

**Department of the Army  
U.S. Army Corps of Engineers Civil Works  
Program  
Five-Year Development Plan**

**Fiscal Year 2011 to Fiscal Year 2015**



# Table of Contents

<b>Executive Summary</b> .....	7
<b>Methods and Assumptions</b> .....	9
<b>Business Program Summary</b> .....	16
<b>Navigation</b> .....	21
Accomplishments.....	22
Future Challenges .....	22
Program History and Performance.....	23
Base Funding and Performance .....	28
Enhanced Funding and Performance .....	31
Potential Work with “Wedge Money” .....	32
<b>Flood Risk Management</b> .....	33
Accomplishments.....	34
Future Challenges .....	35
Program History and Performance.....	38
Base Funding and Performance .....	39
Enhanced Funding and Performance .....	42
Potential Work with “Wedge Money” .....	43
<b>Environment</b> .....	44
<b>Aquatic Ecosystem Restoration</b> .....	45
Accomplishments.....	45
Future Challenges .....	46
History of Funding and Performance.....	46
Base Funding and Performance .....	50
Enhanced Funding and Performance .....	52
Potential Work with “Wedge Money” .....	53
<b>Environmental Stewardship</b> .....	54
Accomplishments.....	54
Future Challenges .....	54
Program History and Performance.....	55
Base Funding and Performance .....	60
Enhanced Funding and Performance .....	63
Potential Work with “Wedge Money” .....	64
<b>Formerly Utilized Sites Remedial Action Program</b> .....	65
Accomplishments.....	65
Future Challenges .....	65
Program History and Performance.....	66
Base Funding and Performance .....	69
Enhanced Funding and Performance .....	70
Potential Work with "Wedge Money" .....	71

<b>Hydropower</b> .....	<b>72</b>
Accomplishments.....	73
Future Challenges .....	74
Program History and Performance.....	74
Base Funding and Performance .....	77
Enhanced Funding and Performance .....	78
Potential Work with “Wedge Money” .....	79
<b>Regulatory</b> .....	<b>80</b>
Accomplishments.....	81
Future Challenges .....	82
History of Funding and Performance.....	83
Base Funding and Performance .....	86
Enhanced Funding and Performance .....	87
Potential Work with “Wedge Money” .....	88
<b>Recreation</b> .....	<b>89</b>
Accomplishments.....	90
Future Challenges .....	90
Program History and Performance.....	91
Base Funding and Performance .....	94
Enhanced Funding and Performance .....	97
Potential Work with “Wedge Money” .....	98
<b>Emergency Management</b> .....	<b>99</b>
Accomplishments.....	100
Future Challenges .....	101
History of Funding and Performance.....	102
Base Plan and Performance .....	105
Enhanced Funding and Performance .....	107
Potential Work with “Wedge Money” .....	109
<b>Water Supply</b> .....	<b>110</b>
Accomplishments.....	111
Future Challenges .....	111
History of Funding and Performance.....	112
Base Funding and Performance .....	116
Enhanced Funding and Performance .....	117
Potential Work with “Wedge Money” .....	118
<b>Executive Direction and Management</b> .....	<b>119</b>
Accomplishments.....	120
Future Challenges .....	121
History of Funding and Performance.....	121
Base Funding and Performance .....	122
Enhanced Funding and Performance .....	123
Potential Work with “Wedge Money” .....	124
<b>Appendix</b> .....	<b>125</b>

## Tables

<b>Detailed Methods and Assumptions</b> .....	<b>9</b>
Table 1: Civil Works Base Plan Appropriations Accounts by Fiscal Year .....	9
Table 2: Civil Works Base Plan Programs by Fiscal Year .....	10
Table 3: FY09 Base Business Program and Account Summary .....	11
Table 4: Civil Works Enhanced Plan Appropriations Accounts by Fiscal Year .....	13
Table 5: Civil Works Enhanced Plan Business Programs by Fiscal Year .....	14
Table 6: FY09 Enhanced Business Program and Account Summary .....	15
<b>Navigation</b> .....	<b>21</b>
Table 1: Navigation Performance for O&M Projects .....	25
Table 2: Navigation High Priority Performance Goals .....	26
Table 3: Five-Year Base Plan Navigation Business Program by Account.....	28
Table 4: Five-Year Base Plan Total Budget and Performance .....	29
Table 5: Five-Year Enhanced Plan Navigation Business Program by Account.....	31
Table 6: Five-Year Enhanced Plan Budget and Performance .....	32
<b>Flood Risk Management</b> .....	<b>33</b>
Table 1: Flood Risk Management High Priority Performance Goals .....	38
Table 2: Flood Risk Management.....	38
Table 3: FRM Five-Year Base Plan by Account .....	40
Table 4: FRM Five-Year Base Plan Performance .....	42
Table 5: FRM Five-Year Enhanced Plan by Account .....	42
Table 6: FRM Five-Year Enhanced Plan Budget and Performance .....	43
<b>Environment</b> .....	<b>44</b>
<b>Aquatic Ecosystem Restoration</b> .....	<b>45</b>
Table 1: Aquatic Ecosystem Restoration Historical Funding and Performance .....	46
Table 2: Aquatic Ecosystem Restoration Base Funding.....	50
Table 3: Aquatic Ecosystem Restoration Base Funding and Performance .....	51
Table 4: Aquatic Ecosystem Restoration Enhanced Funding.....	52
Table 5: Aquatic Ecosystem Restoration Enhanced Funding and Performance .....	53
<b>Environmental Stewardship</b> .....	<b>54</b>
Table 1: Environmental Stewardship Historical Funding and Performance .....	58
Table 2: Environmental Stewardship Base Funding .....	61
Table 3: Environmental Stewardship Base Funding and Performance .....	62
Table 4: Enhanced Five-Year Budget.....	63
Table 5: Environmental Stewardship Enhanced Budget and Metrics .....	64
<b>Formerly Utilized Sites Remedial Action Program</b> .....	<b>65</b>
Table 1: FUSRAP Funding and Performance History .....	67
Table 2: FUSRAP Five-Year Base Funding Plan and Performance .....	69
Table 3: FUSRAP Five-Year Enhanced Funding Plan and Performance .....	70
<b>Hydropower</b> .....	<b>72</b>
Table 1: Hydropower Historical Funding and Performance.....	75
Table 2: Hydropower Base Funding by Accounts.....	77
Table 3: Hydropower Base Funding and Performance.....	78
Table 4: Hydropower Enhanced Funding by Accounts.....	78
Table 5: Hydropower Enhanced Funding and Performance.....	78

