to insure they understand study cost sharing and to obtain an indication of their interest in participating in a future study. It includes funds for two American Heritage River Navigators who are supported by the US Army Corps of Engineers, based upon Executive Order 13061, dated 11 September 1997. River Navigators have provided support to the Community Partners for the New River, which flows through NC, VA and WV; and for the Upper Mississippi River above St. Louis, MO. They have assisted individual communities and community partners in accessing other Federal programs. Funds are also included to contribute to the Coastal America Partnership, including \$25,000 to assist in supporting the national office and up to \$80,000 in support of the regional teams. This request also includes \$100,000 to sustain the benefits of the Great Lakes Habitat Initiative to continue multi-jurisdictional coordination, enhance decision-support capability, improve and advance monitoring.

**Coordination Studies with Other Agencies**

**Other Coordination Programs (Continued)**

**(g) National Dam Inventory**

SUMMARIZED FINANCIAL DATA:

Estimated Annual Cost for Continuing Program	\$ 900,000
Appropriation for FY 2009	400,000
Allocation Requested for FY 2010	400,000
Increase of FY 2010 over FY 2009	0

AUTHORIZATION: Section 215 of the Water Resources Development Act of 1996 (Public Law 104-303) authorized \$500,000 to be appropriated each fiscal year for the maintenance and publication of the National Dam Inventory. This authorization was continued in the Dam Safety Act of 2006 (Public Law 109-460) increased the authorization for fiscal year 2009 to \$800,000.

JUSTIFICATION: The Inventory was initially compiled in 1975 has been periodically updated to reflect construction of new dams, ownership changes, major modifications to existing dams, decommissioning and removal of dams, and improvements in the accuracy and completeness of the data. The current update includes over 84,000 dams, and focuses on current technology, integrating computer software into the inventory package to improve the ease of use, accuracy, and accessibility of the data. Annual funding is used to implement improved information flow and data quality control processes, to greatly enhance the state of knowledge management for dam safety. The importance of continued maintenance and publication of the National Dam Inventory has increased. The inventory is now required for use by the Secretary of Homeland Defense and the National Dam Safety Review Board in the allocation of dam safety program assistance funds to the various States in proportion to the number of dams in the state. Inventory data is also included in the biennial report to Congress on the National Dam Safety Program. The Inventory also plays an important role in the identification of infrastructure in risk due to terrorist activities. The ongoing maintenance and publishing of the Inventory is a coordinated effort involving data from the Federal and non-federal Dam Safety community in cooperation with the Interagency Committee on Dam Safety (ICODS) and the Association of State Dam Safety Officials (ASDSO).

PROPOSED ACTIVITIES FOR FY 2010: These funds will be used for continued maintenance and publication of the National Dam Inventory. During 2009 a request was made to the state dam safety agencies and Federal dam owning agencies to update the data in the inventory to include the inclusion of an analysis of the condition of dams for at least 50% of the dams under their jurisdiction in accordance the Dam Safety Act of 2006. Inclusion of an analysis of the remaining dams will be scheduled for FY 2010. The inventory will continue to be improved utilizing rapidly evolving technology including enhanced World Wide Web access, a Geographic Information System (GIS) interface, and integration with other dam safety resources. Funding at this level will not provide for inclusion of the assessment of dams in the National Inventory of Dams during FY2010. Additional efforts are also required to ensure data security in response to Homeland Defense directives. Integration of the National Inventory of Dams with the Dam Security and Analysis System to identify terrorist threats to dams will be delayed until future fiscal years.

APPROPRIATION TITLE: Investigations, Fiscal Year 2010

**Coordination Studies with Other Agencies**

**Other Coordination Programs (Continued)**

**(g) National Dam Inventory (Continued)**

ACCOMPLISHMENTS IN PRIOR YEARS: An updated inventory was published during 2009. This inventory was based on data provided by the state and Federal agencies during 2007 and replaced the published data that was collected in 2005. The National Dam Safety Review Board adopted the classification codes to be used for the analysis of dam condition during the next submission of data for the inventory. Routine maintenance continued on the inventory along with providing an internet based inventory available to all Federal, state, and local government agencies and the public. During calendar 2008 there were over 100,000 inquiries to the inventory on the internet.

APPROPRIATION TITLE: Investigations, FY 2010

**Coordination Studies With Other Agencies**

**Other Coordination Programs (Continued)**

(h) The Corps' FY 2010 request for Lake Tahoe is \$100 000. This funding is required to continue work associated with the Lake Tahoe Federal Interagency Partnership as directed in Executive Order 13057. The Federal Interagency Partnership is working with state and local agencies and public interest groups to arrest further deterioration of Lake Tahoe while maintaining a viable economic climate. FY2010 activities will include: \$100,000 for full active participation in Partnership Activities (includes working with local and state agencies, public advisory committees, Southern Nevada Public Lands Management Act (SNPLMA) program participation, and staff work to support District, Division and HQ executive level involvement.

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**Coordination Studies With Other Agencies**

**Other Coordination Programs (Continued)**

(i) The National Estuary Program request is \$50,000. These funds will be used to participate with Federal and State agencies in the National Estuary Program (NEP) administered by the Environmental Protection Agency under the Water Quality Act of 1987 (Section 320 of PL 100-4). The NEP is an interagency planning program to develop management plans for nationally significant estuaries designated by the EPA. To date, the following 28 estuaries have been designated under the program: Puget Sound, WA; Delaware Estuary, DE, NJ & PA; and Delaware Inland Bays, DE; New York/New Jersey Harbor, NY-NJ; Sarasota Bay, FL; Santa Monica Bay, CA; San Francisco Bay, CA; Galveston Bay, TX; Albermarle/Pamlico Sound, NC; Buzzards Bay, MA; Narragansett Bay, RI; and Long Island Sound, CT-NY, NY; Massachusetts Bay, MA; Barataria/Terrebonne Bays, LA; Indian River Lagoon, FL; Casco Bay, ME; Tampa Bay, FL; San Juan Bay, PR; Corpus Christi Bay, TX; Tillamook Bay, OR; Peconic Bay, NY, Barnegat Bay, NJ; Charlotte Harbor, FL; Lower Columbia River Estuary, OR & WA; Maryland Coastal Bays, MD; Mobile Bay, AL; Morro Bay, CA; and New Hampshire Estuaries, NH. Because of extensive Corps involvement with Federal water resources projects in the nation's estuaries and other responsibilities in waters of the U.S., the Corps has been asked to participate on the management and technical advisory committees of those NEP estuaries being studied. The requested funds would be used to cover costs of Corps field office meeting attendance, field reconnaissance, and data transfer.

**Coordination Studies With Other Agencies**

**Other Coordination Programs (Continued)**

(j) The North American Waterfowl Management (NAWMP) request is \$50,000. These funds will be used to continue cooperation with Federal and State agencies, and non-Federal interests in support of the NAWMP administered by the Department of the Interior, Fish and Wildlife Service. The NAWMP is an international program designed to reverse downward trends in North America's waterfowl populations by protecting and improving waterfowl habitats nationwide, particularly in 34 areas within the United States identified as being critical to meeting NAWMP goals and objectives. Department of the Army support to the NAWMP is set forth in an agreement signed with the Department of the Interior on January 23, 1989. The Corps of Engineers has broad water resources development responsibilities and authorities and has stewardship responsibilities for over seven million acres of water and land. Many Corps of Engineers projects contribute directly or indirectly to the habitat base for the nation's waterfowl, and other wetland species. Current and future Corps of Engineer projects are expected to play an even greater role, particularly during years of low rainfall. Also, the Corps of Engineers has recognized extensive environmental engineering and technical expertise and experience that can contribute greatly toward meeting the NAWMP waterfowl habitat improvement goals and objectives. The requested funds would be used to cover costs of Corps of Engineers field office participation in the field trips, interagency coordination meetings, and information transfer in response to conditions set forth in the agreement between the Department of the Interior and the Department of the Army.

**Coordination Studies With Other Agencies**

**Other Coordination Programs (Continued)**

(k) The Pacific Northwest Forest Case Study request is \$50,000.

The Northwest Forest Plan (NFP) is an interagency program, initiated by the White House's Council of Environmental Quality, for ecosystem management of the public lands in the Pacific Northwest within the range of the Northern Spotted Owl. In FY 1999, the Corps of Engineers became an official signatory agency to the NFP Memorandum of Understanding. The NFP institutes an interagency approach for restoring and protecting animal and plant species on public lands and provides for economic assistance to impacted communities. With the funds requested, Seattle District under the Northwestern Division will be able to resurrect its partnership with Mt. Baker-Snoqualmie and Olympic National Forests, other Federal agencies, local Watershed Councils, and state and tribal forums and workshops; and more importantly participate fully on the Provincial Advisory Committees for the two National Forests. The District will provide technical support for watershed evaluation and restoration planning through Corps expertise, participate in reviews of restoration and monitoring plans, and assist in the implementation of restoration projects and species protection. NFP funding will enable the Corps to continue to work cooperatively with its other Federal NFP partners (USDA Forest Service, Bureau of Land Management, US Fish and Wildlife Service, National Marine Fisheries Service, National Park Service, Environmental Protection Agency, Bureau of Indian Affairs, and Natural Resource Conservation Service) and the State of Washington. NFP participants are presently concentrating on the development of coordinated Implementation Monitoring and Effectiveness Monitoring Programs while continuing to refine and implement its watershed ecosystem management strategies. The NFP presents the best opportunity for the Corps to expand its involvement with the other agencies of the Federal and State communities to use all of our engineering and environmental capabilities to address many of government's missions.



**Coordination Studies with Other Agencies (Continued)**

**Other Coordination Programs (Continued)**

**(I) Special Investigations**

SUMMARIZED FINANCIAL DATA:

Estimated Annual Cost for Continuing Program	\$1,550,000
Appropriation for FY 2009	1,491,000
Allocation Requested for FY 2010	1,550,000
Increase of FY 2010 over FY 2009	59,000

SCOPE. Investigations of potential flood risks, drainage, channel and harbor improvements, anchorages, and environmental restoration including:

- (1) Review of preliminary permit and licenses applications, in collaboration with the Federal Energy Regulatory Commission (FERC) for non-Federal hydroelectric power development either at, or affecting, Corps water resource projects.
- (2) Special investigations of nominal scope and reports prepared pursuant to Congressional and other requests from outside the Corps of Engineers for information relative to projects or activities not covered by other funding resources;
- (3) Similar work of detailed scope, as specifically authorized by the Chief of Engineers; and
- (4) Review of reports and environmental impact statements of other agencies.

**Coordination Studies With Other Agencies**

**Planning Assistance to States**

SCOPE: This Corps of Engineers program stems from Section 22 of the Water Resources Development Act of 1974, as amended, which authorizes the Secretary of the Army to assist States, local governments, Indian tribes, and other non-Federal entities in the preparation of comprehensive plans for the development, utilization, and conservation of water and related land resources. The studies are cost-shared on a 50% Federal, 50% non-Federal basis. The program can encompass many types of studies dealing with water resources issues, including environmental conservation/restoration, wetlands evaluation, water supply and demand, water quality, flood damage reduction, coastal zone management, and dam safety.

SUMMARIZED FINANCIAL DATA:

Allocation Requested for FY 2010	\$7,000,000
Allocation for FY 2009	\$6,593,000
Change in FY 2010 from FY 2009	\$ 407,000

JUSTIFICATION: The Planning Assistance to States program has continued to evolve into a highly effective tool for providing technical and planning assistance to states, local governments, and Indian tribes. As more states are developing hazard mitigation plans, watershed plans and floodplain management plans, this program provides the opportunity for the Corps to provide expertise. This program supports the initiative to facilitate the pre disaster and post disaster assistance. This program has been used to develop erosion control designs that a region continues to use today which has improved water quality, helped with flood damage reduction and saved significant resources. The states, local governments, and Indian tribes recognize the need to develop locally directed solutions to their water resources problems and this program continues to grow. The FY 2010 amount will enable the Corps to provide much needed planning and technical assistance to help in a wide variety of water resource efforts, including environmental restoration studies, and watershed planning. .

Subject to funding, studies which could be completed in FY 2010 include:

<b>Name</b>	<b>State</b>	<b>Amount</b>
Arizona Department of Water Resources, AZ	AZ	150,000
City of Los Angeles, CA	CA	150,000
City of Palmdale, CA	CA	75,000
Los Angeles County, CA	CA	150,000
San Bernardino County, CA	CA	150,000

APPROPRIATION TITLE: Investigations, Fiscal Year 2010

San Manuel Band of Indians, CA	CA	66,000
Soboba Band of Indians, CA	CA	75,000
West Canal/Willow Brook Flood Management Study, New Britain, CT	CT	20,000
South Bethany Tidal Pump System Study, DE	DE	150,000
Effingham County Storm Water Management Plan, GA	GA	60,000
Northwest GA Watershead, GA	GA	100,000
Nishnabotna Watershed, IA	IA	341,200
Willow Creek, IA	IA	45,000
Big Wood River - Belvue Idaho, ID	ID	25,000
Weiser R. Floodplain Analysis, ID	ID	50,000
Moline-Rock Island Water Supply, IL	IL	115,000
KS River Water Resources, KS	KS	50,000
PAS Tribal Support , KS	KS	50,000
Bardstown, KY	KY	88,000
Louisville Parks, KY	KY	100,000
Chitimacha Watershed Planning, LA	LA	150,000
New Orleans River Park, LA	LA	100,000
Port of Lake Charles Master Plan, LA	LA	125,000
River Parishes Pedestrian Plan, LA	LA	125,000
St. Johns Parish Monumentation, LA	LA	125,000
Tunica Recreation Trail, Tunica-Biloxi Tribe, LA	LA	125,000
Penn's Hill Drainage Study, Quincy, MA	MA	10,000
Town Line Brook Drainage Assessment, Malden, MA	MA	10,000
Montgomery County, MD	MD	20,000
Macomb County Drain Mapping & Database, MI	MI	200,000
Stream Characteristics Study for Saganing River, MI	MI	80,000
Cape Girardeau Groundwater Study, MO	MO	75,000
City of Marquand Flood Study, MO	MO	50,000
PAS MO MDNR Northwest Missouri, MO	MO	50,000
Peruque Creek Water Quality, MO	MO	30,000
St Charles Riverfront Micro-Model, MO	MO	90,000
Goochs Milll, Grnadville, Co. , NC	NC	25,000

APPROPRIATION TITLE: Investigations, Fiscal Year 2010

Henry R Dam, Burke, Co., NC	NC	47,500
Fontenelle/Bellevue, NE	NE	40,300
PAS NE Beatrice Floodplain, NE	NE	50,000
Spicket River Watershed Study, NH	NH	55,000
Grants Drainage Management Plan, NM	NM	56,443
Tarrytown, NY	NY	10,000
Town of Clarence, NY	NY	80,000
Wappingers Falls, NY	NY	10,000
Harpersfield Dam, Grand River, OH	OH	88,000
State of Ohio GIS, OH	OH	75,000
PAS Beerman Creek Watershed Study, OR	OR	75,000
PAS Boone Nute Slough, OR	OR	27,000
PAS City of Medford Floodplain, OR	OR	60,000
PAS Nehalem River ODOT Flood Mapping, OR	OR	200,000
PAS Portland Balanced Cut and Fill Study, OR	OR	35,000
PAS Toutle River Radio Tracking, OR	OR	30,000
Allegheny Co Aquatic Assessment Study, PA	PA	50,000
Northern Allegheny Co Stormwater Mangt Study, PA	PA	25,000
Pennsylvania Flood Inundation Mapping, PA	PA	100,000
SW PA Spill Response Study, PA	PA	50,000
USS Yorktown, SC	SC	75,000
Kingsport Riverfront, TN	TN	75,000
TN Dept of Env and Conserv Pilot Study - Wtr Res Tech Advisory Committee, TN	TN	200,000
Charlottesville Water Quality Management, VA	VA	40,000
James City Surry Non-Structural, VA	VA	35,000
Virginia Department of Transportation, VA	VA	114,000
Williamsburg Stormwater Management, VA	VA	25,000
South Burlington, VT	VT	50,000
Clover Island - Port of Kenewick, WA	WA	25,000
Elwha River, WA	WA	50,000
Half Moon Lake Alum Dosing Study, WI	WI	30,000

APPROPRIATION TITLE: Investigations, FY 2010

Internal Phosphorus Loading Assessment Study, Big Eau Pleine Flowage, WI	WI	31,000
Oneida Nation Floodplain Delineation, WI	WI	250,000
City of Ravenwood, WV	WV	25,000
Putnam County Drainage, WV	WV	50,000

ACCOMPLISHMENTS: In fiscal year 2009, the Corps of Engineers has many of studies underway in almost every State and the pacific and caribbean Islands, and with Federally-recognized Indian tribes. These studies provided technical and planning assistance for a full range of water resources issues. Significant efforts involved studies to assist local communities in restoring urban river environments, and accomplishing wetlands identification and mapping studies. In addition, efforts were undertaken to assist states and local governments in ecosystem restoration, drinking water supply and demand, water quality, and flood damage reduction.

APPROPRIATION TITLE: Investigations, Fiscal Year 2010

**Collection and Study of Basic Data**

**Automated Information Systems Support - Tri-Service CADD/GIS Technology Center**

<u>SUMMARIZED FINANCIAL DATA:</u>	<u>Funding</u>
Estimated Five-Year (FY 2010-2014) Program Cost	\$1,750,000
Civil Allocation Requested for FY 2010	350,000
Balance to Complete Five-Year Program After FY 2010	1,400,000
Allocation for FY 2009	335,000
Change in FY 2010 from FY 2009	15,000
Average Annual Allocation for FY 2004-2009	\$400,000

SCOPE: This effort provides technical support to engineers and scientists utilizing Computer Aided Design (CAD), Geographic Information Systems (GIS), Building Information Modeling (BIM), and facility management technologies in the planning, design, construction, operation and maintenance of Corps projects. The Center is jointly funded by Military, Civil Works, and other agencies and provides technical support across all sectors. Benefits are accrued by individual USACE districts/projects in the conduct of its Civil Works mission.

In 1992, the former Army Corps of Engineers' Computer Aided Design and Drafting (CADD) Center, located in the Army Engineer Waterways Experiment Station (WES), was expanded to an Army, Navy, Air Force (Tri-Service) center, including the addition of Geographic Information Systems (GIS) technology, by a joint agreement between the Corps, the Naval Facilities Engineering Command, and the Air Force Civil Engineer. Its purpose was to reduce duplication of effort between the three services in the management of CADD/GIS technology for facilities and environmental engineering. Since that time, the Defense Logistics Agency (DLA), the General Services Administration (GSA), USGS, FBI, Smithsonian Institution, National Capital Planning Commission, U.S. Marine Corps, U.S. Coast Guard, National Institute of Building Sciences, National Geospatial-Intelligence Agency (NGA), EPA, and NASA have joined this effort. As a result, this Center is a multi-agency vehicle to set standards, coordinate CADD/GIS systems uses, promote system integration, support centralized acquisition, and provide assistance for the installation, training, operation, and maintenance of CADD/GIS systems within the DoD facilities and environmental communities, including the Corps districts. All Corps districts that use BIM, CADD and GIS in mapping, planning, real estate, design, construction, operations, maintenance, and homeland defense and readiness benefit from the Center's efforts.

In FY08, the Center was re-chartered to focus its activities on the needs of the Tri-services and the Office of the Secretary of Defense (OSD). This change reverses the trend towards adding other federal agencies. The focus continues on CAD and adds Building Information Modeling (BIM) to the Center's activities and developing standard GIS data models that address the Civil Works business domains.

The \$350,000 requested for FY 2010 will support over 2,000 users of BIM/CADGIS and facility management technologies for Civil Works projects.

APPROPRIATION TITLE: Investigations, Fiscal Year 2010

**Automated Information Systems Support - Tri-Service CADD/GIS Technology Center (continued)**

JUSTIFICATION: All Corps districts use CAD and GIS computer systems for Civil Works engineering, design, mapping, planning, and facility management. Many have begun the use of BIM as an engineering and O&M tool. All engineering drafting tables have been replaced with CAD platforms or computer mapping systems and most Corps environmental and natural resource analysis are being performed on GIS platforms. The geospatial data standard efforts of the Center were coordinated with the American National Institute of Standards to develop a National GIS Standard which was approved in November 2001 and includes civil works and homeland defense features. Standards and productivity enhancement tools developed by the Center are used for both in-house and contractor produced drawings, maps and analyses, which assure that all Corps offices have the ability to exchange their work among themselves and with others, including the private sector. The Center is actively coordinating its CAD standards 3.0. with the National Institute of Building Sciences and has created a National CAD Standard, thus reducing the redundancy with the private sector and reducing cost for both government and the private sector. In 2006, the Center began coordination and developmental support for the US National BIM Standard. The BIM standard addresses the latest building information model technology within the US building and construction industry. The Center ensures that the Corps obtains the maximum return on its investment in BIM, CAD and GIS by coordinating development efforts and distributing end products to Corps offices. The BIM, CAD and GIS systems at field offices can achieve maximum productivity when they take advantage of the economies of scale offered by sharing the development and use of common data standards, procedures, and applications. This sharing is accelerated through a concerted effort by the Center, working with various field working groups, to draw from field expertise and dissemination of this knowledge in the form of lessons learned and standards to benefit all Corps users. Comprehensive data standards supported by the Center permit government and industry users to produce equivalent designs, maps and analysis on a variety of computer systems using commercial off-the-shelf BIM, CADD and GIS software.

PLANNED ACCOMPLISHMENTS IN FY 2010

APPROPRIATION TITLE: Investigations, Fiscal Year 2010

**Automated Information Systems Support - Tri-Service CADD/GIS Technology Center (continued)**

ACCOMPLISHMENTS IN FY 2009:

1. Release 4.0 of the A/E/C CAD Standard (both document and software tools) were released via the web. The A/E/C CAD Standard now incorporates Building Information Modeling Standard (BIM) requirements. A Tri-service corporate dataset for BIM applications was released in FY08. Software updates to implementation applications were incorporated in the new release. The A/E/C CAD Standards content was revised to make it compatible with the latest released version of the National CAD Standard and National BIM Standard. A BIM Manager's Workshop has been developed and conducted in FY08 for Civil Works Districts.
2. The GIS Spatial Data Standard for Facilities, Infrastructure, and Environment (SDSFIE) Release 3.0 was completed. The SDSFIE was transferred to the Topographic Engineering Center for further development to address ACSIM and OSD requirements.
3. The Center administered the Enterprise License Agreement (ELA) it negotiated with Bentley Systems Inc. on behalf of the US Army Corps of Engineers in late CY2005. The ELA provides access to all of Bentley's software applications and meets the Corps' Science and Engineering Technology program goals to reduce software acquisition costs. FY08 is the final year of the initial three-year agreement.
4. The Center continued its development of BIM expertise. The FY07 BIM Road Map and Implementation Guide was updated and released. Release of PCM 2.0 was initiated for delivery in mid-FY08.
5. The Center continued its deployment role for the collaborative engineering tool ProjectWise within USACE.
6. SDSFIE web site was enhanced to provide additional capabilities and meet user needs.
7. Contract language for MILCON Transformation was released (for standard RFP, Design/Build, and Design/Bid/Build).



2. Collection and Study of Basic Data

c. Other Programs

(6) Coastal Field Data Collection

SCOPE:

Inaccurate and insufficient observation data results in project design errors for coastal navigation and storm damage reduction. For example, wave data with a 20% error that are used to design a coastal rock structure will yield a 70% error in the stone size used to build the structure. Oversized stone makes initial construction costs much higher and undersized stone results in early failure and higher than necessary life-cycle repair costs. Similarly, a 5-10 degree error in wave direction can result in an error, or even reversal, in predicted sediment transport, compromising the success of a regional sediment management strategy. Cost-effective mission accomplishment requires accurate and complete data. Long-term data are required to determine climatic changes that may impact Corps' projects. The Coastal Field Data Collection program systematically measures, analyzes, and assembles the data Corps field offices use to accomplish the Corps mission in coastal navigation and storm damage reduction. Some of these data are nationwide or regional supporting many projects at once. No single project would have the mandate or funding to develop and maintain these types of high-quality, extended datasets.

The Coastal Field Data Collection Program provides required baseline data for all coastal projects, both federal and non-federal. The data is developed and maintained through the following activities: (1) National coastal wave history for project design, (2) Coastal wave measurement for validation & verification of simulated data and real-time use, (3) the Coastal Data Information Program of coastal observations, (4) a coastal observatory for long-term coastal measurements to improve our project design capabilities, (5) Participation in the Interagency Integrated Ocean Observing System or IOOS, (6) Regional beach processes study in Southern California, (7) Measurements of Typhoon winds, waves and storm surges in island and reef environments, which provides data to (8) the Surge Wave Island Modeling Studies (SWIMS) effort to model island storm surges, (9) the Wave Data Study advances critical modeling of beach and shoreline changes through field application along the mid-Atlantic coast.

AUTHORITY: The basic authority for the Coastal Field Data Collection Program is 33 USC 426a which originated with the River and Harbor Act of 1945, which originated in the River and Harbor Act of 1930. The latest Engineering Regulation governing the program is ER 1110-2-1406 dated 1990.

JUSTIFICATION

1. National Coastal Wave Histories. The goal is to generate at least 20 years of data for all US coasts and the Great Lakes. These datasets are routinely used by the Corps, the coastal engineering community, and the public for coastal studies. Also known as *Wave Information Studies* or WIS; computer simulations are used to generate wave climate data based on carefully reanalyzed weather information. Most historic measured wave data do not include the direction waves are traveling which is a critical parameter in project design and for sediment transport prediction. Measured datasets are typically limited in length and therefore often inadequate for estimating extreme wave conditions and for long-term project performance studies. WIS simulated datasets include wave direction, and are computed hourly for locations every few miles along the coast. Because of this coverage, WIS data can be used for other national applications, including locating viable sites for alternative energy generation (wave and/or wind). The 10 years of recently completed Pacific Basin wave data have already been an invaluable for areas with no measured wave information, and used for projects in Oahu, Maui and American Samoa to identify historic wave events, determine wave climates,

establish storm wave conditions, and to support sediment transport studies and harbor design. WIS data are accessible through a website which receives over 600 monthly requests for data downloads (<http://frf.usace.army.mil/wis/>). WIS data are a significant national wave climate database.

FY09 Accomplishments:

- 5 years of Pacific regional hindcasts added to website
- Re-evaluated Pacific Basin hindcasts relative to gauge observations
- Added climate products on website for Pacific regional hindcasts
- completion of Great Lakes hindcasts,
- website product enhancements to support Corps' system-wide requirements,
- WIS data used to examine climatic changes in storm frequency and how it might impact Corps Projects.
- One journal paper submission, three poster presentations, one conference proceedings paper

FY10 activities:

- Analyze results of 1 year of Atlantic hindcast using the latest version of Wave Watch 3 model.
- Possible rerun of Atlantic hindcast information using Wave Watch 3 model.
- extend Pacific regional hindcasts to include 1981-2004 on website (19 year extension)
- add climate products to Atlantic and Gulf hindcast information.

2. Coastal Wave Measurements. The objective of *Field Wave Gauging*, or FWG, is to provide high-quality shallow-water wave observations nationwide. It is a primary Corps' contribution to the *Integrated Ocean Observing System* (IOOS) as outlined by the Administration's Ocean Action Plan and authorized in the Integrated Coastal and Ocean Observation System Act of 2009 (PL No. 111-11). Waves deliver energy to the coast, and real-time wave observations are imperative for operational guidance of dredging, navigation, maintenance, and emergency operations. High quality wave observations are also required for the design of beach and navigation projects, to implement Regional Sediment Management strategies, and to ground-truth numerical wave models. Gauging efforts are coordinated with the National Data Buoy Center (NDBC) of NOAA, and with the Coastal Data Information Program (CDIP), activity #3 below. Nearshore gauging is conducted cooperatively through agreements with other states and agencies and regional observing systems of the IOOS. FWG supports directional sensors in NDBC buoys. The long-term goal under the plan is to expand the nation's wave observation program from 181 to 296 locations as outlined in the *National Operational Wave Observation Plan* which was finalized in FY09 by the USACE, in collaboration with the NOAA IOOS program office, and approved by the Interagency Working Group on Ocean Observations. Under this plan, the Corps will eventually be responsible for 133 coastal wave measurements and the general oversight of national wave observations in partnership with NOAA.

FY09 Accomplishments:

- deployment of directional buoy off of Cape Henry, VA coordinated through NOAA/NOS
- final version of the National Operational Wave Observation Plan distributed (<http://ioos.noaa.gov/program/wavesplan.html>)
- continued O&M for existing directional assets under CDIP and NOAA/NDBC

FY10 activities:

- Maintain the existing measurements sites
- coordinate interagency collaboration on directional wave measurements
- Participate in the international Joint Commission for Oceanography and Meteorology (JCOMM) to define evaluation criteria for nearshore wave

measurement technologies:

- Develop implementation plan for the National Operational Wave Observation Plan

3. Coastal Data Information Program. CDIP, the Coastal Data Information Program operated in cooperation with the Scripps Institution of Oceanography through the State of California (<http://cdip.ucsd.edu>) collects coastal wave observations from 37 locations which are analyzed and made available online in real-time to the Corps, our partners and the public. The popularity of the program is evident from the usage/data downloads of CDIP information. They typically record 200,000 daily hits (600,000 during storms) and over 4 gigabytes of daily data downloads. Usage has been increasing 20-30% per year. CDIP observations are currently concentrated on the west coast, but the long-term goal is to expand the program to provide coverage of the East and Gulf Coasts and Great Lakes where coastal observations are urgently needed as identified in the National Operational Wave Observation Plan. For example, there were no deepwater directional wave measurements along the east coast of Florida during the 2004 hurricanes which could have been used to alert Corps and other emergency operation officials during the events, and for post-storm assessments. The same was true for Hurricane Katrina and the central Gulf Coast in 2005, a fact that hampered post-Katrina diagnostic efforts. To help alleviate this situation, 3 sites around Florida were added in FY07, more are needed.

FY09 Accomplishments:

- operation and maintenance of existing measurements sites
- conversion of wave buoys to Iridium communications,
- increase the sensor inventory
  - new site in the coastal subnet coordinated with FWG
- upgrade, enhance the transmission of data
  - new products
  - management and;
  - refresh and increase interoperability of computational platforms for user community.

FY10 activities:

- support existing wave measurements
- add new sites (in the coastal subnet)
  - add 2 sites (cost-shared) with Regional Associations of IOOS implemented by CDIP
  - add 1 new site coordinated with NOAA/NOS offshore of the Mobile Bay area.
- increase inventory of assets
- new product development

4. Coastal Observatory for long-term observations. Critical to measuring, analyzing and providing useful coastal data products for Corps districts is the collection of long-term, high-resolution data for improving project design and performance. The Field Research Facility in Duck, North Carolina (<http://frf.usace.army.mil/>), is a unique real-world coastal facility that collects a comprehensive suite of wave, current, meteorological, bathymetric, and topographic data, typically required, but often unavailable at a Corps project site. The facility is used to: evaluate oceanographic measurement techniques and equipment, collect high-resolution data during storms, conduct large interagency field experiments, and collect spatially and temporally-intensive long-term measurements required to better understand complex coastal processes and coastal climate changes. These data are made available online and in real time to engineers and scientists in the Corps, other agencies (NOAA, NSF, Navy, USCG, USGS, NASA, etc.), universities, and the private sector for researching coastal processes and for developing and verifying numerical models and coastal engineering tools that predict wave environments and sediment movement affecting coastal projects,

navigation safety, dredging quantities and project impacts. They are also crucial for evaluating and improving the data products produced by other program sub-items. As a unique coastal observatory, the FRF is a significant Corps contribution to the Integrated Ocean Observing System (IOOS) as specified in the President's Ocean Action Plan and authorized in the Integrated Coastal and Ocean Observation System Act of 2009 (PL No. 111-11). Future activities include continuing an initiative, with NOAA to create an interagency center for testing coastal wave and other oceanographic field instrumentation. In addition the facility is serving as a testbed for evaluating and developing coastal numerical models (many models exist, but few have been rigorously evaluated). Several numerical schemes are now running (SWAN and STWAVE, both wave models) with comparison statistics being made available in real time from the facility's popular website. Additional models and supporting observations will be added.

FY09 Accomplishments:

- Continue long-term data collection program
- Maintain additional instrumentation and surveys required for MORPHOS model evaluation
- Conduct sensitivity study of STWAVE source terms in shallow coastal waters
- Operational demonstration of MORPHOS (Modeling Relevant Physics of Systems for Estimating Risk) morphology module
- Evaluate the performance characteristics of two acoustic wave and current meters, relative to standard wave observing techniques.

FY10 Activities:

- Continue long-term data collection program
- Maintain additional instrumentation and surveys required for MORPHOS model evaluation
- Couple model evaluation diagnostic system with storm surge modeling efforts for assessment of water level accuracy
- Test and evaluate unstructured grid wave model technology, coupled with ADCIRC circulation/inundation model
- Develop advanced coastal mapping techniques using radar and topographic LIDAR

5. Participation in the Integrated Ocean Observing Program (IOOS). This activity supports the Corps participation in the IOOS through participation and financial support of the Interagency Working Group for Ocean Observations (IWGOO) which serves under the Joint Subcommittee for Ocean Science and Technology (JSOST). Other participating agencies are Navy, NASA, NSF, NOAA, USGS, EPA, OSTP, DHS, and MMS. As defined in the Integrated Coastal and Ocean Observation System Act of 2009 (PL No. 111-11), IOOS is an interagency activity with NOAA as the lead agency. Participating agencies are required to detail staff to the IOOS program office. Corps' participation in IOOS workshops, regional associations, and meetings helps to insure that the IOOS is serving Corps requirements and that Corps districts and divisions are both contributing to, and benefiting from IOOS real-time coastal data for use in planning, operations, environmental assessment, climate change and emergency response.

FY09 Accomplishments:

- Participated in monthly meetings of the IWGOO
- Support IWGOO operational requirements through support to the Consortium for Ocean Leadership
- Developed a strategy for Corps-wide, regional involvement in the IOOS
- Created an Corps IOOS website to better connect Corps users with IOOS activities and data

FY10 Activities:

- Continue IWGOO participation
- Support the requirements of the IWGOO through support to the Consortium for Ocean Leadership

- Continue to promote active Corps participation in IOOS activities
- Maintain a web presence for Corps involvement in IOOS.

6. Regional beach processes study in Southern California. Planning for Regional Sediment Management (RSM) activities (shoreline protection, beach maintenance, coastal inlet dredging and related engineering activities) requires an understanding of the coastal processes and sediment budget over regions extending tens of miles up and down coast. In this Southern California Beach Processes Study (SCPBS), coastal processes are monitored along a 110-mile-long littoral cell extending from the Mexican border to Long Beach in Southern California (<http://cdip.ucsd.edu/SCBPS/homepage.shtml>), with concentration on the reach between Dana Point and La Jolla. The monitoring began in FY02 and continues as a unique long-term program. The region being monitored is characterized by narrow continental shelves, swell-dominated wave climates and cliff-backed beaches. Though environmentally and economically important, there are few data in existence that document long-, and short-term changes to the area. Monitoring activities involves semi-annual airborne Lidar mapping and other techniques for determining seasonal beach and cliff variation combined with wave measurements (collected under the FWG sub-item) and modeling to quantify the impact of coastal storms and El Nino events over multiple years. Lidar mapping has proven to be of significant value in the study of recent coastal hurricane impacts, and this study is providing a unique complement to East and Gulf coast data. The comprehensive nature of this monitoring, permit an analysis of the potential risk associated with the use of a less-comprehensive monitoring program for application to other regions of the country. This effort contributes new insight to ongoing RSM research activities and the data are critical to effective sand management in Southern California. Data collected to date are very popular with some 150,000 web hits/month (an increase of 235%) and the database framework developed is used by, and has been adopted by the Corps Los Angeles district to distribute their coastal data.

FY09 Accomplishments:

- LIDAR surveys in October 2008 and April 2009.
- ATV/JetSki beach surveys were performed at Torrey Pines, Camp Pendleton, Cardiff and Solana Beach
- Additional surveys at Imperial Beach in support of Los Angeles District beach nourishment project
- Tijuana Estuary Project – Collaboration between the Army Corps of Engineers (USACE), California Boating and Waterways (CDBW) and the United States Geological Survey (USGS). This project will improve understanding of nearshore processes that transport and disperse sediment, biota, and pollutants in shallow water.
- San Diego Association of Governments (SANDAG) – In collaboration with the CDBW, provide shoreline data and technical expertise to engineering firms involved with the proposed San Diego County beach nourishment.
- USGS Hazards – Collaboration between SCBPS, USACE and USGS for a 5 year Coastal Hazards study. This will include inundation models for low-lying areas, with the intent of forming a baseline for a real-time emergency warning system.
- In collaboration with the California Coastal Conservancy, provide baseline topographic LIDAR data for the State of California baseline sea level rise project.

FY10 Activities:

- LIDAR surveys will occur in October 2009 and April 2010.
- ATV/JetSki beach surveys will continue to be performed at Torrey Pines, Camp Pendleton, Cardiff and Solana Beach
- Continued surveys at Imperial Beach in support of Los Angeles District beach nourishment project
- Continue collaboration between the USACE, CDBW, Office of Naval Research and the National Science Foundation. This project will improve the understanding of nearshore processes, with emphasis on the alongshore currents that transport and disperse sediment, biota, and pollutants in shallow water. It will be designed after the Huntington Beach Study done in 2006 (<http://cdip.ucsd.edu/hb06/index.php?xdoc=model>).

- Continue collaboration between SCBPS, USACE and USGS for a 5 year Coastal Hazards study.

7. Measurements of Typhoon winds, waves and storm surges in island and reef environments. The objective of the Pacific Islands Land Ocean Typhoon (PILOT) activity is to address specific requirements developed by the Corps' and FEMA's *Islands Task Force*. In response, a unique series of measurements are being made across reefs by the Corps in partnership with the University of Hawaii and the Scripps Institution of Oceanography. Tropical cyclones and hurricanes affect Pacific and Caribbean islands differently than the continental United States. Consequently existing wave and storm surge forecast models, cyclone intensity scales, and design tools for cyclone conditions are inappropriate or unproven for use in the islands. PILOT is collecting quality and timely data required to more accurately document characteristic cyclonic effects in the islands ([http://sandbar.wes.army.mil/public\\_html/pmab2web/htdocs/PILOT/pilot.html](http://sandbar.wes.army.mil/public_html/pmab2web/htdocs/PILOT/pilot.html)). The measurements are being made both on the Island of Guam, because of its high likelihood of typhoon passage, and in Hawaii. Observations acquired to date suggest that storm waves propagating across island reefs are attenuated far greater than on typical continental beaches and greater than predicted by existing wave transformation models. Moreover, the data also confirm that waves on reefs are extremely sensitive to even small changes in the mean water level. Because wave conditions, even though distantly generated, are affected by local winds, the program is developing in partnership with the University of Hawaii, a technique for observing low-level winds using standard weather observation radars. PILOT takes advantage of the expertise available in other program activities and collected data support the long-term IOOS data requirements in the islands.

FY09 accomplishments:

- Continued monitoring in the US Virgin Islands, and in the Pacific.
- In cooperation with the US Air Force Weather Command, archive NEXRAD radar data at the Guam-Anderson AFB.
- Web site developed to enable easy dissemination of data, findings and research papers.
- All data collected up to and including FY 08 will be processed and posted on Web site.

FY10 activities:

- Continue data collection and analyses in the US Virgin Islands and in the Pacific.
- One field site laboratory will be added to the data collection system. This site will be selected to increase our knowledge of the physics of other near shore island environments.
- Processed data will continue to be made available to model developers for the development of the next generation surge and wave models for island environments.
- Web site will continue to be populated with data collected in FY 09 and recent papers utilizing this data.

8. Surge Wave Island Modeling Studies (SWIMS). The objective of this activity is to develop numerical models and techniques appropriate for typhoon surge simulation and forecast in the islands. Typically, islands are mountainous with narrow coasts and a reef shield that offers protection from storm waves. However, typhoons can greatly raise water levels and waves resulting in coastal inundation, damage, and loss of life. Methodologies for analyzing hurricane/typhoon waves and their interaction with island coasts, including fringing coral reefs, have not received attention commensurate with the importance and complexity of the processes. A next generation island coastal storm surge and wave model system will be developed using data collected under the PILOT sub-item (<http://chl.erdc.usace.army.mil/swims>). The model system will also be applied and evaluated for longer, irregular reaches of coastline, using coastal inundation data on Kauai after Hurricane Iniki and with data from physical hydraulic model tests. Once developed, the modeling methodology will be applied initially to selected Hawaiian Island sites with exceptional importance for coastal inundation planning.

FY09 Accomplishments

- Two-dimensional model components were validated with PILOT field data and physical model data (including unique data collected in FY08 at ERDC laboratory facilities) and incorporated into an upgraded modeling system.
- Additional physical model tests were performed, including reef channels that influence water levels and inundation, to validate models.
- A range of potential storms were run for Oahu and incorporated into a database for emergency planning.
- Hands-on training of tool application were provided to Corps Districts and local users, and continued coordination with these users.
- Modeling in the Caribbean also began, as PILOT data became available..

#### FY10 activities

- Additional island databases will be established,
- User training and model system documentation will be performed.
- System development will continue to improve model system fidelity and efficiency.
- Reef characterization parameters will be developed to describe unique reef features to input to models.
- Infragravity wave parameterizations will be developed to efficiently represent inundation due to long waves.

9. Wave Data Study – The nation’s ability to plan for and weather severe storm surges and waves that impact shores of the country is directly linked to our capacity to understand and predict those forces and the resultant inundation, erosion, and landscape changes. That same capacity is needed to rigorously and accurately assess the risk of future impacts at a regional system-scale. The Corps of Engineers has developed a modeling capability, through the MORPHOS (Modeling Relevant Physics of Systems for Estimating Risk) project, to simulate the coastal impacts caused by extreme storms. Furtherance of the MORPHOS model approach to better understand impacts through field application in different environments will be a large step forward. The Delaware coast offers a unique combination of attributes for this application. It is large enough to be a system-scale region, but not so large that model development would be diverted to simply dealing with its size. It contains all the necessary coastal features and is impacted by northeasters as well as hurricanes. In addition, it has a robust program of coastal response data collection and a large archive of historical measurements and information for use in calibrating, refining, and validating the modeling technology. This effort continues a unique effort which began following the devastating hurricanes of 2004 & 2005 when it was recognized that available data and models were inadequate to predict the impacts that occurred.

#### FY09 Accomplishments

- Collect critical datasets for evaluating MORPHOS nearshore modeling advancements
- Advance the coupling between MORPHOS modeling components and winds, waves and sediment transports

#### FY10 activities

- Operational prototype MORPHOS model running for critical locations along the Delaware coastline
- Assess operational performance of and conduct model validation of MORPHOS using collected data sets
- Link MORPHOS model with IOOS real-time and available archive data along the Delaware coast

APPROPRIATION TITLE: Investigations, Fiscal Year 2010

SUMMARIZED FINANCIAL DATA:

<u>PROGRAM ITEM</u>	<u>FY10</u>
1. Wave Information Study	\$ 220,000
2. Field Wave Gauging	200,000
3. Coastal Data Information System	15,000
4. Field Research Facility	895,000
5. Participation in the National Ocean Observing System	30,000
6. Southern California Beach Profile Study	10,000
7. Pacific Islands Land Ocean Typhoon (PILOT) experiment	15,000
8. Surge Wave Island Modeling Studies (SWIMS)	10,000
9. Wave Data Study	<u>5,000</u>
Total	\$ 1,400,000

Program totals

Estimated Five Year (FY 2009-2013) Program Cost -	\$ 7,000,000
Allocation Requested for FY 2010	1,400,000
Allocation for FY 2009	5,736,000
Change in FY 2010 from FY 2009	-4,336,000
Average Annual Allocation for FY 2005 - 2009	\$ 4,574,560



**Collection and Study of Basic Data**

**Environmental Data Studies**

JUSTIFICATION: The Environmental Data Studies Program request is \$75,000. Funds will be used to continue development of an Environmental Database System, to support collection and sharing of environmental information and to support the development of performance measures for the Environmental Business Program.

ACCOMPLISHMENTS FOR FISCAL YEAR 2009: Refine database specifications, develop definitions, and. test a working prototype.

OBJECTIVES FOR FISCAL YEAR 2010: Develop Beta version for wide scale testing and work on GIS component.

2. Collections and Study of Basic Data

c. Other Programs

(11) Flood Damage Data Program

SCOPE: The Flood Damage Data Program is required to facilitate the collection and maintenance of basic flood damage data to support Corps field offices in accomplishment of flood damage reduction studies. Planning and evaluation of flood damage reduction projects requires knowledge of actual damages caused to various types of properties. The relationships between flood depth, flood duration and velocity, value and type of property, and the amount of damage are essential to making accurate and supportable estimates of the value of projects. The distributions of damages resulting from the various factors involved are needed for the risk analysis framework adopted for water resource studies. Damage data are obtained in rare instances when a damaging event occurs and funded studies are underway. However, in most instances when flooding occurs there are no current studies in the area or other funding mechanism to collect the requisite data to be used in future analysis or to report and accurately record the damages incurred and account for the effect of the factors that caused the damages. Previously no centralized flood damage data source existed which retrieved basic data for research efforts and for specific project studies. The major purpose of the program is to improve the technical quality and accuracy of flood damage data, to improve the understanding of the interrelationships of the characteristics of flooding on property damage, to improve the formulation of flood damage reduction projects, and reduce the costs of feasibility studies. Coastal damage data collection will be needed to adapt to new coastal protection policies and to respond to concerns from the Office of the Assistant Secretary of the Army (Civil Works) in the review of recent coastal protection projects. The activities of the program are to: (1) conduct actual flood damage surveys following flood events for riverine and coastal events; (2) develop, maintain, and improve the economic database for flood damage reduction projects; (3) calculate flood depth-damage functions for riverine and coastal flooding based on actual damage data; (4) collect data and derive damage relationships for roads, public building and facilities, and other public costs of flooding; (5) develop and maintain a floodplain inventory application that would be used to apply flood damage estimation models to feasibility, reconnaissance, and continuing authority studies; and (6) provide information to communities of hazard mitigation plans and grant applications.