<b>Regulatory .....</b>	<b>80</b>
Table 1: Regulatory Historic Funding and Performance .....	85
Table 2: Regulatory Base Funding and Performance .....	87
Table 3: Enhanced Funding and Metrics .....	88
<b>Recreation.....</b>	<b>89</b>
Table 1: Recreation Historic Funding and Performance .....	92
Table 2: Recreation Base Funding by Account and Performance .....	94
Table 3: Recreation Enhanced Funding by Account .....	97
Table 4: Recreation Enhanced Funding and Performance .....	98
<b>Emergency Management.....</b>	<b>99</b>
Table 1: Funding and Performance History.....	104
Table 2: Emergency Management Base Plan Funding by Account .....	106
Table 3: Emergency Management Base Funding and Performance Measures .....	107
Table 4: Emergency Management Enhanced Funding by Accounts .....	108
Table 5: Emergency Management Enhanced Funding and Performance.....	109
<b>Water Supply .....</b>	<b>110</b>
Table 1: Water Supply Funding and Performance History .....	113
Table 2: Water Supply Base Funding by Account .....	116
Table 3: Water Supply Base Funding and Performance.....	117
Table 4: Enhanced Funding and Performance by Accounts.....	118
<b>Executive Direction and Management.....</b>	<b>119</b>
Table 1: ED&M Funding and Performance History.....	122
Table 2: ED&M Five-Year Base Funding Plan.....	123
Table 3: ED&M Five-Year Enhanced Funding Plan.....	123
<b>Appendix Tables .....</b>	<b>125</b>
Appendix A: FY10 Relative Risk Ranking Matrix .....	126
Table I-1: Investigation Account, Base Plan Scenario .....	131
Table I-2: Investigation Account, Enhanced Plan Scenario .....	134
Table C-1: Construction Account, Base Plan Scenario.....	137
Table C-2: Construction Account, Enhanced Plan Scenario.....	137
Table M-1: Mississippi River and Tributaries, Base Plan Scenario.....	143
Table M-2: Mississippi River and Tributaries, Enhanced Plan Scenario .....	144

## Project Spotlights

New York and New Jersey Harbor Deeping Project .....	27
John Day Downstream Lock Gate Replacement .....	30
Wolf Creek Dam, Cumberland River, Russell, KY.....	39
Everglades.....	48
Fern Ridge.....	59
Maywood Chemical Company Superfund Site.....	68
John H. Kerr Dam and Reservoir Power Plant Major Rehabilitation.....	76
Regulatory Activity Spotlight.....	86

Partnering at Lake Ouachita, Arkansas.....	<b>93</b>
Impacts to Operations and Partnerships.....	<b>96</b>
Hurricane Storm Damage Risk Reduction System.....	<b>105</b>
A “Typical Project”.....	<b>114</b>

# Executive Summary

---

This Five-Year Development Plan (FYDP) places the Fiscal Year (FY) 2011 budget into a longer term context. This context is important because most United States Army Corps of Engineers (USACE) studies build off the previous year's budget and require multi-year investments. This report presents projections of discretionary budget authority for the Army Civil Works program for FY11 through FY15. Two funding scenarios are presented: A Base Plan Scenario and an Enhanced Plan Scenario. The Base Plan consists of the President's FY11 budget and its out-year funding stream. The Enhanced Plan is derived from the FY10 appropriation and a growth rate necessary to assure constant purchasing power. The base plan ranges from \$4.939 billion in FY11 to \$4.774 billion in FY15. The enhanced plan ranges from \$5.587 billion in FY11 to \$6.3 billion in FY15.

## **There are three main sections in this report:**

**1) Detailed Methods and Assumptions:** The Detailed Methods and Assumptions section describes in detail the two scenarios presented in this Five-Year Development Plan, the Base Plan and the Enhanced Plan. In both scenarios, activities are assumed to be assigned to the same accounts as proposed for FY11.

**2) Business Program Summaries:** For each business program, the report discusses accomplishments, future challenges, project spotlights and the business program's funding and performance under the historical, base, and enhanced funding. The report describes the performance objectives that influence each business program under the two funding scenarios.

This document attempts to relate performance and budgets. With base funding, the programs cannot keep up with inflation. This creates problems with maintaining the FY11 performance. Activities are eliminated or reduced to fit the budget. The enhanced budget allows most programs to maintain the status quo and to continue with improvement.

The three largest funded programs are: Navigation, Flood Risk Management, and Environment. Navigation receives the largest portion of funding, at 33 percent of base funding during the five year period. Flood Risk Management receives 31 percent of base funding. Navigation, Flood Risk Management, and Hydropower are facing similar circumstances, dealing with aging infrastructure. The programs are undertaking risk assessments to prioritize activities and manage infrastructure.

Environment receives between 16 and 17 percent and is broken into Aquatic Ecosystem Restoration, Environmental Stewardship, and Formerly Utilized Sites Remedial Action Program (FUSRAP). The Aquatic Ecosystem Program is the newest addition to Civil Works Program. The South Florida Everglades Ecosystem Project is the largest funded construction project in the environment program. The Louisiana Coastal Area Ecosystem Restoration Project is the largest investigation study; in the out-years, funding will be necessary to implement study recommendations.

**3) Appendix:** The appendix contains more detailed tables. Projects and projected funding levels are listed for both the Base and Enhanced Scenarios. The projects are broken down by state in separate tables by Investigations, Construction, and Mississippi River and Tributaries.



# Detailed Methods and Assumptions

This section describes in detail the two scenarios presented in this Five-Year Development Plan, the Base Plan and the Enhanced Plan. In both scenarios, activities are assumed to be assigned to the same accounts as proposed for FY11.

## Base Plan

The Base Plan is based on the President's budget for FY11 and formula-driven agency funding levels for FY12 through FY15 from the Office of Management and Budget (OMB). After the budget year decisions are complete, OMB generates out-year appropriation amounts that are consistent with the President's overall targets for revenues, defense, homeland security, and non-security spending. As a result, the data for the Base Plan out-years do not represent proposed levels for the agency accounts, or programs. Rather, the out-year numbers are formula-generated placeholders, pending budget decisions in future years.

Under the Base Plan, each account would maintain the same percentage of total funding in each of the out-years that it has in the FY11 budget. For example, the Investigations account is 2.1 percent of the total in the FY11 budget, so it would be 2.1 percent of the total in each out-year. Table 1 displays the total and the amount for each appropriations account from FY11 thru FY15 for the Base Plan.

**Table 1: Civil Works Base Plan Appropriations Accounts by Fiscal Year  
(\$ Millions)**

<i>Fiscal Year</i>	<i>2011</i>	<i>2012</i>	<i>2013</i>	<i>2014</i>	<i>2015</i>
<b>Account:</b>					
Investigations	104	100	96	98	101
Construction	1,690	1,620	1,562	1,597	1,634
Operation and Maintenance (O&M)	2,361	2,262	2,181	2,232	2,280
Mississippi River and Tributaries (MR&T)	240	230	222	227	232
Formerly Utilized sites Remedial Action Program (FUSRAP)	130	125	120	123	126
Regulatory Program	193	185	178	182	187
Flood Control and Coastal Emergencies (FCCE)	30	29	28	28	29
Executive Direction and Management	185	177	171	175	179
Assistant Secretary of the Army (Civil Works)	6	6	6	6	6
<b>Total, Discretionary Budget Authority</b>	<b>\$ 4,939</b>	<b>\$ 4,734</b>	<b>\$ 4,564</b>	<b>\$ 4,668</b>	<b>\$ 4,774</b>

## Expenses and Office of the Assistant Secretary of the Army (Civil Works), (ASA(CW))

Expenses and ASA (CW) accounts fund USACE executive direction and management, and Army Secretarial oversight of the Civil Works program. USACE's executive direction covers the headquarters and division expenses. These accounts are not allocated to business programs. The following table displays the funding allocation among business programs.

**Table 2: Civil Works Base Plan Programs by Fiscal Year  
(\$ Millions)**

<i>Fiscal Year</i>	<i>2011</i>	<i>2012</i>	<i>2013</i>	<i>2014</i>	<i>2015</i>
<b><i>Business Program:</i></b>					
Navigation	1,653	1,583	1,526	1,562	1,569
Flood Risk Management (FRM)	1,545	1,481	1,428	1,460	1,468
Aquatic Ecosystem Restoration	586	562	542	554	556
Environmental Stewardship	108	104	100	102	102
Formerly Utilized sites Remedial Action (FUSRAP) Program	130	125	120	123	124
Hydropower	207	198	191	196	196
Recreation	280	268	259	265	266
Water Supply	4	4	4	4	4
Regulatory	193	185	178	182	187
Emergency Management	43	41	40	41	42
Executive Direction and Management	185	177	171	175	179
Army Secretarial Oversight	6	6	6	6	6
Other (Additional studies, projects, programs, and activities, known as the "wedge")	0	0	0	0	76
<b>Total</b>	<b>\$ 4,939</b>	<b>\$ 4,734</b>	<b>\$ 4,564</b>	<b>\$ 4,668</b>	<b>\$ 4,774</b>