SUMMARIZED FINANCIAL DATA:

Estimated Five-Year (FY 2010-2014) Program Costs	\$1,900,000
Allocation Requested for FY 2010	\$220,000
Balance to Complete Five-Year Program after FY 2010	\$1,600,000
Allocation for FY 2009	\$220,000
Change in FY 2010 from FY 2009	\$0
Average Annual Allocation for FY 2005-2009	\$230,800

APPROPRIATION TITLE: Investigations, FY 2010

JUSTIFICATION: The \$220,000 requested in FY 2010 for Flood Damage Data would be used to develop and maintain data collection survey forms and data collection techniques, to collect post-flood damage data, to employ the flood damage database to estimate a National model where regional or local flood characteristics can be specified to estimate flood damage relationships, to update and maintain a geospatial computer application for applying flood damage models to floodplain inventory data, and to update generic flood damage relationships. Funds would be used to monitor data collection, to collect damage data for riverine and coastal flood events, and data analysis and the development of generic damage relationships, including associated flooding costs which might be appropriate to National Economic Development procedures, and to test the effectiveness of flood warning and flood proofing procedures. Funds would also be used to enhance a website to share results of the analysis. The results of damage function calculations would be particularly useful to communities applying for FEMA mitigation grants. Generic damage functions from the Flood Damage Data Collection Program are now imbedded in the FEMA Benefit/Cost Analysis Program for common use for grant applications. Funds would also be used to develop procedures for estimating public costs of flooding.

2. Collections and Study of Basic Data

c. Other Programs

(11) Flood Damage Data Program (continued)

ACCOMPLISHMENTS:

In FY 2009

1. Data collection for damages to nonresidential properties in upper Midwest.
2. Compute damage functions for cleanup costs.
3. Provide enhancements for IWR-GeoFIT.
4. Provide technical support for IWR-GeoFIT.
5. Research new procedures for estimating structure values.
6. Release standardized damage functions and content damage relationships for nonresidential property.
7. Provide technical support for flood damage analysis.

Planned for FY 2010

1. Data collection for damages to residential nonresidential properties, roads and bridges.
2. Data collection for public flood damage functions.
3. Provide enhancements for IWR-GeoFIT.
4. Provide technical support for IWR-GeoFIT.
5. Implement new procedures for structure valuation.
6. Release standardized values for public costs of flooding.
7. Release standardized values on nonresidential contents.
8. Provide technical support for flood damage analysis.

APPROPRIATION TITLE: Investigations, FY 2010

**Collection and Study of Basic Data**

**Flood Plain Management Services**

SCOPE: This Corps of Engineers program stems from Section 206 of the 1960 Flood Control Act (PL 86 645), as amended, which authorizes the Secretary of the Army to compile and disseminate data on floods and flood damage potential and to provide guidance in their use in flood related planning to State and local agencies. This information and guidance has long supported planning and implementing actions that reduce the flood hazard through wise use of flood plains. The lessons of the gulf coast disasters and the concerns about the Sacramento levees have heightened concern and interest in increasing our focus on flood risk and developing more robust outreach the better to communicate the risks we face in flood prone areas. As we better understand the risks we are facing, the need for providing accurate and timely flood hazard information, interpretation, and guidance for coping with these risks and conveying the nature of flood hazards and to foster public understanding of the options for dealing with flood hazards are severely taxing our available financial resources. This program supports Executive Order 11988 as the federal governments' guidelines for development and support of states in the flood plain. This program is one of the few ways that small communities can access the expertise of the Corps. The Corps also participates with the Federal Emergency Management Agency and local governments in the conduct of pre disaster hurricane evacuation and preparedness studies for mobilizing local community responsiveness to natural disasters in high hazard coastal areas.

SUMMARIZED FINANCIAL DATA:

Allocation Requested for FY 2010	\$8,000,000
Allocation for FY 2009	\$8,600,000
Change in FY 2010 from FY 2009	\$-600,000

JUSTIFICATION: The funds requested for FY 2010 will enable the Corps to provide needed information to states and local communities in their application of flood plain management measures. It will provide them site-specific flood and flood plain data and assistance; assist with efforts to identify flood hazards in smaller communities under growth pressures; facilitate special studies that concentrate on the prevention of future flood damages, giving increased emphasis to the application of non-structural measures; and enable critical pre-disaster hurricane evacuation and preparedness studies for states and counties along the Atlantic and Pacific Oceans, the Gulf of Mexico, and US islands in the Caribbean and Pacific. Of the amount requested, a base amount would be distributed in such a manner to ensure that each Corps district office would have the capability to respond to requests for information in a timely manner. This base amount varies each year and is determined based on availability of funds and expressed needs. In FY 2008, \$2.7million was expended for this base amount. Any funds over and above the base amount are used for specific studies and activities as requested by states and local communities.

APPROPRIATION TITLE: Investigations, FY 2010

In addition to the base program and contingent upon the funding, the studies listed below could be completed in FY 2010:

Name	State	Amount
Mobile District Hurricane Evacuation Studies, AL	AL	50,000
Special Study - Crowabout Creek, AL	AL	81,000
SS-SFHE Montgomery Al, Little Sandy Creek, AL	AL	40,000
SS - Beaver/Clear Creeks, Camp Verde, AZ	AZ	100,000
SS - Cochise County, AZ	AZ	100,000
SS - Gila River / Duncan, AZ	AZ	100,000
SS - Hopi Tribe Floodplain Mapping, AZ	AZ	100,000
SS - Tohono O'odham Gu Vo Wash, AZ	AZ	95,000
SS - Tohono O'odham Nationwide Floodplain Mapping, AZ	AZ	250,000
Humboldt County, CA Tsunami PAS, CA	CA	500,000
Raymond Basin Conjunctive Use Drought Study, CA	CA	125,000
San Mateo County, CA Levee Survey, CA	CA	30,000
SS - Anaverde Creek Floodplain Delineation, CA	CA	100,000
SS - Soboba Band of Indians Flood Mapping, CA	CA	100,000
Carbon County, CO	CO	50,000
Durango, LaPlata County, CO	CO	60,000
Green River City, CO	CO	80,000
La Plata County, CO	CO	50,000
Mesa County, CO	CO	50,000
Flood/Hurricane Evacuation, DC	DC	100,000
Savannah District Hurricane Evac Studies, GA	GA	40,000
SS-GA Clarksville Stream Survey, GA	GA	20,000

APPROPRIATION TITLE: Investigations, FY 2010

Anahola Flood Hazard Study, Kauai, Hawaii, Kauai County, HI	HI	150,000
Kaluanui Stream Flood Hazard Determination, Oahu, Hawaii, State Parks, DLNR, HI	HI	150,000
Nuuanu Reservoir Flood Study, HI	HI	150,000
Waimea River Zone A Flood Determination, Kauai, Hawaii, Kauai County, HI	HI	185,000
Waiohuli Gulch Flood Hazard Study, Kula, Maui, Maui County, HI	HI	200,000
SS-Evaluation of Flooding Scenarios, IA	IA	120,000
SS-Regulated Frequency Curves	IA	150,000
SS Boulder Creek Donnelly, ID	ID	35,000
SS Warm Springs Creek vic of Challis, ID	ID	38,000
SS Warm Springs Creek vic of Ketchum, ID	ID	45,000
SS-IL Levees Evaluation Support, IL	IL	250,000
Will County Survey, IL	IL	400,000
Nodaway County Bridge Study, KS	KS	50,000
Hurricane Evacuation Study, SE Louisiana Update Support Data	LA	100,000
SS-City of Gretna GIS, LA	LA	200,000
SS-East Baton Rouge GIS, LA	LA	450,000
SS-Livingston Parish GIS, LA	LA	650,000
Clay Pit Brook Flooding Study, MA	MA	25,000
Hoosic River Flood Mitigation Study, Cheshire, MA	MA	10,000
Saw Mill Brook Flood Study, Newton, MA	MA	10,000
Spear Brook Flood Control Study, Wilbraham, MA	MA	10,000
Hurricane Evacuation Studies, MD	MD	50,000
AuTrain River Scour Study, MI, MI	MI	71,000
Floodplain Management Training, MO	MO	30,000
SS-Lincoln County, MO	MO	150,000
Jordan, MT	MT	80,000
Nashua Flood Risk Assessment, MT	MT	55,000

APPROPRIATION TITLE: Investigations, FY 2010

North Carolina HES Restudy, NC	NC	50,000
Beaver & Black Brooks Flooding Study, Londonderry, NH	NH	25,000
SS - Manalapan Brook, NJ	NJ	110,000
Elbow Creek, NY	NY	60,000
Forecast Studies, NY	NY	50,000
Hurricane Evacuation Studies, NY	NY	50,000
Onondaga Creek, Syracuse, NY	NY	100,000
Special Study- Finger Lakes, NY	NY	100,000
New Jersey - Port Authority Study Update, NY, NJ	NY/NJ	180,000
Special Study -Crawford County, OH	OH	100,000
SS City of John Day, OR	OR	160,000
SS Crooked River FIS (City of Prineville), OR	OR	140,000
SS Juniper Canyon FIS (City of Prineville), OR	OR	137,000
SS Wahkiakum Co FIS #1 (Gray's River), OR	OR	155,000
SS Wahkiakum Co FIS #2 (Elochoman River), OR	OR	130,000
SS Wahkiakum Co FIS #3 (Wilson Creek), OR	OR	128,000
SS Wahkiakum Co FIS #4 (Skamokawa Creek), OR	OR	128,000
Philadelphia Hurricane Evacuation Study , PA	PA	10,000
Delaware River Profile Comparison, PA, NJ	PA/NJ	15,000
Puerto Rico HES Behavior Study , PR	PR	112,000
South Carolina HES Restudy, SC	SC	50,000
SS - City of Gallatin, TN	TN	85,000
Unincorporated Weber Co., UT	UT	50,000
City of Galax , VA	VA	100,000
SS - Town of Abingdon, VA	VA	56,000
Dam Break Studies, VT	VT	31,000

APPROPRIATION TITLE: Investigations, FY 2010

East Long Pond Dam, VT	VT	50,000
Lake Hardwick Dam, VT	VT	50,000
Mackville Pond Dam, VT	VT	50,000
Nichols Pond Dam, VT	VT	50,000
Rugg Brooks, St. Albans City, VT	VT	75,000
SS - Stevens Brooks, Town of St. Albans, VT	VT	75,000
SS - Vermont, VT	VT	25,000
Warren Lake Dam, VT	VT	50,000
SS Lind Coulee, vicinity of Lind, WA	WA	35,000
SS McCoy Creek, vicinity of Oakesdale, WA	WA	67,000
Bear River Study - Uinta Co., WY	WY	140,000

ACCOMPLISHMENTS: In FY 2008, the Corps was active in 75 special studies in response to requests from Federal and non-Federal agencies, communities, Indian Tribes and individuals for flood-related information, interpretation, and guidance. The requests continue to number into the tens of thousands and involve property valued at billions of dollars. The Corps participated in pre-disaster hurricane evacuation and preparedness studies for high-hazard areas in coastal states and territories; provided support for updating and improving mathematical models of flood plain hydrology and hydraulics; developed training programs in flood plain hydrology and hydraulics; and prepared flood-proofing studies.



APPROPRIATION TITLE: Investigations, FY 2010

2. Collection and Study of Basic Data

c. Other Programs

(4) Hydrologic Studies

SCOPE: The scope of activities under this item is determined annually based on the requests from USACE Commands and Laboratories to meet high-priority needs. These items are not covered under regular Civil Works GI and O&M funding programs. Major activities to be undertaken in the program generally include the collection of basic hydrologic data and the studies of these data for major storm events or certain special hydrologic processes. The information to be derived from this program will improve hydrologic engineering techniques for the planning, design, construction, and operation of water resources projects. The program consists of four sub-items: Storm Studies, General Hydrologic Studies, Sedimentation Studies, and Stream Flow and Rainfall Data.

SUMMARIZED FINANCIAL DATA:

Estimated Five-Year (FY 2010-2014) Program Cost	\$ 1,250,000
Allocation Requested for FY 2010	250,000
Balance to Complete Five-Year Program after FY 2010	1,000,000
Allocation for FY 2009	250,000
Change in FY 2009 from FY 2010	0
Average Annual Allocation for FY 2005-2009	316,600

JUSTIFICATION:

1. Storm Studies: The Storm Studies Program is a continuing investigation of major storms for the purpose of accumulating comprehensive rainfall data. These data are used to refine the regional hydrometeorological information throughout the nation. The up-to-date hydrometeorological information is essential for design of new projects as well as for safety assessment of existing projects. We have substantial need for hydrologic data for initiation and completion of water resources studies. These data are required in the evaluation of flood-producing potentials of river basins, and constitute the major portion of the basic data used in probable maximum precipitation determinations. Funds in the amount of \$50,000 will be required in FY 2010 to work on several storm studies. The need and capability in this area exceeds the requested budget amount.

2. General Hydrologic Studies: Studies under this sub-item include needed improvement in the analysis of rainfall-runoff relationships, flood frequency, snowmelt studies, hydrograph development and routing at selected watersheds, model calibrations in urban areas, analyses of past floods, methods for the hydraulic analysis of non-gaged streams, and other studies of related hydrologic nature. Also included are planned upgrades to the internal Corps system of accounting for gages used largely both of control of water resources projects and also for studies of major hydrologic events. Studies of new techniques to improve the accuracy of hydrologic modeling require additional resources. New radar applications in rainfall-runoff forecast is an ongoing need. Funds in the amount of \$100,000 in FY 2010 will be required to continue this sub-item at a level to insure proper and orderly progress. The need and capability in this area exceeds the requested budget amount.

APPROPRIATION TITLE: Investigations, FY 2010

2. Collection and Study of Basic Data

c. Other Programs

(4) Hydrologic Studies (continued)

3. Sedimentation Studies: The program is a continuing effort in which funds are used for conducting non-project sedimentation studies, and for the Corps share of an interagency sediment investigation program. The sedimentation studies include: promoting and supporting the standardization and development of equipment, criteria and methodology for the collection, analysis of suspended and bedload sediment characteristics of natural streams; and laboratory studies. An amount of \$50,000 in FY 2010 is required to continue the interagency sediment investigation program. The need and capability in this area exceeds the requested budget amount.

4. Streamflow and Rainfall Data: This is a continuing program in which funds are used for installation and operation of hydrometeorology gages of non-project nature that are needed by the Corps in addition to the stations in the cooperative programs conducted by the U.S. Geological Survey and the National Weather Service for the Corps. Additionally, gages are needed to observe historical high water marks for validation of hydrologic models. An amount of \$50,000 in FY 2010 is required to continue the establishment and operation of these special-purpose gages, and to determine historical flooding in urban sites. The need and capability in this area exceeds the requested budget amount.

ACCOMPLISHMENTS

1. Storm Studies: During the period, Corps offices have gathered data on several major storms, reviewed the scope and interim results of ongoing studies by NWS on development of standard project and probable maximum storms at various basins throughout the United States and territories.

2. General Hydrologic Studies: Examples of some of the more important studies accomplished under this program are: determination of rainfall-runoff relationship in urban areas; general hydraulic model calibration; snow cover surveys; and adaptation of hydrologic programs to CADD equipment. Work was completed on the regional frequency studies for Hawaii and data collection was initiated for the State of California. Significant work was also accomplished in assessing the effects of debris in hydrological modeling, particularly in the fire-prone western states.

3. Sedimentation Studies: All of the funds allotted to this sub-item assisted in financing the Corps share of the cooperative Interagency Sedimentation Project at the Hydraulics Laboratory, Waterways Experiment Station.

4. Streamflow and Rainfall Data: Stations funded under this sub-item are generally established and operated several years prior to anticipated authorization for project-type activities, in order to provide a background of observed data on which to base the planning and design of projects. Progress continued at these gage sites to collect hydrometeorological data in flood prone areas to document historical flood and calibration of hydrologic models.

COORDINATION: The storm studies are prepared by USACE commands and are reviewed by the National Weather Services in the preparation of probable maximum precipitation estimates for the Corps. The Interagency Sedimentation Project is conducted cooperatively, and jointly funded, by eight Federal agencies. Information concerning streamflow and rainfall data collection by the Corps under this activity is made available to the U.S. Geological Survey and the National Weather Service.

APPROPRIATION TITLE: Investigations, FY 2010

- 2. Collection and Study of Basic Data
  - c. Other Programs
    - (3) International Waters Studies

SCOPE: The Boundary Waters Treaty of 1909, the Niagara River Treaty of 1950, the Columbia River Treaty of 1961, and other less formal agreements between the Governments of the United States and Canada are concerned with the regulation, control, and use of boundary waters. Under the Boundary Waters Treaty of 1909, the International Joint Commission (IJC) was established and empowered to establish local boards, which conduct investigations and assure adherence to orders of approval pertaining to use of boundary waters issued by the Commission. Corps of Engineers representatives serve on and chair the U.S. Sections of the following IJC Boards: Saint Croix River, Champlain-Richelieu, Lake Champlain, St. Lawrence River, Niagara, Lake Superior, Lake of the Woods, Rainy Lake, Souris-Red Rivers Engineering, Souris River Control, Kootenay Lake, and Osoyoos Lake. Under separate treaties, Corps representatives serve on and chair the U.S. Sections of the Columbia River Treaty Permanent Engineering Board, the Permanent Engineering Board Committee, the Columbia River Treaty Entities, the Columbia River Treaty Operating Committee, the International Niagara Committee, and the International Lake Memphremagog Board. These Boards and Committees hold joint meetings, review report drafts and correspondence, make field inspections, obtain, collect, and analyze hydrologic and hydraulic data, and report their findings to the establishing parties. The degree of study activity varies depending upon the requirements of the Commission or Treaty under which they were established. These efforts assure better control, use, and orderly development of the jointly controlled water resources, and are of importance in attempting to meet water demands resulting from an expanding economy along the United States-Canadian border. Studies are closely related to the Corps of Engineers' Civil Works program and are summarized in the Assistant Secretary of the Army for Civil Works' Annual Report.

SUMMARIZED FINANCIAL DATA:

Estimated Five-Year (FY 2010-2014) Program Cost	\$1,000,000
Allocation Requested for FY 2010	200,000
Balance to Complete Five-Year Program after FY 2010	800,000
Allocation for FY 2009	200,000
Change in FY 2010 from FY 2009	0
Average Annual Allocation for FY 2005-2009	278,200

JUSTIFICATION:

The amount requested for FY 2010 will fund Corps of Engineers participation in assisting the U.S. Government meet its obligations under provisions of boundary water treaties and other international agreements between the United States and Canada. CELRD provides support for implementation of the Niagara Treaty of 1950 that governs the split of Niagara River Waters between the U. S. and Canada, and between the uses of the waters.

APPROPRIATION TITLE: Investigations, FY 2010

2. Collection and Study of Basic Data

c. Other Programs

(3) International Waters Studies (continued)

Northwestern Division engages in activities associated with implementation of the Columbia River Treaty and the Kootenay Lake and Osoyoos Lake Boards of Control. CENWD, together with Bonneville Power Administration and British Columbia Hydro annually develop the Assured Operating Plan and the Detailed Operating Plan for the Columbia River Treaty storage projects. Funds also are used to support the work of the Columbia River Treaty Permanent Engineering Board, including publication of its annual report to the Governments. North Atlantic Division is engaged in support of the Saint Croix River Board of Control and the Gulf of Maine Council on the Marine Environment. Work in the Saint Croix R. Basin involves retrieval and analysis of water data to assure compliance with IJC rules and annual inspection of dams and fish passage facilities.

The Corps will continue to carry out its multiple responsibilities to the various IJC Boards of Control and to the several Treaty entities, boards and committees. During FY 2010, additional flow data will be obtained and used to update the rating curve used to verify compliance with Niagara Treaty requirements. In addition, pursuant to the October 1999 Plan of Study for Lake Ontario regulation improvements, the IJC established the Lake Ontario-St. Lawrence River Study Board. Investigations are continuing as the fifth year of a 5-year effort. A Plan of Study for evaluating the Lake Superior regulation criteria outflows is being developed for approval by Governments. A basin-wide hydrologic and regulation model will be implemented. Special studies related to international impacts of evaluation of endangered species compliance related to Columbia River Treaty projects will be continued by CENWD. CENAD will continue normal work in support of the Saint Croix Board of Control and the Gulf of Maine Council on the Marine Environment. Discussions are ongoing with the IJC on expansion of the IJC's mission to include environmental objectives, as described in the report entitled "The IJC and the 21st Century". The Corps will be supporting the IJC as it executes the reference from the governments regarding investigating the feasibility of establishing a demonstration watershed board and its implementation of the reference on diversion, consumption and transfer of international waters. The need and capability in this area exceeds the requested budget amount.

ACCOMPLISHMENTS:

The Corps Division and District commanders and their staffs met all of their many and diverse responsibilities in representing the United States on the previously listed IJC Boards of Control and Treaty entities, boards and committees. The IJC-sponsored special flood damage reduction study of the Red River Basin was closed without completing the full scope of the planned work because of lack of funds from the United States. CEMVD worked with the International Red River Board on the biota assessment for the Devils Lake basin and also supported an interagency modeling and review effort on the Red River of the North mainstem. CELRD has been very active in multiple Great Lakes IJC boards. CENWD continues to coordinate operations of Libby Dam under the 2001 Libby Coordination Agreement. CENWD participated as part of the U.S. Entity to prepare all Columbia River Treaty required Assured Operating Plans (AOP) and resultant Determinations of Downstream Power Benefits (DDPB). The U.S. Entity finalized the annual Detailed Operating Plan (DOP) that may produce results more advantageous to both countries for the current operating year.

APPROPRIATION TITLE: Investigations, FY 2010

- 2. Collection and Study of Basic Data
  - c. Other Programs
    - (2) Precipitation Studies (National Weather Service)

SCOPE: This is the Hydrometeorological Studies Program conducted for the Corps of Engineers by the National Weather Service (NWS). The Corps transfers funds to NWS who performs analyses of storm rainfall and other meteorological data required to develop hydrologic criteria for use by the Corps in planning, design and water control management of flood control and water resources development projects, and in floodplain management studies.

SUMMARIZED FINANCIAL DATA:

Estimated Five-Year (FY2010-2014) Program Cost	\$ 1,125,000
Allocation Requested for FY 2010	225,000
Balance to Complete Five-Year Program after FY 2010	900,000
Allocation for FY2009	225,000
Change in FY 2010 from FY2009	0
Average Annual Allocation for FY 2005-2009	251,900

JUSTIFICATION: The scientific services provided by the National Weather Service under this program consist of: (1) review of the meteorological aspects of storm data compiled under the Hydrologic Studies Program conducted by the Corps; (2) precipitation depth-duration-frequency estimates for regions and the nation; (4) development of meteorological parameters pertaining to hurricanes, northeasters and other wind phenomena; and (5) other studies necessary to accomplish the Corps mission. Funds in the amount of \$225,000 will be required in FY 2010 to continue the program at a level consistent with Corps needs. The entire cost of the Corps hydrometeorological studies program is funded under this budget item.

With the technology and systems for updating precipitation frequency demonstrated, we now stand ready to update precipitation frequency estimates for the rest of the U.S. and its dependencies. With expected funding of \$225K, efforts in FY 2010 will be to continue the update and revision of the precipitation frequency estimates for the portion of California not already included in NOAA Atlas 14 Volume 1 and continue studies for the U.S. Pacific Islands, Southeastern states, Midwestern states, and Alaska. Additionally, the NWS will be producing areal reduction factors for the U.S. and maintains the Precipitation Frequency Data Server web portal and prepares an annual report on nationwide flooding.

ACCOMPLISHMENTS: With limited funding of \$225,000 in FY09, the NWS completed the update of precipitation frequency estimates for the State of Hawaii and initiated updates and revision of precipitation frequency estimates for the State of California, U.S. Pacific Islands, Southeastern states, Midwestern states, and Alaska. Also, the Precipitation Frequency Data Server (PFDS) web portal was maintained with high availability. PFDS serviced over 50,000 requests for precipitation frequency estimates in FY08. The annual report on nationwide flooding and associated assessment of damages was prepared and delivered.

COORDINATION: This program is fully coordinated with the National Weather Service, Office of Hydrologic Development. For the precipitation-frequency study of the Ohio River basin region, the Corps assisted the NWS to obtain significant cost-sharing from the states in the region. The Corps will attempt to obtain cost sharing from the states and other federal agencies for the remaining states.

2. Collection and Study of Basic Data

c. Other Programs

(8) Remote Sensing Systems Support

This item supports the overall technology transfer requirement of the Corps Civil Works Program for Remote Sensing systems, which is the responsibility of the Cold Regions Research and Engineering Laboratory (CRREL) through its Remote Sensing/Geographic Information Systems (GIS) Center of Expertise.

SUMMARIZED FINANCIAL DATA

Estimated Five-Year (FY2010-2014) Program Cost	\$1,500,000
Appropriation Requested for FY 2010	\$150,000
Balance to Complete Five-Year Program after FY2010	\$1,350,000
Appropriation for FY 2009 * Assumed allocation. Final actual allocations yet to be determined.	\$143,000
Increase of FY 2010 from FY 2009	7,000

JUSTIFICATION:

The Remote Sensing/GIS Center is the Corps' Center of Expertise for Civil Works Remote Sensing and GIS technologies, providing mission essential support as part of the USACE 2012 organization. Through centralized management of this function, the Center provides cost-effective support through technology transfer and applications development for Corps mission responsibilities in all business practice areas: navigation, flood and coastal storm damage reduction, hydropower, regulatory, environment, emergency management, recreation, water supply, and work for others. An enterprise GIS approach is an essential component of this support. Continuing interaction with other researchers and practitioners throughout the Corps, government, the private sector, and academia assures that state-of-the-art and state-of-the-practice knowledge of evolving trends that are relevant to USACE activities are available for the Corps and that duplication of effort is avoided.

Declines in manpower require working smarter, better, and faster. Contributing to this effort, the Center develops approaches for the integration of data from the disparate sources necessary for system wide land and water resources management including: regional sediment management, regional water management, and ecosystem processes and assessment; basin studies; water control; support to emergency management; and compliance with the attendant environmental regulations and related policies. The Center maintains cognizance of state-of-the-art sensors, data collection, analysis, and storage systems, commercial software, and bridging software that integrates these with operational technologies and delivers them to the Corps' divisions, districts, and other agencies' activities. Technology is transferred through telephone and short, no cost assistance to the field. The existence of the Center ensures that the necessary support can be rapidly directed toward solving operational problems that require specialized expertise. The PROSPECT training program in remote sensing and GIS, managed by Center staff, provides another avenue for the transfer of knowledge to those who are, or soon will be, using these technologies. Training also is conducted in the field through workshops, conferences, and distance learning. White papers, pilot projects, Corps and other publications, including Engineering Letters, Circulars, and Manuals, and the Internet, also are used to transfer procedures and lessons learned to end users.

APPROPRIATION TITLE: General Investigations, FY 2010

PROJECTED ACCOMPLISHMENTS IN FY 2010:

1. As the Center of Expertise, served as key resource and technology point of contact for the Corps of Engineers for Civil Works remote sensing and GIS.
2. Provided guidance and technical support to the Corps' Geospatial Community of Practice (COP).
3. Supported one-stop service requests from Corps districts and divisions.
4. Provided technical support to Corps District offices for the development of implementation plans for Geospatial data.
5. Provided leadership and technical support to strategic and enterprise USACE geospatial initiatives.

ACCOMPLISHMENTS IN FY 2009:

1. As the Center of Expertise, served as key resource and technology point of contact for the Corps of Engineers for Civil Works remote sensing and GIS. The team of geospatial experts at the Remote Sensing/GIS Center provided access to required expertise to meet the needs of USACE personnel with questions about imagery or Geographic Information Systems.
2. Provided guidance and technical support to the Corps' Geospatial Community of Practice (COP) and provided leadership to the remote sensing, hydrology, hydraulics and coastal and emergency sub-COPs. A number of the COPs in USACE have technical issues that are related to the geospatial technologies. The Remote Sensing/GIS Center of Expertise funds staff to participate in the activities of the COPs to assure that appropriate linkage to the geospatial technologies is available.
3. Supported one-stop service requests from Corps districts and divisions. The Remote Sensing/GIS Center provides no cost support to USACE elements having problems that can be solved in less than 3 days.
4. Provided leadership and technical support to strategic and enterprise USACE geospatial initiatives: District and Division E-GIS support; National Levee Database development and execution; Missouri River Restoration Project; Geospatial Operations and Maintenance Business Interlink (gORM) development and implementation; Real Estate Management Information System; National Inventory of Dams, Corps Project Notebook, Emergency Management Remote Sensing, GIS, and Modeling Group; and Hydrology and Hydraulics modeling software development and support team member.
5. Provided technical support to Corps District offices for the development of implementation plans for Geospatial data management including development of enterprise of geospatial data approaches. Conducted frequent geospatial technology web-seminars for Corps offices. This supports includes discussions with district personnel concerning current and desired approaches, consideration of what is occurring in all divisions in the district, and enterprise issues.

7 May 2009

**Collection and Study of Basic Data**

**Scientific and Technical Information Centers**

SCOPE:

Five information analysis centers (coastal engineering, cold regions engineering, concrete technology, hydraulic engineering, and soil mechanics) located at the U. S. Army Engineer Research and Development Center provide the major interface between the Corps of Engineers and the public and private sectors to gather and disseminate information as required by PL 99-802, Federal Technology Transfer Act of 1986. The function of each center is to acquire, examine, evaluate, summarize, and disseminate newly published scientific and technical information generated within the Corps of Engineers and other activities in the U.S. and abroad.

SUMMARIZED FINANCIAL DATA:

Estimated Five-Year (FY 2010-2014) Program Cost	\$400,000
Allocation Requested for FY 2010	\$50,000
Balance to Complete Five-Year Program After FY 2010	\$350,000
Allocation for FY 2009	\$48,000
Change in FY 2010 from FY 2009	2,000
Average Annual Allocation for FY 2005-2010	\$60,000

JUSTIFICATION:

Public Law 99-802, Federal Technology Transfer Act of 1986, requires technology transfer from Federal agencies to the private sector. In addition, both the Department of Defense and the Department of the Army have objectives of supporting the information needs of engineers and scientists and eliminating unnecessary duplication of R&D. The specified information centers, supported by their host laboratories, critically evaluate and summarize the technical validity and merits of published and unpublished research and technical publications on design, construction, or other technology utilization. User communities have been well established and distribution lists for technology transfer are continuously updated. Electronic media including the World Wide Web are used where appropriate. The effectiveness of activities and services is evaluated on a continuing basis, and technology transfer products and methodology are revised when appropriate. Priority for services will be given to deployed troops, Corps of Engineers staff, and other government personnel.

These centers are a major technology transfer resource between the public, the US scientific and engineering community, and academia for results of over 75 years of research results conducted by the ERDC laboratories in the fields of soil mechanics and foundation engineering, cold regions engineering, concrete technology, hydraulic engineering, and coastal engineering. Each center is supported by multi-disciplinary technical staff and has a comprehensive library of materials that have been published over the years. In a typical year, each Center responds to hundreds of information requests on subjects within its purview. These services are free to the users. In addition, services such as literature research, information synthesis, publication location, research reviews, and methodology comparisons on subjects of mutual interest to ERDC laboratories and other interested parties are available on a cost-reimbursable basis.



**Collection and Study of Basic Data**

**Scientific and Technical Information Centers (Continued)**

ACCOMPLISHMENTS IN FY 2009:

The Corps has made wide use of the Internet for technology transfer. The Internet is widely accessible by both the public and private sectors and provides rapid transfer, at significant cost savings, of technical data, general information on ongoing studies, technical notes, and ultimately technical reports. Several thousand technical inquires are received annually, with the internet playing a major role in answering those inquires. Inquires are received from Federal, state, and local government activities, universities, private sector engineers and scientists, and citizens. Responses ranged from furnishing a copy of a report, arranging to speak with an expert, furnishing generalized technical advice, or giving updates on technical developments. The Centers also digitized older ERDC research reports of significant technical value and placed them on the internet for access by the public.

<u>Information Analysis Centers</u>	<u>FY 2010</u>
Coastal Engineering	\$10,000
Cold Regions Engineering	10,000
Concrete Technology	10,000
Hydraulic Engineering	10,000
Soil Mechanics	<u>10,000</u>
	\$ 50,000

COORDINATION:

The Information Analysis Centers and their host Laboratories distribute reports, technical notes, computer programs, GIS data, abstracts, information bulletins, and other scientific and technical information to the Defense Technical Information Center (DTIC), Corps libraries, depository libraries, and identified user communities to ensure wide circulation and availability. Homepages are maintained on the Internet for public accessibility. Reports are also available for searching through the Corps Library Program's computer system LS/2000. DTIC publicizes reports through its own DOD database and forwards the reports to the National Technical Information Service (NTIS), Department of Commerce. NTIS places reports into a compendia of Selected Water Resources Abstracts and an annual cumulative edition, with conveniently indexed and cross referenced identification of what is being or has been done in water resources research and related scientific and engineering fields by whom, where, and when.

APPROPRIATION TITLE: Investigations, Fiscal Year 2010

2. Collection and Study of Basic Data

c. Other programs

(1) Stream Gaging (U.S. Geological Survey)

SCOPE: The Corps of Engineers cooperates with the U.S. Geological Survey in this effort, and contributes funds for all or part of the cost of the operation and maintenance of about 2,500 stations that are of special importance to the Corps mission. The Corps established this continuing, cooperative program in March 1928, so that streamflow data would be available to meet special needs concerning the Corps water resources responsibilities.

SUMMARIZED FINANCIAL DATA:

Estimated Five-year (FY 2010-2014) Program Cost	\$3,000,000
Allocation Requested for FY 2010	600,000
Balance to Complete Five-year Program after FY 2010	2,400,000
Allocation for FY 2008	600,000
Change in FY 2008 from FY 2007	0
Average Annual Allocation for FY 2005-2009	594,700

JUSTIFICATION: The Corps of Engineers makes extensive use of streamflow records in the planning, design, construction, and operation of water resources projects. The Basic network of stream gaging stations operated by the Geological Survey under its normal functions without support from the Corps is inadequate to meet all the special needs of the Corps water resource development responsibilities. Accordingly, a cooperative program was established under which funds are transferred to the Survey to cover, partially, the cost of operating specific stations. In the optimum development and management of water resources, it is essential that continuous records of streamflow be maintained at specific sites over a long period of years to provide a reliable measure of water resources available for various uses. This budget item covers only the non-project portion of the cooperative program. To continue the operation of stations of special interest to the Corps, an estimated total of \$16,200,000 will be required by the U.S. Geological Survey during FY 2010, exclusive of funds received from other cooperative sources. The operation and maintenance cost of these stations will be financed from three sources, as follows: (1) \$560,000 appropriated directly to the U.S. Geological Survey for special Corps stations; (2) \$600,000 from this budget item for stations not directly attributed to the Corps projects; and (3) approximately \$15,000,000 from Corps funds budgeted elsewhere for authorized projects and studies. The basic program will remain at the same level as in previous years. The need and capability in this area exceeds the requested budget amount.

ACCOMPLISHMENTS: Records for the streamflow stations supported by transfer of funds are used primarily to operate Federal flood reduction projects. In the past ten years these projects have reduced flood damages by an average of \$21 billion annually. Not only are these gages used by the Corps, but 100 percent of the data are used by the National Weather Service as the basis for its public flood forecasts. In addition, the data are published on the Internet by the Corps and/or in a regular series of reports by the U.S. Geological Survey and provide valuable information for many Federal and state agencies and the public.

COORDINATION: This program is fully coordinated with the U.S. Geological Survey. Costs for conducting the work are compiled by representatives of the Survey to identify a basis for the transfer of funds to that agency.

**Collection and Study of Basic Data**

**Transportation Systems**

SCOPE: The Transportation Systems Program supports USACE Corps Districts and Headquarters personnel in accomplishing their navigation project planning and evaluation responsibilities through the provision of integral information components and technical support. The process of planning improvements for waterway system and harbor navigation projects necessitates consideration of needs, opportunities, benefits, and economic costs associated with placement of project improvements within the context of the project-specific areas as well as within context of the overall national transportation system. The Transportation Systems Program is managed by CECW-P and technically supported by CEIWR and is a continuous, on-going effort to ensure the development of viable and practical analytical techniques, sources of information, tools and methods including the development of deep draft and shallow draft vessel operating and replacement cost data which can be applied by District offices; the provision of timely information regarding world deep draft vessel fleet, commodity, and cargo flow forecasts; the publication of reports documenting the results of research associated with the Transportation System Analysis Program and relevant areas of the NETS Program; the provision of technical services and support to District and Division offices and Headquarters personnel. The goals of the Transportation System Program are as follows: (1) to improve the technical quality and accuracy of navigation planning studies as well as provide for consistency in analytical procedures and technical basis for review across the wide array of planning conditions encountered by District personnel; (2) to improve the strategic planning of navigation system(s) improvements; and (3) to reduce the costs of analysis, planning, and operation of waterborne navigation systems. These goals are accomplished by providing District and headquarters analysts with useful and consistent information, analytical tools, and procedures which result in end products which reflect responsible and prudent investment of Federal civil works funds.

SUMMARIZED FINANCIAL DATA:

Estimated Five-Year (FY 2010-2014) Program Cost	\$ 3,025,000
Allocation Requested for FY 2010	350,000
Balance to Complete Five-Year Program after FY 2009	2,675,000
Allocation for FY 2009	335,000
Change in FY 2010 from FY 2009	15,000
Average Annual Allocation for FY2003-FY2008	\$411,500

APPROPRIATION TITLE: Investigations, FY 2010

## **Collection and Study of Basic Data**

### **Transportation Systems (Continued)**

JUSTIFICATION: Funding for the Transportation Systems program has been repeatedly reduced since FY 04, resulting in a loss of technical resources to support the program. The requested increase in FY 10 funding is necessary to restore lost technical support and to obtain viable vessel operating cost and trade data on an annual basis that is essential for ongoing Corps planning purposes. The \$350,000 requested in FY 2010 for Transportation Systems would be used to update vessel cost and trade models and analyses used for planning and evaluation of ports, harbors, coastal waterways, inland waterway systems, and maintenance or modernization of planning methods and associated computer models to support District navigation studies nationwide. Funds would be used to continue to develop, improve, and provide inland and ocean-going vessel operating costs used to estimate transportation cost reductions or efficiencies (i.e., benefits) for Corps navigation studies; to continue to develop and provide commodity and fleet forecasts of waterborne traffic for deep and shallow draft navigation projects from recognized industry forecasting sources, update deep draft vessel characteristics for use by Corps field planners; provide rail, barge and truck models for use in estimating origin-destination transportation cost savings attributable to Corps projects; and to provide consulting and technical support services to Corps District and Division offices. Increased funding will be essential in future years if the technical and analytical capabilities provided under the Transportation Systems program is to be sustained.

ACCOMPLISHMENTS: FY 2008 and 2009 accomplishments are: Completed update and distribution of shallow and deep-draft vessel operating costs guidance including investigation of life-cycle hull asset costing procedures and practices; updated bunkerage costs with posting to HQUSACE Homepage; continued activities for drafting a deep-draft vessel operating cost applications manual; secured and distributed macroeconomic & transportation forecast information from Global Insight and Informa Economics, Inc.

ACTIVITIES FOR FY2010: FY2010 funds will be used to provide ongoing updates and publication of deep-draft and inland vessel operating costs that were comprehensively updated in FY2009; ongoing update of fuel costs; distribute world trade and commodity flow forecasts (Trade Navigator), integration of the vessel characteristics database; renew contractor subscription materials from Global Insight and Informa Economics, including barge and rail operating cost models, and renew acquisition of databases from Lloyd's Register of Shipping & Clarkson's Research Services.

## **Research and Development**

The Corps must pursue an aggressive R&D effort to take advantage of rapidly developing technologies and techniques that will promote significant monetary savings and greater reliability, safety, enhanced efficiency, and environmental sustainability in planning, design, construction, operations and maintenance of civil works activities.

The Civil Works R&D program is formulated to directly support the established Business Lines of the Civil Works Program including: flood and coastal storm damage reduction, inland and coastal navigation, environment (including natural resources, compliance, mitigation, restoration, and stewardship), water supply, hydropower, recreation, emergency management, and regulatory. The Civil Works R&D needs and requirements are identified based on the current Civil Works Program Strategic Plan, Corps divisions and district input, and the existing WRDA authorities. The R&D effort is a problem-solving process by which the Corps systematically examines new ideas, approaches, and techniques and develops field-ready products. The request for \$16,892,000 of General Investigations funds for the FY 2010 program would accomplish the very highest priority R&D needs. Within the President's budget program is allocated \$2,000,000 for Environmental Benefits Assessment and \$510,000 for deep-draft container ship economic model development. High priority requirements identified through the Chief of Engineers Actions for Change and by Field and HQUSACE proponents are incorporated into the program as funding has become available. Examples initiated in FY 2009 include engineering analysis of the impact of vegetation on levee safety and performance, improved design criteria for flood walls, flood and coastal storm surge risk analyses, engineering models for assessing coastal storm impacts, economic models for analyzing container ships operation at deep-draft ports, developing improved ecological planning models, assessing sedimentation at Corps reservoirs, and improved water supply management technologies,

New in FY2010 is the Water Resources Infrastructure (WRI) Program which consolidates infrastructure related R&D activities formerly under the Navigation and the Flood and Coastal Storm Damage reduction areas. The WRI includes developing facility condition index and asset management tools for Navigation, Flood Damage Reduction, Recreation, and Hydropower projects and infrastructure safety supporting R&D. Some work undertaken focuses on performance based budgeting efforts. Recreation has developed a web-based condition indexing tool as part of its RECBEST budgeting process. Hydropower has begun to implement HydroAMP, an interagency effort focusing on various component condition index tools. Navigation has work units focused on lock and dam condition evaluations and coastal structures asset management decision tools. Flood And Coastal Storm Damage Reduction has Risk and Uncertainty. Dam Safety Risk Assessment Portfolio R&D is included in the new Water Resources Infrastructure Program and includes developing probabilistic models for quantifying seepage and piping, reliability of gates and other operating components, and uncertainties for breaching parameters of embankment dams. We will continue to develop the tools for condition indices for all Corps assets, and expect these tools to be applied to all business lines.

Results of the Corps' GI R&D are directly incorporated into practice within the Civil Works Program through revisions or additions to Engineer Regulations, Engineer Manuals, Technical Guidance Manuals, Engineer Technical Letters, or Guide Specifications. Numerous other means of technology transfer are also used such as training courses, workshops, demonstrations, and other professional contacts. The Corps Civil Works R&D Program provides essential Product Lines with field ready end products and a high return on investment for the Corps, other Federal agencies and the Nation.

AUTHORIZATION: Authorization for ERDC to conduct R&D is codified in 10 U.S.C. 2358 ("The Secretary of Defense or the Secretary of a military department may engage in basic research, applied research, advanced research, and development projects that are necessary to the responsibilities of such Secretary's department in the field of research and development.")

APPROPRIATION TITLE: Investigations, Fiscal Year 2010

## **Research and Development (Continued)**

### COORDINATION:

The Corps conducts Civil Works R&D through the U. S. Army Engineer Research and Development Center (ERDC) and the Institute for Water Resources (IWR). The ERDC consists of seven research laboratories:

- Coastal and Hydraulics Laboratory, Vicksburg, MS
- Cold Regions Research and Engineering Laboratory, Hanover, NH
- Construction Engineering Research Laboratory, Champaign, IL
- Environmental Laboratory, Vicksburg, MS
- Geotechnical & Structures Laboratory, Vicksburg, MS
- Information Technology Laboratory, Vicksburg, MS
- Topographic Engineering Center, Alexandria, VA.

The IWR is located in Alexandria, VA, and its Hydrologic Engineering Center (HEC) in Davis, CA. Policy guidance and executive oversight are provided by the Civil Works R&D Steering Committee co-chaired by the Director of Research and Development and the Deputy Director of Civil Works and comprised of CW division chiefs. The Director of Research and Development is responsible for developing the annual program. The Directors of ERDC and IWR are responsible for execution of the CW R&D program.

In order to most effectively use the limited R&D resources and to avoid unnecessary duplication of research effort, the Civil Works R&D Program maintains external technical exchange and technology transfer efforts with other Federal and major water resource agencies including the TVA, Bonneville Power Administration, Western Area Power Administration, EPA, NSF, Department of Agriculture (NRCS), Park Service, NOAA, DOI (USBR, Forest Service, FWS, USGS, DHS (USCG, FEMA, US Border Patrol), DOT (FHWA, FAA, MARAD), NASA, International Boundary Water Commission, International Joint Commission, DOE (NRC, FERC), the Navy, and state and local governments.

Corps researchers also maintain contact with the research activities of universities and industry through regular membership in such organizations as the American Society of Civil Engineers, the Civil Engineering Research Foundation, the American Concrete Institute, the American Society of Testing and Materials, the International Conference on Coastal Engineering, the American Association of Port Authorities, the American Society for Photogrammetry and Remote Sensing, Society of Environmental Toxicology and Chemistry, the Coastal Society, the Offshore Technology Conference, International Society of Soil Mechanics and Foundation Engineering, U.S. Society of Dams, and International Committees on Large Dams, the International Association for Hydraulic Research, the Association of American Geographers, Western Dredging Association and the International Navigation Association. The Corps also participates extensively with the Transportation Research Board, the Water Science and Technology Board, and the National Research Council in coordinating and leveraging research activities.