The “wedge” refers to funding made available due to the completion of budgeted projects. The “wedge” is not allocated to business programs; however, in a subsequent section, each business program provides examples of how these funds could be used. Under the base plan, the projects included in the FY2011 President’s budget are funded in the out-years at no less than the level in the budget, but no more than capability. The wedge is then made up of the funds that become available as projects and studies are completed. Under this plan, a wedge becomes available only in the final year, 2015.

Table 3 shows how the Business Programs draw funds from the various accounts in FY11 Base Scenario. For example, the \$1.7 billion Navigation Program draws \$20 million from Investigations, \$291 million from Construction, \$1.297 billion from Operation and Maintenance (O&M), and \$45 million from the Mississippi River and Tributaries account. Similar data was used for the formulation of business program funding in each out-year scenario.

**Table 3: FY11 Base Business Program and Account Summary  
(\$ Millions)**

	Investigations	Construction	O&M	MR&T Sub-Total	FUSRAP	FCCE	Regulatory	Expenses	ASA	Total
<b>Business Program:</b>										
Navigation	\$20	\$291	\$1,297	\$45						\$1,653
Flood Risk Management (Flood and Coastal Damage Reduction)	\$49	\$848	\$475	\$172						\$1,545
Aquatic Ecosystem Restoration	\$35	\$530	\$18	\$3						\$586
Environmental Stewardship			\$103	\$5						\$108
Formerly Utilized Sites Remedial Action (FUSRAP) Program					\$130					\$130
Hydropower		\$21	\$186							\$207
Recreation			\$265	\$15						\$280
Water Supply			\$4							\$4
Regulatory							\$193			\$193
Emergency Management			\$13			\$30				\$43
Executive Direction and Management								\$185		\$185
Assistant Secretary of the Army (ASA Civil Works)									\$6	\$6
<b>TOTAL</b>	<b>\$104</b>	<b>\$1,690</b>	<b>\$2,361</b>	<b>\$240</b>	<b>\$130</b>	<b>\$30</b>	<b>\$193</b>	<b>\$185</b>	<b>\$6</b>	<b>\$4,939</b>

## Enhanced Plan

---

For the Enhanced Plan, the overall funding levels for FY11 through FY15 adjust the FY10 Appropriations overall funding level of \$5.445 billion (including the Assistant Secretary and Expenses) for projected changes in the Gross Domestic Product (GDP) price index. Consistent with the base scenario, Expenses and the Assistant Secretary accounts are not allocated to the business programs. The funding allocation is permitted to vary from the FY11 account mix. However, no account receives less funding in the FY11 Enhanced Plan than it does in the FY11 budget.

### **FY11 Appropriation Account Funding under the Enhanced Plan is distributed as follows:**

- The Operation and Maintenance account receives funding above the FY11 budget amount to address priority maintenance. The O&M account receives \$2.7 billion in FY11, an increase of \$300 million over the FY11 budget amount for the O&M account.
- Investigations receives \$180 million in FY11, \$76 million above the FY11 budget amount.
- Construction receives \$1.9 billion in FY11, \$200 million above the FY11 budget amount.
- The Formerly Utilized Sites Remedial Action Program (FUSRAP) account receives \$145 million in FY11. This is \$15 million above the FY11 budget amount.
- The Expenses account receives \$195 million in FY11, which is \$10 million above the FY11 budget amount.
- The Regulatory Account receives \$213 million in FY11, or \$20 million above the FY11 budget amount.
- The Flood Control and Coastal Emergencies account would receive \$50 million, \$20 million above the FY11 budget amount.
- MR&T receives \$252 million, \$4 million above the FY11 budget amount.

### **Out-years Appropriation Funding under the Enhanced Plan is distributed as follows:**

In the out-years, funding for each account generally increases from the FY11 level with the GDP price index. This is just under three percent per year. However, the O&M account and the Maintenance portion of the MR&T account increase three percent per year in recognition of the aging of the Civil Works capital assets. As an offset, the Construction account and the Construction portion of the MR&T account increase slightly less each year.

Table 4 displays the overall total and the total for each account in each fiscal year from FY11 through FY15 under the Enhanced Plan.

**Table 4: Civil Works Enhanced Plan Appropriations Accounts by Fiscal Year  
(\$ Millions)**

<i>Fiscal Year</i>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
<b>Account:</b>					
<i>Gross Domestic Product Price Index</i>	126	127	129	132	134
Investigations	180	185	189	195	203
Construction	1,894	1,936	1,992	2,062	2,136
Operation and Maintenance (O&M)	2,652	2,732	2,813	2,897	2,991
Flood Control, Mississippi River and Tributaries (MR&T)	252	259	266	275	284
Formerly Utilized Sites Remedial Action Program (FUSRAP)	145	149	153	158	164
Regulatory Program	213	219	225	232	240
Flood Control and Coastal Emergencies (FCCE)	50	51	53	55	56
Expenses	195	200	206	213	220
Assistant Secretary of the Army (Civil Works)	6	6	6	7	7
<b>Total, Discretionary Budget Authority</b>	<b>\$ 5,587</b>	<b>\$ 5,737</b>	<b>\$ 5,904</b>	<b>\$ 6,093</b>	<b>\$ 6,300</b>

Table 5 displays the business program funding. The “wedge” refers to funding made available due to the completion of budgeted projects. The “wedge” is not allocated to business programs; however, in a subsequent section, each business program provides examples of how these funds could be used. Under the enhanced plan, the projects included in the FY2011 President’s budget are funded in the out-years at the project’s capability level to the extent possible. Please note, as projects complete and a higher wedge is attained in FY15, the business lines affected by the wedge appear to decrease, however, the assumption is that these business lines would increase as new projects or activities are started with this additional funding.

**Table 5: Civil Works Enhanced Plan Business Programs by Fiscal Year  
(\$ Millions)**

<i>Fiscal Year</i>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
<b><i>Business Program:</i></b>					
Navigation	2,023	2,058	2,104	2,136	2,045
Flood and Coastal Storm Damage Reduction (FCSDR)	1,559	1,586	1,620	1,646	1,579
Aquatic Ecosystem Restoration	692	704	719	731	699
Environmental Stewardship	139	143	147	152	157
Formerly Utilized sites Remedial Action (FUSRAP) Program	145	149	153	158	164
Hydropower	260	264	270	274	263
Recreation	286	291	297	302	290
Water Supply	7	7	7	8	8
Regulatory	213	219	225	232	240
Emergency Management	62	64	66	68	70
Executive Direction and Management	195	200	206	213	220
Army Secretarial Oversight	6	6	6	7	7
Other (Additional studies, projects, programs, and activities, "wedge")	270	46	84	168	561
<b>Total</b>	<b>\$ 5,587</b>	<b>\$ 5,737</b>	<b>\$ 5,904</b>	<b>\$ 6,093</b>	<b>\$ 6,300</b>

Table 6 shows the distribution of Enhanced Plan funds to the Business Programs for FY11. For example, in FY11, Navigation receives \$2.023 billion which is \$360 million above the base.

**Table 6: FY11 Enhanced Business Program and Account Summary  
(\$ Millions)**

	Investigations	Construction	O&M	MR&T Sub-Total	FUSRAP	FCCE	Regulatory	Expenses	ASA	Total
<b>Business Program:</b>										
Navigation	\$41	\$397	\$1,538	\$47						\$2,023
Flood Risk Management (Flood and Coastal Damage Reduction)	\$70	\$844	\$458	\$187						\$1,559
Aquatic Ecosystem Restoration	\$67	\$608	\$14	\$3						\$692
Environmental Stewardship			\$136	\$3						\$139
Formerly Utilized Sites Remedial Action (FUSRAP) Program					\$145					\$145
Hydropower		\$45	\$215							\$260
Recreation			\$274	\$12						\$286
Water Supply	\$2		\$5							\$7
Regulatory							\$213			\$213
Emergency Management			\$12			\$50				\$62
Executive Direction and Management								\$195		\$195
Assistant Secretary of the Army (ASA Civil Works)									\$6	\$6
<b>TOTAL</b>	<b>\$180</b>	<b>\$1,894</b>	<b>\$2,652</b>	<b>\$252</b>	<b>\$145</b>	<b>\$50</b>	<b>\$213</b>	<b>\$195</b>	<b>\$6</b>	<b>\$5,587</b>

Under the Base Plan there is no “wedge” in FY11, but there is a “wedge” in the final year. The Enhanced Plan shows a “wedge” for all years. In both cases, the “wedge” is not allocated across business programs (nor is it shown in the above cross-cut for FY11).

# Business Program Summary

---

## **NAVIGATION**

The navigation program is responsible for providing safe, reliable, efficient and environmentally sustainable waterborne transportation systems for the movement of commercial goods and for national security needs. The program seeks to meet this responsibility through a combination of capital improvements and the operation and maintenance of existing infrastructure projects. The navigation program is vital to the nation's economic prosperity: 75 percent of America's overseas international trade moves through its ports. The nation's marine transportation system (MTS) encompasses a network of navigable channels, waterways and infrastructure maintained by the USACE, as well as publicly- and privately-owned vessels, marine terminals, intermodal connections, shipyards and repair facilities. The MTS consists of approximately 12,000 miles of inland and intracoastal waterways; approximately 350 coastal, Great Lakes and inland harbors; and channel projects comprising 13,000 miles, maintained by USACE.

## **FLOOD RISK MANAGEMENT**

Through both structural and non-structural measures, the Flood Risk Management Program serves as a vehicle to reduce the risk to human safety and property from riverine and coastal flooding. Upon completion, and with the exception of reservoirs, most of the federally constructed infrastructure has been transferred a non-Federal, cost-share sponsor to operate and maintain.