**Research and Development (Continued)**

SUMMARIZED FINANCIAL DATA:

Estimated Five Year (FY 2010 - FY 2014) Program Cost	\$125,000,000
Allocation Requested for FY 2010	16,892,000
Balance to Complete Five Year Program after FY 2010	108,108,000
Allocation for FY 2009	26,572,000
Change in FY 2010 from FY 2009	-9,680,000
Average Annual Allocation for FY 2004-FY 2009	26,100,000

The proposed FY 2010 R&D Program is structured to directly support the Civil Works Business Lines, their mission requirements and established performance objectives at project, watershed or river basin scales. The technical foundation of the R&D program includes:

- a. Navigation (including Hydropower)
- b. Flood and Coastal Storm Damage Reduction (including Emergency Management, Water Supply, and Recreation)
- c. Environmental (including Regulatory)
- d. System Wide Water Resources
- e. Basic Research
- f. Water Resources Infrastructure

Navigation (including Hydropower)

The goal of the Corps navigation program is to help facilitate inland and coastal commercial navigation by providing safe, reliable, highly cost effective and environmentally sustainable waterborne transportation systems. A continuing commitment to navigation research supports this goal. The research framework integrates infrastructure engineering, power physics, economics, innovative construction, coastal and riverine hydrodynamics and processes, monitoring and sensing technologies, operations research, environmental solutions, and emerging technologies to create effective solutions in concert with the multiple demands, requirements, and constraints of real world commodity transport and power production problems. Research efforts target navigation channels, locks, jetties, breakwaters, harbors, dams and power plants to optimize among life-cycle and reliability trade-offs, assure a proper economic assessment, and provide better investment decision tools for predicting performance and deterioration with time, and for scheduling and prioritizing maintenance and repairs balanced with the consequences of delays. Essential to this effort is the development of tools for determining the condition of infrastructure components to make risk-based prioritizations for funding. R&D efforts for development of condition index products include: Developing a standardized method and associated computer program for life-cycle engineering analysis of coastal rubble mound breakwaters, Improved Condition Indexing for Coastal Structures, Monitoring of Concrete Navigation Structures, Inspection and Condition Assessment of Steel Hydraulic Structures, and Condition Monitoring and Predictive Maintenance for Infrastructure. Significant investment has also been directed toward developing improved navigation economic technologies are needed to better inform the planning of proposed projects and the management of existing inland and deep-draft navigation systems.

**Research and Development (Continued)**

Flood and Coastal Storm Damage Reduction (including Emergency Management, Water Supply, and Recreation)

Corps projects across the Nation prevent flooding and storm damage. In the daily and seasonal operation of hundreds of Corps projects, national requirements for water supply and opportunities for recreation and environmental stewardship are also balanced. The Nation expects the Corps to guarantee that its existing projects maximize efficiency and effectiveness, and that new projects incorporate the most advanced knowledge and capabilities in planning, design, construction, operation, and maintenance. Through R&D, the Corps develops technology that optimizes daily operations of water resources projects to meet multiple objectives, including water supply and environmental stewardship. Through R&D, the Corps creates new solutions to challenging engineering problems in building, maintaining, upgrading, and operating the Nation's water resources infrastructure such as dams, locks, spillways, and channels. Through R&D, the Corps provides guidance and tools to understand the natural setting of water resource projects, to incorporate environmental & economic objectives, to manage flood risk, to assess alternative solutions, and to make optimal decisions. The technological requirements of emergency management are addressed to make possible the most rigorous planning and preparedness and the most efficient and effective response and recovery.

Environmental (including Restoration, Regulatory and Stewardship)

The Corps has ecosystem restoration and environmental stewardship & management responsibilities on more than 11 million acres of land and water resources. Due to the enormous scope of this mission, it is imperative that Corps field personnel be able to apply the latest technologies for ecosystem restoration and natural resource inventory. The scale of these activities ranges from large projects such as the Louisiana Coastal Area and the Everglades down to much smaller, local wetlands/stream restoration projects. The broad scope of these environmental activities (as well as the frequent changes to the legislative mandates that govern them) demands sound research and development to address these critical needs. The goal of this R&D is to provide cost-effective/innovative technologies for project planning, design, engineering/construction and operation/maintenance. Product lines include: Ecosystem Restoration, Ecosystem Functional Assessment (with an emphasis on Environmental Benefits Analysis) and Environmental Stewardship and Management. Products include concise, how-to guidance documents that provide rapid/low-cost technologies and methods for high priority field needs as well as sophisticated ecological process assessment models. This technology is critical to the success of the Corps' Ecosystem Restoration business line.



## **Research and Development (Continued)**

### System-Wide Water Resources

The goal of System-Wide Water Resources R&D is to provide the Corps of Engineers and its partners with the capabilities to balance human development activities with the natural system in a sustainable manner through regional management and restoration of the Nation's water resources over broad temporal and spatial scales. The capabilities provided include science-based water resource management methodologies, implementation guidance, computational frameworks and technologies, and decision support. These capabilities are built from sound scientific principles reflecting an improved understanding of inter-relationships among key system attributes such as hydrology, hydraulic processes, geomorphology, chemistry, ecology, and socioeconomic. Capabilities will be served via a seamless, integrated architecture allowing projects to be considered at multiple scales during project planning, design, construction, operation, and maintenance. R&D emphasis in this area is on developing assessment technologies for water resource operations affecting flood damage reduction and stream restoration technologies, regional sediment management, aquatic ecosystem management, assessment and restoration technologies, and regional and corporate frameworks for data collection, management and analysis. Each of these efforts is being pursued through extensive partnering and collaboration with federal and state resource management agencies, academia, and the private sector. There is active technology transfer through workshops and demonstration projects.

### Basic Research

The objective of the Civil Works Basic Research area is to gain greater knowledge and understanding of the fundamental aspects of phenomena related to water resources. This effort will consist of farsighted and higher risk research with the potential for broad applications. Basic Research in Civil Works (BR) is structured to provide physical, engineering, environmental, social, and life sciences support to the major Corps of Engineers missions of reducing flood and coastal storm risk; facilitating navigation; and restoring and sustaining the environment.

### Water Resources Infrastructure

Improved condition indexing and asset management of Navigation and Flood and Coastal Storm Damage Reduction facilities includes technologies for risk-based evaluation of structural components such as jetties, breakwaters, locks, dams, gates, levees, dunes, dikes, and walls. This work is conducted in collaboration with the National Dam Safety - Portfolio Risk Assessment, Flood Project Inventory, and Levee Safety Programs. Advancements in understanding the role of geotechnical properties, hydrodynamic loading, material fatigue, structure aging, and life-cycle O&M in contributing to dam and levee safety, performance, and reliability will be developed. These will be coupled with improved methodologies for inspection and condition evaluation as well as a need to develop better methods for determining the reliability of water resource systems.

APPROPRIATION TITLE: Investigations, Fiscal Year 2010

**Research and Development (Continued)**

PROJECTED CIVIL WORKS R&D FUNDING ALLOCATIONS (FY 08-09))

<u>BY RESEARCH AREA</u>	<u>FY 2009 ALLOCATION</u>	<u>FY 2010 FUNDING</u>
a. Navigation (including Hydropower)	\$ 5,633,000	\$ 3,439,000
b. Flood and Coastal Storm Damage Reduction (including Emergency Management, Water Supply, and Recreation)	\$ 4,487,000	\$ 2,714,000
c. Environmental (including Regulatory)	\$ 4,200,000	\$ 2,597,000
d. System Wide Water Resources	\$ 8,875,000	\$ 6,083,000
e. CW Basic Research	\$ 1,282,000	\$ 1,689,000
f. Water Resources Infrastructure	\$ 2,095,000	\$ 370,000
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	\$26,572,000	\$ 16,892,000

<u>BY CW BUSINESS LINE</u>	<u>FY 2009 ALLOCATION</u>	<u>FY 2010 FUNDING</u>
a. Navigation	\$7835	5219
b. Flood & Coastal Storm Damage Reduction	\$10559	6080
c. Environmental	\$ 8178	5593
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	\$26,572,000	\$16,892,000

APPROPRIATION TITLE: Investigations, Fiscal Year 2010

**Research and Development (Continued)**

a. Commercial Navigation

SUMMARIZED FINANCIAL DATA:

Estimated Five-Year (FY 2009-2013) Program Cost	\$31,400,000
Allocation Requested for FY 2010	3,439,000
Balance to Complete After FY 2010	NA
Allocation for FY 2009	5,633,000
Change in FY 2010 from FY 2009	-2,194,000

JUSTIFICATION:

The U.S. Marine Transportation System (MTS) consists of over 300 ports, 1,000 harbor channels, and 25,000 miles of navigation channels. The MTS is already operating at near-full capacity in many areas and is being challenged by new vessel designs and traffic loads that exceed its channel, harbor, and lock capacities. Over 50 percent of the Corps' 191 lock sites (240+ locks) have been in service for more than 50 years. Research and Development (R&D) can help reduce the costs associated with delays due to both scheduled and unscheduled repairs, as well as reduce the risk of catastrophic failure of a major infrastructure component.

The R&D navigation program area provides advanced and innovative tools and technologies to improve navigation functional performance, reduce unit costs, and improve safety. The program works to improve project planning by providing more robust, reliable, and comprehensive capabilities to assess the economics and effects of alternative plans for projects. R&D also improves the ability of the Corps to design, construct, operate and maintain inland and coastal navigation projects in all climates, from warm to ice-affected. The program also is working to improve system reliability by developing an asset management framework that will help extend project life and reduce life cycle costs. Engineering, economics, and environmental aspects are integrated in the development of processes and design models, economic models and decision support software, infrastructure condition assessment techniques, and economic and risk analysis frameworks, infrastructure and design guidance, and innovative monitoring, operation and maintenance technologies.

**Research and Development (Continued)**

a. Commercial Navigation (continued)

FY 2010 PROPOSED ACTIVITY:

- Complete initial upgrade to Bousinesq Modeling Toolbox (BMT) which will increase accuracy of wave and current predictions in channel and harbor design, increasing vessel and operator safety and quantifying impacts to adjacent shorelines and structures.
- Complete Coastal Structure Design Toolbox for Major Rehabilitation studies, allowing accurate and rapid design of breakwaters that includes optimizing life cycle costs.
- A digitally based Coastal Structure Condition Index form will be completed along with accompanying documentation that will greatly facilitate performance based budget decisions for repair of jetties and breakwaters
- Develop preliminary design and engineering methodologies for deformable bull nose system (dbns) for lock approach walls, which, when complete, should greatly reduce barge train breakups during impacts with lock approach structures, saving millions of dollars in damage to navigation dams and reducing fatalities.
- Complete initial design of a lock miter gate instrumentation plan, which, when complete and the sensors installed, will allow 24/7 monitoring of stresses in meter gates, significantly reducing the likelihood of unscheduled lock outages due to miter gate failures and associated navigation delays.
- Complete initial evaluation of non-linear acoustic technique for use in finding microcracks in the underwater portion of steel navigation structures. If successful, this tool when fully developed would allow some inspection of navigation lock gates to be done without de-watering, resulting significant cost reductions and greatly reducing disruptions to inland navigation traffic.
- Develop the capability to automatically collect and send via the Automated Identification System (AIS) messages on lock and environmental conditions to approaching tows, greatly increasing safety and efficiency of inland navigation around Corps locks.
- Complete an improved container traffic model developed in FY09 and test, with future fleet forecasting and container movements investigated. As appropriate, training material and training will be conducted to move the research to the Planning Center of Expertise for Deep Draft Navigation, resulting in an improved and consistent basis for making decisions on improving channels to ports with large volumes of container traffic.
- Complete test application and evaluation of numerous cavitation resistant coatings for hydro turbine blade surfaces, and identified those whose widespread application should allow for decreased hydropower plant maintenance of outage work and increased time between maintenance outages

FY 2009 ACCOMPLISHMENTS:

- Improved the accuracy of engineering formulation/methodologies to design flexible lock approach walls through the interpretation of the Full-Scale barge impact tests conducted in FY08 and thereby reduce design and construction costs.
- Developed more rigorous computational methods for rapid evaluation at a much lower costs (tens of thousands instead of hundreds of thousands of dollars) of hydraulic structure design alternatives with emphasis on lock filling and emptying components.
- Validated, implemented, and documented new response amplitude operator (RAO) technology in the Ship Tow Simulator to provide information that will help quantify risk and uncertainty and cost for the design of navigation structures as well as assess safety for deep-draft vessels.
- Improved computational modeling capability for turbulence near free surfaces, moving vessels, and navigation structures so more complex design and operational guidance can be available for life cycle management and risk informed decisions.
- Completed comparison of simple and complex reliability/life-cycle analysis methods and associated reports for coastal structures to provide project

APPROPRIATION TITLE: Investigations, Fiscal Year 2010

- management with the information necessary to plan long term operation and maintenance requirements.
- Completed the beta version of the Navigation System Simulation (NASS) Model that provides the Corps with the ability to conduct inland waterway system optimization over time while considering reliability.
- Completed NETS including a beta version of the HarborSym model for evaluating channel deepening projects for bulk carriers, allowing more accurate estimates of project benefits and improved decisions
- Completed beta versions of several tools that support a consistent method for predicting improvements to container ports. As much of the economic justifications for expensive harbor deepenings are based on container traffic, a sound, consistently applied model for predicting container traffic changes based on deeper and wider channels is critically needed.
- Developed methods and capabilities to create and modify hydroelectric generator reactive capability curves which will reduce the costs of compliance with electric power system reliability requirements considerably for Districts with hydropower functions.

**Research and Development (Continued)**

b. Flood and Coastal Storm Damage Reduction

SUMMARIZED FINANCIAL DATA:

Estimated Five-Year (FY 2009-2013) Program Cost	\$20,000,000
Allocation Requested for FY 2010	2,714,000
Balance to Complete after 2010	NA
Allocation for FY 2009	4,487,000
Change in FY 2010 from FY 2009	-1,773,000

JUSTIFICATION:

The Corps of Engineers is responsible for more than 600 dams, operates over 400 major lakes and reservoirs, maintains 8,500 miles of levees, and has over 100 coastal storm-damage reduction and related projects associated with its Flood and Coastal Storm Damage Reduction mission. Flooding that occurs in the United States costs about \$4 billion annually. Without the Nation's investment in flood and coastal storm damage reduction infrastructure through the Corps, that cost would be many times higher. Over the years, Corps flood protection projects have prevented an estimated \$706 billion in damages, most of that within the last 25 years. The cumulative cost of building and maintaining these projects to date is \$119 billion; therefore, every dollar spent on flood protection has prevented more than six dollars in damage. Despite this protection, annual damages in flood plains continue to rise due to changes in land use and urban development. In addition, the 2000 census showed that more than 50% of the US population lives within 50 miles of a coast and is therefore vulnerable to dangerous coastal storms and costly flooding. Consequently, over the past several years, Federal shore protection expenditures increased to more than \$100 million per year to protect the public and related economic investments.

The Corps manages existing water resources projects around the country to maintain a flood-protection infrastructure for the public's welfare. Simultaneously, the Corps balances requirements for hydropower, water supply, environmental stewardship, and recreation. As enabling technologies are developed, the Corps must upgrade and improve water resource projects, use the most advanced capability to assess the risk of alternative operational scenarios, and apply robust, reliable, and comprehensive capabilities to assess the economic and environmental effects of alternative plans for projects and to select the most balanced and sustainable solutions. R&D delivers efficient and effective capabilities to plan, design, construct, operate, maintain, and improve water resource projects in all climates and settings, from warm to ice-affected, and from inland to coastal.

Capabilities that prevent loss of life, minimize property damage, and reduce the life-cycle costs of projects are critical. These capabilities include advanced processes and design models, economic models and decision support software, infrastructure condition and risk assessment tools, infrastructure design guidance, innovative operation and maintenance technologies, flood-alert instrumentation and expedient emergency response capabilities, and the capability to take advantage of new real-time data sources (e.g. precipitation radar) to accurately forecast real-time flow and stages. Other high priority research needs specific to Flood and Coastal Storm Damage reduction, and as identified through the Chief of Engineers' 12 Actions for Change are being incorporated into the R&D program as funding becomes available.

**Research and Development (Continued)**

b. Flood and Coastal Storm Damage Reduction (continued)

This R&D component provides advancements in hydrologic and hydraulic simulation, water resources project optimization, tools for effective alternative analyses for solutions, infrastructure safety, structural design and performance, and assessment of the risk and uncertainty associated with project designs. This R&D component also improves the technology available to emergency managers for emergency planning, preparedness, response, recovery, and assessment.

FY 2010 ACTIVITY:

- Complete development of planning tools for flood impact assessment and flood damage reduction project cost optimization including an integrated road damage-transportation delay model, and cost calculator for nonstructural flood proofing measures
- Enhance operational water management models to include reservoir capacity curve definition for hydropower and firm yield calculation, improved hydrologic snowmelt prediction, and non-stationary adjustment of hydrologic statistics
- Develop stochastic prediction capability for computationally efficient long-term river morphology change simulations for structural performance and environmental assessment
- Release hurricane modeling framework with improved model physics and computational efficiency for evaluation of storm damage reduction alternatives and coastal risk assessment
- Develop risk and uncertainty assessment guidance for existing flood damage reduction projects to include data analysis and model application methods, and recommend improvements to existing models and risk assessment methods
- Improve loss of life estimation from dam and levee breaches by advancing tools for prediction of breach width evolution and inundation event hydraulics, and initiate development of warning, social response, and fatality rate criteria necessary for improved loss of life prediction accuracy
- Develop and validate computational model to predict pulsating loads (i.e., wave loads) on floodwalls imbedded within coastal earthen levees for improved project design and performance assessment

FY 2009 ACCOMPLISHMENTS:

- Developed initial versions of planning tools for estimating flood damage costs to roads based on enhanced road damage functions, estimating cost for non-structural flood proofing measures and plan formulation, and ecosystem restoration project benefit-cost optimization
- Obtained USACE Planning Model Improvement Certification for coastal storm damage reduction assessment and flood damage assessment models.
- Developed software framework to coordinate and control hydraulic and hydrologic model execution and data exchange, and enhanced model capabilities and decision support tools for improved reservoir system management, floodplain delineation, and watershed assessment studies
- Developed initial version of physics based engineering hurricane modeling framework for improved storm impact predictions, and initiated development of storm climatology risk assessment decision support tool
- Completed development and conducted a technology demonstration of a prototype rapidly deployed real-time flood monitoring system integrated with Corps Water Management System, and a non-invasive rapid condition assessment tool for earthen flood damage reduction projects
- Developed guidance for river restoration structures on ice affected rivers, innovative streambank protection measures in urban settings, and generalized stream bank protection and grade control guidance, and improved computational modeling capability for river structure performance assessment over project lifecycle timescales
- Validated a suite of surface water and groundwater models for water supply analysis application and developed standardized applications guidance
- Developed reservoir sedimentation database to assess extend of sedimentation impact, nation-wide, and compiled regional sediment management best practices to extend the functional and economic project life

**Research and Development (Continued)**

c. Environmental

SUMMARIZED FINANCIAL DATA:

Estimated Five-Year (FY 2009-2013) Program Cost	\$15,000,000
Allocation Requested for FY 2010	2,597,000
Balance to Complete after FY 2010	NA
Allocation for FY 2009	4,200,000
Change in FY 2010 from FY 2009	-1,603,000

JUSTIFICATION:

Since the Water Resources Development Act of 1986, there have been dramatic increases in authorized ecosystem restoration studies, projects and programs. At the same time, the Corps has continued to operate and maintain 25,000 miles of inland and coastal navigation waterways, 5,500,000 surface acres of reservoirs, 237 navigation locks, over 1300 ports and harbors, 75 hydropower projects, 879 flood control projects, and thousands of acres of adjacent lands as part of its water resource mission. Wide-ranging environmental compliance, management, and restoration efforts have become crucial parts of the Corps water resource management mission. The Corps must consider environmental issues related to the operation and maintenance of its existing projects as well as the restoration of degraded ecosystems. In addition, the Corps must proactively address potential negative environmental impacts resulting from proposed activities. This research area addresses the Corps' highest priority environmental issues through the development and application of state-of-science, cost-effective, time-saving technologies including: 1) engineering & biological technologies for the quantitative benefits assessment of aquatic resources, 2) guidance for improved restoration techniques of rivers, streams and riparian zones, and 3) standardized design criteria for wetlands and special aquatic site restoration projects. These user-oriented products will provide scientifically-defensible / field-validated solutions to the Corps' highest priority environmental problems. They will also reduce unnecessary regulatory burdens, provide environmental benefits, and maintain a high return on taxpayer investment.

Quantifying the environmental benefits / ecological outputs of proposed Corps ecosystem restoration projects is essential for decision makers to be able to select those projects that will yield the highest social, economic and environmental services. The scientific community has criticized current state-of-the-science assessment approaches regarding the underlying model assumptions, oversimplified relations, excessive data requirements, complexities in integrating impacts, and the lack of meaningful metrics to permit biologically-effective decisions. Moreover, current assessments are static and frequently insensitive to important system dynamics, not applicable across multiple scales, and incapable of predicting future conditions. Corps decision makers need robust assessment tools that incorporate modern ecosystem principles, are easy to apply, offer significant user flexibility to meet individual project requirements, and that provide output quantifiable relevant to the Corps' Performance Measures. These environmental benefits analysis tools will be provided in brief user-focused technical guidance documents, web-based decision support systems, classroom & CD/internet based training, and product technical support as required. Additional high priority research and investments in developing Ecosystem Planning Models and in Submerged Aquatic Vegetation research will be conducted as funding becomes available.



**Research and Development (Continued)**

c. Environmental (continued)

FY 2010 ACTIVITY:

- Develop links between physical process models and environmental analysis tools (e.g., hydrogeomorphic) for ecosystem restoration projects.
- Develop a conceptual model builder for Corps Planners
- Develop adaptive management strategies for ecosystem restoration project
- Develop a database of reference ecosystems throughout the US
- Provide a retrospective benefits assessment for Corps ecosystem restoration projects
- Provide guidance that links chemical and biochemical processes to ecological outcomes/outputs
- Develop conceptual models for streams, riparian corridors, non-tidal wetlands, coastal wetlands, estuaries and lakes
- Develop and demonstrate tools for rapid collection of spatially-explicit environmental data

FY 2009 ACCOMPLISHMENTS:

- Develop guidance for selecting environmental benefits metrics for planning and prioritizing ecosystem restoration projects
- Develop guidelines for articulating risk and uncertainty in ecosystem restoration projects
- Identified and documented key thresholds that must be met for a successful ecosystem restoration project
- Provide guidance on the role of conceptual models in environmental benefits analysis
- Provide guidance for characterizing alternative strategies for environmental benefits analysis
- Developed tools for quantifying and presenting outputs from ecosystem restoration projects
- Provided a PC-based GIS tool for integrating and displaying results from environmental benefits analysis models.
- Demonstrated new strategies for quantifying cumulative benefits from multiple projects for both estuarine and riverine systems

**Research and Development (Continued)**

d. System-Wide Water Resources.

SUMMARIZED FINANCIAL DATA:

Estimated Five-Year (FY 2009-2013) Program Cost	\$16,300,000
Allocation Requested for FY 2010	6,083,000
Balance to Complete after FY 2010	1,342,000
Allocation for FY 2009	8,875,000
Change in FY 2010 from FY 2009	-2,792,000

JUSTIFICATION:

In view of the importance of sustainability in water resources management, the Corps is adopting a watershed or basin-wide approach, which adds a system-wide perspective to project planning, design, operations and maintenance activities. This spatially expanded perspective is necessary because water resources projects and resultant changes in land/water use have consequences well beyond project footprints. Key to sustainability is the balance among environmental, economic and societal concerns. The System-Wide Water Resources component of the Civil Works GI R&D Program is designed to provide the Corps with the technical capabilities required to meet its mission responsibilities at project, watershed, and large basin scales, while effectively engaging stakeholders and decision makers with potentially competing interests (e.g., environmental vs. economic).

Wide-ranging proactive environmental compliance, management, and restoration efforts are an integral part of the Corps responsibilities in water resources management. Recent U.S. figures have estimated \$16 billion per year in damages caused by point- and non-point-source pollution, with up to 1 billion tons per year of eroded soils and industrial and agricultural contaminants being deposited in the Nation's waterways. These impacts are severely affecting multiple project uses, impeding navigation, impeding ecosystem restoration efforts, and negatively affecting human and ecological health. An integral part of the Corps' mission is to ensure that project planning, construction, operation, and maintenance activities solve critical environmental problems, while ensuring economic viability and societal acceptance. The System-Wide Water Resources component is providing, at a regional scale, scientifically proven and demonstrated solutions to the Corps' highest priority environmental problems, reducing unnecessary regulatory burdens, and providing environmental benefits, while maintaining a very high return on taxpayer investment. The broadened focus of this research, which addresses systemic water resource management issues, will enable the Corps to more effectively meet legal requirements such as the National Environmental Policy Act (NEPA) and the Endangered Species Act (ESA).

Maintaining navigable waterways and flood channels in the face of continuing sediment deposition consumes a substantial portion of the Corps' budget. More effective sediment management on a regional scale can reduce dredging costs and potentially adverse environmental impacts by diverting sediment from channels and into deposition zones. Sediment and associated nutrients/contaminants also have important effects on the environment. Thus, a better understanding of sediment processes in an environmental context is critical in relation to habitat and water quality concerns regionally. Also, attention to sediment processes in the Corps O&M program will improve cost effectiveness in planning and designing navigation projects, estimating channel shoaling, locating optimum dredged-material placement, and assessing the impact of navigation projects and structures on adjacent waters, shorelines, and downstream areas.

**Research and Development (Continued)**

d. System-Wide Water Resources (Continued).

Decision makers both within the Corps and among stakeholder organizations require accurate and reliable data for the effective planning, design, construction, operation, maintenance, and rehabilitation of projects. Annual expenditures for collection, analysis, and management of geospatial data alone are estimated to average almost \$200 million. This component of the overall Program will provide significant savings, owing to the development of more effective and efficient data collection, management, and exploitation technologies. To further reduce costs, a new framework approach is being developed to integrate and manage data and decision support software in a consistent, corporate manner. The developed information framework will integrate many of the data, technologies, models, and decision support tools across the Corps' business activities for the many different communities of practice that support regional water resource management activities. The framework will include all aspects of informatic development, including but not limited to automated information systems, information security, enterprise GIS, metadata standards, model/decision support tool interoperability, data visualization, and knowledge management.

As new and innovative technologies and methodologies are developed in this component, it will be critical to transfer information concerning these innovations to the Corps, other Federal, state, and local agencies, and to the public as quickly and efficiently as possible so that they can be effectively applied. It will be equally important to validate the applicability of the innovative technologies through demonstrations, which are a key element of this component. Examples include innovative use of remote sensing for environmental monitoring and satellite linked GIS/GPS laptops to assist with onsite environmental analyses that can be connected quickly on a system scale.

The System-Wide Water Resources component of the Program will continue to develop and deliver technology to support decisions that are scientifically, technically, and economically sound in formulating and executing watershed projects. The products of this component serve a wide variety of needs and interests, ranging from decision makers to technical specialists to stakeholders and partners. New technologies are being delivered to users via the Internet in a consistent, yet personalized, web-based format, together with tutorials explaining their characteristics and use. Analytical tools provided by this component serve a range of needs, ranging from screening level assessment capabilities to detailed numerical models. Many tools will be interconnected with standard linkages. The scientific rigor of these tools continues to increase with gains in scientific knowledge, as part of the continued maintenance and upgrading of capabilities. Research needs specific to an integrated and comprehensive systems approach as identified through the Chief of Engineers' 12 Actions for Change will be incorporated into the R&D program as funding becomes available.

**Research and Development (Continued)**

d. System-Wide Water Resources.

FY 2010 ACTIVITIES

- Deploy decision support systems for water resources management
- Deploy geospatial toolkit for watershed assessments
- Deploy suite of data management tools for multiple databases
- Deploy remote sensing tools for ecosystem, watershed, riverine, estuarine, and coastal assessments
- Deploy suite of watershed modeling tools with sediment and nutrient transport capabilities
- Deploy watershed hydrology and transport models coupled with vegetation models
- Deploy suite of ecosystem forecasting models
- Deploy suite of groundwater modeling tools
- Deploy coupled 1D and 2D reservoir models
- Deploy suite of riverine hydraulic models with sediment and nutrient transport
- Develop enhanced interoperable modeling system for water supply assessments
- Develop enhanced interoperable modeling system for sediment budget and reservoir sedimentation assessments
- Develop enhanced water resource assessment tools with interoperability to climate variability models

FY 2009 ACCOMPLISHMENTS

- Developed alternative analysis methods for efficient sequential design and placement of ecosystem restoration projects for multi-project and large-scale systems (e.g., coastal Louisiana, Upper Mississippi River, Everglades).
- Demonstrated data management tools for large-scale complex and multi-dimensional hydrodynamic model applications.
- Expanded agent-based ecological modeling for sturgeon passage in large river systems
- Demonstrated tiered approach for ecohydrology and ecohydraulics applications in large river systems for assessing operations and management activities.
- Demonstrated sediment transport in rivers associated with episodic events (e.g., dam removal and watershed fires).
- Incorporated 3-dimensional surface water and ground water interactions for wetting and drying dynamics and nutrient cycling and transport.
- Developed nested watershed modeling approach for integrating issues of scale and complexity.
- Demonstrated multi-dimensional hydrodynamic and gridded stream habitat restoration assessment tool for river restoration design.
- Developed initial methodologies for regional sediment management for reservoirs
- Developed initial methodologies for water budget analysis
- Developed initial methodologies for incorporation of climate variability analysis into water resources assessment tools

**Research and Development (Continued)**

e. Basic Research.

SUMMARIZED FINANCIAL DATA:

Estimated Five-Year (FY 2009-2013) Program Cost	\$10,000,000
Allocation Requested for FY 2010	\$ 1,689,000
Balance to Complete after FY 2010	NA
Allocation for FY 2009	1,282,000
Change in FY 2010 from FY 2009	407,000

JUSTIFICATION:

Initiated in FY 2008 at the recommendation of Civil Works business area managers and R&D managers, the Civil Works Basic Research program is structured to meet needs not in the current overall R&D structure. The Corps R&D structure emphasized applied research and demonstration activities. The objective of the Civil Works Basic Research program is to gain greater knowledge and understanding of the fundamental aspects of phenomena related to water resources. This effort will consist of farsighted and higher risk research with the potential for broad applications. Basic Research in Civil Works (BR) is structured to provide physical, engineering, environmental, computational, social, and life sciences support to the major Corps of Engineers missions of reducing flood and coastal storm risk; facilitating navigation; and restoring and sustaining the environment. Successful investigations could lead to subsequent applied research and technology advancement and improved functional capabilities in water resources science and engineering. The laboratories will conduct basic research that challenges accepted theory or empirical assumptions. The BR program began modestly in FY2008 with \$550,000. Three activities were started in FY08 specific to the fundamental nature of how the dynamics of currents and waves interact with vegetation, social cognitive modeling and risk analysis related to flood risk management, and electrokinetic transport in concrete. The BR program intends to commit \$1,689,000 (or 10% of the R&D budget) for basic research in FY 2010. It is expected that a research work package will last no more than 3 years.

Focus areas for Civil works Basic Research are listed below and will form the basis for soliciting and prioritizing proposals for basic research activities performed by the laboratories and centers.

1. **Computational and Information Sciences.** Basic research in the computational and information sciences could support the Corps' full range of water resource management disciplines and activities. The supported disciplines include surface water and groundwater hydrology, open channel hydraulics, coastal hydrodynamics, sediment and constituent transport, geotechnical and structural engineering, and environmental science and engineering. The central themes addressed in this focus area include, but are not limited to 1) human/computer interface design optimization, 2) intelligent problem solving techniques and environments, 3) temporally- and spatially-variable model integration, 4) novel approaches to reduce computational burdens in discrete- and continuum-based process models, 5) defining and bounding uncertainty across water resource.

## Research and Development (Continued)

### e. Basic Research (Continued).

2. **Human Dimensions of Water Resources Management and Decision Making.** The most challenging problems facing the Corps' Civil Works program are the result of a complex web of science, engineering, and human factors. While significant emphasis has historically been given to resolving the science and engineering questions at the heart of these problems, it is increasingly apparent that limitations in our understanding of how people conceptualize, interpret, and respond to problems represents a significant impediment to successfully resolving water resource problems. In addition, social processes including human behavior and economic trends will affect and be affected by our projects and their performance. The human dimensions of water resource management and decision-making includes basic research in 1) the cognitive science of decision making, 2) interpretation and use of multi-attribute risk information in problem solving, 3) risk perception and communication, 4) cognitive barriers to human acceptance of new technology, 5) governance and public involvement in decision making, 6) human interactions with technology to facilitate public decision processes, 7) conflict avoidance and resolution, 8) economic/demographic impacts on water resources.
3. **Material and Transport Processes.** The Corps capability to analyze, plan, engineer, and operate its water resource projects is depends on the extent of knowledge of the physics of material and transport processes. In this context, *materials* include fluids (e.g., air, water, and ice), sediment, soil, chemicals, temperature, biomatter, and others. This focus area is concerned with investigations into material processes both locally and in transport. Local material processes are independent of material movement. Examples of local process are: ice formation, sediment consolidation, and changing water chemistry. Transport processes depend on material movement. Examples of transport processes are ice and debris movement, vegetation impacts on hydraulics, water quality of watershed, erosion processes, and deposition of biomatter. Material interactions are considered as well where one material interacts with another such as in air-sea interaction; surface water-groundwater interaction; terrain response to physical processes, and ice-soil interaction.
4. **Ecological Processes.** Ecological processes span the entire spectrum of interactions between the biological, physical and chemical components of the ecological community. This basic research focus is on formulating and quantifying the underlying theories necessary to explain and predict the long term sustainability of land and water resources through relatively short term tests and observations. The principles of data integration and assessment technologies to accommodate a variety of spatial and temporal scales from multiple land use and management activities are additionally of concern. Potential areas of interest include but not limited to: Physio-Chemical Impacts on Biological Systems, Species Interactions and Requirements (particularly Threatened and Endangered), Ecological Simulation Technologies, Environmental Recovery, Organism Behavior and Physiology, and Nutrient Cycling.
5. **Structures and Infrastructure Systems.** This focus area is concerned with fundamental processes that cause the deterioration of construction and geological materials (e.g., steel, concrete, and soils) and component elements of major structural features (e.g., locks, dams, breakwaters, and other water control structures). As these structures age, static and dynamic loadings, corrosion, biological and other forces (e.g., ice, waves, vibrations, and object impacts) reduce the strength of the materials and the resistance of the structure to service and extreme loads. Because the population of existing projects exceeds our ability to conduct major rehabilitation, the primary emphasis is on rapidly detecting, arresting and remediating deterioration of our infrastructure. Of particular interest at this time are basic research proposals relating to the impact of piping and seepage and vegetation in compromising or deteriorating the condition of levees and/or dams.

**Variability and Change in Water Resource Systems.** Watersheds and coastal systems are spatially and temporally dynamic and variable. This includes the influences of scale, changing climatic, geographic, environmental, and anthropologic drivers. The interconnectivity and changing balance of natural and modified water systems will impact future water resource science and engineering management. Basic research is needed in the sensitivity and

**Research and Development (Continued)**

e. Basic Research (Continued).

interrelationship of those physical and human systems as they impact the performance and sustainability of USACE mission functions. Specific areas of potential research relate to, changing patterns in precipitation, snow cover, and coastal storms, water quality and quantity stressors, meteorological contributions to landscape evolution, and ecological and human interactions. Basic research proposed under this focus area should not be redundant of the wealth of scientific research being conducted on the causes of or documenting climate change, but rather directed toward the effect of change to water resource management.

FY 2010 ACTIVITIES:

- Complete research package on dynamics of currents and waves interact with vegetation,
- Complete research package on social cognitive modeling and risk analysis related to flood risk management,
- Complete research package on electrokinetic transport in concrete
- Initiate 2-3 new research projects
- 

FY 2009 ACCOMPLISHMENTS:

- Initiated four new Basic Research program projects in the focus areas described above.
- Continued a basic research project to determine the fundamental nature of how the dynamics of currents and waves interact with vegetation. The goal of this project is to significantly improve the “state-of the art” in the physics-based theoretical foundation for wetland-wind-wave-surge-risk interactions. This work will investigation/evaluate several existing empirical theories and, if successful, should provide a marked improvement in our understanding of governing principles for these interactions.
- Continued a basic research project on social cognitive modeling and risk analysis related to flood risk management. It is expected that a formal characterization of analysts, decision makers, and stakeholder views and risk perceptions will facilitate the development of better management alternatives and foster effective communications and training about flood risks and their management.
- Continued a basic research project to develop a quantitative understanding of the physics of electrokinetic transport in concrete. Of particular interest is the transport of ions, particles and fluid through hardened concrete that could mitigate or reverse its deterioration by various processes.

f. Water Resources Infrastructure.

Corps projects across the Nation prevent flooding and storm damage. In the daily and seasonal operation of hundreds of Corps projects, national requirements for water supply and opportunities for recreation and environmental stewardship are also balanced. The Nation expects the Corps to guarantee that its existing projects will function as designed and provide for sustained performance and life safety. It is also anticipated that new projects will incorporate the most advanced knowledge and capabilities in planning, design, construction, operation, and maintenance. Through R&D, the USACE provides for the sustained operation of existing water resources infrastructure by several means: development of innovative techniques and methodologies to assess the condition of the infrastructure to

APPROPRIATION TITLE: Investigations, Fiscal Year 2010

determine areas of potential poor performance; development of material and procedures to strengthen and reinforce the infrastructure to prevent damage from the various loading conditions to which it is subjected; development of methodologies and procedures to provide for rapid repair should failure occur; development of methods to provide for resilience in the system; development of techniques to enhance response and recovery; and developing various means of mitigation to protect against potential degradation or failure of infrastructure. Related to both existing and new water resources infrastructure, R&D is providing tools useful for detailed evaluation of changing conditions consisting of updated loadings, change in infrastructure characteristics, increase in data, and improved knowledge/evaluation methodologies. R&D is also providing for incorporation of new criteria into evaluation procedures to include increased demands for life safety, risk and reliability. This research area is also providing support, through R&D, to the infrastructure protection mission of the USACE. Through R&D, several initiatives are being pursued including: development of a blast vulnerability assessment tool for critical infrastructure; development of a consequence based screening tool to rank and prioritize structures; development of mitigation alternatives for blast protection; and development of numerous tools to be used in a risk analysis framework.

SUMMARIZED FINANCIAL DATA:

Estimated Five-Year (FY 2009-2013) Program Cost	\$15,000,000
Allocation Requested for FY 2010	\$370,000
Balance to Complete after FY 2010	NA
Allocation for FY 2009	\$2,095,000
Change in FY 2010 from FY 2009	-1,725,000

JUSTIFICATION:

FY 2010 ACTIVITIES:

- Development of robust engineering toolbox and control center for analysis and decision making process supporting the Dam Safety Program
- Finalize development of an unlined spillway erosion toolbox and manual for evaluation of spillway breach potential
- Finalize development and release of PC based software package to analyze potential failure modes of concrete gravity dams founded on rock
- Develop methodology to evaluate inflow frequency curves up to the probable maximum flood and assign a single probability of occurrence

FY 2009 ACCOMPLISHMENTS:

- Completed preliminary development of engineering toolbox and beta version of database/website for repository of tools and data necessary to dam safety cadres
- Released beta version of unlined spillway erosion toolbox
- Released beta version of PC based software package to analyze concrete gravity dam potential failure modes
- Developed preliminary methodology to evaluate probability of extreme floods

JUSTIFICATION:



APPROPRIATION TITLE: Investigations, Fiscal Year 2010

The Nation's water resource infrastructure consisting of more than 700 reservoirs that minimize flooding and provide water supply; 12,000 miles of commercial inland waterways and 926 shallow and deep draft harbors to assist with the transport of more than 2 billion tons of annual commercial cargo; 8,500 miles of levee systems to protect against flood waters; 368 million visitors annual visitors to USACE recreation areas that also generate 500,000 jobs and \$15 billion of economic activities; leading National provider of outdoor recreation with 54,730 miles of lake shoreline; and responsibility for stewardship of 11.7 million acres of public lands creates an immense accumulation of assets requiring continual maintenance and periodic upgrades. Much of this infrastructure has reached or exceeded its design life requiring extensive maintenance and/or rehabilitation.

The state of the Nation's infrastructure is far from acceptable, including the entire infrastructure under responsibility of USACE. Nevertheless, the USACE will continue to be heavily engaged in a water resources mission for many years to come. Assuming that resources will be constrained in the future, there is a need to reduce costs while showing economic benefits for federal programs. Government at all levels will need to collaborate with each other and with their customers, users, stakeholders, industry sectors, and appropriate public sector representatives to provide required services. The Corps's Civil Works mission will continue to be centered on the management and development of the Nation's water resources infrastructure; environmental stewardship, restoration, and enhancement; disaster response and recovery; and engineering and technical services. There will be an increased concern for watershed and ecosystem restoration management. The next generation of projects will focus primarily on environmental restoration, non-structural, and structural solutions. Given an expectation for an increased demand for public sector development and management of water resources infrastructure and improvements in the reliability, safety, and performance of existing infrastructure, the COE will continue to serve the Nation in providing water resources management and design, construction, and rehabilitation of water resources infrastructure. New project opportunities exist in environmental restoration and stewardship of broader flood plains and stream corridors, in non-structural solutions or the integration of non-structural and structural solutions, and in reducing damages from floods and storms. Existing projects and systems will need to be rehabilitated, modernized, or reformulated to increase performance and to provide new benefits. In this pursuit, the Corps will need to pay attention to minimizing operational and maintenance costs.

Over the short term – the next 5 years – new methods, tools, and technology are needed to reduce projects costs and achieve large-scale cost avoidance in building, operating, rehabilitating, or modifying Civil Works projects and systems. Specific new methods or technologies are needed to successfully complete new types of projects within legal requirements. Technology provides a means by which to repair, maintain and develop more innovated approaches, techniques, and materials, e.g., to apply more efficient procedures or materials. Significant research will focus development of tools and technology toward improving the efficiency and effectiveness of existing water resources infrastructure in ways that increase the economic, environmental, and social welfare of the Nation.

APPROPRIATION TITLE: Investigations, Fiscal Year 2010

1. Surveys

c. Special Studies

Study	Total Estimated Federal Cost	Allocation Prior to FY 2009	Tentative Allocation FY 2009	Tentative Allocation FY 2010	Additional to Complete After FY 2010
National Flood Risk Management Program (Formally FEMA MapMod Coordination)	Annual Program	3,075,000	1,500,000	2,000,000	5,000,000 Annual Program

SCOPE:

This effort reduces the Nation's vulnerability to flood hazards by designing, implementing and directing a unified national approach to managing flood risks that is coordinated across all of the Federal and non-Federal agencies sharing the responsibility for flood risk management. In the United States, the responsibility for managing flood risks is shared across Federal, state and local government. For this reason, careful and consistent coordination between all levels of government is imperative for successful flood risk management. At the Federal level, the U.S. Army Corps of Engineers (USACE) and the Department of Homeland Security, Federal Emergency Management Agency (FEMA) both have programs to assist States and communities in reducing flood damages and promoting sound flood risk management. However, the authority to determine how land is used in floodplains and to enforce flood-wise building code requirements lies entirely in the hands of State and local government. These types of floodplain management choices made at the State and local level impact the effectiveness of Federal programs to mitigate flood risk and the performance of Federal flood damage reduction infrastructure. Likewise, Federal programs and infrastructure can influence the floodplain management choices made by local and State government.

For this reason, it is critical that the USACE work with FEMA and its other Federal flood risk management partners to sustain ongoing coordination with State and local governments. It was with this purpose in mind that the USACE established the National Flood Risk Management Program in May of 2006. Through this program, USACE is leading collaboration with other Federal agencies, state and local governments and agencies, and the private sector to develop and implement a unified national flood risk management strategy that eliminates conflicts between different flood risk management programs and takes advantage of all opportunities for collaboration.

Fiscal Year 2010 funding and beyond will continue to build on work that was accomplished in FY 2006- 2009 using approximately \$4.575M in funds drawn from multiple sources. Specifically, the range of continuing activities involved in this effort includes,

- Identifying and addressing planning, institutional and policy impediments to successful flood risk management through policy development and discussion forums (such as the December '06 Wye River National Flood Risk Policy Summit and February 2008 National Levee Safety Summit), working in collaboration with other Federal agencies and state and local government.
- Restructuring existing programs where warranted to improve effectiveness and coordination.
- Designing and developing implementation strategies for new programs to address unmet flood risk management needs.
- Building upon ongoing interagency coordination and collaboration to integrate USACE programs and authorities, both internally and with counterpart programs and authorities of other Federal agencies, state organizations and regional and local agencies.
- Establishing state (Silver Jackets) and regional intergovernmental teams to develop and implement solutions to state and regional natural hazard priorities by assisting communities with leveraging information and resources, improving public risk communication, and creating a mechanism to collaboratively solve flood risk management issues and implement initiatives.
- Developing and initiating a management framework to improve internal communication between USACE's HQ and Districts and FEMA's HQ and Regions on

APPROPRIATION TITLE: Investigations, Fiscal Year 2010

flood risk management policy, practices and guidance.

- Developing and pilot testing a framework and methods for communicating flood risk and encouraging public involvement in flood risk management planning.

Priorities across the multiple activities included in this scope will be set by the USACE Senior Executive National Flood Risk Management Program Steering Committee and FEMA with Input from key stakeholder groups, such as the Association of State Floodplain Managers (ASFPM) and the National Association of Flood and Storm water Management Agencies (NAFSMA), will be taken into consideration when setting these priorities.

JUSTIFICATION:

The nation faces a growing flood hazard crisis with both existing development and newly developing areas locating in flood prone areas, often behind aging levees and flood control infrastructure. National flood damages, which averaged \$3.9B annually during the 1980s, have nearly doubled in the past decade (1995-2004), to an annual average of \$6.2B\*. In addition to threatening public safety and economic investments, these flood risks represent a major liability for the U.S. taxpayer in the form of disaster assistance payouts for both emergency response operations and subsequent long-term recovery efforts. Federal disaster assistance outlays through the Disaster Relief Fund have grown drastically over the past three decades, increasing from an average annual outlay of \$444M during the 1980s, to an average annual outlay of \$3.75B during the past decade.†

In the United States, the responsibility for managing such flood risks is shared across the Federal, state and local levels of government and the private sector. In the absence of continuous collaboration, conflicting policies, programs and interests from multiple layers of government can work at cross purposes and undermine efforts to improve flood risk management, nationwide.

For this reason, in May of 2006, the U.S. Army Corps of Engineers established the National Flood Risk Management Program for the purpose of integrating and synchronizing USACE flood risk management programs and activities, with counterpart activities of FEMA, other Federal agencies, state organizations and regional and local agencies.

Goals of the program are to:

- Provide current and accurate flood risk and floodplain information to the public and decision makers at the national, regional, State and local levels.
- Identify and assess flood hazards posed by all flood risk reduction infrastructure including aging flood risk reduction infrastructure.
- Improve public awareness and understanding of flood related hazards and risks.
- Facilitate coordination of flood risk and flood hazard reduction programs and activities across local, state, and regional/watersheds with federal, state, local agencies, and Indian Tribes by implementing a lifecycle, system risk management strategy.
- Improve capabilities to collaboratively deliver and sustain flood risk reduction and flood risk mitigation services to the nation, regions and states and Indian Tribes.

The effort described in this Justification Sheet is needed to continue and direct improvements to the Nation's approach to managing flood risks accomplished through the National Flood Risk Management Program. In doing so, this effort will reduce the Nation's vulnerability to flood risks by working through that National Flood Risk Management Program with other Federal agencies, state and local governments, and the private sector to develop a unified national flood risk

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\* Expressed in constant 2004 dollars. Ten year averages calculated from the NOAA National Weather Service Hydrologic Information Center Flood Damage Data, available at: [http://www.nws.noaa.gov/oh/hic/flood\\_stats/Flood\\_loss\\_time\\_series.shtml](http://www.nws.noaa.gov/oh/hic/flood_stats/Flood_loss_time_series.shtml)

† Expressed in constant 2005 dollars. Note this estimate includes outlays for all disasters, not just flooding. Ten year averages calculated from data provided in Table 1. of CRS report FL 33053, Federal Stafford Act Disaster Assistance: Presidential Declarations, Eligible Activities, and Funding, August 29, 2005.

APPROPRIATION TITLE: Investigations, FY 2010

management strategy that eliminates conflicts between different flood risk management programs and takes advantage of all opportunities for collaboration.

FY 2008 & 2009 Accomplishments:

Throughout Fiscal Years 2006-2009, accomplishments in directing the National Flood Risk Management Program include:

- Established a National Flood Risk Management Program that integrates and synchronizes USACE flood risk management programs and activities, with counterpart activities of (FEMA), other Federal agencies, state organizations and regional and local agencies.
- Cooperating with FEMA and other Federal agencies and states to create the Silver Jackets intergovernmental teams in IA, IL, MO, MN, ND, ID, IN, LA and OH to implement solutions to state flood risk hazard priorities.
- Convening policy discussion forums involving experts in flood risk management from the private sector as well as Federal and non-Federal agencies and leading in the development of new policy and guidance to address institutional, policy and planning barriers to effective flood risk management.
- Coordinating the USACE nation-wide levee inventory and assessments, improvements to the USACE levee inspection program, and USACE levee certification policies with FEMA's levee accreditation policies and nationwide flood map modernization program (Map Mod).
- Established the Intergovernmental Flood Risk Management Committee to provide for regular, quarterly meetings to provide FEMA and USACE leadership the opportunity to coordinate programs and policies, and thus improve program implementation for the flood risk management community. Additionally, the quarterly meetings have provided an opportunity for key stakeholder groups representing the non Federal perspective, the Association of State Floodplain Managers (ASFPM) and the National Association of Storm and Floodwater Management Agencies (NAFSMA), to provide both agencies direct feedback on specific policy and implementation issues faced at the state and local level.
- Initiated work to improve flood risk communication and ensure public involvement in flood risk management planning, working in coordination with Federal and non-Federal flood risk management partners.
- Working with communities to identify options to remediate deficient levees or otherwise address the resulting public safety hazards in a comprehensive flood risk management planning context.

FY 2010 Activities:

Fiscal Year 2010 funding will be used for activities including:

- Identify and address planning, institutional and policy impediments to successful flood risk management through policy development and discussion forums such as the December '06 Wye River National Flood Risk Policy Summit, the February 2008 National Levee Safety Summit, and the 2009 Flood Risk Management Policy Summit, working in collaboration with other Federal agencies and state and local government.
- Restructuring existing programs where warranted to improve effectiveness and coordination.
- Designing and developing implementation strategies for new programs to address unmet flood risk management needs.
- Building upon ongoing interagency coordination and collaboration to integrate USACE programs and authorities, both internally and with counterpart programs and authorities of other Federal agencies, state organizations and regional and local agencies.
- Establish new and maintain existing state and regional intergovernmental teams to develop and implement solutions to regional and state flood risk hazard priorities by assisting communities with leveraging information and resources, improving public risk communication, and creating a mechanism to collaboratively solve issues and implement initiatives.
- Develop and initiate a plan to improve internal communication between USACE's HQ and Districts and FEMA's HQ and Regions on flood risk management policy, practices and guidance.
- Developing and pilot testing a framework and methods for communicating flood risk and ensuring public involvement in flood risk management planning. The risk communication activities conducted for FEMA Map Mod Coordination and levee safety program purposes are element of the larger flood risk management framework.

APPROPRIATION TITLE: Investigations, Fiscal Year 2010

**Independent Peer Review**

Study	Allocation for FY 2008	Allocation for FY 2009	Tentative Allocation FY 2010
External Peer Review	0	956,000	1,000,000

SCOPE:

The funds requested will be used to implement the independent (external) peer review (EPR) requirements as authorized in Section 2034 of the Water Resources Development Act (WRDA) of 2007 (PL 110-114). EPR requirements apply to pre-authorization feasibility studies and various other applicable studies as defined in WRDA 2007, the Information Quality Act, and associated Corps guidance. EPR costs are 100 percent Federal and generally will not exceed \$500,000 per review. EPR is required for studies that will recommend projects exceeding \$45 million in total costs, as well as studies where there is substantial risk to public safety, which employ novel methods, engender controversy, or meet other conditions as described in the legislation and regulations.

JUSTIFICATION:

Independent (or External) Peer Review is a statutory requirement.

APPROPRIATION TITLE: Investigations, Fiscal Year 2010

**National Shoreline**

Study	Total Estimated Federal Cost	Allocation Prior to FY 2008	Allocation FY 2008	Tentative Allocation FY 2009	Additional to Complete After FY 2009
National Shoreline	9,000,000	2,689,000	358,000	375,000	5,578,000

SCOPE:

The study is an interagency effort to describe the extent and cause of shoreline erosion and accretion on all the coasts of the United States and describe the economic and environmental impacts of that erosion and accretion. The study will analyze and recommend the appropriate level of Federal and non-Federal participation in shore protection and beach nourishment, and the advisability of using a systems approach to sediment management for linking the management of all (shore protection, navigation channel dredging, and environmental restoration and preservation) projects in the coastal zone so as to conserve and efficiently manage the effects of erosion.

ACCOMPLISHMENTS:

The study was initiated with FY2002 funding. The Fiscal Year FY2009 efforts included:

- 1) A study assessment was drafted for interagency review and coordination. The assessment was conducted to recommend study changes as a result of accomplishments to date, and significant events since 2002 that are shaping National shore management policies and paradigms. The significant events include the public release of the PEW and National Ocean Commission reports in 2000, flooding of New Orleans and Gulf Coast Hurricane Disasters in 2004, the continuing recovery of the Gulf Coast, formation of regional coastal state alliances, and the Coastal Zone Management Act reauthorization forums.
- 2) The study continued to support Corps participation in the systematic approach to sediment management reflected in the Corps Regional Sediment Management (RSM) process, regional coastal coalitions from which coastal policies are evolving and emerging, and Corps studies and participation in USGS and NOAA studies describing the state of the Nation's shores, describing systematic movement of sand along the Gulf Coast, and incorporate of the shoreline metadata into the National Coastal Databank. This effort is focused in the Gulf of Mexico and the North Atlantic.
- 3) The study formed an interagency committee on Shoreline Management to better coordinate the shoreline management missions and activities of the agencies at a national level and then to connect with the Shore Protection Systems prototyping work in the North Atlantic in item 4 below.
- 4) This study is supporting and monitoring the prototyping of a systems approach to the construction and operation of existing Corps coastal protection projects in the North Atlantic region, as a possible operational mode for shore protection projects in the future.
- 5) Working closely with USGS and NOAA, the study began to prepare a prototype of the NSMS report on a regional scale within the North Atlantic.
- 6) The study supported a case study of shoreline management history and Corps engagement at Ocean City, Ocean City Inlet, and Assateague Island, as a history of how shoreline management has changed and might evolve in the future.

JUSTIFICATION:

FY 2010 funding would continue work on this study. The Fiscal Year 2010 efforts include:

1. \$75,000 to continue Corps participation in the various Federal and non-Federal Regional Sediment Management and coastal alliances around the nation.
2. \$250,000 to assess the application of a systems approach to shore protection project management and the preparation of a prototype regional shoreline management study.
3. \$50,000 to support interagency participation in National Shoreline Management Committee and the continued production of regional case studies.
4. Section 215 of the Water Resources Development Act of 1999 provides the authority for conducting this study. Completion presently scheduled for 30 Sep 2025 at present rate of funding.

### **Planning Support Program (PSP)**

SCOPE: The U.S. Army Corps of Engineers Civil Works Program requires a strong planning program to address the full range of complex water resource problems within its mission responsibilities and to better serve the Nation now and in the future. The Planning Support Program (PSP) strengthens the capabilities of the Planning Community of Practice (PCoP) to deliver approvable decision documents to Congress in response to identified water resource priorities. The PSP is a vital link to developing the world-class public engineering organization and technical leadership envisioned for the Corps in its Campaign Plan and the Civil Works Strategic Plan.

Congress recognized the need to maintain a strong planning program when it stated in the Water Resources Development Act (WRDA) of 1986 (P.L. 99-662, Sec. 936):

“The Secretary shall study and evaluate the measures necessary to increase the capabilities of the United States Army Corps of Engineers to undertake the planning and construction of water resources projects on an expedited basis and to adequately comply with all requirements of law applicable to the water resources program of the Corps of Engineers.”

In WRDA 2000, Section 216, Congress asked the National Academies to review Corps’ planning and project review practices. In its recommendations, the National Research Council (NRC) of the National Academies recognized the many challenges and water resource planning and management controversies facing the Corps. The NRC recommendations are shaping the Corps today and the PSP is critical to moving the Corps and the PCoP forward in response to those recommendations.

WRDA 2007, Section 2033(e) allowed establishment of Centers of Specialized Planning Expertise within the Corps that would provide technical and managerial assistance for project planning, development, and implementation; peer reviews of new major methods, models, or analyses used infeasibility studies; and support independent peer review panels. Section 2033(e) authorization endorsed and accentuated the importance to the six national Planning Centers of Expertise (PCX) established by the Director of Civil Works in August 2003. With added the added emphasis of the WRDA the each of the PCXs has a key role in maintaining and strengthening the core competencies of the Planning Community of Practice.

The ASA(CW) sent a memorandum to the DCG CEO on February 24, 2009 counseling about the considerable variation in the quality of decision documents, feasibility reports and Chief’s reports resulting from inconsistent understanding of basic planning and policy among MSC and RIT members. The ASA(CW) was clear that technical and process consistency must be restored. The ASA(CW)’s views continued support to Corps planning and policy training and to leadership development “as key commitments that pay valuable

APPROPRIATION TITLE: Investigations, Fiscal Year 2010

dividends” – he specifically cites the Planning Associates Program as an example. PCXs are also crucial resources for providing technical and process consistency.

SUMMARIZED FINANCIAL DATA:

Estimated Annual Cost for Continuing Program	\$6,000,000
Appropriation for FY 2009	\$2,581,000
Allocation Requested for FY 2010	\$2,100,000
Decrease of FY 2010 over FY 2009	\$ 481,000

JUSTIFICATION: The PSP has three major components, which together provide necessary support to improve the long term capabilities of the Planning Community of Practice (CoP). The three components -- planner capability and training; specialized planning centers; and planner resources. Each component is described below with their estimated funding requirements.

1. Planner Capability and Training. The Planning CoP is a hub of learning for its practitioners who are now no longer limited by geography. The expertise of the community is bound in its members who share best planning practices, test innovative solutions, and coach and mentor as a Learning Organization. Development of a capable workforce to execute the mission today and in the future is a top priority of the Planning CoP leadership.

a. The Planning Associates (PA) Program is an advanced training program for journeyman level water resource planners in the Corps. The program has a long history but was reinvented in 2003 to include 20 instructional units held at various locations and extending over 1-3 week increments for 11 months. The goals of the program are to broaden the planners’ competencies in solving complex water resources problems; to strengthen their leadership skills; and to retain critical planner capability as they progress toward expert planner. Since 2003, 65 planners have completed this rigorous training and 12 more are enrolled in current class. An amount of \$ 2,100,000 will centrally fund a class of up to 12 students and support instructor and other field related expenses necessary to deliver this demanding and rigorous program.

b. The Advanced Degree Program in Integrated Water Resources Planning and Management was created in partnership with the Universities Council on Water Resources and USACE and leads to a masters or doctoral degree from the participating accredited universities. It is designed to provide the Corps water resources professional with higher level skills to address multi-objective planning and water resources management. Since the program’s initiation in 2002, 36 employees have enrolled in the program and 14 have graduated with advanced degrees. Currently, six planners more are enrolled in the program and working toward completion.



c. The Planning Models Improvement Program establishes a corporate process to demonstrate and independently document the soundness and validity of models used in the Corps' planning studies. The goal is to establish a toolbox of certified planning models that are readily accessible and that will produce theoretically sound and accurate decision documents. The availability of certified models in the toolbox will produce significant efficiencies in conducting planning studies and further enhance planner capability. Funding could be used to expedite certification of the highest priority planning models, many of which are technologically sophisticated and technically complex. Priorities will be identified by HQ, the Planning Advisory Board, and the Planning Centers of Expertise.

2. In August 2003, the Director of Civil Works designated six national Planning Centers of Expertise (PCX) to enhance Corps planning capability for inland navigation, deep draft navigation, ecosystem restoration, coastal and storm damage reduction, flood damage reduction, and water management and reallocation. The Centers have key roles in maintaining and strengthening the core competencies of the Planning CoP; providing technical assistance, conducting or managing peer review; transferring the latest technology or methodologies and sharing lessons learned and best practices throughout the planning community. The Centers focus planning expertise to improve product quality and corporate accountability and will also be instrumental in implementation of new approaches or methods resulting from the Corps' Campaign Plan. The PCXs are essential to preparation of the Water Resource Priorities Report directed by Section 2032 of WRDA 2007. Fully functional PCXs are indispensable resources in developing Planning Process Improvements; establishing feasibility study benchmarks; and, modifying regulations for Calculation of Benefits and Costs for Flood Damage Reduction Projects, and formulation and evaluation of alternatives as required by Section 2033(b), (c), (d) and (f). In a memorandum to the DCG CEO dated March 12, 2009, the ASA(CW) reemphasized how critical the PCXs are to the Corps' planning capability and to the success of the independent peer review described in Section 2034 of WRDA 2007. The ASA(CW) also noted the PCXs have been severely limited as they have struggled with insufficient resources since their inception. His assessment was each PCX needs a full time staff and a funding level of \$3.5 million for FY 2011. The DCG CEO reemphasized his support of the PCXs in a memorandum to the MSC Commanders dated April 30, 2009, stating "Effective PCX's are a key factor in the efficient execution of our long term CW requirements!" Funds would accelerate the maturation and progress of the PCXs, which have been slowed by prior years of inadequate funding.

3. The Planner's Resource Website is a prime tool for the Planning CoP to utilize its decentralized expertise and facilitate the Learning Organization. As an internal communication resource, the site is an engine of learning, vital to the overall success of the Planner Support Program. It is an information repository, a "one-stop" resource for planners to obtain current information in key areas such as, policy and guidance; procedures; technical support; the planning process; points of contact; planner rosters, career development; and sharing lessons learned. The site resides on the Engineer Knowledge On-line site, a platform that provides community-wide communication, internal to the Corps of Engineers.

Appropriation Title: Investigations – Fiscal Year 2010

ACCOMPLISHMENTS IN FY 09

The Planning Support Program was established in FY 2008. This program integrates various initiatives in response to Section 216 recommendations, Corps reform initiatives, and the Corps' Campaign Plan. The program has retained its priority but has received only limited funding (from various sources). The funds appropriated for the PSP in the President's Budget for FY 10 will be used to support the Planning Associates Program. Future success of the Planning Support Program including the Planning Centers of Expertise and other purposes requires a sustained and reliable source of funds.

APPROPRIATION TITLE: Investigations, Fiscal Year 2010

1. Investigations

c. Special Studies

Tribal Partnership Program (Sec. 203, WRDA 2000)

SUMMARIZED FINANCIAL DATA:

Estimated total (FY 2000-2010)	\$9,920,000
Allocation for FY 2005	3,850,000
Allocation for FY 2006	750,000
Allocation for FY 2007	2,320,000
Allocation FY 2008	984,000
Allocation FY 2009	954,000
Allocation requested for FY 2010	1,000,000

**AUTHORIZATION:** Section 203 of WRDA 2000, reauthorized in Section 2011 of WRDA 2007, authorizes the study of flood damage reduction, environmental restoration, and restoration and protection, preservation of cultural and natural resources, water-related planning activities, watershed assessments, and “such other projects as the Secretary, in cooperation with Indian Tribes and the heads of other Federal agencies, determines to be appropriate.” Projects follow the standard Civil Works planning process – a reconnaissance report, fully federally funded, and a feasibility report, cost shared 50/50 with in-kind contributions allowed. Separate authorization and appropriations are required from Congress for a project to proceed to PED and construction. The authorization applies to all federally recognized Indian Tribes, including those in the State of Oklahoma and Alaska Native villages. Note: in FY 07 and before, funds were in the Construction account. Beginning in FY08, funding has been through the Investigations account.

**JUSTIFICATION:** Section 203 was enacted to provide the Corps opportunities to partner with federally recognized Tribes. Priorities for allocation of Section 203 funds are: 1) continuation and completion of ongoing studies and termination of negative studies where appropriate; 2) initiation of studies requested by Tribes; 3) engagement of additional Corps Districts with Tribal governments to build strategic partnerships. . Priorities for 203 ensure that a range of studies throughout the Nation are funded. Because the scope of the authority is so broad, various studies may be considered – floodplain mapping, water control management, self-reliance and economic capacity building, technical capacity building, erosion control, cultural resources, comprehensive planning, emergency management, water quality, water supply, community infrastructure, hazardous and toxic waste assessment and clean up, and a host of other projects. Section 203 is the only Corps authority that specifically targets Tribes as partners, identifying opportunities to work with entities that otherwise might not be reached. With the growing awareness of the program, an increasing number of Tribes have begun to approach the Corps to participate in these studies. Tribes showing interest in new or continuing studies include the Lower Brule Sioux, Maliseets, Isleta, Jemez, Santa Clara, San Felipe, Santo Domingo and San Ildefonso Pueblos; Penobscot, Kickapoo, Soboba, Havasupai, Tohono ‘Oodham, Hopi and Augustine Band.

APPROPRIATION TITLE: Investigations, FY 2010

1. General Investigations

c. Special Studies

Tribal Partnership Program (Sec. 203, WRDA 2000) (continued)

PROPOSED ACTIVITIES FOR FY 2010: Albuquerque District will finish feasibility studies with the Pueblos of San Ildefonso, San Felipe and Santo Domingo, and finish a reconnaissance study with the Pueblo of Jemez. New England District will finish reconnaissance studies with the Maliseets and Penobscot. Los Angeles District will complete reconnaissance studies with the Soboba Havasupai, Hopi and Augustine Bands. Alaska District will continue with several 203 studies, including a data collection study on erosion and a cultural resources study in Kaktovik. Other Districts will consider studies that have been proposed by Tribes.

ACCOMPLISHMENTS IN PRIOR YEARS: Since its enactment, the majority of Section 203 funds have gone to Alaska to study erosion, including the feasibility of moving coastal villages inland. A major coastal erosion study and technical assistance to several Alaskan Villages have been funded in part by Sec. 203 monies. The Corps is currently studying various options of erosion control versus moving the villages inland. This effort has gone on for several years due to its complexity and will likely continue for many years to come. Villages with the greatest need include Newtok, Shishmaref, Kaktovik, Kivalina and Unalakleet.

Other Districts that have utilized Section 203 funding include Buffalo, Detroit, New England, and Walla Walla. Reconnaissance reports on various topics were prepared by the Corps for the Passamaquoddy, Little River Band (Ottawa), Chippewa, Cheyenne River Sioux, St. Regis Mohawk, Seneca/Cattaraugus Creek, Tuscarora, Potawatami, Wampanoag and Oneida. Omaha, Albuquerque and Sacramento received earmarks in recent years for reconnaissance studies with the Lower Brule, Cheyenne River Sioux, Shoshone-Bannock, the Pueblos of Santa Ana, San Juan, San Ildefonso, Santa Clara, Santo Domingo, and Zuni; the Jicarilla Apache, and the Washoe. Several positive 905(b) reports have been submitted to date, approved, and have begun feasibility – the San Ildefonso Watershed Study (SPA), as an example. Tribes thus far involved have stated that even if a project does not proceed to feasibility, the program is still valuable because the resulting report pulls together enough information to proceed should additional funding become available, or if the Tribe decides to move forward. New Orleans and Kansas City Districts have expressed interest in 203 studies with their Tribes beginning in FY 2011.

APPROPRIATION TITLE: Investigations, Fiscal Year 2010

**Water Resources Priorities Study**

Study	Total Estimated Federal Cost	Allocation Prior to FY 2009	Tentative Allocation FY 2009	Tentative Allocation FY 2010	Additional to Complete After FY 2010
Water Resources Priorities Study	TBD	0	0	2,000,000	TBD

**SCOPE:** This investigation will start with a baseline assessment of the nation's flood risks at both a national and regional scale, as well as an analysis of the effects of the existing portfolio of programs and policies intended to address that risk. This baseline assessment will provide an understanding of the comparative level of flood risk around the nation, as well as they key drivers of that risk, and so will serve as a foundation for making better informed choices about Federal, State, and local programs, authorities and roles in addressing flood risks.

This investigation is authorized by Section 2032 of the Water Resources Development Act of 2007, which calls for a report on the vulnerability of the Nation to damage from flooding. The report is to include an assessment of the extent to which programs in the United States relating to flooding address flood risk priorities, the extent to which such programs may be encouraging development and economic activity in flood-prone areas, and recommendations for improving those programs. The investigation will be divided into two elements. The first is a technical element, which will provide background for the second part of the report. This technical section will examine the risk of damage from flooding to human life and property, and the comparative risks faced by different regions of the United States. It will provide examples to explain why the risk of flooding is greater in some floodplain and some coastal locations than in others, and why and how the risk is changing over time. It will assess existing information on: (1) the number of people who live or work in places where they are potentially at risk of flooding; (2) the value of the property that is potentially at risk of flooding; and (3) actual flood-related losses (e.g., the frequency and magnitude of large losses, and where such losses have been occurring), in order to identify possible nationwide trends. This section of the report will also explore the extent to which existing programs may be encouraging development and economic activity in flood-prone areas.

The second element of the report will focus on public policy. This section of the report will assess the extent to which existing programs operate (individually and together) to address flood risk reduction priorities; develop recommendations for improving the effectiveness, efficiency, and accountability of these programs; and propose a strategy to implement those recommendations.

The report will look at not only programs of the Corps of Engineers, but at a broad array of Federal, state, and local programs, including flood insurance, local land use planning, emergency response and recovery, disaster assistance, and economic development programs.

Fiscal Year 2010 activities will include:

- Assembling an advisory interagency policy group.
- Developing scopes of work for both elements of the effort.
- Determining the best way to complete the technical and policy elements.
- Initiate work on the technical element.

## APPROPRIATION TITLE: Investigations, FY 2010

Fiscal Year 2011 activities will include:

- Completing work on the technical element.
- Working with the advisory interagency policy group, developing recommendations and an implementation strategy for improving existing programs.
- Compiling and preparing a final report for submittal to Congress.

**JUSTIFICATION:** This investigation addresses the critical need for a baseline assessment of the nation's flood risks at both a national and regional scale, as well as an analysis of the effects of the existing portfolio of programs and policies on such risks. A large body of evidence suggests that the nation is facing growing flood hazards. Existing programs may be operating at cross-purposes in some cases, or may be encouraging development and economic activity within floodplains that increases vulnerability to damage from flooding. National flood damages, which averaged \$3.9B annually during the 1980s, have nearly doubled in the past decade (1995-2004), to an annual average of \$6.2.<sup>1</sup> In addition to threatening public safety and economic investments, flood risks represent a major liability for the U.S. taxpayer in the form of disaster assistance payouts for both emergency response operations and subsequent long-term recovery efforts. Despite a large investment in dams, levees, the channelization of rivers, and other structural measures to reduce flood damages, Federal disaster assistance outlays through the Disaster Relief Fund have grown drastically over the past three decades, increasing from an average annual outlay of \$444M during the 1980s, to an average annual outlay of \$3.75B during the past decade.<sup>2</sup>

There is currently a lack of adequate information at a national and regional scale about the magnitude and source of flood risks, as well as the effect of existing programs and policies on that risk. This investigation addresses the critical need for informed adjustments to existing programs, policies and procedures to better contribute to monitoring and managing flood risks by providing an understanding of the key drivers and magnitude of the risks, as well as the net effect the existing portfolio of Federal and non-Federal programs and policies has on flood risks.

This investigation could lead to significant improvements in existing programs, authorities, and roles at the Federal, State, and local level. The knowledge that it will provide will serve as a foundation for recommending these improvements.

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<sup>1</sup> Expressed in constant 2004 dollars. Ten year averages calculated from the NOAA National Weather Service Hydrologic Information Center Flood Damage Data, available at: [http://www.nws.noaa.gov/oh/hic/flood\\_stats/Flood\\_loss\\_time\\_series.shtml](http://www.nws.noaa.gov/oh/hic/flood_stats/Flood_loss_time_series.shtml)

<sup>2</sup> Expressed in constant 2005 dollars. Note this estimate includes outlays for all natural disasters, not just flooding. Ten year averages calculated from data provided in Table 1 of CRS report FL 33053, Federal Stafford Act Disaster Assistance: Presidential Declarations, Eligible Activities, and Funding, August 29, 2005.

REMAINING ITEMS  
CONSTRUCTION

APPROPRIATION TITLE: Construction – Fiscal Year 2010

Aquatic Plant Control (APC) Program

Allocation FY 2009	\$3,828,000
Requested Allocation FY 2010	\$4,000,000
Estimated Annual Cost for Continuing Program	\$15,000,000

**GENERAL:** The Aquatic Plant Control (APC) Program is authorized by the River and Harbor Act of 1958 (P.L. 85-500) as amended by Section 104 of the River and Harbor Act of 1962 (P.L. 87-874), Section 302 of the River and Harbor Act of 1965 (P.L. 89-298), Section 610 of the River and Harbor Act of 1983 (P.L. 98-63), Sections 103, 105, and 941 of the Water Resources Development Act of 1986 (P.L. 99-662), Section 225 of the Water Resources Development Act of 1996 (P.L. 104-303), and Section 205 of the Water Resources Development Act of 1999 (P.L. 106-53). The APC Program is a comprehensive program authorized to provide for the control of invasive aquatic plants and continued research. The control of invasive aquatic plants in non-Federal waters is conducted through a 50:50 cost-share control operations arrangement between the Corps and State agencies. Furthermore, the Corps is responsible for the management of the Nation's continued research program, with the cost for the Aquatic Plant Control Research Program (APCRP) fully borne by the Federal Government. An annual statutory spending limit of \$15,000,000 is authorized for the APC Program. In accordance with Administration policy, the focus of the APC Program is presently on continued research. The Administration believes that aquatic plant control operations are within the financial and institutional capabilities of state and local governments, while research provides benefits that are national in scope. Since this policy change in FY 1996, the only funded control operations have been provided by Congress.

Nearly 75 million acres of navigable waterways across the nation are now infested with invasive aquatic plants species. Failure to control the infestations will result in an escalating threat to the national economy by impacting the ability of commercial navigation to move through navigable waterways and increase the risk of state and regional economies being impacted because of impeded commercial navigation, a loss of capacity for flood control storage, decreases in potable water quality that threaten public health, increase risk to endangered species, losses of volume for water storage for agricultural irrigation, and negative impacts to fish and wildlife habitat. These infestations have also spread to Corps projects and are impacting the ability to store water for flood control and impact the ability to generate hydroelectricity. The Corps APCRP is the nation's only federally authorized research program providing the technology to manage invasive aquatic plant species. The APCRP is developing cost-effective, environmentally compatible aquatic plant control capabilities, including biological, chemical, ecological, and integrated control methods. The information obtained through this research continues to greatly improve the efficacy and diversity of management options, while minimizing adverse effects on the environment. Funding will ensure continued development of the new technologies needed for cost-effective aquatic plant control for existing and new invasive aquatic plant species for government entities across the nation. Funding will also ensure Corps capability to demonstrate new cost efficient and environmentally friendly control technologies on limited field sites to government entities across the nation.

**BUDGET REQUEST:** The \$4,000,000 requested for FY 2010 will be used for continued research efforts to further develop ecologically based, integrated plant management strategies for invasive aquatic plants (i.e., Eurasian watermilfoil, hydrilla, etc); control technologies for preventing the initial introduction and spread of invasive aquatic plant species over large acreages; replacing problem invasive aquatic plants with native species (providing much-improved aquatic habitat for fish and wildlife); and continuing research work on biological and chemical control technologies. New work is also proposed for the development of control technologies for giant salvinia and calerpa. These new technologies will be a significant asset in implementing clean water initiatives by restoring aquatic systems harmed by invasive aquatic plant species. The APCRP will transfer this new technology to government entities quickly and efficiently. In recent years the APCRP has received approval and provided for the release of 12 insect biological control agents on 4 target plants (waterhyacinth, hydrilla, water lettuce, and alligatorweed). Guidance on rearing, release, and establishment procedures that are critical to the utilization of the above insect biological control agents have been developed. The APCRP has played a major role, in cooperation with industry, in the USEPA registration and re-registration of 7 chemicals; assisted industry in the development and evaluation of improved, environmentally compatible and user-safe formulations and carriers for 3 aquatic herbicides; and assisted industry in the development of bioassays for determining effectiveness of aquatic herbicides under field conditions. An aquatic herbicide manual that provides guidance on the safe and effective use of all registered products was produced and distributed. PC-based simulation models for operationally proven systems and biological



APPROPRIATION TITLE: Construction – Fiscal Year 2010

control techniques for aquatic plant and growth models were also developed. Developed and distributed over 5,000 copies of the PC-based Aquatic Plant Information System (APIS) and developed a mobile version of APIS.

APPROPRIATION TITLE: Construction, FY 2010

Environmental Projects

**Aquatic Ecosystem Restoration (CAP Section 206)**

SUMMARIZED FINANCIAL DATA:

Appropriation for FY 2009	\$28,709,000
Allocation Requested for FY 2010	\$6,967,000

GENERAL: Section 206 of the Water Resources Development Act of 1996 (PL 104-303), as amended, authorizes up to \$50,000,000 annually to carry out aquatic ecosystem restoration projects that will improve the quality of the environment, are in the public interest and are cost-effective. Non-Federal interests shall provide 35 percent of the cost of construction including provision of all lands, easements, rights-of-way, and necessary relocations. Non-Federal interests pay 100 percent of the cost of operation, maintenance, replacement and rehabilitation. Not more than \$5,000,000 in Federal funds may be allocated to a project at a single locality.

PROPOSED ACTIVITIES FOR FY 2010 Projects for use of the requested funds in order of priority:

<u>SECTION 206 PROJECT OR ACTIVITY IN PRIORITY ORDER</u>	<u>STATE</u>
DRAYTON DAM	ND
ORLAND PARK	IL
EUGENE DELTA PONDS	OR
VENTURA MARSH	IA
WILSON BAY RESTORATION, JACKSONVILLE	NC
STEPHENVILLE WWTP	TX
CARPENTER CREEK	WA
STORM LAKE	IA
GOOSE CREEK, CO	CO
JACKSON CREEK, GWINETT CO.	GA
MALDEN RIVER ECOSYSTEM	MA
CHARITON RIVER AND RATHBUN LAKE WATERSHED	IA
SPRINGFIELD MILLRACE	OR
LITTLE RIVER WATERSHED, HALL COUNTY	GA
EMIQUON FLOODPLAIN RESTORATION	IL
SPRING LAKE, SAN MARCOS	TX
MOSES LAKE	TX
CAMP CREEK, ZUMWALT PRAIRIE PRESERVE	OR
KELLOGG CREEK,	OR
RIO GRANDE ECOSYSTEM RESTORATION, LAREDO	TX
OAKS BOTTOM	OR
COORDINATION SECTION 206	US

7 May 2009

APPROPRIATION TITLE: Construction, FY 2010

Flood Risk Management Projects

**Emergency Streambank and Shoreline Protection (CAP Section 14)**

Appropriation for FY 2009	\$8,613,000
Allocation Requested for FY 2010	\$1,477,000

GENERAL: Section 14 of the Flood Control Act of 1946 (PL 79-526), as amended, authorizes up to \$15,000,000 annually for the construction of emergency bank protection works to prevent flood damages to highways, bridge approaches, public works, churches, hospitals, schools, and other non-profit public services. Each project selected must be economically justified and complete within itself. Federal participation under this authority is limited to a cost of not more than \$1,500,000 at any single locality.

PROPOSED ACTIVITIES FOR FY 2010: Projects for use of the requested funds in order of priority:

<u>SECTION 14 PROJECT OR ACTIVITY IN PRIORITY ORDER</u>	<u>STATE</u>
ARGOSY ROAD BRIDGE, RIVERSIDE	MO
FOX RIVER, KAHOKA, MO (STREAM BANK PROTECTION)	MO
BEAR CREEK, ROLAND	IA
KANAWHA RIVER, CHARLESTON, WV (MAGIC ISLAND TO PATRICK STREET)	WV
WALKER LN, WASHINGTON,	WV
7TH ST W SEC 14, OHIO RIVER, HTGN	WV
COORDINATION SECTION 14	US

APPROPRIATION TITLE: Construction, FY 2010

Flood Risk Management Projects

**Flood Control (CAP Section 205)**

Appropriation for FY 2009	\$38,279,000
Allocation Requested for FY 2010	\$12,049,000

GENERAL: Section 205 of the Flood Control Act of 1948 (PL 80-858), as amended, authorizes up to \$55,000,000 annually for construction of flood control projects where such construction is not already specifically authorized by Congress. Projects are designed to provide the same complete project and same degree of protection provided under regular authorization procedures. Each project selected must be economically justified and complete within itself. Federal cost participation is limited to \$7,000,000 per project at a single locality.

PROPOSED ACTIVITIES FOR FY 2010: Projects for use of the requested funds in order of priority:

<u>SECTION 205 PROJECT OR ACTIVITY IN PRIORITY ORDER</u>	<u>STATE</u>
PLATTE RIVER, FREMONT	NE
RIO GUAMANI-GUAYA	PR
MAD CREEK, MUSCATINE	IA
WEST VIRGINIA STATEWIDE FLOOD WARNING SYSTEM	WV
DUCK CREEK	OH
LIVINGSTON	MT
LITTLE RIVER DIVERSION, DUTCHTOWN	MO
RIO DESCALABRADO	PR
BEAVER CREEK & TRIBS, BRISTOL	TN
WYNNE	AR
EUREKA CREEK, MANHATTAN	KS
PLATTE RIVER, SCHUYLER	NE
SUN VALLEY, EL PASO	TX
BLANCHARD RIVER, FINDLAY	OH
BLANCHARD RIVER, OTTAWA	OH
COORDINATION SECTION 205	US

APPROPRIATION TITLE: Construction, FY 2010

Flood Risk Management Projects

**Navigation Improvements (CAP Section 107)**

Appropriation for FY 2009	\$7,177,000
Allocation Requested for FY 2010	\$1,436,000

GENERAL: Section 107 of the River and Harbor Act of 1960 (PL 86-645), as amended, authorizes up to \$35,000,000 annually for construction of navigation projects where such construction is not already specifically authorized by Congress. Projects are designed to provide the same complete navigation project that would be provided under regular authorization procedures. Each project selected must be economically justified and complete within itself. Federal cost participation cannot exceed \$7,000,000 per project.

PROPOSED ACTIVITIES FOR FY 2010: Projects for use of the requested funds in order of priority:

<u>SECTION 107 PROJECT OR ACTIVITY IN PRIORITY ORDER</u>	<u>STATE</u>
BUCKS HARBOR, MACHIASPORT	ME
SAVOONGA HARBOR	AK
MACKINAC ISLAND HARBOR BREAKWATER	MI
COORDINATION SECTION 107	US

APPROPRIATION TITLE: Construction, FY 2010

Environmental Projects

**Project Modifications for Improvement of the Environment (CAP Section 1135)**

Appropriation for FY 2009	\$28,709,000
Allocation Requested for FY 2010	\$5,736,000

GENERAL: Section 1135 of the Water Resources Development Act of 1986 (PL 99-662), as amended authorizes review of Corps water resources projects to determine the need for structural or operational modifications for the purpose of improving the quality of the environment in the public interest; to determine if the operation of such projects has contributed to the degradation of the quality of the environment; and to carry out a program of such modifications that are feasible and consistent with authorized project purposes. Up to \$40,000,000 may be appropriated annually. The non-Federal share of the cost of any modifications will be 25 percent. Not more than \$5,000,000 in Federal funds may be expended on any single modification or measure pursuant to Section 1135.

PROPOSED ACTIVITIES FOR FY 2010: Projects for use of the requested funds in order of priority:

<u>SECTION 1135 PROJECT OR ACTIVITY IN PRIORITY ORDER</u>	<u>STATE</u>
BENNINGTON LAKE DIVERSION DAM	WA
AQUATIC HABITAT RESTORATION @ PUBLIO OF SANTA ANA	NM
BRAIDED REACH	ID
SHORTY'S ISLAND	ID
TAPPAN LAKE, OH	OH
LOWER COLUMBIA SLOUGH	OR
DUCK CREEK, STODDARD COUNTY	MO
LOWER KINGMAN ISLAND	DC
PRISON FARM SHORELINE HABITAT	ND
GREEN RVR DAM, MOD	KY
BLOOMINGTON STATE PARK	MO
BLUE VALLEY WETLANDS, JACKSON COUNTY	MO
WALLA WALLA RIVER	OR
COORDINATION SECTION 1135	US

APPROPRIATION TITLE: Construction, FY 2010

Flood Risk Management Projects

**Shore Protection Projects (CAP Section 103)**

Appropriation for FY 2009	\$4,306,000
Allocation Requested for FY 2010	\$680,000

GENERAL: Section 103 of the River and Harbor Act of 1962 (PL 87-874), as amended, authorizes up to \$30,000,000 annually for development and construction of hurricane and storm damage protection measures along the Nation's shorelines where not already specifically authorized by Congress. Projects under this authority are formulated to provide the same complete project and degree of protection provided under regular authorization procedures. Each project selected must be economically justified and complete within itself. Federal cost participation is limited to \$3,000,000 per project.

PROPOSED ACTIVITIES FOR FY 2010: Projects for use of the requested funds in order of priority:

<u>SECTION 103 PROJECT OR ACTIVITY IN PRIORITY ORDER</u>	<u>STATE</u>
LINCOLN PARK BEACH	WA
FORT SAN GERONIMO	PR
COASTAL AREAS, MARSHFIELD	MA
COORDINATION SECTION 103	US

APPROPRIATION TITLE: Construction, FY 2010

Flood Risk Management Projects

**Snagging and Clearing for Flood Damage Reduction (CAP Section 208)**

Appropriation for FY 2009	\$478,000
Allocation Requested for FY 2010	\$200,000

GENERAL: Section 208 of the Flood Control Act of 1954, as amended, authorizes measures to reduce nuisance flood damages caused by debris and minor shoaling of rivers. Work under this authority is limited to clearing and snagging or channel excavation and improvement with limited embankment construction by use of materials from the channel excavation. Projects implemented under this authority have the same project cost sharing requirements as structural flood damage reduction projects implemented under specific congressional authorization. The non-Federal sponsor is responsible for a minimum of 35 percent of total project costs to a maximum of 50 percent of total project costs during the design and implementation period. Federal participation limit is \$500,000 per project.

PROPOSED ACTIVITIES FOR FY 2010: Projects for use of the requested funds in order of priority:

SECTION 208 PROJECT OR ACTIVITY IN PRIORITY ORDER	STATE
COORDINATION SECTION 208	US
SNAGGING & CLEARING UPPER BAYOU BOEUF	LA
BLACKWELL LAKE, BLACKWELL	OK
SWCD FLOOD REDUCTION	OR
CAMP BAYOU CANAL, MOREHOUSE PARISH	LA
AUGLAIZE RIVER	OH



**Dam Safety and Seepage/Stability Correction Program**

Allocation FY 2009	\$50,000,000	Tentative Allocation FY 2010	\$49,100,000
Evaluation Studies	\$34,150,000	Evaluation Studies	\$34,650,000
Post-Evaluation Work	\$15,850,000	Post-Evaluation Work	\$14,450,000

GENERAL: The Dam Safety and Seepage/Stability Correction Program provides for studies and modification of completed Corps of Engineers dams. There are over 700 dams under the Corps jurisdiction. While no Corps dams are in imminent danger of failure, some have been identified as having a higher risk of a dam safety incident than originally anticipated based on new data or the likelihood of extremely large floods and seismic events. The Corps has started the implementation of a Portfolio Risk Analysis program and has completed screening over 65% of the Corps dams. The evaluation studies funded under the Dam Safety and Seepage/Stability Correction Program are for dams identified with very high risks of a dam-safety incident (Dam Safety Action Classification I or II). Dam Safety Assurance modifications are made to provide for passage of the maximum probable flood (PMF) based on changes in the climate of the area. Other dam safety assurance modifications are designed to insure that the dam retains the reservoir during and after a major earthquake. Seepage problems at USACE dams are usually related to increase reservoir levels above the previous pool of record at a dam. Other seepage problems arise due to water seeping through the contact between the dam and bed rock. Static instability generally involves movement that starts at a slow rate and could result in massive displacement of large volumes of material if not corrected. Seepage/stability correction projects are classified as major rehabilitations for dam safety. Dam modification work is proceeding under existing authorities on projects where cost effective risk reduction measures have been identified in accordance with national priorities.

BUDGET REQUEST: The \$49,100,000 requested for Fiscal Year 2010 will be used (1) for high priority studies (\$34,650,000) and (2) to continue post-evaluation work (\$14,450,000) on high risk dam safety assurance, seepage control, and static instability correction projects.

(1) Evaluation Studies \$34,650,000 is requested. The Corps Screening Portfolio Risk analysis has identified 72 Dam Safety Action Class I and II critical projects for studies during Fiscal Year 2010. These are the highest priority projects where studies have not been completed in prior years. These studies were previously budgeted under the Operations and Maintenance appropriation prior to Fiscal Year 2008

Dam Safety Assurance Studies

Cherry Creek Dam, CO  
 Dworshak Dam, ID  
 Isabella Dam, CA

John Day Lock & Dam, OR & WA  
 Martis Creek Dam, CA & NV

Seepage/Stability Correction Studies

Addicks Dam (Buffalo Bayou), TX  
 Allegheny L&D 6, PA  
 Arkabutla Dam, MS

Ball Mountain Dam, VT  
 Barker Dam (Buffalo Bayou), TX  
 Beach City Dam, OH

**Dam Safety and Seepage/Stability Correction Program (Continued)**

Seepage/Stability Correction Studies (continued)

Blakely Mountain Dam, AR	Markland Locks & Dam, KY & OH
Bolivar Dam, OH	Mill Creek & Mill Creek Diversion Dam, WA
Bonneville Lock & Dam, OR & WA	Mississippi River Lock & Dam 1, MN
Brookville Dam, IN	Mississippi River Lock & Dam 2, MN
Cape Fear River Lock & Dam 1, NC	Mississippi River Lock & Dam 3, MN
Cedars Lock & Dam, WI	Mississippi River Lock & Dam 24, IL & MO
Charlerio (MonoR), PA	Mississippi River Lock & Dam 25, IL & MO
Cumberland Dike – Texoma, OK	Mohawk Dam, OH
Curwensville Dam, PA	Montgomery Locks & Dam, PA
Delaware Dam, OH	New Cumberland L&D, WV
Depere Gen Laws, WI	Nolin Lake Dam, KY
Dworshak Dam, ID	Orwell Reservoir Dam, MN
East Branch Dam, PA	Patoka Lake Dam, IN
Foster Dam, OR	Proctor Dam, TX
Green River Lake Dam, KY	Russell B Long L&D, LA
Hammond Dam, PA	Rapide Croche Lock & Dam, WI
Hartford Levee at John Redmond, KS	Robert S. Kerr Lock & Dam, OK
Herbert Hoover Dike (Reach 2 & 3), FL	Rough River Lake Dam, KY
Hidden Dam, CA	Salamonie Lake Dam, IN
Hop Brook Dam, CT	San Antonio Dam, CA
Howard A. Hanson Dam, WA	Stillhouse-Hollow Dam, TX
J Percy Priest Dam, TN	Thomas J. O'Brien Controlling Works L&D, IL
J. Edward Roush Dam, IN	Terminus Dam, CA
Keystone Lake Dam, OK	Town Bluff Dam, TX
La Grange L&D, IL	Trinidad Dam, CO
Lake Shelbyville Dam, IL	Westville Lake Dam, MA
Lewisville Dam, TX	Whitney Levee, TX
Little Chute, WI	Whittier Narrows Dam, CA
Magnolia Levee (Bolivar Dam), OH	Willamette Falls Lock, OR
Mansfield Hollow Dam, CT	

(2) For Post-Evaluation Work \$14,450,000 is requested for Fiscal Year 2010. These funds will be used to continue post-evaluation work on high risk dam safety assurance, seepage control, and static instability correction projects, once their evaluation reports are approved.