In implementing the Flood Risk Management Program, the Corps has demonstrated its commitment to lead the nation away from the mindset of controlling floods to a more comprehensive approach of managing the risks associated with floods and coastal storms. This shift in perspective acknowledges the complexities and dynamics of flood plains and the Corps' commitment to the partnerships necessary to apply effective flood plain and coastal flood risk management practices.

## **ENVIRONMENT**

The Environmental Program includes three sub-programs: Aquatic Ecosystem Restoration, Environmental Stewardship and the Formerly Utilized Sites Remediation Action Program. Each of these sub-programs has separate goals and objectives and performance measures.

### **ENVIRONMENTAL: AQUATIC ECOSYSTEM RESTORATION (AER)**

The Army's mission in the area of aquatic ecosystem restoration is to help restore aquatic habitat to a more natural condition in ecosystems whose structures, functions and dynamic processes have become degraded. The emphasis is on restoration of nationally- or regionally-significant habitat where the solution primarily involves modifying the hydrology and geomorphology.



## **ENVIRONMENTAL: ENVIRONMENTAL STEWARDSHIP**

The environmental stewardship program focuses on the management, conservation and preservation of natural resources on 11.5 million acres of land and water at 456 multipurpose USACE projects. Among other environmental activities, program personnel monitor water quality at USACE dams and operate fish hatcheries in cooperation with state wildlife agencies. The program includes compliance measures to ensure that USACE projects meet federal, state and local environmental requirements; prevention; and conservation.

## **ENVIRONMENTAL: FORMERLY UTILIZED SITES REMEDIATION ASSISTANCE PROGRAM (FUSRAP)**

Under the FUSRAP, USACE cleans up former Manhattan Project and Atomic Energy Commission sites, making use of expertise gained in cleaning up former military sites and civilian hazardous waste sites under the Environmental Protection Agency Superfund program.

## **HYDROPOWER**

USACEs' multipurpose authorities provide hydroelectric power as an additional benefit of projects built for navigation and flood control. USACE is the largest owner-operator of hydroelectric power plants in the United States and one of the largest in the world. USACE operates 353 generating units at 75 multipurpose reservoirs, mostly in the Pacific Northwest; they account for about 24 percent of America's hydroelectric power and approximately 3 percent of the country's total electric-generating capacity. Its hydroelectric plants produce nearly 70 billion kilowatt-hours each year—sufficient to serve about 75 million households equal to 288 cities the size of Washington, DC. Hydropower is a renewable source of energy and one of the least environmentally disruptive sources of electric power, producing none of the airborne emissions that contribute to acid rain or the greenhouse effect.

## **RECREATION**

USACE is an important provider of outdoor recreation, which is an ancillary benefit of its flood risk management and navigation projects. USACE's recreation program provides quality outdoor public recreation experiences in accordance with its three-part mission: 1) serve the needs of present and future generations; 2) contribute to the quality of American life; and 3) manage and conserve natural resources consistent with ecosystem management principles.

USACE administers 4,254 recreation sites at 422 projects on 12 million acres of land. During fiscal year 2009, 10 percent of the U.S. population visited a USACE project at least once. These visitors spent \$18 billion pursuing their favorite outdoor recreation activity, supporting some 350,000 full- and part-time jobs.

## **REGULATION OF WETLANDS AND WATERWAYS**

In accordance with the Rivers and Harbors Act of 1890 (Sec. 10) and the Clean Water Act of 1972 (Sec. 404), as amended, the Army Civil Works Regulatory Program regulates the discharge of dredged and fill material into U.S. waters, including wetlands. USACE implements many of

its oversight responsibilities by means of a permit process. Throughout the permit evaluation process, the USACE complies with the National Environmental Policy Act and other applicable environmental and historic preservation laws. In addition to federal statutes, USACE must also consider the views of other federal, tribal, state and local governments and agencies; interest groups as well as the general public when rendering its final permit decisions.

## **EMERGENCY MANAGEMENT**

Throughout USACE history, the United States has relied on the civil works program for help in times of national disaster. Emergency management continues to be an important part of the civil works program that supports the Department of Homeland Security in carrying out the National Response Framework. It does this by providing emergency support in the areas of public works and engineering, and by conducting emergency response and recovery activities under authority of Public Law 84-99. USACE responds to more than 30 presidential disaster declarations in a typical year, and its highly-trained workforce is prepared to deal with both man-made and natural disasters.

Hurricanes Katrina, Rita, Wilma and Ophelia caused significant damage to the flood and hurricane protection projects along the Gulf Coast and South Atlantic states. Hurricane Katrina, alone, resulted in federal costs of approximately \$125 billion in Louisiana, Mississippi and Alabama. USACE costs to repair and upgrade the New Orleans Hurricane and Storm Damage Risk Reduction System (HSDRRS) will be approximately \$14 billion. Major damage to the storm protection system in the New Orleans area included overtopping of 47 sections of levees and the failure of three floodwalls along Lake Pontchartrain and vicinity.

Coupled with its repair efforts, USACE studied ways to improve hurricane protection in the vicinity of Lake Pontchartrain. USACE commissioned a Hurricane Protection Decision Chronology (HPDC) shortly after Hurricane Katrina in order to collect, record and analyze project memoranda, reports and related documentation. This material was used to better understand how complex social and political decision-making processes contributed to the HSDRRS and how those processes might be improved. Subsequently, a report provided an explanation—as opposed to an evaluation—of the way in which USACEs’ policies and organization, legislation, financial and other factors influenced decisions that led to the HSDRRS protective structures in place when Hurricane Katrina struck.

The HPDC focus on project decision-making complemented the engineering forensics investigations conducted by the Interagency Performance Evaluation Task Force and other institutions. The HPDC’s purpose is to make predictions about the future by looking at historical data, and it demonstrated that no single individual, agency, organization or decision was solely responsible for the development of the HSDRRS over the course of its 50-year history. USACE is committed to open, transparent communication with the American public regarding the ‘lessons learned’ in the aftermath of Hurricane Katrina.

USACE not only contributes to domestic emergency management efforts, but also plays a major role on the international stage through its participation in the civil military emergency preparedness program. In support of the Department of Defense (DoD), USACE shares emergency management knowledge and expertise with U.S. Allies and partners in the former Soviet Republics and Eastern Europe. This valuable program brings together key leaders and builds relationships among nations in direct support of the National Defense Strategy.

## **WATER STORAGE FOR WATER SUPPLY**

Conscientious management of the nation's water supply is critical to limiting water shortages and lessening the impact of droughts. USACE has an important role in ensuring that homes, businesses and farms, nationwide, have enough water to meet their needs. USACE has the authority for water supply in connection with construction, operation and modification of federal navigation; flood damage reduction; and multipurpose projects.

## **EXECUTIVE DIRECTION AND MANAGEMENT (ED&M)**

The Expenses Account provides for Executive Direction and Management (ED&M) of the Civil Works Program pursuant to policy guidance and oversight by the Assistant Secretary of the Army (Civil Works). This is accomplished through command and control, policy and guidance development, program management, national coordination, and quality assurance. Principal activities include corporate leadership, strategic planning and performance measurement. Performance measurement is accomplished through performance assessment metrics, construction leading/lagging indicators, and efficiency studies. Program management is accomplished through various levels of review such as Project Review Board (PRB) Reviews, Directorate Management Reviews (DMRs), and Command Management Reviews (CMRs). ED&M also allows for national coordination and collaboration with other agencies, States, local governments, and non-governmental organizations.

---

# **USACE Business Programs**

---

# Navigation



# Navigation



## Key Statistics

- ❖ Operates and maintains 25,000 miles of navigable channels
- ❖ Responsible for 926 deep and shallow draft harbors in 41 states.
- ❖ Operate and maintain 241 lock chambers at 195 sites
- ❖ There is 2.2 billion tons of domestic and foreign commerce carried annually on inland waterways.

## Accomplishments

---

- Program operates and maintains diverse navigation resources including: channels and locks on inland and intracoastal waterways, commercially important ports and channels; refuge harbors to protect vessels from storms; subsistence harbors to meet community needs; locks, and smaller harbors among other assets.
- Program provides numerous activities such as basic maintenance for older and/or smaller commercial locks and harbors; construction of dredged material placement sites; mitigation, dredging, and construction of beneficial use sites for dredged material.

## Future Challenges

---

- Achieving the Administration's goal of doubling exports in the next 5 years.
- Providing a reliable and resilient navigation system with limited funding and staff.
- Meeting the changing world shipping fleet needs to accommodate the wider and deeper ships being constructed. The Panama Canal is undergoing construction of new locks and deepening of its channels to be able to accommodate vessels up to 1,200 feet long, 160 feet wide, and have drafts up to 50 feet deep by 2014 (vessels using the Panama Canal are currently limited to 965 feet long, 106 feet wide, and maximum drafts of 39.5 feet). This will significantly change the vessel fleet calling on east and Gulf coast ports.
- Maintaining an inland navigation infrastructure that is on average over 50 years old with growing rehabilitation and maintenance needs.
- Depletion of the Inland Waterways Trust Fund (IWTF). Outlays exceeded revenues between 2002 and 2008, and the IWTF is essentially depleted. Funding for inland and intracoastal

waterways construction and rehabilitation is provided just in time and annual appropriations are limited to annual IWTF revenues of approximately \$75-80 million.

- Balancing environmental values (turtles, nesting birds, turbidity, sea grasses, fish spawning, etc) with dredging and dredged material placement responsibilities.
- Obtaining/Constructing/Financing new dredged material placement sites, and finding storage capabilities to hold dredged material from channel maintenance.
- Implementing a system that consistently evaluates asset quality and deficiencies across projects in various regions to assist in making better resource decisions.
- Creating a cost-effective model to show the relative performance increase from marginal increases in program resources.
- Establishing a baseline of the physical condition of USACE Navigation assets.

## **Program History and Performance**

---

The Navigation business program supports the following strategic plan goals, objectives and performance measures. The program's strategic objectives come from Civil Works Strategic Goal 1 and Goal 3.