APPROPRIATION TITLE: Construction – Fiscal Year 2010

**Employees Compensation (Payments to the Department of Labor)**

Allocation FY 2009	\$20,664,000	Tentative Allocation FY 2010	\$21,000,000
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GENERAL: Public Law 94-273, approved April 21, 1976, 5 USC 8147b, provides that each agency shall include in its annual budget estimates a request for an appropriation equal to costs previously paid from the Employees Compensation Fund on account of injury or death of employees or persons under the agency's jurisdiction.

BUDGET REQUEST: The \$21,000,000 requested for Fiscal Year 2010 represents the total costs of benefits and other payments made from the Employees Compensation Fund during the period July 1, 2007, through June 30, 2008, due to injury or death of persons under the jurisdiction of the Corps of Engineers civil functions and also includes \$1,200,000 for the investigation of fraudulent claims for workers' compensation benefits.

APPROPRIATION TITLE: Construction, FY 2010

Navigation Projects

**Inland Waterways Users Board**

SUMMARIZED FINANCIAL DATA:

Estimated Annual Cost for Continuing Program	\$350,000
Appropriation for FY 2008	300,000
Appropriation for FY 2009	292,000
Allocation Requested for FY 2010	335,000
Change in FY 2010 from FY 2009	43,000

AUTHORIZATION: The Inland Waterways Users Board was established by Section 302 of the Water Resources Development Act of 1986, (PL 99-662) and pursuant to the Board's charter, approved by the Secretary of the Army on March 3, 1987. The Board is an advisory committee subject to the requirements of the Federal Advisory Committee Act (PL 92-463, as amended).

JUSTIFICATION: The \$335,000 requested this Fiscal Year is to support, operations and expenses of the Inland Waterways Users Board (the Board), established by Section 302 of the Water Resources Development Act of 1986, (PL 99-662) and pursuant to the Board's charter, approved by the Secretary of the Army on March 3, 1987. The Board is an advisory committee subject to the requirements of the Federal Advisory Committee Act (PL 92-463, as amended).

(1) Funds in the amount of \$60,000 are requested to meet the estimated expenses of the eleven-member Board for its travel, meeting, and other needs to meet the requirements of the charter. Board member travel expenses have increased from prior years due to inflation, primarily for airfares.

(2) Funds in the amount of \$275,000 are requested for Corps of Engineers expenses related to its responsibilities as an advisory committee sponsor and to facilitate reevaluation of the financial structure of the Inland Waterways Trust Fund. The Deputy Commanding General for Civil Works and Emergency Operations has been designated Executive Director to the Board, and he has designated staff members to provide continuing Board support. Corps expenses will include personnel costs for administrative Board meeting support, including staff travel, clerical, printing, and related materials. Additionally, increased staff time is needed due to the ongoing reevaluation of the financial basis of the Inland Waterways Trust Fund, which falls under the advisory purview of the Board. The fund has depleted the balance and is now only sustained by current revenue flows. The Office of Management and Budget (OMB) and the Office of the Assistant Secretary of the Army (Civil Works) (ASA(CW)) have directed that alternatives to the current Inland Waterways fuel tax be developed. Legislative and administrative changes to the fund will begin to be implemented during FY 2010. Proposed alternatives will require intensive coordination with the Board and stakeholder groups.

ACTIVITIES IN FY 2009: The FY 2009 appropriations included \$292,000 for these activities. FY 2009 activities include Corps personnel costs to coordinate, attend, and provide analytical support for three scheduled meetings of the Board pursuant to their charter. Support also includes Board meeting logistics, including staff travel, clerical, printing, and related materials. Additional staff time is supporting a reevaluation of the financial basis of the Inland Waterways Trust Fund, which falls under the advisory purview of the Board. Corps personnel are working with the OMB and ASA (CW) to develop alternatives to the current Inland Waterway fuel tax.

PROPOSED ACTIVITIES FOR FY 2010: Proposed activities include Corps personnel costs to coordinate, attend, and provide analytical support for three meetings of the Board pursuant to their charter. Support will also include Board meeting logistics, including staff travel, clerical, printing, and related materials. Additional staff time will be required to support legislation and implementation of alternatives to the current Inland Waterways fuel tax, as directed by ASA(CW) and OMB. Proposed alternatives will require intensive coordination with the Board and inland navigation stakeholder groups.

**Estuary Restoration Program (Title I of P.L. 106-457)**

Allocation FY 2009	\$1,914,000	Allocation FY 2010	\$5,000,000
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AUTHORIZATION AND PROGRAM DESCRIPTION: The Estuary Restoration Act of 2000, Title I of P.L. 106-457, as amended, authorizes the Secretary to carry out estuary habitat restoration projects recommended for implementation by the Estuary Habitat Restoration Council and meeting various criteria. Each project must address restoration needs identified in an estuary habitat restoration plan, be consistent with the estuary habitat restoration strategy developed under the Act, include a monitoring plan that is consistent with the standards for monitoring developed under the Act and include satisfactory assurance from the non-Federal interests proposing the project that the non-Federal interest will have the capability to carry out items of local cooperation, including maintenance. Except when innovative technology is involved the Federal share may not exceed 65 percent of the cost of the project. Non-Federal interests shall provide lands, easements, rights-of-way and relocations and are responsible for all costs associated with operating, maintaining, replacing, repairing, and rehabilitating the projects.

ACTIVITIES: Eight projects are in various stages of implementation. Examples include a small dam removal on a tidal stream on the Eastern Shore of Maryland, removal of invasive species and re-vegetation with native species in Florida estuaries, and reconnecting an oxbow near the mouth of a tributary to Lake Erie. The quality of the proposals received continues to improve. A new solicitation was issued and FY 2009 funds will be used to support new projects selected from the proposals received. Selection and notification should occur by Fall 2009. Healthy estuaries play an important role in the life cycles of many aquatic species with high commercial value from blue crabs to salmon. Healthy estuarine wetlands contribute to improved water quality and may aid in the reduction of flood risks. Recognizing the critical importance of estuaries for healthy coasts and the continued pressure increasing coastal populations place on these resources, the Act set an ambitious target of restoring 1,000,000 acres of estuary habitat by 2010. This funding will contribute to efforts towards achieving that goal.

BUDGET REQUEST: The \$5,000,000 requested for Fiscal Year 2010 is to continue the program of estuary habitat restoration, primarily initiation of new projects.

REMAINING ITEMS

OPERATION AND MAINTENANCE

Appropriation Title: Operation and Maintenance – Fiscal Year 2010

1. Operation and Maintenance

Actions for Change to Improve Operation and Maintenance

Total Estimated Federal Cost	Allocation Prior to FY 2009	Allocation FY 2009	Tentative Allocation FY 2010	Additional to Complete After FY 2010
62,000,000	4,980,000	1,323,000	8,000,000	47,697,000

**SCOPE:**  
USACE has embarked on a program for quickly incorporating the lessons learned from Hurricane Katrina into “Actions for Change”. The 4 Themes in the Actions for Change are interrelated and interdependent, and will be fully integrated for execution. Operation and Maintenance activities are:

OM - Theme 1 - Comprehensive Systems Approach (3,800,000)  
Emphasizes an integrated, comprehensive and systems based approach incorporating anticipatory management to remain adaptable and sustainable over the project life cycle, placing the highest priority on protection of public health and safety. Update existing and develop new tools to provide analyses and decision support on a system basis; enhance multi-objective decision making for post-construction evaluation of project outcomes; provide methods and guidance to incorporate adaptive management into decision making to account for dynamic processes such as sea level rise and climate change; streamline Post-Authorization Change process; implement nationwide datum and subsidence standard method; implement risk-based asset management framework; consolidate and expand policies, methods, and technologies to achieve long-term sustainability of USACE infrastructure..

OM - Theme 2 – Risk Informed Decision Making (3,400,000)  
Emphasizes integrated risk management through implementation of risk and reliability concepts in planning, design, construction, operations and major maintenance and to improve its review of completed works program. Update methods, models guidance to assess engineering and operational reliability of local protection systems; fully develop risk analyses concepts, including social and environmental impacts; update levee certification guidance; upgrade the ICW and RIP programs; apply innovative modeling methods used in IPET to identify failure causes due to soil conditions for other regions with levees of concern; develop capability to model the risk and reliability effects of surge and overtopping including any dynamic effects.

OM – Theme 3 - Communication of Risk to the Public (600,000)  
Emphasizes clear and candid communication of risk both internally and externally, supporting risk-informed decision making over the project life cycle. Improve ways to characterize and communicate public health and safety for our built infrastructure. Conduct detailed review and revision of existing engineering and operations guidance to include risk communications. Apply new system framework for existing projects that incorporates public involvement in risk reduction strategies.

OM - Theme 4 – Professional and Technical Expertise (200,000)  
Emphasizes professionalism and technical competence to provide responsible and competent public service professionalism with life safety as a fundamental driver. Operating and maintaining USACE’s aging infrastructure requires unique skill sets that differ from those needed for the planning and engineering of new projects. The O&M portion of this theme will include investments that will better equip staff competencies in the key areas of dam and levee safety as well as normal project operations.

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### JUSTIFICATION:

USACE must improve its ability to provide safe, reliable projects working together as a system with increased economic and environmental benefits through an integrated, comprehensive, sustainable, and systems-based approach that places the highest priority on protection of public health and safety. A systems and risk-based approach to capture the impacts of incremental changes that result from natural, dynamic processes and human activities throughout the lifecycle, combined with more comprehensive review of projects, will allow USACE to more fully address risks due to flooding and coastal storms in their decision-making. USACE will increase emphasis on aligning federal, state, and local projects, programs and authorities for risk management; on making decisions collaboratively; on improving communication about residual risk, and on explaining the public's roles and shared responsibility for risk reduction across all missions over the entire project life cycle..

### FY 2009 Accomplishments:

FY 2009 funding enabled USACE to improve the methods for Inspection of Completed Works (ICW) to include an assessment of engineering safety and operational adequacy based on the results of the Interagency Performance Evaluation Task Force (IPET) and the Hurricane Protection Decision Chronology (HPDC); began to link or upgrade existing O&M databases to be capable of tracking the effects of incremental changes over time and improving decision-making on a watershed scale; developed guidance for levee certification and incorporation of sea level change impacts; improved the methods and technology for gage survivability during major coastal storms; improved the engineering reliability models of levees and floodwalls due to the effects of surges and overtopping; began developing the methods for incorporating adaptive and asset management and sustainability into decision making (particularly a nationwide standard that accounts for changes in the vertical geodetic datum and subsidence); produced an interagency report on climate change and water resource management to serve as the foundation for future changes; and updated guidance.

### FY 2010 Activities:

FY 2010 funding continues building on work accomplished to respond to critical needs identified by IPET, HPDC, the National Academy of Science, the American Society of Civil Engineers' External Review Panel, and others in the wake of Hurricane Katrina. USACE will incorporate the new methods in programs and activities that enhance the operation, safety and sustainability of our built infrastructure based on those lessons learned. Specifically, FY 2010 funding will be used to continue updating of guidance for operations and maintenance; continue development of supporting technologies to improve the effectiveness of post-authorization evaluations and assessments of incremental change over time; enhance the use of adaptive management in project operation and maintenance through policies and development of a technical guide; address climate change impacts to water resources projects, with particular emphasis on developing the framework for how climate change and sea level change should be considered in making decisions for existing infrastructure investments; continue to implement the consistent nationwide project datum and associated subsidence standards and certification; develop policies and methods to infuse sustainability into practice; develop supporting methods and technologies to support the transformation of ICW from project element inspection to a risk-based system assessment; advance the understanding of risk and reliability modeling of surge and overtopping; continue to develop and deliver improved methods and guidance for better communication of risk to the public impacted by our infrastructure; and improve professional and technical competence in areas of particular importance to operations and maintenance.



## **Aquatic Nuisance Control Research**

### SUMMARIZED FINANCIAL DATA:

Estimated Annual Cost of Continuing Program	\$2,000,000
Appropriation for FY 2009	\$ 628,180
Allocation Requested for FY 2010	\$ 690,000
Increase of FY 2009 from FY 2010	\$ 61,820

AUTHORIZATION: The Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990 (PL 101-646). The National Invasive Species Act of 1996 (PL 104-332) reauthorized and amended the Nonindigenous Aquatic Nuisance Prevention and Control Act.

JUSTIFICATION: Invasive species cost the public over \$137 billion annually. It is now estimated that over 100 nuisance species are introduced into U.S. waters annually – many of which adversely impact operations and maintenance on Corps' facilities - as well as threaten valued natural resources. Zebra mussel impacts alone cost the public over \$1billion annually. Methods of prevention and more effective, inexpensive methods of control of invasive species must be developed to prevent impacts to public facilities and protect valuable natural resources.

Research efforts have been expanded under the Aquatic Nuisance Species Research Program (ANSRP) to address invasive aquatic species that impact the nations' waterways infrastructure and associated resources. Methods for prevention, control, and restoration of natural resources will be developed. Control strategies are being developed for: (a) navigation structures, (b) hydropower and other utilities, (c) vessels and dredges, and (d) water treatment, irrigation, and other water control structures.

Research studies include: 1) The evaluation of potential control/barrier methods for Asian carps moving up the Mississippi River to the Great Lakes, 2) new techniques for control of Zebra and Quagga Mussels moving westward past the 100<sup>th</sup> meridian, 3) Improved control methods for harmful algal blooms through new chemicals and life cycle sensitivity analysis, 4) Corps personnel training in recognition and control methods of ANS on Corps lands/waters, 5) Web-based regional lists of aquatic invasive species on Corps projects, and 6) Methods to reduce invasive species impacts to threatened and endangered species and restore natural habitat.

### PROPOSED ACTIVITIES FOR FY 2010:

1. Develop guidance on effective deterrents against Asian carp movement and colonization.
2. Evaluate new barrier techniques for restricting invasive fish movement in navigable waterways.
3. Determine and quantify the impacts of Asian carps on aquatic ecosystems.
4. Develop new techniques for the detection and control of zebra and quagga mussels in the western U. S.
5. Evaluate and provide guidance on mitigation strategies for preventing shoreline/bank erosion caused by armored suckermouth catfishes.
6. Update and add new ANS profiles to the Invasive Species Information System database.
7. Characterize environmental factors which trigger production of algal toxin(s) and the subsequent development of Avian Vacuolar Myelinopathy (AVM) disease in waterfowl and their avian predators (e.g., American bald eagle).
8. Develop cell-line assays for quantifying AVM algal toxin production.

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ACCOMPLISHMENTS IN FY 2009:

1. Evaluated the effectiveness of electrical barriers on preventing Asian carp movement into Lake Michigan.
2. Developed long-term management and control strategies for silver and bighead carp in big river field studies.
3. Improved survey methodologies for monitoring the occurrence of toxin-producing algae linked to AVM disease.
4. Provided web-based guidance for the identification, distribution, biology, and management of AVM-algae.
5. Determined the impacts of invasive armored catfishes on shoreline erosion.
6. Developed a cost template for surveying and reporting COE invasive species expenditures.
7. Developed a comprehensive, web-based Invasive Species Information Database which profiles the identification, distribution, and management options for economically/environmentally important ANS species in North America.
8. Determined physiological tolerances for zebra and quagga mussel veliger production and settlement.
9. Provided guidance and federal interagency collaboration on effective zebra and quagga mussel monitoring and management.

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**Asset Management and Facilities Equipment Maintenance (FEM) system**

SUMMARIZED FINANCIAL DATA:

Estimated Annual Cost of Continuing Program	\$ 4,750,000
Appropriation for FY 2009	\$ 4,750,000
Allocation Requested for FY 2010	\$ 4,750,000
Change in FY 2010 Over FY 2009	\$ 0

AUTHORIZATION: EO 13327, “Federal Real Property Asset Management,” Feb 2004; DOD (ASD (C<sup>3</sup>I)) memorandum, 10 Jul 95, selecting the FEM system as a DoD migration system for Computerized Maintenance Management System [CMMS].

JUSTIFICATION:

Asset Management -- The goal of the EO 13327 Real Property initiative is to ensure that property inventories are maintained at the right size, cost, and condition to support Corps of Engineers missions and objectives. Agencies are required to meet standards within three broad categories; develop Asset Management Plan, maintain Accurate and Current Inventory, and identify and implement Real Property Performance Measures. In addition to meeting Chief Financial Officers Act requirements, the new and evolving data and performance requirements will require further integration between automated information systems and aggressive data QA/QC and validation. Federal agencies are required to report annually to the Federal Real Property Profile (FRPP). Based on the FY2006 FRPP submission, Corps Civil Works assets have a total Property Replacement Value of \$200 billion. A robust national inventory of assets is essential for communicating best practices, assessing the overall condition of the portfolio, prioritizing investment decisions and disposal of property that is not needed. Asset Management supports the President’s Management Agenda (PMA) initiatives of e-government and sharing best practices among other federal agencies such as National Park Service, USBR, DoD, GSA, NASA, as well as the Corps corporate strategic vision and campaign goal of life cycle infrastructure management.

Facilities and Equipment Maintenance (FEM) system – The Facilities and Equipment Maintenance (FEM) system is a computerized maintenance management system (CMMS) that provides an on-line interactive tool for managing the life cycle activities and costs of assets, facilities, and equipment. The program also provides purchasing, warehouse and inventory management, and other tools for integrated operations and maintenance (O&M) management. The FEM system is based on the commercial off the shelf (COTS) product MAXIMO, and was selected by the Department of Defense as the standard system for managing and maintaining assets and equipment within government depot maintenance activities.

FEM will facilitate the planning and documentation of asset O&M activities and work, at the component level, across the Corps. Accurate, life cycle operations and maintenance historical data directly supports the Corps’ Asset Management effort. FEM was deployed in FY05/FY06 within the Northwestern Division and will be fully deployed, nation-wide, by the end of FY10.

The Navy System Support Group (NSSG) is the DoD FEM Program Manager. NSSG provides FEM program management and product support, including contracting services to the Corps.

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Funding Profile

	Actual FY 2008	FY 2009	FY 2010
Asset Management (AM)	1,739,000	2,750,000	2,750,000
Facilities and Equipment Maintenance (FEM)	2,000,000	2,000,000	2,000,000

**PROPOSED ACTIVITIES FOR FY 2010:**

Asset Management – Continue operation and maintenance of real property performance measures in the real property information database and system. Continue the utilization of a specialized QA/QC process for maintaining and collecting real property asset information. Implement consistent standards across business lines and/or asset classifications for data, reporting, condition assessment and disposal. Provide the capability to track the use of performance measures for selected sets of assets for incorporation in routine decision making and long range life cycle planning. Meet the agency identified annual target for disposition of unneeded assets. Develop and implement business practices that will aid in right-sizing the inventory to meet our mission. Continue to meet requirements of the PMA scorecard and monitor progress. Implement real property unique identifiers (RPUIDs) across relevant automated information systems for the purpose of integration and data exchange.

FEM – Complete FEM deployment in remaining Regional Business Centers. Continue FEM deployment in USACE Labs and Centers. Continue compliance with ongoing information technology security requirements, and business investment certifications under OMB 300, plus DoD Business Enterprise Architecture under the National Defense Authorization Act of FY05. Evaluate performance metrics. Review and improve best business processes within O&M business lines. Pursue more robust integration with other Corps automated information systems. Continued enhancement planning with systems such as mobile technology to support other legacy systems and reliability centered maintenance.

**ACCOMPLISHMENTS IN FY 2009:**

Asset Management – Continued operation and maintenance of real property performance measures in the real property information database and system. Continued to reconcile and close data gaps and performance measures and continue data validation. Improved inventory system quality and reporting capabilities to ensure ability to meet current inventory reporting requirements as well as new ones from the Department of Defense. Continue integration with necessary automated information systems. Implemented condition assessment methodologies across portfolio of infrastructure assets. Continued development and implementation of the asset management framework. Continued to meet OMB requirements and monitor progress by updating quarterly PMA scorecard. Developed metrics; identified best management practices and benchmarks to develop a risk based process for prioritizing maintenance and capital improvement investments. Integrated inventory information with condition assessment information into geospatial visualization tool.

FEM – FEM deployment in five Regional Business Center deployments concluded. Completed resolution of procurement, inventory and timekeeping interface requirements with the Corps' financial management system and other corporate legacy systems. Complied with information technology security requirements, and business investment certifications under OMB 300, and DoD Business Enterprise Architecture under the National Defense Authorization Act of FY05. Development of performance metrics progressing to measure effectiveness of FEM to enable asset management. Development of best business processes within O&M business lines and integration with other Corps AIS progressing. Continued enhancement planning with systems such as mobile technology to support other legacy systems and reliability centered maintenance.

Budget/Management Support for O&M Business Programs

SUMMARIZED FINANCIAL DATA:

Estimated Annual Cost of Continuing Program	\$6,792,000
Appropriation for FY 2009	\$5,865,000
Allocation Requested for FY 2010	\$6,792,000
Increase in FY 2010 from FY 2009	\$927,000

**Stewardship Support Program \$750,000**

AUTHORIZATION: This program is conducted under the authority of ER 1130-2-540, Chapter 7.

JUSTIFICATION: The Stewardship Support Program was established in FY 02 to provide broad support to Environment-Stewardship function at operating projects by assisting in the identification of national program needs, the development of new national program activities, strategic program planning, and the recommendation of national stewardship program funding priorities. Support will be provided in refining the Environment–Stewardship business program strategic plan and goals, and budget processes, to address the targeted outcomes of the overall Corps CW Strategic Plan, using input from the Stewardship Advisory Team, other associated Corps business programs and stakeholders. Goals and objectives have been refined, and actions will be identified to achieve them. Funding this program from a single source reflects the nationwide application and supports standardization in program direction and outputs.

The SSP supports the Environment–Stewardship program by addressing issues or initiatives that have a broad applicability to many USACE Civil Works projects. The three basic components of the SSP are:

(1) Focused Management Actions and Studies. These activities are to implement a course of action or practice within field office activities, a region, or nationwide. Examples of management actions might include developing/ assembling an array of management practices for establishing riparian habitat, or creating a forum to share common experiences, build teams, and disseminate information. Examples of management studies might include the riparian corridors research or conducting studies on management of threatened and endangered species.

(2) Policy Guidance and Management Support. Such activities relate to the development and/ or implementation of guidance. Examples of policy guidance included facilitating cooperative agreements with stewardship non-governmental organizations, or amending the annual Budget Engineer Circular to provide emphasis on conducting inventories of regionally or nationally significant resources.

(3) Information Exchange. These activities are designed to build, integrate, and share our knowledge base to support greater understanding of the environment and the impacts of program work.

PROPOSED ACTIVITIES FOR FY 2010:

The SSP will conduct focused management action studies and recommend guidance to address high priority program efficiency and effectiveness concerns, including responses to findings that result from an independent assessment of the stewardship business program area. Efforts will continue in support of

performance based budgeting including further development of performance measures, development of strategies to improve program outputs and outcomes, and refinement of E-S BEST and related guidance to monitor program performance. The increase of \$250,000 in the Stewardship Support Program funding will be to provide national support for two areas of strategic and performance priority within the Environmental Stewardship program. Identifying threats and significance of natural resources across the nation will provide a better evaluation and achievement of national strategic goals. Under the additional funding new technologies and national data sets will be utilized to more objectively and accurately evaluate threats and significance. Funding will also assist in the completion of the level one natural resources inventory and assessing conditions of project lands. Progress in recent years on developing standards, published protocols and web-based data entry programs have resulted in improvements in advancing completion of the inventories. Increased technical support to the field will provide training and guidance to assist in completion of the level one inventories during 2010. This funding will result in completion of one of the PART measures and allow focus of 2011 funding to be targeted to other high priority needs.

The SSP will also continue support of the Environment-Stewardship Community of Practice (CoP) including further development of the NRM Gateway for information and technology exchange. These activities will provide benefits in increased program effectiveness through implementation of assessment recommendations. Improved program performance will be facilitated through increased CoP access to best practices and policy guidance, and effective development and execution of performance based budgets.

ACCOMPLISHMENTS IN PRIOR YEARS: The allocation of project operations and maintenance funds to conduct specified nationwide (multiple project) activities to improve the efficiency and cost effectiveness of the Environment-Stewardship business program has been employed, with subcommittee staff knowledge and concurrence, since the late 1990s for activities similar to those identified for FY 2009. Past products of the Stewardship Support Program include the initial set of Environment-Stewardship program performance measures, which are in accord with the Government Performance and Results Act and used to measure and monitor priority program outputs and outcomes; the Stewardship module of the Operations and Maintenance Business Information Link (OMBIL), which receives and stores selected data concerning the stewardship of project natural resources, and which provides for retrieval of that information by all levels of the Corps; the pilot version of the Environment-Stewardship Budget Evaluation System (E-S BEST) used to assist in developing budget scenarios and ranking budget proposals. Components of the Environment-Stewardship portion of the Natural Resources Management (NRM) Gateway, a knowledge management tool for the NRM community, have been completed and others are underway. Support to Headquarters was provided to develop and refine; the Environment-Stewardship business program strategic plan and 5-year development plan, the program management plan for the Environment-Stewardship Community of Practice, and the annual Environment-Stewardship program development guidance.

**Performance Based Budgeting Support Program    \$4,000,000**

**AUTHORIZATION:** The Government Performance and Results Act of 1993 (GPRA) and under general authorities contained in various laws.

**JUSTIFICATION:** The President's management agenda and GPRA requires that the Corps implement performance based budgeting for Civil Works Operations and Maintenance, General Program. The Performance Based Budgeting Support Program addresses this requirement by the collection, management and distribution of data; seeking new methods for linking performance to annual budget requests; and for analyzing the potential economic impacts on customers of varying budget levels.

a. Civil Works Business Function Information: Provides critical data and information related to Civil Works project inventories, outputs and performance measures; and for the operational and strategic management of Corps' projects, programs, budget development and studies that directly support the Navigation, Hydropower, Recreation, Environment (Stewardship, Compliance, Restoration), Water Supply and Flood Risk Management Business Line missions. This

information supports the Corps O&M program and is the sole source for the Corps, other Federal agencies, partners, stakeholders, and public. These funds include supporting the database management, integration, standardization, operation, enhancement, quality control, user assistance, training, compliance with security requirements and ACE-IT services. It is reported under OMBIL-Plus in ITIPS and the OMB 300b submittal accounting for \$1,568,000 of the overall OMBIL-Plus costs. . Lack of funding for this program would significantly reduce the Corps' ability to produce efficient, effective, and timely performance measures for budgeting, management and the PART.

b. Civil Works Performance Measurements: Work includes improvement of performance measurements to be incorporated into the budget decision-making process; support for the Office of Management & Budget's Performance Assessment Rating Tool (PART) initiative; and support for the future Corps budget preparation process. Efforts focus on the refinement of corporate performance principles; and program and project level performance measures that focus on anticipated performance and output at different levels of funding in accordance with the revised finance and accounting cost codes that now align with the O&M business processes - navigation, hydropower, flood risk management, recreation, water supply and environment. These measurements, at different organizational levels, provide the analytical basis to identify the incremental return on investment in Corps programs at various funding levels and to make adjustments in priorities both at the program and project levels concerning efficiency of facilities or services. Comparison of measurements among projects at all levels helps focus management attention on corrections of program or project deficiencies.

c. Civil Works Business Analysis: This task analyzes data using statistical and other analytical techniques and tools to uncover relationships among budget, expenditures and performance within and between Corps business processes. The relationships and statistics drawn from the data may provide evidence to support an increase in expenditures to improve performance. This task will also develop effective graphics to explain relationships found in the data and allow decision-makers to visualize cause and effect. This task links the data gathering, collection and distribution, and use of data in the decision-making process.

PROPOSED ACTIVITIES FOR FY 2010: Requested FY 2010 funds will provide continuing support of Civil Works O&M integrated information systems; centrally distributed performance measures, outputs and system inventory information; and evaluation of new measures. FY 2010 funds will also support enhanced development of output-oriented performance measures of the incremental return on investment in Corps Civil Works program areas, including acquisition and training in decision-making software. The \$500,000 increase in funding will also provide enhanced support to flood risk management, environmental restoration, and the data entry modules for natural resources.

ACCOMPLISHMENTS IN PRIOR YEARS: Included were newly fielded centralized natural resource collection system and user's training in OMBIL data entry and access. The One-stop access for much of Civil Works budget performance information was expanded for budget submittals in lieu of separate data calls. Critical business and performance data was supplied to the recreation and environment-stewardship budget tools in FY05-FY08. A new data collection module was created in FY07 to support water supply as a new Civil Works business line,. Performance data was merged with P2 for use in the navigation budget development process in FY07 and FY08.

**Recreation Management Support Program    \$1,650,000**

AUTHORIZATION: This program is conducted under the general authority of PL 78-534, the Flood Control Act of 1944 (58 Stat. 887).

JUSTIFICATION: The recreation program serves almost 400 million recreation visitors and generates about \$40 million in revenue annually. Visitors spend over \$12 billion annually to engage in recreation at Corps projects; over 500,000 full and part time jobs are associated with this spending.

The RMSP supports the recreation program through the conduct of focused management studies to improve operational efficiencies and the provision of technical assistance, to include technology transfer and technology support and maintenance for recreation specific automated information systems. The RMSP supports strategic planning for and performance monitoring of the Corps recreation business program, subject to the Government Performance and Results Act (GPRA).

The RMSP has 3 major components, which together provide comprehensive support to the Corps Recreation Business Program:

1. **Focused Management Studies.** RMSP provides focused management studies and reports to acquire and analyze information about recreation trends, accessibility, emerging issues, user conflicts, visitor diversity, use fee impacts and similar elements affecting the Corps recreation program. Analyses are conducted to support the recreation area modernization program, implementing facility and service standards, and in similar product delivery improvement efforts. Information and technology transfer pursuant to these studies is funded by the RMSP. Ongoing trends analysis provides valuable data on which to base decisions about necessary short and long term adjustments to the program to meet public needs.
2. **Management/Technical Assistance.** RMSP provides technical assistance to the Recreation Community of Practice in the development of management tools, which quantify recreation program outputs and relate them to customer needs and budget allocations for the purpose of measuring performance. This includes gathering and analyzing information about customer satisfaction with the Corps recreation program. RMSP assures the field workforce is equipped with "state-of-the-art" skills and knowledge to deal with a rapidly changing public. RMSP provides technical support and maintenance of performance based budgeting tools, visitation monitoring and analysis systems, fee collection and reporting, economic analysis, facility inventory and condition assessment, and similar automated information programs. RMSP provides short-term assistance to projects in solving specific technical problems.
3. **Support to Recreation Program Strategic Planning.** Funding to support the activities of the Recreation Leadership Advisory Team (RLAT) is included in this program. The RLAT is composed of representatives from the division, district and project levels of the Corps natural resources management program. It provides input, advice and support to the Corps strategic planning for the recreation business program.

**PROPOSED ACTIVITIES FOR FY 2010:** Minimum/Recommended Program: The Recreation Budget Evaluation System (RecBEST) will be refined to increase the capability to monitor and report Recreation performance measures and evaluate and prioritize budget submissions in response to OMB guidance. The Recreation module of the Natural Resource Management Gateway will be further developed to address high priority needs. Demonstrations will be conducted to identify and communicate the benefits of the Corps recreation program and improve effectiveness in addressing the needs of ethnic minority visitors. Emphasis will be placed on improving recreation use monitoring procedures that will be incorporated into recreation performance measures. Customer satisfaction survey methods and benchmarking capabilities will be refined and fully integrated into program performance measures. Technical support will be provided to field staff to implement improved procedures. Support will be provided to standing NRM committees and task forces including: Recreation Program Performance Improvement Initiative, Recreation Entrance Fee Policy Development, Partnerships Demonstration Program, Water Safety, Career Development etc. Support will be provided to Headquarters Recreation program staff regarding strategic planning, development of program evaluations and other high priority Headquarters initiatives. The increase from \$1600k to \$1650k will provide resources for evaluation tasks associated with the implementation of the Recreation Strategic Plan.

#### ACCOMPLISHMENTS IN PRIOR YEARS:

Past products include Recreation Budget Evaluation System (RecBEST), visitation estimation methodology and data collection and reporting tools, economic impact methodology and analysis tools, customer satisfaction survey and benchmarking tools implemented at all CE projects, studies on recreation preferences of ethnic groups including cross-cultural communication issues, and support for development of a strategic context as a foundation for transitioning to a performance based environment, to include performance based budgeting. The Natural Resources Management Gateway was developed as a knowledge management tool for



the NRM community and is compatible with other Corps KM and Community of Practice initiatives. The Corps Lakes Gateway was developed and provides information to millions of visitors annually on recreation opportunities at Corps projects. The Corps Lakes Gateway also delivers Corps recreation information to the interagency RecreationOneStop project in support the Administration's E-GOV initiative. Guidance and appropriate tools were developed to improve interpretive services associated with the CE recreation program that advance the public's understanding of the environment and the Corps Environmental Operating Principles. Support to Headquarters was provided to refine the recreation business program strategic plan, utilizing input from the RLAT and stakeholders. Goals and objectives were refined, and actions identified to achieve them. Innovative partnership approaches were developed and field guidance prepared to improve stakeholder participation. Stakeholder outreach was conducted to develop partnerships for strategic initiatives.

**Optimization Tools for Navigation (OTN) Program \$392,000**

AUTHORIZATION: Related efforts are necessary to provide practical quantitative & predictive tools and data for minimizing and optimizing the costs of dredging of Federal navigation projects, leveraging development & improvement of channel design criteria across the Corps, the U.S. Navy, & other government/academic institutions. These efforts are essential to providing data & analysis for efficient & effective management of critical national waterborne navigation infrastructure.

JUSTIFICATION: To maintain the Nation's Federal navigable waterways, nearly 270 million cubic yards of material are dredged in the U.S. annually. In addition, the national "2020" plan for deeper & wider channels to support emerging commercial cargo vessel designs brings great uncertainty on credible prediction of maintenance requirements. Changing political, engineering, environmental, & demographic factors will increasingly influence project costs. Additionally, constrained appropriations to support the O&M dredging program have resulted in full channel dimensions being available less than an average of 35% of the time at the 59 highest use U.S. harbors, with even lesser availability at lower use projects. This impacts the reliability and economic competitiveness of U.S. ports and raised stakeholder objections that the surplus in the Harbor Maintenance Trust Fund is not being appropriated for the purposes intended. OMB has requested the Corps develop metrics that would help demonstrate the return-on-investment to justify increased dredging funds. The National Navigation Operation & Management Evaluation Assessment System (NNOMPEAS) is being developed with the Waterborne Commerce Statistics Center (WCSC) to demonstrate whether such a metric can be provided across all harbors and waterways. This tool will use domestic & foreign trade data to determine & analyze the loaded drafts of vessels of all recorded vessel calls for individual harbors and channels & will provide for estimation of transportation cost benefits foregone with reduction or absence of maintenance and will offer the potential to optimize maintenance dredging requirements for individual channel reaches & across much of the overall USACE dredging program. The NNOMPEAS initiative is supported by the HQ Navigation Business Line Manager and by ASA(CW). A companion tool being developed under the OTN program is the Channel Analysis Design Evaluation Tool (CADET), which will allow sophisticated vessel hull modeling not previously available. IWR is conducting this modeling activity jointly with ERDC & the U.S. Naval Academy (USNA). CADET will render advanced technologies for methods of analysis & compilation of new physical & numerically-generated data sets descriptive of vessel movement & response within confined waterways. Technological change & emerging vessel hull configurations in the shipping industry require prudent foresight & ongoing efforts to adequately plan for future maintenance dredging activities. Resulting datasets & analytical procedures will in turn be practically applied to more accurately determine channel dimension requirements associated with evolving or foreseeable vessel designs. This vessel hull modeling effort will also generate essential data on hull designs, vessel dynamics & channel configuration in order to optimize and minimize ongoing & future maintenance dredging requirements.

PROPOSED ACTIVITIES FOR FY 2010: Proposed FY 10 funds of \$392,000 will provide a critical increase of \$127,000 from FY 09 and will be used to accelerate the nationwide deployment of NNOMPEAS methodology and allow its use as a budgeting tool per the direction of HQ and OMB. These funds will also continue physical model hull construction & testing in collaboration with ERDC, NAVSEA-CARDERO, the USNA, & for the coordination & technical support for vessel motion research with completion of the analysis being undertaken regarding U.S. Naval vessel requirements.

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ACCOMPLISHMENTS IN PRIOR YEARS: FY 08 and FY 09 funds were used to work with WCSC and the South Atlantic Division to develop NNOMPEAS linkages between vessel call and vessel characteristic data sets, develop discrete channel segments and compile dredging costs and quantities for these segments at selected proof-of-concept harbors, and conduct test runs for these harbors. FY 09 funds also supported continued work of ERDC, CARDEROC, & IWR activities for improvements to CADET vessel hull modeling effort and initiation of physical testing of model hulls.

7 May 2009

## Coastal Inlets Research Program

### SUMMARIZED FINANCIAL DATA:

Estimated Annual Cost of Continuing Program	\$4,000,000
Appropriation for FY 2009	\$2,297,000
Allocation Requested for FY 2010	\$3,000,000
Change in FY 2010 from FY 2009	\$ 703,000

**AUTHORIZATION:** Authorization for the Corps of Engineers Engineer Research and Development Center (ERDC) to conduct R&D is codified in 10 U.S.C. 2358: “The Secretary of Defense or the Secretary of a military department may engage in basic research, applied research, advanced research, and development projects that are necessary to the responsibilities of such Secretary’s department in the field of research and development.”

**JUSTIFICATION:** In FY 2008, the Corps spent approximately \$749 million in maintenance dredging of 190 million cubic yards from Federal navigation channels. Adjusted for inflation, dredging costs have increased approximately \$6.1 million/year from FY 1963 through FY 2008 with increases in number, length, and depth of navigation channels (<http://www.iwr.usace.army.mil/ndc/dredge/ddhisMsum.pdf>). For the same period, also adjusted for inflation, dredging costs have increased from \$1.53 to \$3.19 per cubic yard and are likely to increase in the future due to increasing fuel prices. To be competitive, harbors and ports must deepen and widen navigation channels to accommodate larger, more advanced international vessels. Dredging in and around the more than 500 coastal inlets and harbor channels is a significant portion of total dredging cost, as the ages of stabilization and sediment-retaining structures such as jetties, interior revetments, and jetty spurs exceed 100 years. Changes in coastal inlet channels and jetties can have a profound effect on the integrity of the navigation structures, adjacent beaches, and estuary. Demand for regional sediment management practices and mitigation for engineering activities includes innovative creation of nearshore berms with dredged sand intended to provide a source of sand for nourish the adjacent beaches as well as renewable placement sites for O&M dredging. Determining proper design and siting of berms such that sand moves onshore, the fines are dispersed offshore, and re-deposition into the navigation channel is minimized requires three-dimensional characterization of hydrodynamics, sediment transport, and morphology change. Thus, navigation project O&M, structure integrity and implications of ongoing and future dredging actions must be considered within a sediment-sharing inlet system. The Corps needs advances in knowledge and tools to better predict future channel shoaling, design solutions to reduce dredging magnitudes and costs, while improving navigability of the nation’s waterways, and maintaining the integrity of beaches and estuaries adjacent to coastal inlets. This applied research and development is necessary to provide quantitative and practical predictive tools and data for reducing the cost of dredging Federal navigation projects, maintaining inlet jetties, mitigating for engineering activities related to navigation channels, prioritizing maintenance options within budget constraints, and supporting national security efforts to protect waterways and ports.

### PROPOSED ACTIVITIES FOR FY 2010:

- Release beta version of the Coastal Structure Management, Analysis, and Ranking Tool (CSMART). CSMART contains information on 600+ coastal structures from six separate data sources: IWR public domain waterborne commerce reports, NOAA NMFS fish landings data, USACE dredging information system, US Coast Guard incident reports database, USDOT cruise line statistics, and USDOT ferry passenger data. The beta version will include cargo value estimates, improved GoogleEarth™ viewing options, and interfacing with other R&D tools for coastal structures management such as the Enterprise Coastal Inventory Database (ECID).
- Release beta version of the Channel Prioritization Tool (CPT). CPT includes data from 75 port zones and covers more than 400 individual channels and sub-reaches with information on depth utilization by commercial shipping and cargo value estimates for each channel. The CPT provides a consistent,

transparent decision-support framework for determining channel performance and economic viability. The beta version will include improved access to the latest channel condition assessments using automated uploading of hydrographic survey data and georeferenced channel footprints for automated linkage with commercial loading docks.

- Supply analysis tools, guidance, and model pre-and post-processing of tide, wave, and wind data used as forcing for Coastal Modeling System (CMS) simulations. This toolbox will reduce time required for creating model input data sets and analyzing output.
- Extend the CMS to the vertical in three-dimensional (3D) calculations of sediment transport and morphology change under waves and currents. The present 2D CMS represents all major horizontal flows; 3D processes represent vertical flows and subsequent transport processes by undertow, wave asymmetry, bottom streaming, and bottom boundary layer processes. These 3D processes are required to accurately calculate berm stability and movement for sediment with mixed grain size where the acting forces are nearly balanced. Guidance for using 3D and protocols for seamless change between 2D and 3D will be developed.
- Test CMS technology on nearshore berms (dredged material disposal), including new feature of wave asymmetry. Potential movement of nearshore berms towards shore cannot be modeled without consideration of wave asymmetry, limiting evaluation of regional sediment management alternatives, and nearshore berm creation is usually a least-cost disposal method.
- Release CMS upgrade and readily updated wiki-based documentation for mixed sediment grain size calculations.
- Develop guidance for long-term calculations relating to O&M activities. Extend the Inlet Reservoir Model for long-term, time-dependent channel shoaling and O&M dredging of the channel. Develop guidance for long-term calculations with the CMS using Rapid Analysis of Morphology Change (RAM) calculation method. This topic addresses the issue that the morphology around an inlet will evolve to a new and different shape as compared to the existing shape when repairs or modifications to structures are made.
- Develop and test beta version of Section 111 Toolbox. Integrates tools and guidance for updating and conducting new Section 111 Studies (assessment of federal responsibility for damage caused by navigation projects). Will provide a standard, defensible methodology Corps-wide.
- Conduct tech-transfer workshops for Corps, consulting engineering companies, and academia on efficient coastal inlet channel design, nearshore berm design, advanced wave modeling for vessel transit and structure stability, and long-term morphology prediction of inlet O&M and navigation project modification for adjacent beaches and estuaries.

ACCOMPLISHMENTS IN FY 2009: The CIRP successfully completed all project requirements and produced the following products:

- Identified coastal inlet structure data sources for 100 locations and gathered statistical information on economic activity supported by these structures, with emphasis placed on the most economically critical structures. This database provides a means to prioritize repairs of critical infrastructure with limited Federal funding.

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- Advanced calculation speed for the CMS with Non-Equilibrium Transport, telescoping grid capability, and parallel processing upgrades. CMS is the Corps' work-horse for numerically simulating combined wave, current, sediment transport, morphology change, and salinity transport near coastal inlet navigation channels, adjacent beaches, estuaries, and bays.
- Improved and validated wave runup and overtopping calculations on rubble-mound jetties, breakwaters, and revetments. Applied new technology to Matagorda Ship Channel, TX (SWG), Kawaihae Harbor, HI (POH), Packery Channel Inlet, TX (SWG), Pensacola Pass, FL (SAM), and Blind Pass, FL (SAJ).
- Upgraded Tidal Analysis Prediction (TAP) Toolbox. Calculation routines for developing, analyzing, and forecasting tidal calculations.
- Developed beta Inlet Engineering Toolbox. Collection of rapid analysis tools useful for reconnaissance-level studies and to provide benchmarks in comparison with more detailed calculations with numerical models.
- Developed beta version of Channel Shoaling Toolbox, including historical channel shoaling database and analytical shoaling tools. The relationship between channel dimensions and O&M requirements allows the Corps to realistically assess the long-term regional sediment management and cost implications of channel modifications.
- Initiated wiki-based documentation for CMS and other guidance developed in CIRP. User's guides and manuals change rapidly with upgrades to technology. Wiki-based (online) access allows guidance updates to be tracked and accurate with each improvement in model and tool release.
- Conducted three technology-transfer workshops on Coastal Inlets Research Program products, covering numerical models, engineering guidance, and field measurements. Published numerous peer-reviewed articles and technical reports. Publications and latest CIRP information is housed on <http://cirp.wes.army.mil/cirp/cirp.html>.

Navigation Projects

**Beneficial Uses of Dredged Material (CAP Sections 145, 204, 207)**

SUMMARIZED FINANCIAL DATA:

Appropriation for FY 2009	\$3,828,000
Allocation Requested for FY 2010	\$9,175,000

AUTHORIZATION: Section 204 of the Water Resources Development Act (WRDA) of 1992 Public Law (PL) 102-580, Section 207 of PL 102-580, and Section 145 of WRDA of 1976 (PL 94-587), as amended by Section 933 of PL 99-662, Section 35 of PL 100-676, Section 207 of PL 102-580, Section 217 of PL 106-53, and Section 111 of PL 106-541.

JUSTIFICATION: Section 204 authorizes projects for the protection, restoration, and creation of aquatic and ecologically related habitats, including wetlands, in connection with dredging for construction, operation, or maintenance of an authorized navigation project. Section 204 total program limit is \$15,000,000. Non-Federal interests are required to share in a minimum of 25 percent of the cost of each project. Section 207 modified Section 204 by authorizing disposal in any manner for which the environmental benefits outweigh the added costs. Section 145, as amended, authorizes placement of dredged material from Federal navigation projects on adjacent beaches if the state or a political subdivision of the state agrees to pay 35 percent of the incremental costs of such placement over the alternative least-cost, environmentally acceptable method of disposal. Policy for beach nourishment with dredged material limits Federal participation in such projects to one-time nourishment at each site.

PROPOSED ACTIVITIES FOR FY 2010: Projects for use of the requested funds in order of priority:

<u>SECTIONS 145, 204, 207 PROJECTS OR ACTIVITIES IN PRIORITY ORDER</u>	<u>STATE</u>
BLACKHAWK BOTTOMS, DES MOINES COUNTY	IA
MAUMEE BAY REGIONAL SEDIMENT MANAGMENT	OH
WYNN ROAD REGIONAL SEDIMENT MANAGMENT	OH
CALCASIEU RIVER, MILE 5.0 - 14.0, CAMERON PARISH	LA
ATACHAFALAYA RIVER, SHELL ISLAND PASS, ST MARY PARISH	LA
NJIWW BENEFICIAL USE OF DREDGE	NJ
NEWBURYPORT HARBOR	MA
BARATARIA BAY WATERWAY, MILE 6.0-0.0, PLAQUEMINES PARISH	LA
SOUTH PADRE ISLAND	TX
MANTEO OLD HOUSE	NC
CAPE COD CANAL, SANDWICH	MA
BUFFALO RIVER	NY
COORDINATION SECTIONS 145, 204, 207	US

Navigation Projects

**Navigation Mitigation Projects (CAP Section 111)**

SUMMARIZED FINANCIAL DATA:

Appropriation for FY 2009	\$4,306,000
Allocation Requested for FY 2010	\$9,043,000

AUTHORIZATION: Section 111 of the River and Harbor Act of 1968 (PL 90-483), as amended, authorizes the construction of projects for the prevention or mitigation of shore damages attributable to Federal navigation works.

JUSTIFICATION: The cost of installation is cost shared in the same manner as the costs for the project causing the shore damage were shared. The cost of operation and maintenance is borne by the non-Federal sponsor. Projects first cost shall not exceed \$5,000,000 without specific authorization by Congress.

PROPOSED ACTIVITIES FOR FY 2010: Projects for use of the requested funds in order of priority:

<u>SECTION 111 PROJECT OR ACTIVITY IN PRIORITY ORDER</u>	<u>STATE</u>
CAMP ELLIS, SACO	ME
MOBILE PASS	AL
MANISTEE HARBOR & RIVER CHANNEL	MI
WHITCOM FLATS	WA
BRUN HARBOR/JEKYLL IMPROVEMENTS	GA
VERMILLION HARBOR	OH
FAIRPORT HARBOR	OH
EAST PASS CHANNEL, PANAMA CITY	FL
LOOMIS LANDING	AR
COORDINATION SECTION 111	US

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	Total Estimated Federal Cost Annual Program	Allocation Prior to FY 2009 340,000 <sup>#</sup>	Tentative Allocation FY 2009 600,000	Tentative Allocation FY 2010 5,000,000	Additional to Complete After FY 2010 5,000,000 Annual (5-year) Program
Response to Climate Change at Corps Facilities (New)					

SCOPE:

Climate change has the potential to affect almost all of the missions of the U.S. Army Corps of Engineers (USACE). The objective of this effort is to partner with other Federal science and water management agencies, and other stakeholders, to develop and begin implementing practical, nationally consistent, and cost-effective approaches and policies to reduce potential vulnerabilities to the Nation’s water infrastructure resulting from climate change and variability. The operations and water management control activities associated with the existing capital stock of USACE water projects provides the largest challenge given future climate change and variability. In order to ensure continued effective and efficient water operations in both the short (5-10 years) and longer term (10—50 Years), nationally consistent, but regionally tailored water management adaptation strategies and polices are needed. Such policies must balance project operations and water allocations within authorized project purposes, with changing water needs and climate driven changes to operating parameters, working in close coordination with a wide variety of intergovernmental stakeholders and partners. This effort will provide planning and engineering guidance to ensure future infrastructure is designed to be sustainable and robust to a range of potential changes. USACE has begun coordination with other Federal and State agencies on adaptations to climate change for water resources and coastal management, including the U.S. Geological Survey (USGS), U.S. Bureau of Reclamation (USBR), the U.S. Department of Transportation (USDOT), National Oceanic and Atmospheric Administration (NOAA), the Environmental Protection Agency (EPA) and other water managers such as the California Department of Water Resources (CaDWR). The proposed activity will provide a critical mass of resources to support the development of consistent policies among Federal agencies toward climate change. The following are some proposed activities:

- Workshops and pilot studies on methods and policies to address climate change for water management and environmental restoration.
- Continued revision of planning and engineering guidance on sea level rise and coastal storms.
- Evaluation of the impacts of climate change on ecosystems and the potential effects on USACE infrastructure and ecosystem restoration projects.
- Development of methods and policies to deal with hydrologic frequency analysis under changing conditions.
- Risk analysis for new unexpected conditions such as flood events from glacial dam outbursts and coastal erosion in Alaska.
- Support for Corps regulators on dealing with climate change in permitting decisions.
- Development of regional climate change impact assessments for water resources planning, particularly as applied to the existing portfolio of USACE projects.

JUSTIFICATION:

There is increasing concern among the public and the scientific community regarding climate change. In order to be responsive to these concerns, the Corps is committed to working closely with other Federal agencies; utilizing risk-based planning and a proactive adaptive management approach to infrastructure life-cycle management as a framework for Corps adaptation to climate change. Climate change may affect almost all USACE missions: flood risk management, inland navigation, ecosystem restoration, coastal protection, hydropower, recreation, and water supply. The regulatory program (404) is already being affected by concerns about climate change and some states have passed regulatory requirements regarding climate change. The Corps views these responsibilities from a life-cycle standpoint, which starts with planning processes, engineering and ecosystem management designs, and continues with development and implementation of project and system operating plans - all of which need to adapt to changing conditions. The Corps must remain a leader in developing and applying adaptive, life-cycle approaches and policies to address potential climate change impacts to ensure civil works infrastructure can respond to the Nation’s

<sup>#</sup> Funding from ED&M and Actions for Change    <sup>\*</sup> Assumed allocation; final, actual allocation yet to be determined.



needs, now and in the future.

FY 2008 Accomplishments:

During Fiscal Year 2008, the USACE Institute for Water Resources (IWR) has continued or begun several activities regarding climate change:

- Initiated coordination with other Federal agencies and stakeholders including USGS, NOAA, and USBR on climate change and water management and with USGS, NOAA, and FEMA on climate change and coastal issues.
- Supported a committee of the Transportation Research Board (with USDOT, EPA, and others) that completed the report “Potential Impacts of Climate Change on U.S. Transportation”.
- Completed a climate change pilot study for the Western States Watershed Study that evaluated the potential impact of climate change on reservoir rule curves for flood storage.
- Provided support to the National Integrated Drought Information System (NIDIS).
- Provided support to Corps HQ on climate change policy and on interagency climate change initiatives including Federal interagency climate change and water work group and climate change science program.

FY 2009 Accomplishments and Activities:

Fiscal Year 2009 activities include the following activities:

- Completed a report with the U.S. Geological Society (USGS), the U.S. Bureau of Reclamation (USBR), and the National Oceanic and Atmospheric Administration (NOAA) on “Climate Change and Water Resources: A Federal Perspective” that provides the best available science to help water managers prepare for and adapt to the effects of climate change on the nation’s water resources.
- Developed a strategic plan for how USACE water managers can better adapt to potential climate changes.
- Completed an Engineer Circular on sea level change that provides interim guidance on how coastal engineers and planners should consider sea level change in plans and designs.
- Began coordination with the Environmental Protection Agency to evaluate climate change impacts on wetlands and the 404 regulatory program.

FY 2010 Activities:

The following new activities are planned to begin in FY 2010:

- A basin pilot study on the nation’s major river basin systems in coordination other Federal agencies and state and local stakeholders on methods to address climate change for water control and reservoir systems operations; including at least one western states pilot for reservoir systems with USBR, State and local flood/water districts, and other stakeholders to evaluate scenarios for managing flood storage with other water management objectives under climate change.
- Support for Corps regulators on dealing with climate change in permitting decisions. The work will include workshops for Corps regulators and coordination with other environmental agencies, particularly the Environmental Protection Agency, in order to develop a consistent Federal approach.
- In collaboration with science and resource agencies, evaluation of the impacts of climate change on ecosystems and their potential effects on USACE infrastructure and ecosystem restoration projects and development of guidance and policies for alleviating potential impacts
- In collaboration with other water agencies, development of methods and policies to deal with hydrologic frequency analysis under changing conditions.
- Review of effects of climate change in Northern regions, including changing snow conditions and ice impacts, and development of risk analysis methods for new Alaska conditions, including coastal erosion and unexpected flood events due to glacial dam outbursts.
- In collaboration with science agencies, development of regional climate change impact assessments for planning evaluation, particularly as applied to the existing portfolio of USACE Civil Works flood risk and coastal storm risk management systems and projects.

**Cultural Resources (NAGPRA/Curation)**

SUMMARIZED FINANCIAL DATA:

Estimated Total (FY 1994 - 2020) Program cost	\$ 44,000,000
Allocation Requested for FY 2009	\$ 1,500,000
Allocation Requested for FY 2010	\$ 2,500,000
Change of FY 2010 from FY 2009	\$ 1,000,000

AUTHORIZATION: The Native American Graves Protection and Repatriation Act (NAGPRA) enacted on 16 November 1990 contains data gathering, reporting, consultation, repatriation, and permitting provisions that have near-term and long-term implications for Civil Works programs and projects.

JUSTIFICATION: The Native American Graves Protection and Repatriation Act (NAGPRA) addresses the recovery, treatment, and repatriation of Native American and Native Hawaiian cultural items by Federal agencies and museums. As defined by the Act, cultural items are human remains, associated funerary objects, unassociated funerary objects, sacred objects, and objects of cultural patrimony. In FY 1994, the Corps began the process of inventorying human remains and associated funerary objects and completing summaries as mandated by the legislation. In addition, the Corps is responsible for curation of cultural resource materials collected from its water resources development projects. A Mandatory Center of Expertise (MCX), located at the St. Louis District, provides overall management of the Corps NAGPRA programs and serves as an information source and a centralized base for curation compliance and contracting. The MCX will facilitate the assurance of consistent nationwide program implementation and operation. The Corps is responsible for the curation of at least 46,255 cubic feet of artifacts collected from its water resources development projects and at least 3,511 linear feet of associated records. Curation of these materials, the largest volume of all federal agencies responsible for this activity, is required by a number of public laws with implementing guidance in 36 CFR Part 79. Corps collections represent over 80 percent of the total DoD collections. These extensive collections are located in hundreds of curation facilities across the nation. The costs are to accomplish NAGPRA work and to fund MCX curation support to the districts. The MCX, in providing NAGPRA inventories, will assist in establishing the extent of Corps holdings. Associated with efforts to complete NAGPRA and because of the fragile nature of many of the artifact and record collections, the MCX is seeking to accelerate the process of effectively managing the Corps curation efforts. Funding this item will ensure full USACE compliance with NAGPRA legislation and expedite the stabilization, proper storage, and curation support to all Districts.

PROPOSED ACTIVITIES FOR FY 2010: The MCX and Corps Commands will continue the process of inventorying Native American and Native Hawaiian human remains and associated funerary objects and complete summaries of unassociated funerary objects, sacred objects, and objects of cultural patrimony as mandated by the legislation. Additional funding for FY2010 will assist in decreasing backlog of items and increase the cultural resources management performance measure under the PART. Information will be made available to interested individuals and groups through notices in the Federal Register. Through MCX provided funding, districts will continue to be engaged in formal consultation with tribes and organizations for the legislated purpose of repatriating cultural objects for which there are legitimate claims. The MCX will continue to fulfill its chartered activities in support of other military services and DoD, lead in the implementation of an agency-wide, long-term plan for the curation of USACE archeological collections (heritage assets). The MCX will also continue to work closely with USACE commands on the implementation of final guidelines and procedures for field collection of archeological materials and the long-term treatment of those collections. In this regard, the MCX will act as a source of expertise for processing and rehabilitation of USACE collections. Finally, the MCX will provide leadership in the development of a training curriculum on the treatment of heritage assets and working in consultation with all stakeholders, take initial steps to make this training available to USACE and other appropriate DoD managers and decision makers. As Corps compliance with NAGPRA Sections

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5 – 7 approaches completion, the MCX will place staffing and other resources in a position to accelerate the rehabilitation and long-term management of archeological artifacts collections and associated records that are assessed to be at the greatest risk of deterioration or damage. MCX-CMAC will implement the initial phases of the curation task plan, which involves addressing the rehabilitation needs of USACE's most critical archeological collections.

ACCOMPLISHMENTS IN PRIOR YEARS: A Mandatory Center of Expertise (MCX), located at the St. Louis District, was established to provide overall management of the Corps NAGPRA programs and has served as an information source, a centralized base for curation compliance and contracting. The MCX has facilitated the assurance of consistent nationwide program implementation and operation. The MCX, in providing NAGPRA inventories, has assisted in establishing the extent of Corps holdings. Associated with efforts to complete NAGPRA, the MCX began the process of effectively managing the Corps curation efforts. Corps reporting compliance with NAGPRA will approach approximately 80% by the start of FY08. A phased task plan for curation has been developed.

**Dredge Wheeler Ready Reserve**

**SUMMARIZED FINANCIAL DATA:**

Estimated Annual Cost of Continuing Program	\$12,000,000
Allocation for FY 2009	\$11,139,000
Allocation Requested for FY 2010	\$12,000,000
Increase of FY 2010 over FY 2009	\$ 861,000

**AUTHORIZATION:** Section 237 of the Water Resources Development Act of 1996 (WRDA '96) contained a provision requiring the Corps Hopper Dredge WHEELER to be placed in a ready reserve status.

**JUSTIFICATION:** Section 237 requires that no individual project funds may be used to fund the dredge in its ready reserve status unless the dredge is specifically used in conjunction with a project. Prior to Fiscal Year (FY) 1998, the costs for operation of the Hopper Dredge WHEELER had been charged to benefiting projects funds from the Operation and Maintenance appropriation, and is eligible for reimbursement from the Harbor Maintenance Trust Fund. In FY 1998, the Hopper Dredge WHEELER was placed in a ready reserve status as required by the above referenced section of WRDA '96.

**PROPOSED ACTIVITIES FOR FY 2010:** The Hopper Dredge WHEELER, will remain in ready reserve status, and will be required to be able to perform emergency dredging work, but will not be assigned any scheduled hopper dredging work. The dredge will be placed in an active status in order to perform work in those instances when private industry fails to submit a responsive or responsible bid for advertised dredging, or where industry has failed to perform under an existing contract. Dockside overhaul is scheduled for the first quarter of FY10.

**ACCOMPLISHMENTS IN PRIOR YEARS:** The Hopper Dredge WHEELER was kept at the dock, with sufficient crew to respond to any unforeseen requirement within 72 hours and to work for approximately three continuous weeks. The dredge was maintained in a fully operational state and periodically performed routine dredging operations to test equipment and keep the crew trained and prepared. The Hopper Dredge WHEELER performed approximately 60 days of training during the year. In every year but one, since being placed in ready reserve status in 1998, the Hopper Dredge WHEELER was called out to perform urgent dredging to assist industry dredges in restoring navigation channels and waterways.

**Dredge McFARLAND Ready Reserve (New)**

SUMMARIZED FINANCIAL DATA:

Estimated Annual Cost of Continuing Program	\$12,000,000	
Allocation for FY 2009	\$ 0	1/
Allocation Requested for FY 2010	\$12,000,000	
Increase of FY 2010 over FY 2009	\$12,000,000	1/

1/ McFARLAND has been funded annually through FY09 with funds from projects on which the vessel worked.

AUTHORIZATION: Section 2047(a) of the Water Resources Development Act (WRDA) of 2007, Federal Hopper Dredges, which amends Section 563, Hopper Dredge McFarland, of WRDA 1996, contains a provision requiring the Corps Hopper Dredge MCFARLAND to be placed in a ready reserve status not earlier than 1 October 2009, and not later than 31 Dec 2009, and to use the vessel solely for urgent and emergency purposes in accordance with existing emergency response protocols.

JUSTIFICATION: Section 2047(a) requires that no individual project funds may be used to fund the dredge in its ready reserve status unless the dredge is specifically used in conjunction with a project. Prior to Fiscal Year (FY) 2010, the costs for operation of the Hopper Dredge MCFARLAND has been reimbursed from project funds from the Operation and Maintenance appropriation, and is eligible for reimbursement from the Harbor Maintenance Trust Fund. In FY 2010, the Hopper Dredge MCFARLAND will be placed in a ready reserve status as required by 2047(a) of the Water Resources Development Act of 2007.

PROPOSED ACTIVITIES FOR FY 2010: The Hopper Dredge MCFARLAND will enter ready reserve status, and will be required to be able to perform emergency dredging work, but will not be assigned any scheduled hopper dredging work other than dredging tests in the Delaware River and Bay. The Hopper Dredge MCFARLAND will remain at the dock, with sufficient crew to respond to any unforeseen requirement within 72 hours. The dredge will be maintained in a fully operational state and perform approximately 70 days of routine dredging operations to test equipment and keep the crew trained and prepared. The dredge will be placed in an active status in order to perform work in those instances when private industry fails to submit a responsive or responsible bid for advertised dredging, or where industry has failed to perform under an existing contract.

ACCOMPLISHMENTS IN PRIOR YEARS: The Hopper Dredge MCFARLAND has been in “active” status and performed approximately 140 days of work along the East and Gulf Coasts moving upwards of 6 million cubic yards of dredged material annually.

**Dredging Data and Lock Performance Monitoring System**

SUMMARIZED FINANCIAL DATA:

Estimated Annual Cost for Continuing Program	\$1,595,000
Appropriation for FY 2009	966,280
Allocation Requested for FY 2010	1,150,000
Increase of FY 2010 over FY 2009	183,720

AUTHORIZATION: These efforts are necessary to provide dredging and lock data for efficient management of Congressionally authorized navigation projects, to meet the performance requirements of the Presidents Management Agenda (PMA), to supply data for programs that are rated by the Program Assessment Rating Tool (PART) as well as to respond to specific public laws, including PL 96-269 (Minimum Dredge Fleet), PL 100-656 (Small Business Set-Aside), for meeting the Government Paperwork Elimination Act (GPEA) and Clinger-Cohen/IT Management Reform Act.

JUSTIFICATION:

a. **Dredging Data and Lock Performance Monitoring System:** The dredging and lock data collection and processing programs provide information for the Corps operational and strategic management decisions; for performance indicators of the navigation projects and programs; for the budget formulation process; and input for improvement studies in direct support to the Navigation Business Line mission. Information includes Corps performed and contracted dredging (location, quantity, cost etc.); all lock activities (barges and tons of commodities, chamber unavailability, processing times, delays etc.), and physical descriptions of all the Corps owned/operated locks. The funds support the database management, operation, enhancement, quality control, user assistance, training, compliance with security requirements and CEEIS services. Both systems are the sole source of dredging and lock data/information for the Corps, Federal government and industry. These databases are transactional systems within the Corps centralized Operations and Maintenance corporate information system. They are reported under OMBIL-Plus in ITIPS and the OMB 300b submittal accounting for \$812,000 of the overall OMBIL-Plus costs.

b. **Future National Dredging and Port Requirements.** Technological change in the shipping industry is a continual process requiring ongoing analytical efforts to estimate the nation's future maintenance dredging needs. Update of current and future vessel characteristics, channel dimensions, commodity origins-destinations, vessel cost parameters, and other shipping data are needed to support the Corps maintenance dredging program. Tasks include tracking world trade and vessel fleet forecasts; analyses of current and projected trade patterns; assessing capability of planned and underway channel improvements to meet current and future demand, and the collection and associated analysis of dredging information and performance data in support of CW navigation program decisions and budget priorities.

PROPOSED ACTIVITIES FOR FY 2010: Continue to support the Corps Navigation responsibilities and be responsive to changing data needs by deploying the integrated LPMS/OMNI lock data input system, maintaining the Lock and Dredging information systems and data warehouse, providing essential upgrades, security and user support; developing additional data warehouse reports to support emerging data requirements for the performance based budget; and work with the Inland Marine Transportation System (IMTS) to monitor performance as implementation progresses. Coordinate and share data with other navigation information databases such as Silent Inspector and Asset Management to reduce data redundancy and provide more robust information. Complete the deployment of the automated real time lock data collection at the remaining Corps navigation locks. Continue tracking forecasts for the world vessel fleet, commodities and trade; expand voyage ports-of-call information for

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containerships; and continue analyses of marine transportation system current and future channel and infrastructure requirements for coastal harbors and inland waterways. Provide dredging and lock analytical, technical, and data support for Corps HQ, division and district offices.

ACCOMPLISHMENTS IN PRIOR YEARS: Provided lock and dredging data and information critical for navigation performance measures, budget preparation and prioritization, the assessment of dredge bidding competition, national and regional trends in dredging costs and quantity, the annual small business reports for SADBU, and lock availability and performance. Performed operations, maintenance, system upgrades, security and user support for dredging and lock data systems. Initiated and deployed a program to automatically collect real-time lock data of timing events to significantly improve data quality while providing the lock operator improved situational awareness, more flexibility in his ability to manage workload and more time to perform the primary function of safely locking vessels. Conducted in-depth review of Dredging Information System and implemented changes in response to the GAO study of benefits and effects of the Corps dredge fleet. Modified the Dredging Information System to meet a HQ requirement to track ARRA funded dredging projects. An overview of the status of U.S. harbor and inland waterway improvement projects was updated, including funding and project schedules. World trade forecasts were updated and world fleet database was obtained. Technical and analytical assistance provided on channel and navigation infrastructure needs to HQ and Corps offices.

## Dredging Operations and Environmental Research (DOER) Program

### SUMMARIZED FINANCIAL DATA:

Estimated Annual Cost of Continuing Program	\$7,000,000
Appropriation for FY 2009	\$5,644,000
Allocation Requested for FY 2010	\$7,000,000
Change in FY 2010 from FY 2009	\$1,356,000

**AUTHORIZATION:** The Water Resources Development Acts of 1986, 1988, 1990, 1992, 1996, and 1999 contained provisions addressing contaminated sediments in navigation channels, dredged material management, and beneficial uses that mandates a continuing need for innovative and enhanced technology.

**JUSTIFICATION:** The last comprehensive research effort on contaminated sediments and dredged material management was completed in 1978 under PL 91-611. More recent Water Resources Development Acts contained provisions addressing contaminated sediments in navigation channels, dredged material management, and beneficial uses that mandate a continuing need for innovative and enhanced technology. Contaminant detection limits are now so low that sub-trace levels of toxic substances are identified. High profile contaminants continue to plague numerous Federal and permitted dredging projects. Traditional upland disposal areas have reached or are approaching capacity with few opportunities for new facilities. Aquatic placement is under increased scrutiny due to habitat degradation concerns and expanded listings of aquatic threatened and endangered species such that this economically preferable alternative is contested by increased litigation and substantially higher costs. Environmental standards and controls for all dredged material placement alternatives are increasingly restrictive and continue to grow in number. An incomplete understanding of dredging management practices (e.g., deployment of silt curtains in unsuitable hydrodynamic conditions) can be costly and ineffective. Performance standards and guidance for existing and improved practices are critical needs. Risk-based assessments and management have gained acceptance; unfortunately the Corps' corporate technology base is diminishing and must be maintained. Beneficial use/reuse of dredged material is a priority and environmental resource protection is a mandate; however, costs are increasing due to the constraints noted above. Continued economic viability and security of the Nation will depend upon our ability to remove, manage and beneficially reuse dredged material in a cost-effective and environmentally responsible manner. Continued engineering and environmental innovation will be essential to keep costs within budget constraints.

The DOER Program is an integral and highly beneficial component of the Corps' navigation dredging and environmental protection missions. Dredging and disposal must be accomplished within a climate of increased dredging workload, fewer placement sites, increased environmental constraints, and decreasing fiscal and manpower resources. Balancing environmental protection with critical economic needs while accomplishing dredging activities is a major challenge. The DOER program has validated innovative technologies for managing high profile contaminants and developed risk-based assessments that will significantly reduce testing costs at virtually all harbors. Methods for reclamation and reuse of contaminated sediments from upland disposal areas for beneficial purposes as well as increased capacity are key components of the program that will result in significant fiscal, manpower and time resource savings.

Major focus areas of DOER include: (1) operations technologies, (2) environmental resource protection, (3) dredged material management, and (4) risk.

### PROPOSED ACTIVITIES FOR FY 2010:

**Operations Technologies:** The OT Focus Area will conduct R&D to: (1) identify, or develop where necessary, innovative dredging operations technologies (processes or resources) that are considered by the practicing dredging community as desirable, but too risky and / or unfamiliar to apply during routine US navigation channel maintenance, (2) test these innovative (new) dredging technologies in locations and situations suitable to demonstrate performance in terms of defined metrics, and (3) ensure diffusion of well-performing technologies into the community of practice. Specific FY10 products include:



- Post guidance on the “DoIT” website to facilitate identification and evaluation of innovative technologies
- Publish results of diesel fuel additive performance tests
- Publish findings of engineering evaluation of new bed leveler designs
- Publish results of field testing of new high resolution density probe for fluid mud surveys
- Publish system level findings of Phase I Silent Inspector trends/benefits tool development effort
- Implement initial applications of real-time Silent Inspector operating anomalies detection capability
- Develop Users Manual for dredged material placement site and pipeline dredge selection integration tool

**Environmental Resource Protection:** The ERP Focus Area will 1) initiate new investigations into management practices to protect endangered species during the construction and maintenance of navigation projects, with an emphasis on blockage of migration and hydraulic entrainment, 2) apply new far-field dredging process models in association with actual projects to demonstrate their utility in assessing risk factors, 3) obtain field data to verify the modeling tools, 4) begin research to fill knowledge gaps related to status and recovery of Interior Least Tern as coordinated with regional team, and 5) fully integrate new online tools for T&E Species incidental take management. Specific FY10 products include:

- Publish results of field studies of entrainment of riverine sturgeon
- Publish results of field studies characterizing habitat use of Piping Plover at coastal engineering project sites with recommendations for protective measures
- Publish findings related to improved technologies for detection of sturgeon and risk factors for sturgeon encountering dredging operations
- Publish results of field trials of re-designed sea turtle rescue trawling gears and approaches
- Publish results of investigations into fishery resource use of dredged material placement sites and associated beneficial uses of dredged material
- Complete laboratory investigations of effects of suspended sediment exposure on early life history stages of key fish species
- Publish initial results of new simulation tools for predicting exposures of fish eggs and larvae using PTM applications

**Dredged Material Management:** The objective of this focus area is to 1) understand (quantify, constrain, and parameterize) dredging physical processes and 2) use this understanding to develop tools for dredged material management (DMM) on project and regional scales as well as life-cycle management. Specific FY10 products include:

- Publish results of investigations of flocculation processes in suspended sediment plumes
- Publish results of studies related to wave-induced erosion of dredged material deposits
- Publish results of bottom boundary layer sediment-fluid interaction studies
- Complete dredging water quality model interface
- Refine applications and expand capabilities of the Particle Tracking Model
- Construct model for characterizing dense fluid dynamics in continuous discharges
- Publish risk-based criteria for selecting reuse options of dredged material in CDFs
- Publish guidance for sampling and testing protocols for sediments in CDFs in determining reuse options

**Risk:** The Risk Focus Area seeks to develop quantitative methods and tools to support the analysis of the environmental, engineering and economic risks associated with navigation dredging and dredged material management. The use of risk analysis will facilitate quantitative, comparison-based decision making in the dredging program. The products of this focus area will provide defensible, quantitative support for risk-based decision making to manage contaminated sediments while minimizing operational and environmental costs. Additional benefits of implementing these products will be reduced controversy, conflict, and

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project delays while simultaneously increasing the Corps' credibility with other agencies that embrace the risk management process. Specific FY10 products include:

- Publish guidance on passive sampling technologies using organism surrogates to measure uptake of chlorinated compounds
- Publish results of structured decision analysis integrating risk estimates for various modes of dredging
- Publish application of high-fidelity contaminant fate and transport model
- Refine model use for bioaccumulation and exposure characterizations relevant to Threatened and Endangered Species
- Publish descriptions of new innovative biotech methods for contaminant analyses
- Develop new sediment bioaccumulation tests using amphipods
- Publish results of evaluations of linkage between mixtures of tissue residues and toxicity
- Publish design specifications for reactive caps and barriers for managing contaminated dredged material

### ACCOMPLISHMENTS IN FY 2009:

The DOER Program successfully completed all of the project requirements and completed the following products:

**1. Operations Technologies:** Expanded Silent Inspector capability to provide near-real-time monitoring of dredging operations by quantifying uncertainty associated sediment volume and density. Completed development of condition assessment methods for assessing status and performance of navigation channels. Demonstrated application of Innovative Adoption Process (IAP) to encourage and manage the introduction of innovative technologies and procedures in the navigation program that can increase the efficiency of operations (i.e., reduce cost and time requirements). Demonstrated innovative dredging equipment to meet operational and environmental requirements.

**2. Environmental Resource Protection:** Expanded evaluations of efficient protection measures for Threatened and Endangered Species to minimize costs and time delays associated with achieving regulatory compliance. Evaluated new frameworks for setting environmental windows for sea turtle protection. Completed field investigations of effectiveness of silt curtains as a navigation dredging management practice. Published results of studies related to habitat management and protection of bird species. Demonstrated new technologies for detection of protected sturgeon species in the vicinity of O&M dredging projects to optimize project performance. Published findings of environmental benefits of open-water dredged material disposal options for providing fish habitat enhancement.

**3. Dredged Material Management:** Advanced current models that are used to design dredging operations to ensure that efficient operations (i.e., that minimize cost) can be conducted within regulatory limits. Improved models used to describe fluidized mud spread during barge or pipeline placement operations. Enhance Surface-water Modeling System (SMS) features for incorporating GIS data and large-domain hydrodynamic and wave models into dredged material fate models. Released guidance document for Confined Disposal Facility fast-track siting and approval planning. Released new model for describing dredged material deposition, sedimentation, and consolidation after open-water placement. Released new nearshore placement model for beneficial use of dredged material. Nearshore placement is often the lowest cost beneficial use option.

**4. Risk:** Initiated development of a high resolution model to predict the long-term, far-field movement of sediment and contaminants suspended into the water column during dredging operations. Results of this exposure modeling will be combined with existing approaches to assess environmental impacts of sediment and contaminant transport to evaluate and manage the environmental risks associated with dredging operations. Initiated development of innovative treatment technologies for contaminated dredged material to reduce the operational and long-term costs of managing contaminated dredged material. Finalized development of faster/cheaper analytical methods for evaluating contaminant movement from sediment to water and within food webs. Expanded on the development of risk-informed decision making methods to manage operational and environmental risks associated with navigation dredging.

## Dredging Operations Technical Support (DOTS) Program

### SUMMARIZED FINANCIAL DATA:

Estimated Annual Cost of Continuing Program	\$1,391,000
Appropriation for FY 2009	\$1,265,180
Allocation Requested for FY 2010	\$2,000,000
Change in FY 2010 from FY 2009	\$734,820

**AUTHORIZATION:** Authorization for the Corps of Engineers Engineer Research and Development Center (ERDC) to conduct R&D is codified in 10 U.S.C. 2358 (“The Secretary of Defense or the Secretary of a military department may engage in basic research, applied research, advanced research, and development projects that are necessary to the responsibilities of such Secretary’s department in the filed of research and development.”)

**JUSTIFICATION:** Maintenance of the nation’s navigation infrastructure requires compliance with numerous complex environmental statutes and Presidential Executive Orders. The Dredging Operations Technical Support (DOTS) Program fosters a “one-door-to-the-Corps” clearinghouse for access to comprehensive information on technology related to navigation O&M functions, including technology demonstrations and training essential to all stakeholders involved in Federal and permitted navigation projects. DOTS is structured as a centralized source for technology transfer that maximizes cost effectiveness and facilitates expeditious and consistent implementation of national policies and laws based on complex technical requirements. The DOTS Program fosters application of state-of-the-art technologies and ongoing research results for high priority problems identified by field offices. Emerging environmental concerns often cause uncertainty and unanticipated difficulties in the administration of the Corps’ navigation dredging program. The DOTS program’s technology transfer function provides access to an extensive, up-to-date, consistent technology base whereby timely, proactive responses to technical issues can be made as they emerge. This approach promotes networking and solutions to common problems confronting the navigation dredging community. DOTS supports knowledge-based exchange of information throughout the interagency coordination process. Short-term work efforts to address generic Corps-wide technical problems encountered during maintenance of navigable waterways and infrastructure are major features of the DOTS Program. Technology transfer and demonstration of new techniques with potentially high returns on investment for management of Corps navigation maintenance projects are critical DOTS functions. By disseminating technically sound knowledge to field offices constrained by staff reductions and limited resources, the DOTS Program will continue to perform a critical technology transfer role in support of all O&M navigation projects. DOTS fosters productive relationships with other federal agencies with missions relevant to navigation, particularly the US Environmental Protection Agency, and academic institutions, including the National Academy of Sciences.

### PROPOSED ACTIVITIES FOR FY 2010:

- Expanded support for technical responses to field offices encountering problematic navigation issues. Whereas DOTS has historically concentrated on dredging and dredged material placement, the program’s resources have been increasingly requested by personnel engaged in many other navigation-relevant activities (e.g., safe inland navigation lock operations, coastal inlet sedimentation issues, navigation structure performance, etc.). Increasing demand for rapid technical advice has significantly surpassed funding constraints.
- Critical support of ongoing efforts to resolve expensive, controversial conflicts between navigation O&M activities and protection of Threatened and Endangered Species through effective interagency coordination and collaboration with credible, independent third parties. One example is sponsoring the American Bird Conservancy to mediate and determine most effective recovery strategies for the endangered Interior Least Tern. Separately, ongoing engagement with multiple agencies seeking improved management practices for protection of endangered sea turtles is yielding progress toward more flexible environmental windows and potentially substantial cost savings across multiple NAD, SAD, MVD, and SWD Districts. These efforts, which have high probabilities of long-term substantive cost savings to the O&M budget require expanded short-term investments.

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- Continued coordination with the Marine Board of the National Academy of Sciences with regard to navigation-relevant issues.
- Expanded support of mandated reporting to other Federal and international agencies with regard to dredged material placement in oceanic waters and costs of compliance for navigation projects with the Endangered Species Act. DOTS has developed standardized, faster, accessible, and accurate web-based tools for satisfying these requirements. Ongoing efforts will refine these tools for expedited use by field office users.
- Expanded investment in training of Corps and regulatory agency staff in dredging and other navigation mission processes. Existing training materials that have become outdated will be revised. New opportunities for regional training exercises will be sought. Training of newly recruited Corps and regulatory agency personnel has significant payback in the form of conflict avoidance and project execution delays stemming from unfamiliarity with basic dredging processes and misperceptions. Education of personnel engaged in navigation project planning, implementation, operation, and maintenance has been identified as a critical limitation as demographics in the regulatory agencies change through pulses of retirement and recruitment.
- Continued expansion of web-based tools and access to existing knowledge pertaining to the broad navigation mission.

### ACCOMPLISHMENTS IN PRIOR YEARS:

- Emphasis was placed on effective transfer of technology developed by the Corps and others engaged in maintenance and management of navigation structures and navigable waterways. Typical technology transfer topics include: management of Confined Disposal Facilities; management of contaminated dredged material; application of innovative risk-based technologies to assess contaminated dredged material; maintenance of coastal inlets and adjacent shorelines; shoreline stabilization and river training methodologies; assessment and management protocols for beneficial uses of dredged material; channel realignments; protection of threatened or endangered species; equipment selection; operational measures for protection of Threatened and Endangered Species; rational application of environmental windows and alternative best management practices; lock and dam maintenance needs; channel and harbor maintenance activities; ship simulation applications; and numerical modeling methods for resolution of engineering and environmental issues.
- A trend for increasing need for technical responses, evidenced by consistent growth in requests submitted by field offices on an annual basis, coincides with expansion of the DOTS mission to cover all navigation-related issues in addition to dredging and dredged material disposal.
- Personnel turnover due to retirement and attrition within the Corps and other regulatory agencies has created a growing demand for training in diverse technological areas. DOTS-sponsored training of Corps staff, personnel with regulatory authority over Corps navigation maintenance activities, and other stakeholders will convey the latest findings on environmental and engineering techniques associated with maintaining navigable waterways. Training topics include dredging and dredged material disposal; coastal and inland channel maintenance needs; water quality and related aquatic environmental issues; new and emerging techniques for accurate determination of compliance with environmental protection statutes regarding management of dredged material and other features of navigation projects; development and preparation of manuals jointly with the EPA that implement the inland and ocean disposal programs; and short-term work efforts to address generic Corps-wide technical dredging and dredged material management problems related to navigation projects. DOTS continues to support development of training materials on compliance with the Endangered Species Act for Corps field offices on a regional basis.
- DOTS will continue to fill a long-standing void with respect to outreach, providing a broad spectrum of educational materials related to the Corps' navigation mission. Relying on internet resources, this activity has rapidly become an extremely effective means of conveying comprehensive, accurate information to a broad audience, including students, educators, and the general public as well as professionals.

## Earthquake Hazards Reduction Program

### SUMMARIZED FINANCIAL DATA:

Estimated Annual Cost of Continuing Program	\$270,000
Appropriation for FY 2009	270,000
Allocation Requested for FY 2010	270,000
Change in FY 2010 from FY 2009	0

AUTHORIZATION: This program is being conducted under the authority of PL 101-614, November 1990, National Earthquake Hazards Reduction Program Re-authorization Act and individual project authorizations for maintaining safety of personnel and emergency response capability.

JUSTIFICATION: The purpose of this program is to respond to the requirements of PL 101-614, National Earthquake Hazards Reduction Program (NEHRP) and Executive Order (EO) 12941, Seismic Safety of Existing Federal Buildings. The EO directs all Federal departments and agencies to develop an inventory of their owned and leased buildings and an estimate of the cost of mitigating unacceptable seismic risks in their buildings. The objective of PL 101-614 is to establish and initiate for buildings and lifelines a systematic approach to reducing loss of life, injuries, and economic costs resulting from earthquakes in the United States. Lifelines are defined as public works and utility systems.

PROPOSED ACTIVITIES FOR FY 2009: Continue development of mitigation program options to meet the executive order requirements and the legal opinion concerns, refine the develop technical seismic building evaluation criteria, refine the develop programmatic seismic criteria, refine the develop guidance or the seismic evaluation and risk mitigation of lifeline facilities, and development of building and powerhouse mitigation plan options, improve information transfer by use of videoconference calls and development of a seismic web site, and develop reports on selected study items. USACE has a legal opinion that indicates that once we have identified seismically vulnerable structures we are legally responsible to develop a plan to mitigate these vulnerabilities. The requested funds will be used to improve seismic information and requirement transfer, adjust the agency specific mitigation plan (if necessary), provide the tools for implementation of the program that would lead to supportable, defensible mitigation decisions, provide assistance to districts in the development of mitigation concepts and designs, provide support to HQUSACE in oversight and management of the mitigation program, provide technical support to HQUSACE, maintain technical seismic expertise, identify potential cost savings areas for study, develop guidance for additional lifeline systems not previously covered in commercially available standards or existing USACE guidance, develop guidance for operations personnel, develop a mitigation plan for the USACE lifelines, update and maintain database. The development and updating of guidance for the seismic evaluation and risk mitigation of lifeline facilities will continue as well.

ACCOMPLISHMENTS IN PRIOR YEARS: Over 12,000 owned buildings and powerhouses were inventoried and data collected, seismic screenings of over 700 buildings in all seismic regions, seismic evaluations were performed on over 200 buildings and powerhouses in various geographic regions primarily in high and moderate seismic regions, development of reports for FEMA to be forwarded to Congress on both buildings and powerhouses, development of seismic evaluation guidance for buildings and lifelines: building evaluation criteria, powerhouse evaluation criteria, lifeline criteria for intake towers, navigation locks, and powerhouses, two seismic evaluation seminars for district personnel, technical support to the districts in accomplishing the evaluations, over 30 rehabilitation case studies including seismic mitigation cost estimates (rehabilitation, replacement, or demolition) for buildings, over 25 rehabilitation cost estimate studies for structural or nonstructural powerhouse deficiencies, inventory of USACE owned buildings including powerhouse superstructures, inventory of USACE leased buildings with estimated populations and recommendations for leasing procedures, development of mitigation program options to meet the executive order requirements and the legal opinion concerns, develop technical seismic building evaluation criteria, develop programmatic seismic criteria, develop guidance for

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the seismic evaluation and risk mitigation of lifeline facilities, develop associated costs studies to include asbestos and lead based paint costs associated with rehabilitation, adapt the building and powerhouse inventory database to an Oracle system compatible with the Operations and Maintenance Business Information Link (OMBIL) program and revise building report to reflect the new criteria.

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**Facility Protection**

SUMMARIZED FINANCIAL DATA:

Estimated Annual Cost of Continuing Program	\$ 12,000,000
Appropriation for FY 2009	\$ 10,916,000
Allocation Requested for FY 2010	\$ <b>7,000,000</b>
Change in FY 2010 from FY 2009	(\$ 3,800,000)

AUTHORIZATION: The Energy and Water Development Appropriations Act, 2002 (PL 107-66), Consolidated Appropriations Resolution 2003 (PL 108-7), Energy and Water Development Appropriations Act 2004 (PL 108-137), Consolidated Appropriations Resolution 2005 (PL 108-447), Energy and Water Development Appropriations Act 2006 (PL 109-103), and the President's Budget proposes similar authorization for FY 2007.

JUSTIFICATION: In January 2002, the U.S. Army Corps of Engineers (USACE) established the Critical Project Security Program (CPSP) to assess and improve the security posture of Corps water resource infrastructure. This program represented the first phase of the current Critical Infrastructure Security Program (CISP), and focused on the development of a risk-based prioritization of Corps portfolio of projects (dams and locks) to support the implementation of physical security upgrades to protect them against man-made hazards. In FY 2002, the Risk Assessment Methodology for Dams (RAM-D) was used at over 350 potentially critical Corps projects to assess site specific threat, vulnerabilities and consequences and to prioritize funding for risk reduction mitigation measures. All USACE MSCs were required to use this procedure and establish a ranking of all critical projects. Using additional considerations, 263 Corps facilities were identified as critical from a security standpoint and a prioritized ranking was established. Supplemental funding was provided to USACE by Congress for these efforts. In FY 2003, through a combination of additional Supplemental funding provided by Congress and USACE Operations and Maintenance, General (O&M) account funding the design and construction of RAM-D physical security upgrades was initiated at 85 critical projects. In FY 2004, the CPSP evolved into the current CISP to encompass all USACE infrastructure including administration and laboratory buildings. A program pause was conducted to assess the impacts of RAM-D physical security upgrade costs associated with the 85 initial projects. In March 2004, a Baseline Security Posture (BSP) strategy aimed at establishing a baseline level of risk reduction against a criminal/vandal threat was adopted as an alternative to completing RAM-D security upgrades at all remaining critical projects. The implementation of these efforts continued through FY 2006. Funding also supported Research and Development (R&D) initiatives, Corps Mandatory Centers of Expertise technical support, and increased security guard requirements resulting from changes to the Nation's security levels. In FY 2005 the Corps initiated the design and implementation of security improvements to administration facilities and laboratories.

PROPOSED ACTIVITIES FOR FY 2010:

- Develop consequence analysis and interdependency assessments focused on USACE Tier 1 & Tier 2 and sector-wide critical assets.
- Develop multiple-asset regional exercise efforts supporting the development of integrated regional strategies to improve disaster resilience and preparedness efforts along the same river basin.

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ACCOMPLISHMENTS IN FY 2009:

- Initiated the development of a conditional risk assessment methodology for critical projects.
- Conducted regional exercise efforts involving multiple facilities along the same river basin supporting the development of integrated regional strategies to improve disaster resilience and preparedness efforts.
- Implemented a Consequence-Based Top Screening (CTS) methodology for dams at USACE critical projects. The CTS will support prioritization efforts at the Dams Sector level. The CTS tool will assist to identify those facilities that could reach the most severe consequences at the national level (critical impacts to the Nation's public health and safety, economic, and/or national security).
- Initiated a collaborative effort with DHS to develop targeted summaries (Comprehensive Facility Reports) of key information on selected dams and locks of regional or national significance to facilitate quick regional impact assessment reporting for natural hazards and manmade incidents.
- Continued improvement of predictive damage assessment tools of water-backed embankment dams from explosive loading using data from full-scale and reduce-scale experiments
- Conducted small-scale experiments using embankment, concrete dams and navigation lock models to evaluate blast-induced damage under crest- and water-side attack scenarios.
- Completed the implementation of a risk assessment and management framework for administrative facilities and laboratories.
- Collaborated in interagency efforts focused on watershed basin analysis studies to analyze interdependent cascading economic impacts associated with an interruption on the inland waterway system.
- Continued interagency collaboration with the DHS Dams Sector-Specific Agency and other Dams Sector stakeholders.
- Supported additional requirements associated with surge in security measures at USACE critical projects due to increased threat levels.
- Coordinated with DHS to implement the Buffer Zone Protection (BZP) Grants Program at USACE projects.



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**FERC Hydropower Coordination (New)**

SUMMARIZED FINANCIAL DATA:

Estimated Total Program Cost	\$3,000,000
Appropriation for FY 2009	\$ 0
Allocation Requested for FY 2010	\$3,000,000
Change in FY 2010 from FY 2009	\$3,000,000
Balance to complete after FY 2010	\$ 0

BACKGROUND: The Corps Engineering Regulation 1110-2-1454 states in part, “When a non-Federal hydropower plant is licensed by the Federal Energy Regulatory Commission (FERC) for construction at a Corps project, the licensee will be required to reimburse the Corps directly for all reasonable costs associated with the Corps review and approval of the final design, construction, plans, specifications, and inspection of the construction.” As a consequence of this guidance, the Corps has been collecting and expending funds for many years for these activities from FERC licensees who have built, owned and operated hydropower facilities at Corps projects. However, in June 2006, the Office of Counsel, HQUSACE, advised that the Federal Power Act, as amended, does not provide the necessary authority for the Corps to expend funds received directly from these licensees. Office of Counsel went on to say that the Corps must instead, deposit the funds in the Treasury’s Miscellaneous Receipts account and must rely on annual appropriations to carry out its responsibilities under the Federal Power Act.

JUSTIFICATION: The Office of Counsel, HQUSACE, determination in June 2006, that the Corps did not have the legal authority to expend funds received directly from FERC licensees, has resulted in the Corps relying on the annual budget process and annual Congressional appropriations for the funds necessary to carry out its responsibilities under the Federal Power Act.

PROPOSED ACTIVITY FOR FY 2010: FY2010 funding will initiate coordination activities with FERC permit holders and licensees in 15 Corps districts. These coordination activities will provide support to FERC permit holders and licensees to ensure that all Corps statutory requirements are met and that there will be no infringement upon the Corps’ authorized purposes by the proposed non-Federal development.

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**Fish and Wildlife operating Fish Hatchery Reimbursement (New)**

**SUMMARIZED FINANCIAL DATA:**

Estimated Annual Program	\$	4,700,000
Allocations thru FY 2009	\$	0
Budget Request for FY 2010	\$	4,700,000

**JUSTIFICATION:** The Corps and the FWS has worked closely for years to agree on annual costs that the FWS incurs related to propagation of salmon to mitigate for Corps projects in the Northwest. In its 2010 Passback, OMB mandated that the Corps work with the FWS to resolve all annual non-reimbursed mitigation costs for fish provided by the FWS for Corps projects. During its 2006 Performance Assessment Rating Tool review, OMB approved the National Fish Hatchery System's (NFHS) peer-reviewed method for deriving cost-per-pound to produce and stock rainbow trout, which constitutes the majority of the non-reimbursed fish provided on behalf of the Corps.

**BACKGROUND:** The Corps provides mitigation for habitat and fisheries lost as a result of its water development projects. For example, the Corps currently provides funding required for U.S. Fish and Wildlife Service (FWS) National Fish Hatcheries in the Northwest to propagate and stock high quality finfish to mitigate for the loss of fisheries as a result of its water projects such as the Dworshak Dam (ID) and the John Day Dam (WA). Mitigation fisheries provide substantial economic benefits to State and local economies. A 2005 FWS study determined that expenditures for its eleven highest producing rainbow trout hatcheries in the Southeastern US (\$5.4 million) result in a total economic benefit of \$325 million - providing 3,500 jobs and 3.9 million angler days.

**PROPOSED ACTIVITIES FOR FY2009:** None.

**PROPOSED ACTIVITIES FOR FY2010:** Fiscal Year 2010 funding in the amount of \$4,700,000 will be used to cover costs incurred by the FWS to propagate and stock high quality fish to mitigate for Corps water projects. Annual coordination meetings will be held between the Corps, the FWS, and the States to determine outyear costs to provide fish to meet watershed-specific multi-jurisdictional use and management of aquatic resources.

**Great Lakes Tributary Model**

SUMMARIZED FINANCIAL DATA:

Estimated Total Program Cost	\$14,000,000
Budget Request for FY 2009	900,000
Appropriation for FY 2009	930,000
Budget Request for FY 2010	1,200,000
Increase of FY 2010 from FY 2009	300,000

AUTHORIZATION: Section 516(e), Water Resources Development Act (WRDA) of 1996, as amended by Section 334, WRDA of 2000 and Section 5013, WRDA of 2007.

JUSTIFICATION: Under this authority, the Corps has developed sediment transport models for tributaries to the Great Lakes that discharge to Federal navigation channels or Areas of Concern (AOCs). These models are being developed to assist state and local resource agencies evaluating alternatives for soil conservation and nonpoint source pollution prevention in the tributary watersheds. The ultimate goal is to support state and local measures that will reduce the loading of sediments and pollutants to navigation channels and AOCs, and thereby reduce the costs for navigation maintenance and sediment remediation. This program supports the Administration’s initiative for the restoration of the Great Lakes and the Strategy developed by the Great Lakes Regional Collaboration under Executive Order 13340.

PROPOSED ACTIVITIES FOR FY 2010: FY 2010 funds will be used to continue or complete development of models at the following tributaries (Waukegan River, IL; Knife River, MN; St. Louis River, MN/WI; Ontonagon River, MI; Rouge River, MI; Blanchard River, OH; Lower Auglaize River, OH; Tiffin River, OH; Oak Orchard River, NY; Manitowoc River, MI, and; Siskiwit River, WI) and continue development of Internet-based modeling tools that may be utilized by local agencies and stakeholders for sub-watershed evaluations. Districts will provide limited, follow-up technical support to state and local partners that are using models developed under this program to reduce loadings of sediments and contaminants to Great Lakes tributaries, thereby reducing future dredging requirements at Federal navigation channels and promoting the restoration of beneficial uses at Great Lakes Areas of Concern.

ACCOMPLISHMENTS IN PRIOR YEARS: Models and related watershed planning tools have been completed for over 20 tributaries (Grand Calumet River, IN; Trail Creek, IN; Burns Waterway, IN; Battle Creek, MI; Saginaw River, MI; St. Joseph River, MI; Clinton River, MI; Grand River, MI; Nemadji River, MN/WI; Buffalo River, NY; Cayuga Creek, NY; Eighteenmile Creek, NY; Genesee River, NY; Niagara River, NY; Cattaraugus Creek, NY; Grand River, OH; Upper Auglaize River, OH; Black River, OH; Cuyahoga River, OH; Mill and Cascade Creeks, PA; Menomonee River, WI). Models are being utilized by state and local governments to support decision making on: agricultural and forestry practices; development of Total Maximum Daily Loads (TMDLs) for nonpoint source pollution control; prioritization of conservation practices; management of urban development, and; design of stream restoration projects. This program has enhanced the capabilities of state and local governments to manage programs that reduce the loading of sediments and levels of contaminated in tributaries to the Great Lakes.

**Inland Waterway Navigation Charts**

SUMMARIZED FINANCIAL DATA:

Estimated Annual Cost of Continuing Program	\$4,000,000
Appropriation for FY 2009	\$3,442,000
Allocation Requested for FY 2010	\$3,800,000
Increase in FY 2010 from FY 2009	\$ 358,000

AUTHORIZATION: PL 85-480, approved 2 July 1958, authorizes the Commander, US Army Corps of Engineers (Corps) to publish information pamphlets, maps, brochures, and other material on river and harbor, flood control, and other civil works activities, including related public park and recreation facilities that may be of value to the general public.

JUSTIFICATION: This effort provides Corps' Electronic Navigational Chart (ENC) data for all inland waterways and other federal navigation channels maintained by the Corps to be used by commercial Electronic Chart Systems (ECS), which, when combined with the existing Differential Global Positioning System (DGPS), will improve the safety and efficiency of marine navigation in both inland and coastal waterways of the United States. On inland waterways, the Corps will collect more accurate survey and mapping data than is currently on its paper charts, and produce Inland Electronic Navigation Charts (IENCs) in accordance with navigation users and ECS vendors. When combined in the commercial ECS, the technology will greatly improve the safety and efficiency of navigation. This will allow safe navigation through bridge openings during fog and other bad weather conditions as well as during heavy traffic situations, and provide an accurate display for other systems such as radar and Automatic Identification Systems. The Corps will use the S-57 international data format, the electronic data transfer standard prepared by the International Hydrographic Organization committee. The S-57 format is consistent with electronic chart products produced by the National Oceanic and Atmospheric Administration (NOAA), and the chart products produced by the two agencies will be coordinated for compatibility in adjoining areas. The Corps will also coordinate with the U.S. Coast Guard for aids to navigation information and collaboration on rules for chart carriage by waterway users. In coastal and Great Lakes areas, the Corps will produce standardized channel condition chart products that will provide consistent and reliable information to NOAA for chart updates, in accordance with Water Resources Development Act of 2000, Section 558. Similar channel chart products will be provided to navigation users, and these coastal and Great Lakes channel condition chart products will also follow the S-57 format. Such ENC development and publication activities are in accordance with National Transportation Safety Board recommendations to the Corps, and subsequent commitments made by the Chief of Engineers.

PROPOSED ACTIVITIES FOR FY 2010: Begin initial chart development for the Alabama River – 305 river miles; begin initial chart development for the Ouachita River – 351 river miles; complete development of chart coverage for the Missouri River – 650 miles; update features for the Mississippi, Ohio, Allegheny, Arkansas, Atchafalaya, Cumberland, Green, Illinois, Kanawha, Tennessee, Monongahela, Kanawha, Green, Tenn-Tom, and Black Warrior-Tombigbee Rivers – 6,100 miles; continue cooperative charting program with U.S. Power Squadron; completion of channel framework and channel condition reports procedure for NOAA charts, investigate addition of new features and technology.

ACCOMPLISHMENTS IN FY 2009: Continued development of chart coverage for the Missouri River – 650 river miles; completed development for Tennessee River – 650 miles; updated features for the Mississippi, Ohio, Allegheny, Monongahela, Arkansas, Black Warrior-Tombigbee, Cumberland, Tennessee, Tenn-Tom, Illinois, Kanawha Rivers – 4,500 miles; completed channel framework development for 40% of coastal and Great Lakes areas; established standard for paper charts; began data reporting and compilation process with U.S. Power Squadron, showcase chart development and production at several national and international meetings.

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**Inspection of Completed Federal Flood Control Projects (ICW)**

SUMMARIZED FINANCIAL DATA:

Estimated Five-Year (FY2008-2013) Program Cost	\$ 10,000,000
Appropriation for FY 2009	1,780,000
Allocation Requested for FY 2010	1,780,000
Increase of FY 2010 over FY 2009	0

AUTHORIZATION: Inspection of Completed Flood Damage Reduction Projects are governed by Engineer Regulation 1130-2-530 and are essential to insure that Federally authorized flood control projects that are operated and maintained by non federal sponsors are properly maintained and operated and are functioning as constructed and intended to protect life and property and obtain the maximum intended benefits.

JUSTIFICATION: The Corps has constructed over 400 flood control reservoirs and over 9,000 miles of levee and flood wall systems in this country, which account for a major portion of the projects protecting communities across the nation. Many of these structures protect highly urbanized areas, and all of them require continued maintenance (either by the Federal government or Non-federal interests) after construction in order to provide the intended level of protection.

Operations and maintenance of completed Federal flood control projects and systems is a non-Federal responsibility with oversight provided by the Corps Inspection of Completed Works Program. The Corps conducts periodic inspections of completed Federal flood control works and notifies appropriate parties of the results of such inspections. The Corps' inspections are designed to determine, from visual inspections, if proper maintenance has been accomplished and that there are no obvious deficiencies. These inspections currently do not address hydrologic, hydraulic, or geotechnical issues or assess the current risk associated with the projects conditions that may require more detailed investigations or analyses to insure safe reliable protection from flood risks to public safety.

Coordination between the Corps and other Federal, state, and local agencies is essential for proper accomplishment of this program. In addition to satisfying Corps' requirements, the improved inspection results will be made available on the National Levee Inventory Database and will be of great value to local, State, and other Federal agencies tasked with the development and implementation of state and local Levee Safety Programs.

PROPOSED ACTIVITIES FOR FY 2010: Activities will include continued implementation of improved, standardized national inspection criteria and standards for inspections of completed projects to insure uniform, consistent evaluation and assessment of operations and maintenance activities performed by local project sponsors. More robust technically focused periodic inspections will be performed on federal project inventory which will provide better information on project performance trends and information concerning project deficiencies and future maintenance and improvements needed by the public sponsors to insure the project perform as intended. FY10 will require \$ 1,780,000 to continue implementation of these inspection program improvements.

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ACCOMPLISHMENTS IN PRIOR YEARS: Implementation of improved, standardized national inspection criteria and standards for inspection ratings of both federal and non-federal flood damage reduction projects have been established to ensure nationally consistent evaluation and assessment of operations and maintenance activities performed by local project sponsors. Development of a more robust technical inspection process and risk assessment methodology will provide improved assessment of the projects performance trends, deficiencies and improvements necessary to insure that projects will perform as intended. Completed detailed technical assessment of over 31 miles of federal projects (119) with I-wall construction to ensure I-wall stability and reliability based on lessons learned from the performance of I-wall in New Orleans during Hurricane Katrina. Conducted intensified notification and coordination with project sponsors for all federal projects that have received an unacceptable rating during the projects last inspection to insure that sponsors address and correct project deficiencies. Coordination with FEMA regions were increased to ensure that federal project conditions were properly identified and considered in FEMA's Map Modernization effort.

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Low Use Navigation Pilot Project (New)

SUMMARIZED FINANCIAL DATA:

Estimated Pilot Project Cost	\$1,500,000
Allocation Requested for FY 2010	\$1,500,000

AUTHORIZATION: Section 216, River and Harbor Act of 1970, PL 91-611, 84 Stat. 1830.

JUSTIFICATION: Federal channel and harbor projects have been characterized principally as either deep draft or shallow draft, and further characterized as either high-use or low-use based on the level of commercial waterborne traffic carried on the project. Similarly, Federal inland waterways segments have been characterized principally as either high-use or low-use, based on the level of commercial waterborne traffic on each segment. While channel and harbor projects with shallower depths and inland waterways segments with lower levels of commercial traffic tend to have lower levels of economic activity, this way of characterizing projects is, at best, only a rough indicator of the return to the Nation from the investments required to operate and maintain the projects or segments. For example, a navigation project with lower commercial use may not require as much funding to operate and maintain and, therefore, may provide a significant net economic return.

Navigation projects with lower commercial use may contribute to the Nation in other important ways, such as by supporting commercial fishing, subsistence, or public transportation. In some cases they can provide a vital economic engine to local economies, especially in less populated areas, or serve as a harbor of refuge. As of yet, there is no objective means of determining how best to weigh such needs against those of the facilities that support higher levels of commercial traffic.

This Low Use Navigation Pilot Project would encourage alternate non-traditional ways to fund maintenance of low-use harbors and waterways. The Pilot Project would focus on the Atlantic Coast and Chesapeake Bay for much of the North Atlantic and South Atlantic Divisions. It will identify the universe of Federal harbors and inland waterways segments that support lower levels of commercial use and their respective non-Federal sponsors. The project will also formulate a range of possible long-term options for the funding and management of such facilities, evaluate the pros and cons of these options, and examine their applicability to the various types of low-use navigation facilities.

PROPOSED ACTIVITY FOR FY 2010:

Identify the universe of Federal channel and harbor projects and inland waterway segments with relatively low levels of commercial traffic and their respective non-Federal sponsors. Encourage non-federal sponsors to organize themselves regionally to efficiently perform periodic maintenance dredging as needed to support regional navigation requirements and development plans.

Encourage and advise local sponsors and users on organizing themselves for mutual benefit by working through existing public entities or creating new ones.

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Provide information on potential efficiencies and benefits, and offer case studies on how some regional interests have organized themselves to recover costs from direct beneficiaries.

Through the Corps Regulatory Program, create streamlining regional general permits that would strive to eliminate the need for an individual local sponsor to apply for an individual permit for each dredging cycle.

Determine appropriate level of Federal participation in performing environmental work necessary to support permits for maintenance dredging within the boundaries of the existing Federal project, and environmental analyses necessary to allow placement of dredged material at existing placement sites, and work with consortia of sponsors to develop long-term non-federal dredged material management plans where no existing sites are available.

Address significant environmental concerns, such as threatened and endangered species, more effectively by considering maintenance dredging impacts on a cumulative basis through the regional general permit process.

Work in partnership with non-federal sponsors to explore alternatives to organize into effective watershed-based partnerships to carry out maintenance dredging and recover costs from direct beneficiaries.

Create partnerships as needed to provide for maintenance of projects within the watershed and to address regional development opportunities.

Create long-term plans for the scheduling of regional project maintenance and for placement of dredged material.

Complete a report documenting findings.



**Monitoring Completed Navigation Projects (MCNP)**

SUMMARIZED FINANCIAL DATA:

Estimated Five-Year (FY2011-2015) Program Cost	\$10,000,000
Appropriation for FY 2009	\$ 1,432,760
Allocation Requested for FY 2010	\$ 1,800,000
Change in FY 2010 over FY 2009	+\$ 367,240

AUTHORIZATION: Authorization for the Corps of Engineers Engineer Research and Development Center (ERDC) to conduct R&D is codified in 10 U.S.C. 2358 (“The Secretary of Defense or the Secretary of a military department may engage in basic research, applied research, advanced research, and development projects that are necessary to the responsibilities of such Secretary’s department in the filed of research and development.”)

JUSTIFICATION: These monitoring efforts, governed by **Engineer Regulation 1110-2-8151**, are essential for providing data for efficient and effective management of critically important Federal shallow- and deep-draft navigation projects for both national economic and military sealift security reasons. The Corps operates and maintains more than 800 navigation projects encompassing more than 25,000 miles of waterways. The Corps requires a national program to identify the best navigation project practices, and to use them to improve all other navigation projects’ performance. Optimizing Civil Works project’s performance requires that they be monitored upon completion, evaluated against preconstruction and present needs, and lessons learned translated into proactive management guidance for Corps Districts. Information gained from the MCNP program, including changes in sediment transport, water levels, currents, waves, flushing, river flows, structure deterioration, and other coastal and river hydraulic phenomena with associated environmental impacts, will be used to verify design expectations, determine benefits, and identify operational and maintenance efficiencies. Information collected will significantly improve projects’ performance, and optimize opportunities for environmental enhancement. Information of a national basis documents successful designs, disseminates lessons learned on projects with problems, and provides upgraded field guidance for solutions that will reduce life-cycle costs on a national scale.

Both shallow- and deep-draft navigation projects located in ports, harbors, rivers, reservoirs, lakes, estuaries, and in the coastal zone are included in this program. Projects that provide maximum cost savings are identified, and those that best address high-priority life-cycle O&M project cost savings are selected for monitoring and evaluation. Monitoring plans are developed jointly by Corps districts and the Engineer Research and Development Center.

Coordination between the Corps and other Federal, state, and local agencies is essential for proper accomplishment of this program. In addition to satisfying Corps’ requirements, the data are made available through publications and electronic technology transfer, and will be of great value to local, State, and other Federal agencies with navigation management policies. Results are communicated immediately to other member agencies of the Marine Transportation System (MTS).

PROPOSED ACTIVITIES FOR FY 2010: All monitored projects were nominated by Corps Division and District offices for inclusion in this MCNP program.

- **Kaumalapau Harbor, HI:** Here, the largest CORE-LOC armor units ever used by the Corps (35 ton) were used to rehabilitate the breakwater. Will complete revisions to draft Technical Report based on review comments. Will publish comprehensive final Technical Report including new findings related to CORE-LOC settlement, armor movement, breakage during settlement, and strength of units. These findings are the basis for improved design guidance for new and rehabilitation of damaged structures using 1-layer CORE-LOC concrete armor units, providing valuable information for design and installation at other high wave energy locations. Study completed.

- **J. T. Meyers Locks and Dam, KY:** Will published final Technical Report regarding innovative repair techniques to lock wall concrete and armor systems that provide very little disruption to navigation operations. Many lock chambers on the Ohio River and Upper Mississippi River are susceptible to similar deterioration. High strength concrete and anchor-embedded steel plates provided a permanent fix. The repair techniques successfully demonstrated and documented at J. T. Myers Locks and Dams will provide valuable design guidance for rehabilitation of existing navigation lock walls. Study completed.
- **John Day Lock and Dam, OR:** Will incorporate draft Technical Report review comments, and publish final Technical Report. Report will include recommendations for flood bay releases and power plant discharges under various river stages to minimize hazardous navigation currents. Such knowledge is applicable to other similar lock and dams on the Lower Columbia River and Lower Snake River. Study completed.
- **Great Lakes Armor Stone Deterioration Study at Burns Harbor, IN; Cleveland Harbor, OH; and Keweenaw Waterway, MI:** Will conduct three rounds of field monitoring of deterioration of scaled-size test Index Stones at each of the three field sites. Will complete laboratory testing of Burns Harbor Index Stones samples. Will continue analyzing and processing field data from the three sites. Will continue development and refinements of numerical model of stone deterioration based on laboratory and field results.
- **Periodic Inspections:** Will continue as a significant partner in the National Coastal Mapping Program by collecting coastal structure topographic LIDAR data and incorporating into the National Coastal Structure Database. Will complete analysis of the West Coast structure data. Will place West Coast data into Enterprise Coastal Inventory Database (ECID). Will survey Alaska coastal structure. Will publish West Coast Periodic Inspections final Technical Report. Will publish peer-reviewed journal paper on Periodic Inspections.
- **Montgomery Point Lock and Dam, AR:** This study is exceedingly important because similar flap gate designs are under consideration for Upper Mississippi River lock modifications. Will procure and install monitoring equipment for continuous measurement of forces on flap gate hinges. Will obtain leakage data around and between the flap gates. Will analyze total load data on flap gates, and leakage data around the flap gates. Will correlate river stages with sedimentation and bathymetry changes in vicinity of lock and around flap gates.
- **Galveston Ship Channel, TX:** Contributions to channel shoaling will be evaluated within a framework of field data collection. Past, present, and future conditions will be evaluated within the context of historical channel dimensions, dredging, and placement data; present-day measurements of channel cross-sections before and after dredging; and numerical modeling of future shoaling and structure efficiency with forecasted increase in relative sea level. Study will investigate whether jetties should be sand-tightened. The Beneficial Use Berm will be evaluated to determine if sand placed in the Berm nourishes the adjacent beaches or contributes to channel shoaling. Vessel wake and turbulence will be incorporated into the analyses.
- **Marmet Locks and Dam, WV:** Intake and discharge through upper and lower miter gates will be evaluated with respect to potential to draw a tow towards the upper miter gate while filling, and turbulence created in lower approach while waiting to lock up-bound. Through-the-sill intake may be prone to drift and require periodic cleaning, and will be monitored. Erosion at the radial transitions of the culvert tunnel will be evaluated. Unique Stoney gate valves will be monitored for forces and vibrations for application consideration at other locks. New upper guide wall provides an impact surface for barge tows, allowing them to align with the new lock. Guide wall will be evaluated for durability and sustainability due to repeated impact forces on the wall.
- **Tillamook Entrance Channel Conditions, OR:** Will develop Monitoring Plan for this new study. The Tillamook navigation entrance is routinely used all year including during winter months for commercial fishing activities and during storm events as a harbor or refuge. There are dangerous wave conditions over the bar. This infrastructure should be managed in a prioritized manner that addresses potential loss of project function which includes maintaining the authorized navigation channel, also considers public safety. Both entrance jetties have deteriorated in length, and more wave energy enters the channel. It is necessary to determine the limit state for both waves and currents beyond which fishing and recreational vessels cannot navigate, depending on specific size vessel.

ACCOMPLISHMENTS IN FY 2009: In FY 2009, 2 Technical Report (TR) was published and disseminated to Corps Field Operating Activities, with improved, updated, and enhanced design guidance.

- **Kaumalapau Harbor, HI:** Data analyses for all wave studies were completed, and breakwater settlement and armor unit movement were correlated with forcing functions. T-LiDAR and ROV surveys of breakwater toe stability were analyzed. All data were compiled into Enterprise Coastal Inventory Database (ECID). A Draft MCNP Kaumalapau Technical Report was prepared. All wave gages and other instrumentation were retrieved from the field study site. A conference and a refereed journal paper were presented on T-LiDAR applicability to monitoring.
- **John T. Myers Locks and Dam, KY:** Annual damage survey monitoring continued of damage progression at sections not repaired, and where steel wall armor may become hazardous to navigation. Continued investigation of rapid repair materials and their properties. Repair techniques were demonstrated at bullnose. The lock wall sections where expedient repairs to both horizontal, and vertical damaged regions had been repaired were intensely monitored to ascertain effectiveness of repair techniques. This rapid repair demonstration study provided significantly improved techniques for rehabilitating existing deteriorating lock walls with minimal disruption of navigation.
- **John Day Lock and Dam, OR:** All field monitoring data acquisition were completed. Retrieved all ADCP equipment and video cameras. All ADCP velocity and video vessel tracking data analyses were performed. Causes of hazardous current conditions at downstream lock entrance were determined. Recommendations for flood bay releases and power plant discharges under various river stages were made to minimize hazardous navigation currents.
- **Great Lakes Armor Stone Deterioration Study at Burns Harbor, IN; Cleveland Harbor, OH; and Keweenaw Waterway, MI:** Three rounds of field monitoring of deterioration of scaled-size test Index Stones were conducted at each of the three field sites. Present Corps testing methods, and ASTM protocols, are not appropriate for multi-ton stone units. Continued laboratory testing of Keweenaw and Cleveland Index Stones, and initiated laboratory testing of Burns Harbor Index Stones. Laboratory tests on 1-cu yd stones include freeze/thaw, wet/dry, and abrasion. Began analyzing and processing field and laboratory data. Began development of numerical degradation model to predict armor stone deterioration.
- **Periodic Inspections:** Continued as significant partner in the National Coastal Mapping Program by collecting coastal structure topographic LIDAR data and incorporating into the National Coastal Structure Database. Developed Enterprise Coastal Inventory Database (ECID), a centralized Corps-wide repository with Google Earth interface. ECID will contain all coastal structure data to be used for Condition Index and Asset Management purposes. This is the only systematic study providing progressive deterioration data of both natural stone and man-made armor units on Corps coastal navigation structures. These data are essential for life-cycle evaluations. Completed analysis of Kaumalapau and Kahului data and published Technical Report. Surveyed west coast structure.
- **Montgomery Point Lock and Dam, AR:** The unique flap gates in the middle of the White River experience difficult and hazardous navigation conditions during both very low and very high water conditions. Continued collecting pertinent vessel tracks, velocity, current flows, water surface elevations, and river topography data to understand dangerous situations. Obtained equipment to measure flap gate leakage. This study will make recommendations regarding changed release rates for various river elevations at the lock and dam to improve navigation safety and reduce dredging volumes and costs. This study is important because similar flap gate designs are under consideration for the Upper Mississippi River lock modifications.
- **Galveston Ship Channel, TX:** Developed Monitoring Plan for this new study. The objective of this new study is to determine the causes of increased channel shoaling, and methods of mitigation for present and planned future conditions, following deepening and widening of deep-draft navigation channels. While no change has been estimated for deepening and widening navigation channels, actual O&M dredging costs have significantly increased, up to 100 % in

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some cases. Improved methodologies will be developed for calculating and simulating channel shoaling to be expected following channel improvement. This study has applicability to virtually all Federal deep-draft navigation channels being improved to accommodate larger vessels with deeper drafts.

- **Marmet Locks and Dam, WV:** Developed Monitoring Plan for this new study. The new lock chamber (110 ft x 800 ft) incorporates several design elements that are unique to lock construction, and should be monitored for effectiveness prior to installation proposed at other lock locations. The filling and emptying system incorporates through the miter gate sill intake and discharge, and may pose a hazard to tows and small watercraft. Erosion at the radial transitions of the culvert tunnel may reduce expected life of the tunnel. The Stoney gate valves (13 ft x 15 ft) are unique for a culvert this size, and should be compared to tainter gates used in similar applications. The upstream guide wall is innovative in design, and should be monitored for durability and navigability.

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Study	Total Estimated Federal Cost	Allocation Prior to FY 2009	Allocation FY 2009	Tentative Allocation FY 2010	Additional to Complete After FY 2010
National (Levee) Flood Inventory	TBD	40,000,000 1/	10,000,000 2/	10,000,000	TBD

1/ Supplemental funding appropriated under PL 109-148 included an allocation of \$30 million in the Flood Control and Coastal Emergencies account and \$10 million in FY2008 supplemental funding to continue effort.

2/ FY2009 budget request included \$10,000,000 to continue the levee inventory.

**SCOPE:**

Immediately following Hurricane Katrina, USACE launched a major effort to create a National Levee Inventory (Geospatial Database) and develop a methodology for performing technical risk assessments of existing levee infrastructure. The objective is to provide a living database of information relative to the status and safety of the nation’s levee system and together with risk assessments, provide a consistent risk based framework to evaluate levees nationally. This information is necessary to ensure flood/storm damage reduction projects perform well during flood and storm events and to improve state and local accountability for maintaining and repairing flood and storm risk reduction projects. The purpose of the risk assessments are to identify the possible failure modes associated with loss of life and economic risk of the individual project components for the purpose of facilitating prioritization of remedial actions and identifying residual risk. The inventory will serve as a national source of information to facilitate and link activities, which include flood risk communication, levee certification, levee inspection, floodplain management, and risk assessments. Additionally, since the start of this effort, on November 8, 2007, the Water Resources Development Act (WRDA) of 2007 was enacted into law. Title IX of this WRDA, cited as the National Levee Safety Act of 2007 (the Act), involves development of recommendations for a national levee safety program, in addition to, inventory and inspection of all levees in the nation.

FY 2010 funding continues the inventory and assessment effort, including collection of available information of levees not within the USACE levee inventory – includes state-owned levees and other levees owned by other federal agencies as per the National Levee Safety Act of 2007.

**JUSTIFICATION:**

It is realized that levees are now abundant and integral to economic development in many communities, including many highly urbanized areas, in the United States. Yet, the total number and location and condition of all the levees in the US are currently unknown and the public often have only a limited understanding of levees and the risks associated with them. USACE has specific authorities to inspect and assess approximately 2,000 levees, or 14,000 miles nationwide. However, there have been estimates that there could actually be up to 100,000 miles of levees nationwide. In 2005, with economic damages estimated to be over \$200 billion dollars and a loss of life of over 1,800 persons, the role of levees in providing for public safety and flood risk management was prominently thrust into the national spotlight. In the midst of an unprecedented federal investment in levee infrastructure and recovery costs, Congress recognized the need for a comprehensive program to reduce the risk to communities behind levees with the passing of the National Levee Safety Act. The Midwest Floods of 2008 reinforced the sense of urgency. With the vast number of levee systems throughout the United States combined with their uncertain condition assures that there will be more such events – it is just a matter of when and where.

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Under the USACE Levee Safety Program, improvements to the inspection process were made. Some of the improvements made include a single newly revised inspection checklist for routine inspections to be used on all levee systems USACE inspects. Also, an automated Levee Inspection System tool has been developed as part of the NLD. It is a Geographic Information Systems (GIS) / Global Positioning System (GPS) based inspection tool that incorporates the levee inspection checklist and links directly with the National Levee Database (NLD). USACE has also established a tiered inspection and assessment approach to include routine Inspections, which verify proper operation and maintenance activities, typically to be conducted on an annual basis and periodic inspections, which verify proper operation and maintenance; evaluate operational adequacy and structural stability; and, identify components and features to monitor over time. Periodic inspections will typically to be conducted every five years. These revisions will dramatically improve consistency in evaluating levee systems and communicating the overall condition of levee systems. However, in order to be able to assess all levees on a national basis, identifying the location of levees and assessing their current condition is an essential step before being able to compare and prioritize areas of the greatest risk nationally.

### FY 2008 & 2009 Accomplishments:

To date – more than 9,800 miles of levees within the USACE program (i.e. levees USACE inspects) has been inventoried. In other words this means that detailed information about each of these levees have been entered into the National Levee Database. By the end of fiscal year 2009, an additional 4200 miles of USACE program levees will be inventoried, thus completing the collection of detailed information for all levees in the USACE program. The Federal Emergency Management Agency (FEMA) is using this database model to collect information during their mid-term levee inventory. The information FEMA collects will be merged into the National Levee Database.

USACE also created a web-based Levee Screening Tool (LST) that provides a preliminary assessment of the general condition and associated relative risks for levee systems as part of the USACE Levee Safety Program. The tool will be used to identify relative risk and initially characterize the portfolio; guide setting priorities for national levee safety activities; and communicate levee deficiencies and potential consequences. Levee screening and relative risk ranking are processes that will use qualitative risk assessment procedures to develop a classification system which will provide more information for risk informed decision-making than can be achieved by using the traditional standards-based approach to levee safety. The tool combines routine inspection data with a preliminary engineering assessment and maximizes the use of existing information (inspection ratings, consequence data from the NLD and HAZUS) and local knowledge of levee performance.

Additionally the policy and procedures for periodic inspections of levees was developed and issued in FY 2009.

### FY 2010 Activities:

FY 2010 activities will include developing and implementing a rollout strategy for the National Levee Database to include working with other federal agencies and stakeholders on the public release of the database. Additionally, efforts will begin to coordinate with all states in the nation and other federal agencies to collect available information on levees not within the USACE program. This will include implementing an initial survey with all the states. This information will be inputted into the National Levee Database. This will be the next step to identify all the levees throughout the nation. Final procedures for long term maintenance of the National Levee Database will also be developed. Screening will also continue in FY 2010 with a goal to have all levees screened and categorized by end of FY 2012. Close coordination and collaboration of policies with FEMA on the database and their new RiskMAP program will also continue in FY2010.

**National (Multi Project) Natural Resources Management Activities**

SUMMARIZED FINANCIAL DATA:

Estimated Annual Cost for Continuing Program	\$4,230,000
Appropriation for FY 2009	3,326,000
Allocation Requested for FY 2010	4,230,000
Increase in FY 2010 from FY 2009	904,000

AUTHORIZATION: This program is conducted under the general authority of PL 78-534, the Flood Control Act of 1944 (58 Stat. 887).

JUSTIFICATION: On December 10, 1996, House and Senate appropriations subcommittee staff determined it was appropriate to allocate a portion of Civil Works projects appropriated funds to conduct certain, specified operations and maintenance activities that benefit all or a majority of operating Civil Works projects. This determination was formalized in appropriations language in FY 2002. Funding these multiple project activities as single entities, rather than on a project-by-project basis, is efficient and cost effective, reducing administration costs and providing for efficient management and oversight. An example of such an activity is the procurement of park ranger uniforms through a contract administered by the National Park Service. Providing a nationwide funding source for centralized procurement of these items used by all operating projects having a natural resources management program precludes the need for funds to be transferred by each project or district to a single procurement agent, a savings of from 60 to 300 transactions a year.

PROPOSED ACTIVITIES FOR FY 2010:

Nationwide (multiple-project) activities that will be accomplished in FY 2010 with these funds include the following activities:

1. Environmental Management System (EMS) Implementation. The EMS has been implemented at 42 designated projects. Funding this as a nationwide activity will allow USACE auditors to review and validate EMS implementation completion at required facilities without transferring funds from each project to a central source. The development of case studies and outreach materials for lessons learned provide initiative and support for other facilities/projects wishing to implement EMS in FY10 and future years.
2. Natural Resources Management Career Development/Training Support and Material Development. Funds are used to address training and career development issues for the Natural Resources Management Community. The needs of all 2,000 NRM field staff in the Corps are served through the development of numerous products, including a number of exportable training courses to meet established training requirements. Funding this as a nationwide activity is appropriate because all NRM field staff benefit equally from the work accomplished.
3. Park Ranger/Manager Uniforms. The Corps purchases uniforms for field personnel through an inter-agency contract administered by the National Park Service. Funding this as an inter-agency effort and as a nationwide activity reduces the administrative costs by eliminating the requirement to transfer funds from each individual project to the NPS. Significant economies of scale have been achieved through this arrangement since 1984. Costs include the authorized employee allowance funds (including an HQ-approved increase in replacement allowance), NPS contract administration costs, buy out of discontinued items, program management/committee support, and the purchase of required emblems.

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4. Printing and Publishing - Printing of forms, brochures, and similar materials used by all Corps projects achieves economies of scale and reductions in total administrative and procurement costs. Materials include Annual Day Use Passes and Brochures. Printed materials are stored at the Corps Publications Depot for distribution to all projects upon request.
5. Sign Standards Manual and Software Update and MCX Operation. A Mandatory Center of Expertise provides technical support and assistance to all projects in the operation of the Corps Sign Standards Program, through the maintenance of the Sign Standards Program Manual and software and providing technical assistance to field users. These efforts allow the Corps to maintain a consistent image that we present to the visiting public. Funding this as a nationwide activity assures competent and timely assistance to users, which increases the consistency, effectiveness and efficiency of the sign program.
6. Volunteer Clearinghouse Operation. The Volunteer Clearinghouse is operated under contract with Goodwill Industries to support volunteer efforts at all Corps projects. Funding this as a nationwide activity achieves economies of scale through the use of a single contract and reduces administrative costs by eliminating the need to transfer funds from all projects to the single contracting element.
7. Water Safety Products. The Corps Water Safety National Operating Center produces and distributes water safety products and programs to all Corps projects. Products educate and inform visitors of the dangers associated with water-oriented recreation. Significant economies of scale have been realized through the centralized administration of this program that assures current and critical topics are covered, using effective media targeted to high-risk groups. Drownings and associated lawsuits have been reduced significantly since the implementation of this program in the mid 1980's. Current command emphasis is requiring an even further reduction of fatalities during the next two years.
8. Other Nationwide NRM Activities. The following additional NRM Activities are recommended for funding to achieve cost efficiencies at the national level. Challenge Partnership Seed Funds; Critical Incident Stress Management (CISM) Program; Natural Resources Management Awards; Operations CoP Gateway; Partnership Advisory Committee; Property Protection Program; RecBEST Coach, Assist and Train Team; Recreation Facilities and Customer Service Standards National Operations Center; Visitor Center Initiative/Corps Story; Bilingual Support Team.

ACCOMPLISHMENTS IN PRIOR YEARS: The allocation of project operations and maintenance funds to conduct specified nationwide (multiple-project) activities to improve the efficiency and cost effectiveness of the Corps NRM program has been employed, with subcommittee staff knowledge and concurrence, since the early 1990s for activities similar to those identified for FY 2010.

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## National Coastal Mapping Program

### SUMMARIZED FINANCIAL DATA:

Estimated Annual Cost of Continuing Program	\$ 7,000,000
Appropriation for FY 2009	\$13,900,000
Allocation Requested for FY 2010	\$ 7,000,000
Change in FY 2010 over FY 2009	(\$ 6,900,000)

AUTHORIZATION: These efforts are essential to providing data for efficient and effective management of critically important National water resources. Regional Sediment Management (RSM) activities are authorized by Section 516 of WRDA '96.

JUSTIFICATION: The National Coastal Mapping Program is the only Federal coastal mapping program that produces regional, operational data along the coast on a recurring basis. Regional Sediment Management requires regional measuring and monitoring to provide engineering, environmental, and economic data and information for decision makers and managers. There are approximately 7,500 miles of sandy coastline in the continental U.S. and no other program in the Corps (or other Federal agencies) provides consistent, recurring, regional data to measure and monitor physical, environmental, and economic conditions, and their changes over time. It is the quantification of regional conditions and changes that will lead to improved management practices of entire regions and projects within those regions. Without these data, the Corps cannot fulfill its goal of a systems approach to coastal management, including navigation and coastal flood damage reduction projects.

The National Coastal Mapping Program continues development of next-generation technology to measure and monitor coastal zone engineering, environmental, and economic conditions on a regional scale. Certain aspects of existing sensor design and operational methodology have been found to impose fundamental limitations on the production of high resolution information and arise from the basic issue that existing lidar sensors are designed to excel in the measurement of a single variable, depth, in the deepest possible water. The Coastal Zone Mapping and Imaging Lidar (CZMIL) project is an effort to advance the state-of-the-art in the three major areas of algorithms, software, and hardware. The CZMIL project is intended to provide a sustained focus and collaboration among academia, industry, and federal government to review and refine existing capabilities for the measurement of additional regional coastal information, and to design and build a new generation of hardware and software wherein known limitations are addressed, and a wider range of engineering, environmental, and economic information is produced over a broader range of operating environments. While the measurement of depth under operational conditions is still of primary importance, improvements in data quality, target resolution, bottom classification, sediment transport detection, coastal change detection, and land use are desired and will be addressed.

PROPOSED ACTIVITIES FOR FY 2010: National Coastal Mapping Program operations will continue on the West and East Coasts of the U.S. The survey effort afforded by the combination of program and America Recovery and Reinvestment Act (ARRA) funds will provide a unique synoptic view of the nation's coasts and coastal infrastructure against which to measure the impacts of expected changes in sea-level in the coming years. These mapping activities will generate the first synoptic dataset for the West Coast and the second for the East Coast. The second survey will begin to provide information and knowledge on change and rates of change, sediment transport and erosion of sandy coasts, changes on and around navigation structures, change in wetlands or sea grass, and change in land use and coastal development and resiliency. Quantification of change is the information needed most for management of navigation projects and can only be determined from repetitive mapping. The CZMIL project will realize a new, integrated sensor and software suite for improved coastal mapping and imaging and automated data processing and product generation. New algorithm development will begin focusing on evaluating condition of coastal infrastructure and discriminating critical habitat from the collected datasets, development and application of regional sediment budgets for enhanced navigation project management, and 3D visualization and analysis of high-density, highly-dimensional datasets.

APPROPRIATION TITLE: Operation and Maintenance -- Fiscal Year 2010

**ACCOMPLISHMENTS IN PRIOR YEARS:** **From 2004 to 2008**, the National Coastal Mapping Program has mapped the sandy shorelines of the Gulf Coast, East Coast, and Great Lakes. Four thousand (4,000) linear shoreline miles have been collected as part of normal program activities to support regional sediment management. An additional 2,000 linear shoreline miles have been collected in support of post-hurricane mapping activities along the Gulf and East Coasts. The Corps coordinated with other Federal agencies (Navy, NASA, USGS, and NOAA) to eliminate duplication and leverage programs to maximize survey coverage. This coordination was very successful and has resulted in very close and continuing coordination since 2004. The program collects topographic lidar data at 1-m post-spacing from the waterline landward 500 m and bathymetric lidar data at 4-m post-spacing from the waterline to 1000 m offshore. The same area is covered concurrently with very high-spatial and -spectral resolution imagery. From these basic data sets, several derived information products are generated: digital elevation models of the coastal zone, orthometric imagery, bare earth DEMs, shoreline position, laser reflectance images of the seafloor and adjacent beaches, land cover classifications, and metadata. The data were distributed to the Corps districts in which they were collected, to several States, academia, and industry, and to USGS and NOAA where they remain available for download through Federal data archives. As of December 2008, there had been 4,447 individual downloading of over 148 billion data points from the National Coastal Mapping public distribution website. The data were used to assess regional and project hurricane impacts and provided necessary data for planning, engineering, construction and operations. Approximately \$200 million was spent reconstructing shore protection projects based on results determined from these national coastal mapping data after the 2004 hurricane season in Jacksonville and Mobile Districts. After Hurricane Katrina, these capabilities were used to assess the impact of the National Disaster, to baseline conditions for both physical and wetland recovery, and were used in analyses for the Corps of Engineers IPET study. State, local, industry and academic organizations are using these data for many coastal management applications, projects and programs.

**From 2005 to 2008**, the CZMIL effort under the National Coastal Mapping Program has generated several technical reports, a conceptual design for next-generation integrated hardware and software system for airborne coastal data collection and product generation, a detailed design for the software portion of this system, and additions and improvements to current processing pipeline. A cutting-edge spectral decomposition algorithm allows creation of seafloor images and water column constituents like chlorophyll, dissolved organic matter, and suspended sediments from the hyperspectral imagery without the costly (in time and accuracy) pre-processing steps of atmospheric and water surface correction. The shallow water algorithm and RGB image mosaicing program developed under CZMIL were put into operation to streamline manual processing and orthomosaic generation for the National Coastal Mapping Program.

**In 2009**, a combination of program funds, hurricane supplemental funds, and ARRA funds enable National Coastal Mapping operations on the Gulf Coast, West Coast, and East Coast, using all three commercially available airborne lidar bathymetric sensors. The bathymetric lidar, topographic lidar, RGB imagery and hyperspectral imagery produced by these sensors will be used to produce digital elevation models of the coastal zone, orthometric imagery, bare earth DEM's, shoreline position, seafloor reflectance, and land cover classifications. Beginning in Texas, upon reaching Mississippi we will have succeeded in the first complete survey of the U.S. coast and will begin mapping the coast for the second time. The first coverage provides the first-ever inventory of Federal Navigation projects and coastal shore protection projects. Data and products from the second survey of the Mississippi, Alabama, and Florida coasts will begin to provide information and knowledge on change and rates of change, sediment transport and erosion of sandy coasts, change in wetlands or sea grass, and change in land use and coastal development and resiliency. Quantification of change can only be determined from repetitive mapping, which is the information needed most for management of navigation projects. In addition to the standard products, new products aimed at quantifying change since the first survey of the program, like elevation difference surfaces, will be provided to the districts.

The CZMIL Detailed Hardware Design will be completed and the fabrication and construction phase will begin during this time period. A prototype laser, scanner, and real-time signal acquisition chain will be delivered. Environmental testing of laser and scanner will begin. Prototype software for integrated survey planning and management, real-time data collection, and post-processing to standard data products will be completed. The processing and product generation portions of this prototype will be deployed to support National Coastal Mapping Program operations since its improved capabilities are applicable to not only to the new sensor, but also to the sensor currently in operation.

**National Dam Safety Program – Portfolio Risk Assessment**

SUMMARIZED FINANCIAL DATA:

Estimated Annual Cost for Continuing Program	\$18,000,000
Appropriation for FY 2009	\$13,644,000
Allocation Requested for FY 2010	\$18,000,000
Increase of FY 2010 over FY 2009	\$ 4,356,000

AUTHORIZATION: Dam safety legislation PL 92-367 and PL 99-662, and the National Dam Safety Program Act (Section 215 of PL 104-303), the Dam Safety and Security Act of 2002 (Public Law 107 - 310) and the Dam Safety Act of 2006 (Public Law 109-460).

JUSTIFICATION: The Federal Guidelines for Dam Safety provides a framework for safe construction, operation, and maintenance of Corps dams. Dams in the United States must be constructed, operated, and maintained in accordance with sound engineering practices to prevent failure and avoid potential loss of life and destruction of property. This National Dam Safety Program (NDSP) account consists of two parts: (1) the operation of the NDSP including participation with other agencies; and (2) implementation of a risk analysis program for all 650 of the Corps dams, including recurring mapping and interim risk reduction work.

(1) The NDSP was established to enhance national dam safety. These funds support the activities under the NDSP, in the interests of the Corps and the citizens of the Nation. The National Dam Safety Program Act strengthens the NDSP, whose purpose is to reduce risks to life and property from dam failure in the United States. The Act also codified the Interagency Committee of Dam Safety (ICODS) to coordinate the Federal actions under the NDSP. The Chief, Engineering and Construction, Directorate of Civil Works (USACE, Dam Safety Officer), or his representative, represents the Department of Defense as a member of ICODS. The Corps also provides a representative to the National Dam Safety Review Board for the Secretary of Defense. The National Dam Safety Program Act expanded the scope of previous dam safety legislation and the requirements for ICODS participation with various states to improve dam safety in the United States. Through ICODS, the NDSP provides support in development of federal guidelines for dam safety, promotion of public awareness programs, publications, training materials, and workshops. The Act also provides for archival research that is supported by Federal dam owning agencies through ICODS and the National Performance of Dams Program. The Dam Safety Act of 2006 extended the National Dam Safety Program Act appropriation authorization for five years.

(2) While no Corps dams are in imminent danger of failure, many of them have a high dam-safety risk due to the likelihood of extremely large floods, seismic events, seepage and piping problems, and other damages and/or deterioration problems. The need to prioritize budget activities requires that the Corps uses risk assessment as a central part of the decision-making process to direct funding to those dam safety issues presenting the greatest risk and to those rehabilitation actions that result in the greatest risk reduction for their cost. For each dam in the portfolio, the risk assessment provides estimates of the probability of failure and consequences by each initiating event. In addition, risk reduction measures are formulated and their cost and effectiveness estimated. The results arrayed by risk level and risk reduction cost effectiveness provide a risk ranking for the portfolio of dams. The portfolio risk assessment (PRA) process has demonstrated its value during Fiscal Years 2005, 2006, and 2007 by a number of dams with high risks. The initial screening of all Corps projects will be completed in Fiscal Year 2010. To ensure that the results of the regional and districts portfolio provide a consistent basis for setting national priorities, special teams (or cadres) were established and have been conducting a screening level PRA since FY 2005. These cadres are composed of six Corps members (geotechnical, H&H, structural, mechanical, operations, and economist) who will lead, facilitate, and help train the regional group that is doing the PRA. The members of each cadre are technical experts within their discipline and are experienced in dam safety, risk analysis, and the application of probability methods to civil works infrastructure. Screening PRA's were completed on 30% of the dams through FY 2007

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with an additional 30% of the dams being screened during FY 2008 to bring the total percentage of the dams screened to 60%. With 13 cadres working in FY 2009, the screening level assessments reached 95% in Fiscal Year 2009. The requested funding will also support the activities to move forward with an in-depth portfolio analysis of the dams that present the greatest risk. Probable Failure Modes Analysis (PFMA) will be performed with the requested funds during Fiscal Year 2010 to further identify the risk of failure and to prioritize dam within the various Dam Safety Action Classes (DSAC).

### PROPOSED ACTIVITIES FOR FY 2010:

(1) The NDSP account provides effective coordination of dam safety activities across the various regions of the Corps and provides for Corps participation at national dam safety events. The account also provides for District participation on the National Dam Safety Management Team, which advises the Corps Dam Safety Officer on safety of dams policy. The NDSP supports Corps membership and participation in various national and international dams organizations including the Association of State Dam Safety Officials (ASDSO), the US Society on Dams (USSD) and the Dam Safety Interest Group (DSIG). The USSD along with its international counterpart, the International Committee on Large Dams (ICOLD) supports technical knowledge concerning the benefits, engineering, design, and construction of dams. The DSIG is an international group of dam owners involved in research and development of dam engineering. Participation with the DSIG allows the Corps to leverage Civil Works research and development funds.

(2) Thirteen USACE PRA cadres and a national PRA manager will manage the Corps-wide PRA efforts. During FY 2010 the cadres will complete the initial screening level PRA of all Corps dams. The procedures for moving to the next level of analysis will be completed and a detail PRA will be completed on the highest risk dams as previously identified by the screening level PRA's. The results of the screening PRA's will be used in the development of study plans for inclusion in the regular budget cycles and the same results will be used in prioritizing requests for remediation. The districts are responsible for collecting appropriate project data, assisting in the analysis of data gaps, using expert judgment to estimate for missing parameters, coordinating meetings, correspondence, and site visits, if required, updating essential plan, studies, or reports, and participating in training on risk analysis and probability methods. The database of information from the PRA will be linked to the existing Dam Safety Program Management Tools (DSPMT) and the Operations & Maintenance Budget Information Link (OMBIL) to maximize the use of the information developed. Additional emphasis will be placed on the completion of inundation mapping and interim risk reduction measures at all DSAC I and II dams.

### ACCOMPLISHMENTS IN PRIOR YEARS:

(1) The NDSP account provided Corps presentations at the United States Society of Dams (USSD) conference and the Association of State Dam Safety Officials (ASDSO) during FYs 2007 and 2008. This account also supported the Corps response to the 9-11 events in the dam safety area. The NDSP account provided field participation in preparing responses to the recommendations of the Corps Peer Review of the Dam Safety Program. Additional funds provide for continued development of the Dam Safety Program Management Tools (DSPMT) and the Dam Safety Program Performance Measures (DSPPM). Both programs are being developed along with the Interagency Committee on Dam Safety (ICODS) to improve both Federal and State safety of dams programs.

(2) Portfolio Risk Assessment portion of this account has provided initial work in the development of overall procedures for the continuing analysis of the portfolio of dams. During FY 2005 through FY 2009, this work included the selection and training of regional PRA cadres and the screening of 95 percent of the Corps dams. The results of this work are already being used in prioritizing the remediation of dams.

**National Emergency Preparedness Program (NEPP)**

SUMMARIZED FINANCIAL DATA:

Estimated Annual Cost of Continuing Program	\$8,000,000
Appropriation for FY 2009	5,458,000
Allocation Requested for FY 2010	7,000,000
Change in FY 2010 from FY 2009	1,542,000

AUTHORIZATION: Executive Orders 10480 and 12656, which cite several acts including The Stafford Act.

JUSTIFICATION: The budget request will enable the Corps to be prepared to accomplish its continuity of operations and continuity of government responsibilities during national/regional crises. This entails support of civil government through coordinated execution of federal agency plans and the planning/conducting of limited exercises to test readiness to provide such support. Executive Orders 10480 and 12656 and the Department of Homeland Security (DHS), Federal Emergency Management Agency (FEMA) under the Robert T. Stafford Disaster Relief and Emergency Assistance Act, 42 USC 5121 et seq. are the basis of the National Response Plan/Framework. The cited executive directives assign significant responsibilities for such preparation (planning, training, research and testing) to the Corps. This includes responsibility for development of comprehensive national level preparedness plans and guidance for response to all regional/national emergencies, whether caused by natural phenomena or acts of man, plans for response(s) to acts of terrorism, and the local preparedness necessary to support Corps continuity of operations. The Corps provides engineering and construction support to state and local governments in response to catastrophic natural/technological disasters. Rapid response to disasters of a regional/national magnitude requires that extensive pre-emergency planning and preparedness activities be conducted to assure the availability of a work force capable of shifting from routine missions to crisis operations and the organizational command and control structure(s) necessary to provide a coordinated and comprehensive response in the critical early stages of a catastrophic disaster.

This program provides the activities necessary to prepare for response to catastrophic natural and technological disasters requiring major Federal support of state and local governments overwhelmed by a disaster event, and for national level emergency water planning. The preparation requires the development of plans, training of employees, conducting training exercises, including support to FEMA exercises and coordination within DOD and with other Federal agencies and state and local governments. Unlike the Corps Civil Works programs related to individual project planning, development and operations and maintenance, the NEPP requires the development of an integrated command planning and response capability. Corps divisions have a key role in the planning, coordination and operational control of multi-district response(s) and the integrated preparedness effort required for accomplishing this response. Preparation also includes the Headquarters sponsored Corps-wide programs necessary to provide the capabilities and operational command and control required by Corps field commands in order to accomplish their NEPP responsibilities, both routinely and in specific emergency response situations. NEPP also provides USACE with the ability to engage and coordinate readiness with other agencies at the National level on programs of Federal primacy or interests.

The NEPP is complementary to the Flood Control and Coastal Emergencies (FCCE) appropriation. Although both programs are related to emergency situations, there is a distinct separation of responsibilities. The NEPP provides for the planning, training, and testing activities necessary to develop the capability to meet essential requirements associated with local continuity of operations and response(s) to scenario specific national/regional crises. The FCCE, on the other hand, provides preparedness and response related to emergency flood fighting, post-

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flood repair and restoration of flood and shore protection works damaged or destroyed by floods, hurricanes or wave action and Corps preparedness associated with National Response Plan/Framework mission requirements.

PROPOSED ACTIVITIES FOR FY 2010: The FY 2010 program will provide for continuing the implementation of the National Emergency Preparedness Program. The FY 2010 program will continue the process of catastrophic disaster planning and exercising to enable the Corps to rapidly respond to a broad spectrum of emergencies, with emphasis on natural disaster and terrorists' events that have regional and national implications, such as the Homeland Security Council's National Planning Scenarios. An effort will be made to satisfy increasing demands on the program to support multi-agency (Federal, state, and local government) requests to exercise plans focusing on regional catastrophic natural and man made disasters. Increasingly, Federal, state and local agencies are looking to the Corps in this area. Lessons learned from events such as Senior Leader Seminars, the National Capitol Region workshops, Hurricane Katrina, and the evolving New Madrid earthquake scenario, clearly indicate that the current system does not adequately provide for a response to catastrophic disasters that is timely enough or comprehensive. The Corps has initiated a program that uses the deliberate planning process to develop scenario specific catastrophic disaster plans. This will result in more detailed planning and should provide for a more comprehensive response to national/regional catastrophic disasters to include terrorist attacks. More extensive coordination with Federal, state and local entities will be incorporated into plan development. In this regard, following FEMA's program focus, USACE will continue to play a key role in national security planning such as supporting Homeland Security strategic planning efforts, development of the National Capitol Region Response Plan, catastrophic hurricane and earthquake responses, and other man-made contingencies with national implications. Completing plans for the New Madrid Earthquake are critical in FY 2010 as a national level exercise is planned by DHS for FY 2011. Additional efforts will focus on continuing to strengthen COOP readiness and conducting exercises, aligned with the highest national priorities, within the scope of available funding during FY 2010, improved catastrophic disaster response planning and emergency management technical assistance program for technology support, development and transfer of knowledge.

ACCOMPLISHMENTS IN PRIOR YEARS: The Corps continued to emphasize a program that uses the deliberate planning process to develop scenario specific catastrophic disaster plans. Extensive coordination with Federal, state and local entities has been incorporated into plan development. In this regard, following FEMA's program focus, USACE has continued to play a key role in national security planning such as supporting Homeland Security strategic planning efforts, development of the National Capitol Region Response Plan and other plans such as the New Madrid Earthquake, the New Orleans Hurricane, the Los Angeles Earthquake and other contingencies with national implications, such as the fifteen national planning scenarios developed by the Homeland Security Council. Additional efforts focus on continuing to strengthen COOP readiness. Exercises, involving federal, state and local officials, have contributed to a more timely and effective execution of Corps responsibilities during disasters that have national impacts. In FY 2007, USACE made a concerted effort to assist NORTHCOM in preparing for timely, effective and comprehensive engineering support in response to potential disasters. In FY2008 Pacific Ocean Division hosted a Regional Exercise incorporating cold weather impacts for an Anchorage Earthquake CDRP event. Objectives, which were met, were to prepare USACE to respond to a no-notice cold weather event and capture lessons learned to improve future responses. Urban Search and Rescue (US&R) Training was conducted to recertify cadre members to advanced Structures Specialists, to provide US&R-level weapons of mass destruction training to meet FEMA requirements, to prepare and conduct a new recruit Structures Specialist training course and to purchase associated equipment for the support teams. Seminars, workshops, and exercises, such as mentioned above, have strengthened partnerships and promoted mutual understanding of the roles, responsibilities and interests of USACE, FEMA, other Federal agencies, and State and local governments involved in natural disasters and terrorists' responses. They have provided an excellent opportunity to examine contingency plans, capabilities, and communications at federal, state and local levels. Also, region-specific issues have been identified and addressed at exercises such as Ardent Sentry and Golden Guardian. National level interagency coordination continued through participation in exercises such as TOPOFF4. FY 2009 accomplishments will be addressed later this year.

**National Portfolio Assessment for Reallocations**

SUMMARIZED FINANCIAL DATA:

Estimated Annual Cost of Continuing Program (for 2-years)	\$871,000
Appropriation for FY 2009	300,000
Allocation Requested for FY 2010	571,000
Decrease of FY 2010 from FY 2009	0

AUTHORIZATION: Specific project authorizations, Section 216 of the River and Harbor and Flood Control Act of 1970.

JUSTIFICATION: The National Portfolio Assessment for Reallocations was a two year appraisal of the portfolio of existing Corps of Engineer multipurpose projects and was used as a screening tool to identify the best candidates for opportunities for operational changes and/or reallocation opportunities. During the development of the survey for this assessment, the Corps was considering two other national surveys, one on the water management aspects of Corps reservoir projects and another on sedimentation management concerns. Recognizing that gains could be made from both monetary and district responsive aspects, these three efforts were combined into one. This two year survey and assessment has now been completed and resulted in:

- (1) the development of a portfolio of Corps projects that identified the best candidates for opportunities for operational changes and/or reallocation opportunities to ensure existing Corps reservoirs contribute to enhance economic and ecosystem values as water demands evolve and a better understanding of global warming issues is gained.,
- (2) a paper on alternative funding arrangements for water supply reallocation studies,
- (3) a database to examine the status of Corps water management from local, regional, and national perspectives,
- (4) an engineering and scientific foundation for a national adaptive management program,
- (5) a baseline data set for investigating the evolution of operational water management policies,
- (6) an assessment of sediment infilling, its impacts to operating purposes and management practices, and
- (7) a database for sediment data collection efforts.

The Corps of Engineers had previously launched a Sustainable Rivers Project in 2002. The purposes of this effort are to assess ecosystem needs downstream of Corps projects and to evaluate water management opportunities for potential operational changes and/or reallocations to enhance ecosystem values while maintaining or improving primary project purposes (e.g. flood risk reduction, water supply, and hydropower). In addition to the development of new modeling tools to support these assessments, this effort resulted in the initiation of pilot projects in eight river basins. These pilot projects seek to define ecological needs, model potential operational changes, and implement and monitor ecological outcomes resulting from the changes to the project's operation. These site-based efforts complement the national portfolio assessment by evaluating water management aspects of reservoir projects and demonstrating an adaptive management approach that can be used to ensure Corps projects maintain their existing purposes while contributing to and/or enhancing economic and ecosystem values as water demands evolve.

A report entitled "A Strategy for Federal Science and Technology to support Availability and Quality in the United States" was published by the Executive Office of the President of the United States in September 2007. This report was a product of the Subcommittee on Water Availability and Quality of the National Science and Technology Council's Committee on Environment and Natural Resources. This committee was charged

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with: (1) identifying science and technology needs to address the growing issues related to fresh water supplies, (2) developing a coordinated, multi-year plan to improve research to understand the process that control water availability and quality, and (3) enhancing the collection and availability of the data needed to ensure an adequate water supply for the Nation's future. As a result of the information obtained from the completed two year survey and from the initial success of the Sustainable Rivers Project pilot sites, it is clear that it would be desirable to continue the assessment and pilot demonstration efforts to address the national needs as identified in 2007 report from the Executive Office of the President of the United States.

PROPOSED ACTIVITIES FOR FY 2010: The recommended level of funding in the amount of \$571,000 includes not only the initial funding program but includes an additional funding increment in the amount of \$271,000 to be used for a Sustainable Rivers increment. The Sustainable Rivers increment will be used to support definition of environmental flow needs, model application, implementation of operational changes, and monitoring at selected Sustainable Rivers Project pilot sites. In addition, this effort will include development of new tools and models for evaluating operational changes and/or reallocation, training Corps staff in uses of these tools, guidance and technical support to apply tools at existing pilot sites, and support of emerging sites. The experience at existing sites will be used to inform other efforts to modify project operations and refine the practices for evaluating evolving water demands.

ACTIVITIES IN FY 2009: Funding in the amount of \$300,000 was used to complete the first stage of the Portfolio Assessment for Reallocations. This effort focused on the projects earlier identified as being the most likely to provide operational changes and/or reallocation opportunities to provide additional water supply without the construction of new projects. This study also focused on identifying those beneficiaries willing to fund follow-up studies under alternative funding arrangements.

7 May 2009



APPROPRIATION TITLE: Operation and Maintenance – Fiscal Year 2010

**Nationwide Evaluation of Hydropower Rehabilitations (New)**

SUMMARIZED FINANCIAL DATA:

Estimated Total Program Cost:	\$ 1,200,000,000
Appropriation for FY 2009:	\$ 0
Allocation Requested for FY 2010:	\$ 2,000,000
Change in FY 2010 from FY 2009:	\$ 2,000,000
Balance to complete after FY 2010:	\$ 1,198,000,000

AUTHORIZATION: The Corps of Engineers' (Corps) development of hydropower capability stems from numerous authorities including the 1933 National Industrial Recovery Act that initiated the construction of the Bonneville Dam and Powerhouse and the Ft. Peck Dam and Powerhouse, the first major hydropower facilities. Subsequent Congressional Acts that define the Corps' authority to regulate commerce and navigation and to provide navigation improvements also included language to develop hydropower facilities when proven feasible.

JUSTIFICATION: The Corps' hydropower mission is to provide reliable hydroelectric power services at the lowest possible cost, consistent with sound business principles, in partnership with other Federal hydropower generators, the Power Marketing Administrations, and Preference Customers, to benefit the Nation. The Corps' 75 hydropower projects are a national strategic renewable energy resource that generates an average of 70 billion kilowatt-hours of clear energy annually.

The average age of Corps hydropower facilities is 43 years. The Hydropower Modernization Initiative will address the deteriorating condition of these hydropower assets. For the past ten years hydropower performance metrics of peak unit availability has steadily declined and forced outages has steadily increased. Currently, the Corps' unit availability metric is more than 13 percentage points below industry standards and the forced outage metric is 5 percent above industry standards. The most recent catastrophic failure of a Corps hydropower turbine occurred in February 2009 at the Stockton hydropower plant. These failures occur because of the lack of major maintenance and timely replacements and results in months and even years of outages and significant losses in revenue to the US Treasury. At least one-quarter to one-third of the Corps' hydropower facilities are operating below their design efficiency due to reduced asset reliability, age and lack of major maintenance. The Hydropower Modernization Initiative would modernize the Corps' hydropower infrastructure through improvements and upgrades under a long-term programmatic funding and investment decision-making strategy. This strategy will increase and sustain the performance, availability and reliability of these assets well into the future.

PROPOSED ACTIVITY FOR FY 2010: Establish a Hydropower Modernization Initiative Program Development Team (HMI PDT) of subject matter experts to develop and coordinate a national modernization program. Review current procedures for developing Major Rehabilitation Evaluation Reports (MRER) and streamline procedures for planning and designing a decision document for MRERs. Complete condition assessments of all major power train and powerhouse components and develop a prioritization model. Update existing MRERs to current dollars.

7 May 2009

**Program Development Technical Support**

SUMMARIZED FINANCIAL DATA:

Estimated Annual Cost of Continuing Program	\$300,000
Appropriation for FY 2009	\$278,000
Allocation Requested for FY 2010	\$300,000
Change in FY 2010 from FY 2009	\$ 22,000

AUTHORIZATION: The Automated Budget System (ABS) has supported gathering, analyzing and submitting project funding requests to respond to all authorized missions within the Corps of Engineers Operation and Maintenance program. A new automated information system, P2, has replaced ABS for budget development processes. The transition to P2 from ABS has aligned all Civil Works budget requests within one automated information system.

JUSTIFICATION: The new AIS, P2 provides the program development capability previously provided by ABS. The transition to P2 from ABS for program development began in FY 2007 and continued in FY 2008 and FY 2009. Work under this activity for FY 2010 will ensure that all relevant business processes and rules are incorporated into P2, as well as continuing to refine the data requirements to meet the needs of the budgeting process without creating an undue administrative burden. There will likely be changes needed to adjust P2 to support the O&M program development based on the initial experiences with the new system. This activity will identify needed changes and recommend steps to implement the changes within P2. The technical support for O&M program development will continue to be provided using P2 rather than ABS tools. The deployment of P2 will shift the efforts here towards development of methods and procedures for setting priorities for all civil works activities and analysis of the entire Civil Works program.

PROPOSED ACTIVITIES FOR FY 2010: Assist O&M program development as supported by P2 for the 2010 and 2011 budget submissions. Identify needed changes and recommend steps to implement changes in P2. Develop program development procedures to support the entire Civil Works program development.

ACCOMPLISHMENTS IN PRIOR YEARS: Maintained and updated the software systems, provided new tools to generate reports, provided training and support to managers. Developed program development tools within P2.

**Protection of Navigation (Four Items)**

- Protection, Clearing, and Straightening of Channels**
- Removal of Sunken Vessels**
- Waterborne Commerce Statistics**
- Harbor Maintenance Fee Data Collection**

SUMMARIZED FINANCIAL DATA:

Estimated Annual cost of Continuing Program	\$6,146,000
Appropriation for FY 2009	\$5,148,000
Allocation Requested for FY 2010	\$6,146,000
Change in FY 2010 from FY 2009	\$ 998,000

AUTHORIZATION:

Protection, Clearing, and Straightening of Channels - Section 3 of the 1945 River and Harbor Act (as amended by Section 915 (g) of the 1986 Water Resources Development Act) provides continuing authority for limited emergency clearing of navigation channels not specifically authorized by Congress.

Removal of Sunken Vessels - Removal of sunken vessels, or other similar obstructions, is governed by Sections 15, 19, and 20 of the River and Harbor Act of 1899, as amended.

Waterborne Commerce Statistics - The Corps of Engineers (Corps) serves as the Federal Central Collection Agency, and is the sole U.S. Government source for U.S. domestic and foreign (U.S. foreign waterborne commerce statistics mission transferred to the Corps from Census in FY 1999) waterborne commerce and vessel statistics in conformance with the River and Harbor Act of 1922 as amended.

Harbor Maintenance Fee Data Collection - PL 103-182.

JUSTIFICATION: The budget estimate provides for carrying out the following work:

- a. Protection, Clearing, and Straightening of Channels - Work is undertaken as emergency measures to clear or remove unreasonable obstructions to navigation in navigable portions of rivers, harbors and other waterways of the U.S., or tributaries thereof, in order to provide existing traffic with immediate and significant benefit. The amount requested is an estimate based on historical experience. If actual requirements are more than estimated, funds will be reprogrammed to meet demonstrated needs.
- b. Removal of Sunken Vessels - Primary responsibility for removal belongs to the owner, operator, or lessee. If the obstruction is a hazard to navigation and removal is not undertaken promptly and diligently, the Corps may obtain a court judgment requiring removal, or remove the wreck and seek reimbursement for the full cost of removal and disposal. Determinations of hazards to navigation and Federal marking and removal actions are coordinated with the United States Coast Guard in accordance with a memorandum of understanding between the two agencies dated

16 October 1985. Removal procedures are outlined in 33 CFR 245. If removal requirements are more than estimated, funds will be reprogrammed to meet actual needs.

c. Waterborne Commerce Statistics - The data provide essential information for navigation project investment analyses and annual funding prioritization for operation and maintenance of existing projects; as project output information for computation of performance measures; for input into the U.S. National Accounts; and for regulatory, emergency management decisions, and homeland defense. Activities supporting this national statistics mission include: (1) collecting and reporting (includes enforcement role) of water transportation statistical data; (2) automated systems development and operation (transactional systems within Operation and Maintenance corporate information system), processing, compiling, and publishing statistical data and information on waterborne commerce and vessels moving on the internal U.S. waterways, the Great Lakes, and through all U.S. ocean channels and ports; and (3) compiling and publishing the official U.S. documentation of U.S. vessels engaged in commerce, their principal trades and zones of operation.

d. Harbor Maintenance Fee Data Collection - Up to \$5 million is authorized to be used annually for the administration of the Harbor Maintenance Trust Fund. Most of these funds are used by U.S. Customs and Border Protection (CBP). The Corps performs analysis of Harbor Maintenance Trust Fund (HMTF) revenues and transfers to validate the adequacy of the HMTF in light of the uncertainty over the legal and international challenges to the Harbor Maintenance Fee (HMF), to document the operation of the trust fund, and to prepare and distribute the *Annual Report to Congress on the Status of the Harbor Maintenance Trust Fund*. Analysis of waterborne commerce shipments and vessel movement data is also needed to respond to legal questions to the HMF; to analyze alternative funding options; and to assess the economic and competitiveness impacts of other potential funding sources. The Corps is also required to collect data on foreign and domestic shippers subject to the fee. Therefore the Corps requires a portion of the administrative funding to continue its ongoing HMTF support efforts. Funds will also be used to modify computer programs to begin receiving CY09 waterborne import data from CBP's new Automated Commercial Environment. The General Accountability Office (GAO) issued its final report (GAO-08-321), which recommend that the CBP and the Corps improve their coordination and procedures in order to increase HMF collections by auditing domestic shippers failing to pay or under paying the HMF mandated by law. Preliminary estimates show that improved collections could increase annual receipts by approximately \$500 million. The additional funding requested for FY 2010 will be used to comply with the GAO recommendation by improving the quality and completeness of the domestic shipper information collected by the Corps and improving Corps computer models and programs and data sharing between CBP and the Corps.

<u>FUNDING PROFILE</u>	<u>Appropriation FY 2009</u>	<u>Allocation FY 2010</u>
(a) Protection, Clearing, and Straightening of Channels	\$ 47,000	\$ 50,000
(b) Removal of Sunken Vessels	\$ 464,000	\$ 500,000
(c) Waterborne Commerce Statistics	\$3,964,000	\$4,771,000
(d) Harbor Maintenance Fee Data Collection	\$ 673,000	\$ 825,000
TOTAL	\$5,148,000	\$6,146,000

PROPOSED HMF ACTIVITIES IN FY 2010: Perform operations, maintenance and necessary enhancements of nation's waterborne commerce, vessel and shipper data and statistics programs. Modify Corps automated systems to accept new real-time domestic electronic data. Increase project detail data requirement for budget submissions and economic justification. Modify programs to integrate CBP's new Automated Commercial Environment (ACE) import data into the current import/export data processing. Continue ongoing HMF data collection and analysis programs. Develop and implement improved data collection systems and data analysis models and program computer enhancements. Improve

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CBP-Corps data communication systems in order to target delinquent domestic shippers for audit and thereby increase HMF collections. Begin receiving CY10 import data from CBP's ACE.

ACCOMPLISHMENTS IN FY 2009: Continued ongoing HMF data collection and analysis programs. Worked with CBP to plan and design improved systems to collect better data and improve computer programs and models in order to improve HMF collections from domestic shippers as recommended in GAO's report. Analyzed current CBP and Corps automated systems to design better methods for data and information exchange. Made systems modifications necessary to receive import data from CBP's new Automated Commercial Environment. Maintained FY 2008 data quality and completeness. Provided enhanced navigation project output data for FY 2011 budget formulation. Worked with other Federal agencies and industry to design a new modern, comprehensive automated domestic waterborne data collection system.

**RecreationOneStop (R1S) National Recreation Reservation Service**

SUMMARIZED FINANCIAL DATA:

Estimated Annual Cost for Continuing Program	1,130,000
Appropriation for FY 2009	1,049,000
Allocation Requested for FY 2010	65,000
Change of FY 2010 from FY 2009	(1,065,000)

AUTHORIZATION: These programs are conducted under the general authority of PL 78-534, the Flood Control Act of 1944 (58 Stat. 887).

JUSTIFICATION: At the direction of Office of Management and Budget (OMB), Recreation.gov, Volunteer.gov and National Recreation Reservation Service (NRRS) was combined and is now under the umbrella of RecreationOneStop, a priority Egov initiative on the President's Management Agenda. Also, at OMB's direction, an NRRS contract was awarded to provide comprehensive services for RecreationOneStop to include a portal for public recreation information services, trip planning and reservations. The USDA Forest Service administers the contract, which services the needs of the Forest Service, the Corps and the Department of Interior (DOI) agencies. The DOI serves as the Managing Partner for RecreationOneStop.

PROPOSED ACTIVITIES FOR FY 2010: RecreationOneStop allocation requested for FY 2010 is a decreased requirement. Funding obligations include: Recreation.gov - \$50,000: an interagency website providing public information about recreation opportunities on federal lands. Cost is an annual fee for service payment to DOI to manage, operate and maintain the website; and Volunteer.gov - \$15,000: an interagency website coordinating volunteer activities among federal agencies. Cost is an annual fee for service payment to DOI to manage, operate and maintain the website. NRRS - \$0: all NRRS contract and management costs will be paid from use fees collected as authorized by the Omnibus Appropriations Act, Division C--Energy And Water Development And Related Agencies Appropriations Act, 2008: General Provisions, Corps Of Engineers--Civil: Sec. 121. Appropriated funds not needed as long as authority to reimburse costs from use fees collected remains in effect.

ACCOMPLISHMENTS IN PRIOR YEARS: Launched website, Recreation.gov in fiscal year 2007. NRRS has been providing reservation services for the Corps and the Forest Service since 1999. The website supports the National Recreation Reservation Service (NRRS) which brings together the capability to reserve sites managed by the Army Corps of Engineers, National Park Service, Bureau of Land Management, US Fish and Wildlife Service, and the Forest Service. In FY08 this program provided management oversight of NRRS contract with the NRRS processing over \$35.3 million in gross fee revenue for the Corps. Recreation.gov provides a customer friendly recreation portal with information for viewing and planning visits on over 4,000 Corps recreation sites and activities, reserve and make payment on line. Volunteer.gov provides a comprehensive clearinghouse of Corps volunteer opportunities. The public can enter geographic information about where they want to get involved and areas of interest to access volunteer opportunities offered by the Corps. Nearly 60,000 volunteers at Corps projects worked more than 1.9 million hours, providing \$37.5 million value of service in fiscal year 2008.

**Regional Sediment Management Program (RSM)**

SUMMARIZED FINANCIAL DATA:

Estimated Annual Cost of Continuing Program	\$5,000,000
Allocation for FY 2009	\$4,400,000
Allocation Requested for FY 2010	\$2,000,000
Decrease of FY 2010 from FY 2009	\$2,400,000

AUTHORIZATION: Section 516 of WRDA 96 authorizes the development of long-term strategies for the management and control of sediments through studies and operational activities.

JUSTIFICATION: The RSM Program is a “systems-based approach” that solves sediment related problems by designing solutions that fit within the context of a regional strategy. The RSM Program objectives are to establish regional management strategies that link the sediment management actions at authorized Corps of Engineers (Corps) projects with one another, and to coordinate management activities with other Federal agencies, State, and local governments. RSM is the integrated management of littoral, estuarine, and riverine sediments to achieve balanced and sustainable solutions to sediment related needs. This approach provides opportunities to achieve greater effectiveness and efficiency and to realize significant cost savings relative to traditional project management practices. Cost savings may be realized from reduced re-handling of material, extended dredging cycles and combined equipment mobilization and demobilization for linked projects (e.g., dredging and shore protection). Costs may also be reduced by sharing information and reduced duplication of field data collection, or by reducing duplication in model and tool development.

The short-term goal of the RSM Program is to provide individual districts with the opportunity to identify initiatives that will facilitate implementation of regional sediment management strategies and produce sustainable project management cost savings. Initiatives that support regional strategies include: coordinate navigation channel maintenance with flood and coastal storm damage reduction projects; link sediment availability with sediment needs within the system based on suitable, quantity, quality, and timing, in the context of regional strategies for sediment management; and accommodate navigation channel maintenance material placement needs and concurrently strive to maintain natural sediment transport processes for ecosystem restoration and storm protection considerations. The long-term goal of the RSM Program is to promote technology transfer and lessons-learned in individual district regional sediment management strategies in order to maximize cost savings through sustainable project management practices.

PROPOSED ACTIVITIES FOR FY 2010: Continue implementation of RSM through support to Districts and Divisions to include:

- Initiate the development of a sediment budget for the Long Island back-bay region within the Shinnecock Bay, Moriches Bay and Great South Bay, adjacent barrier islands and expand the geographic extent of the existing Atlantic Coast of New York CASCADE model to include areas west of the Fire Island Inlet. These efforts will be integrated with other ongoing initiatives to develop regional plans for the management of existing inlets, channels, beaches, borrow areas and related coastal and environmental resources.
- Initiate regional sediment management investigations of the region from Diamond Head to Pearl Harbor (Oahu), Kekaha (Kauai) and Kihei/Kahului (Maui). Issues associated with stream sediments will be investigated to identify best management practices to optimize use of the material. Benefits associated with the implementation of RSM efforts from Diamond Head to Pearl Harbor (D2P) are many fold. Quantification of sediment resources and pathways in the region will provide engineering design guidance necessary to restore vital beach resources and conduct Federal maintenance dredging in the most cost effective way. Investigations of sediment management practices at stream mouths will ensure that the associated beach quality material is placed

back into the littoral system in an effective and efficient manner. The beneficial use of dredged material from the ports and harbors on Oahu will also be investigated to maximize beach placement of the beach quality portion of the sediment.

- The Norfolk District will undertake Regional Sediment Management coordination with Mathews County, VA and the Commonwealth of VA for the lower Chesapeake Bay, with a particular focus on the New Point Comfort area. Objectives are to: 1) construct a sediment budget for the area and, 2) to investigate utilizing dredge material from several local/adjacent federal navigation channels innovatively to address shoreline conditions along the western shorelines of the Chesapeake Bay. With federal navigation projects located throughout the area, there exists a need to provide and maintain adequate channel depths combined with the need to address shoreline erosion and storm damage reduction needs while recognizing the needs of the environment, all from a watershed systems based approach.
- The Mobile Bay Basin Watershed project will bring the lessons learned through application of the Regional Sediment Management (RSM) principles and practices in the coastal environment to a broader watershed perspective for sediment and related environmental management planning. By linking the watershed and coastal environments through application of RSM concepts, we will improve our understanding of the watershed processes and improve our ability to make informed, cooperative watershed management decisions. This effort capitalizes on the opportunities presented through collaboration and leveraging with ongoing efforts in the watershed, available tools, and established relationships.
- The Missouri River bed load study expands on the bedload transport work developed by the RSM program. The Integrated Section Surface Difference Over Time (ISSDOT) method has attempted to use bathymetric data to yield the bed load transport rate. The new, or modified, methodology to uses a combination of analytic considerations and modern time-sequenced multibeam three-dimensional geometry of a dune field for computing the bed load transported in the dunes. It is proposed to use both flume data and field data to show the capability of the method to closely measure the bed-material load moving in sand dunes. The results will be applicable to bedload calculations for all fluvial systems.
- A framework for a Regional Sediment Management Plan (RSMP) will be prepared for the Delaware Estuary to summarize the need, alternatives and impacts associated with improving sediment management activities including dredging estuary. The RSMP will illustrate the economic benefits and long-term needs and clearly show the consequences of failing to meet needs. The RSMP will include an implementation strategy using the Regional Dredging Team (RDT) as a Steering Committee, and an outreach plan to ensure that private industry and NGOs have a forum to have their needs voiced and heard by the RDT. The RDT will continually monitor the implementation of the plan to ensure open dialog among stakeholders and provide a forum to discuss innovative solutions as they arise.

ACCOMPLISHMENTS IN FY 2009:

- Developed a conceptual sediment budget for the lower Mississippi River System and coastal Louisiana. The conceptual sediment budget is a qualitative model providing a regional perspective for coastal, estuarine, and riverine processes, incorporating natural morphologic indicators of net (and gross) sediment transport. This conceptual budget represents the best understanding of sediment sources, sinks, and pathways within the Louisiana regional system, and identifies areas with overlapping and conflicting data and therefore can be applied to direct future analysis and data collection.
- Initiated development of a regional sediment budget for the coast of Long Island including an inventory of existing sediment borrow areas and development of a monitoring plan to manage offshore borrow areas. The purpose of the regional sediment budget is to make more effective uses of sediments from inlets and other sources, enhance environmental habitat, improve the collection and dissemination of data about the movement of sediment, facilitate cooperation among Federal and non-federal interests, and assure the most effective use of taxpayer funds.



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- A sediment transport model and a sediment budget were developed for Morehead City Harbor and the Bogue Banks in North Carolina. Coastal process modeling including ADCIRC and STWAVE were used to develop a detailed sediment budget along Shackelford Banks and Bogue Banks across three tidal inlets. Initiated development of an operational sediment budget utilizing CASCADE morphologic evolution modeling.
- Initiated development of a regional sediment budget and sediment yield assessment for the Niobrara River Basin, Nebraska and South Dakota. The sediment budget will identify the various sources of sediment, determine if contributions from the various sources are changing over time and evaluate the impacts of basin-wide sediment management practices on the main stem of the Niobrara River. The sediment budget will be used to implement sediment management actions to reduce impacts to Lewis and Clark Lake and will serve as a model for regional sediment management measures elsewhere in the Missouri River Basin.
- Expanded the proof-of-concept Life Cycle Multi-objective Systems Optimization for channel maintenance alternatives model developed for Memphis Harbor to the implementation phase. The effort involved RSM planning software development, with linkage to an enabling GIS database and other supporting analytical / numerical tools for problem characterization and alternatives evaluation. Initiated development of optimization algorithm for CDF design that provides required future capacity with minimum construction and materials costs.
- Performed initial drawdown test and conducted sediment transport modeling of the lower Green River and areas near Howard Hanson Dam. The goal of the project is to predict regional redistribution of sediments and environmental benefits and impacts due to reservoir drawdowns. The data collected during the drawdown will be used to assess the potential impacts of increased sediment releases on water supply, instream water quality, fisheries and riparian habitats.
- Completed the Southeast Atlantic Regional Sediment Source Study for Florida covering Miami-Dade, Broward, and Palm Beach Counties. Categorized potential offshore sand source reserves as Proven, Potential, and Unverified based upon the level of data availability and certainty/uncertainty of analysis. These reports compile existing information from SAJ's regional sediment budget documents and other literature in order to evaluate the sustainability of current shore protection practices given known borrow area capacities. These will be important tools to demonstrate to stakeholders the need for better management of sediment by employing RSM principles.

**Reliability Models Program For Major Rehabilitation and Asset Management**

SUMMARIZED FINANCIAL DATA:

Estimated Annual Cost for Continuing Program	\$650,000
Appropriation for FY 2009	608,000
Allocation Requested for FY 2010	608,000
Change in FY 2010 from FY 2009	0

JUSTIFICATION: The purpose of this program is to respond to yearly needs of Districts and Divisions that are preparing Major Rehabilitation reports for the upcoming fiscal year. The objective of the program is to provide reliability models for project features or components that are being considered for Major Rehabilitation, or to provide procedures to consider the impact of various chemical, environmental or physical processes in a reliability analysis.

PROPOSED ACTIVITIES FOR FY 2008: The requested funds will be used to prepare reliability models and collect data for reliability analyses anticipated to be required by several Districts. Reliability models and/or data are anticipated to be needed for the following: Testing of a reliability model for seepage through embankment dams and levees will continue; Begin testing of a reliability model for floodwall stability; Continue evaluation of data collected on performance of dam gates, to determine performance modes and verify load cycles used in reliability analyses, and electrical/mechanical systems model for locks and dams. Begin collecting data to develop reliability models for I-Wall Phase III evaluation and Concrete Dam for seismic stability. Provide reliability analysis procedures for additional selected hydropower equipment. It is also anticipated that two rehabilitation workshops would be conducted. The makeup of these units is subject to the needs of the respective Districts and Divisions. Continue to provide support and consultation for development of reliability model for Asset Management for Navigation and Flood/Coastal business line projects.

ACCOMPLISHMENTS IN PRIOR YEARS: Reliability models and other analytical tools have been provided in support of Major Rehabilitation reports on numerous navigation and hydropower projects. In addition, 20 rehabilitation workshops have been conducted in the last 12 years assisted to the Districts as they prepare their reports. These workshops offer guidance in conducting reliability and risk analyses, and provide the opportunity for interdisciplinary teams from the Districts to discuss their particular project with HQUSACE and other Districts personnel. In FY05 the Concrete Deterioration model for Lock Walls and the economic consequences will be finalized through a series of expert elicitation workshop which began in late FY04. These models will be applied to a district lock wall to aid in the Major Rehab Program justification. Two rehabilitation workshops were conducted. Expert Elicitation was conducted for the mechanical and electrical system for navigation locks. Conduct workshop for Jacksonville district. Continue to provide consultation and review in development of reliability model for major maintenance (as part of asset management). Computer programs – design of T-wall and Sheet piling – were modify to run reliability models for leave/wall system (Kansas City and New Orleans Districts projects).

**Reserve For Key Emergency Maintenance/Repairs (New)**

SUMMARIZED FINANCIAL DATA:

Prior Year Allocations	\$	0
Allocation Requested for FY 2009		0
Appropriation for FY 2009		0
Allocation Requested for FY 2010		20,000,000
Change in FY 2010 over FY 2009		20,000,000

AUTHORIZATION: Inherent in various authorizations to operate and maintain specific projects. Reference P.L. 111-8 123 Stat. 604, dated March 11, 2009.

JUSTIFICATION: The Reserve would be established to set aside funds for use on unforeseen urgent maintenance and repair activities. The Reserve will be as used as determined by the Chief of Engineers to be necessary and appropriate. Unused reserve funds will be carried over to following fiscal years for similar application for unforeseen urgent maintenance and repairs.

PROPOSED ACTIVITY FOR FY 2010: The funds will be held in reserve to fund such unforeseen urgent maintenance and repair activities at water resources facilities as determined necessary and appropriate by the Chief of Engineers.

**Shoreline Permit Use Study (New)**

SUMMARIZED FINANCIAL DATA:

Estimated Annual Cost for Continuing Program	\$250,000
Allocation Requested for FY 2009	\$0
Allocation Requested for FY 2010	\$250,000
Change of FY 2010 from FY 2009	\$250,000

AUTHORIZATION: This program is conducted under the authority of Engineer Regulation 1130-2-406 Shoreline Management At Civil Works Projects.

JUSTIFICATION: There currently exist approximately 68,000 docks under the Corps shoreline use permit program. The current fee structure to recover the administrative costs has not changed since 1974, while the cost of administrating the program has increased significantly over the past 35 years. The current cost for permitting a floating facility is \$35 for 5 years or \$7 per year. These fees are returned to the Treasury, as required by law, and not to the administrative unit of the Corps. Preliminary studies completed in the 1987 suggest administrative cost of a 5 year permit to be \$490 for a floating facility and \$245 for vegetation modification. In absence of a new evaluation, applying the consumer price index to the 1987 results would result in administrative cost of \$800 for a floating facility and \$ 400 for vegetation modification. The holders of these permits also experience significant gain in property value that in many cases exceed tens of thousands of dollars. No existing study has captured the value of docks to insure the government is fairly compensated for this value for private exclusive use. Significant resources could be obtained through return of appropriate fees to cover Corps administrative expenses while additional value may be returned to the Treasury.

PROPOSED ACTIVITIES FOR FY 2010:

The 2010 funding would be utilized to conduct a comprehensive study of administrative costs of the program by evaluating representative samples across the Corps 456 projects. The costs could be evaluated to establish a fee structure that would be appropriate to different areas and conditions. The study would also evaluate the regional differences of added home value based on real estate value comparables for those with and without Corps permitted docks. Products of the comprehensive study would include a recommended fee structure for administrative expenses, assessment of added real value of the docks and recommendations for return of revenue to Corps and the Treasury.

ACCOMPLISHMENTS IN PRIOR YEARS:

Using existing program funds the Corps has completed smaller studies and regional evaluations that will be used to scope and guide the larger comprehensive study.

**Water Operations Technical Support (WOTS)**

SUMMARIZED FINANCIAL DATA:

Estimated Annual Cost for Continuing Program	\$1,500,000
Allocation for FY 2009	606,000
Allocation Requested for FY 2010	653,000
Increase of FY 2010 from FY 2009	0

AUTHORIZATION: These efforts are necessary to provide support for the restoration and management of Federal water resources.

JUSTIFICATION: Maintaining the high quality environmental and water quality conditions at 562 Corps reservoirs (5,500,000 surface acres), 237 navigation locks, 926 harbors, 75 hydropower projects, and 25,000 miles of inland and coastal waterways requires compliance with numerous statutes and state standards. Providing the technology and knowledge base necessary to broadly address environmental requirements in accordance with laws and regulations can best be accomplished through a comprehensive centralized program that will maximize cost effectiveness, and ensure broad dissemination and implementation of technology and information.

PROPOSED ACTIVITIES FOR FY 2010: The WOTS Program is expanding as environmental conditions at Corps project sites continue to deteriorate. The program will continue to provide effective environmental and water quality management technologies to address a wide range of issues at Corps reservoir and waterway projects, and in river systems nationwide. The program will provide technology to address: problems caused by aquatic invasive species; water quality impacts of land use, sediment and nutrient loadings, erosion, and reservoir sedimentation; tailwater fisheries concerns at pump-back hydropower projects; and project operations related to environmental and water quality issues. WOTS will provide technical support to the Corps' mission related project responsibilities, with special emphasis on the transfer of technology. The program will ensure that the technologies developed by the Corps and other Federal agencies are current and readily available to all Corps field offices. The effective use of technologies will be secured through direct technical assistance, specialty workshops, information bulletins, technical notes, executive notes, technical reports, miscellaneous papers, instruction manuals, videos, meetings, seminars, briefings, congressional testimony, and the Internet.

ACCOMPLISHMENTS IN FY 2009: Since its inception in FY 1985, WOTS has provided environmental and water quality technological solutions to over 1,550 problems identified at projects from every Corps District. The WOTS program annually conducts specialty workshops, training personnel on the latest environmental and water quality management techniques; and publishes and distributes numerous copies of manuals, bulletins, notes, and reports. In FY 2009, the WOTS program successfully responded to over 45 direct technical assistance requests from 29 Corps Districts, conducted 4 training workshops on environmental and water quality management techniques, conducted 2 technology demonstration efforts to verify management strategies and techniques, and prepared several technical publications for distribution to the field. A continual endeavor of the WOTS program is coordination with water quality and environmental elements of other Federal agencies such as the Environmental Protection Agency, U.S. Department of Agriculture, Bureau of Reclamation, Fish and Wildlife Service, U.S. Geological Survey, Tennessee Valley Authority, and the Bonneville Power Administration. These efforts have involved problems related to the introduction and spread of aquatic invasive species, watershed management activities, environmental impacts of hydropower facilities, and impacts of water releases in tailwater areas on fisheries.