**Strategic Objective 1.3:** Reduce backlog of uncompleted, scheduled work on budgeted construction projects.

**Strategic Objective 1.3.1:** Deliver project benefits as quickly as possible within available resources.

**Strategic Objective 3.1:** Improve the efficiency and effectiveness of existing USACE water resource projects.

**Strategic Objective 3.2:** Address the operation and maintenance (O&M) backlog.

## **Performance Measures**

Three categories of program performance measures support the above goals and objectives. Many of these Navigation measures were modified or added in 2007; these are noted below. Historical and future performance data for the new measures will be reported as it is collected and developed.

### **1) Customer Service Measures**

- ❖ **Channel availability, high-use projects (coastal ports and harbors)** (shown in table below): Percent of time that high commercial-traffic navigation channels are available to commercial users.
- ❖ **Segment Availability (inland waterways)** (shown in table below): Number of instances where mechanical driven failure or shoaling results in the closure of all or part of a high or moderate commercial use segment for over 24 hours. Also closures in excess of 1 week.

- ❖ **Channel availability, high-use projects (inland waterways).** Added in 2007. Percent of time that all Inland Waterways segments with high commercial activity are available when customers want to use them.
- ❖ **Percent of high use segments with “good” service level.** Added in 2007. Percent of high commercial use segments with sufficient preventative maintenance to achieve a good service level. High use segments are the upper and lower Mississippi River, Illinois Waterway, Ohio River, Tennessee River, and the Gulf Intracoastal Waterway.

**2) Asset Management Measure**

- ❖ Percent of inland waterways projects exceeding facilities condition index (FCI) standard. Added in 2007. This measure assesses agency performance in meeting the goals of the President's Real Property Asset Management Initiative.

**3) Program Efficiency Measures (Added in 2007)**

- ❖ Percent of reports recommending projects reflecting watershed principles. Percent of Chief's reports recommending projects for authorization that meet criteria for reflecting watershed principles in the recommended plan.
- ❖ Average annual benefits (present value) attributable to Preconstruction Engineering and Design (PED) work completed in current FY.
- ❖ Average annual benefits (present value) realized by construction projects completed in FY.
- ❖ High-return investments (inland waterways). Percent of funding to rehabilitate, construct or expand projects that is allocated to high-return investments.
- ❖ Percent change in funds required to complete all programmed work.
- ❖ Total O&M funds expended per segment ton-mile averaged over a five-year period, including rehabilitations
- ❖ Cost per ton. Operation and maintenance cost per ton of cargo shipped through a port.

The following table presents a summary of the program funding and performance. Performance information provided in the table is incomplete because the applicable data systems which will be used to collect the data are being deployed.



**Table 1: Navigation Performance for O&M Projects**

<b>Fiscal Year</b>	<b>2002</b>	<b>2003<sup>1</sup></b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>
<b>Appropriation</b> (\$ Millions)	NA	NA	NA	\$1,692	\$1,796	\$1,926	\$2,009	\$1,900	\$1,766
<b>Inland Waterway Segment Availability - Hours not Available</b> (000 hours)	11	14	13	27	22	27	43	28	27
<b>Channel availability, high-use projects<sup>2</sup></b> (Center half of channel)	NA	NA	NA	38%	35%	32%	30%	NA	NA
Note 1: The navigation business line was realigned in FY2003; annual appropriations prior to FY2004 cannot be directly compared to the appropriations in the years following the realignment.									
Note 2: Values for top 59 coastal and Great Lakes navigation projects based on tonnage. All projects included carry more than 10 million tons.									

The following High Priority Performance Goal also supports the above goals and objectives:

High Priority Performance Goal (HPPG): Responding to the President's challenge to deliver a government that works well and is transparent, all Federal agencies have developed High Priority Performance Goals that will be regularly reviewed for progress and reporting of performance results to the public via the PERFORMANCE.gov website. Each of the USACE Business Lines has developed HPPGs related to the business line mission area. The Commercial Navigation HPPG Goal is to help facilitate commercial navigation by providing safe, reliable, highly cost-effective, and environmentally-sustainable waterborne transportation systems. The Inland Navigation Priority Goal measure looks at segment availability – the number of instances where mechanically driven failure or shoaling results in the closure of all or part of a high or moderate commercial use segment anywhere in the nation for a defined period of time, e.g., preventable closures that last longer than 24 hours and those that last longer than one week. The measure only includes: (1) failures on the main chamber of a lock, rather than an auxiliary chamber; and (2) shoaling due to inadequate dredging (i.e., not closures due to low water levels from droughts, or high water levels from floods). Progress on the Navigation HPPG is reported quarterly to OMB.

**Table 2: Navigation High Priority Performance Goal for Inland and Intracoastal  
Navigation O&M Projects**

<b>Fiscal Year</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>
<b>Appropriation (\$ Millions)</b>	NA	NA	NA	\$	\$501	\$491	\$523	\$660	\$886	NA
<b>Target- Instances of Lock Closures due to Mechanical Failures Lasting Longer than 24 Hours</b>	NA	NA	NA	NA	NA	NA	NA	NA	37	38
<b>Actual Instances of Lock Closures due to Mechanical Failures Lasting Longer than 24 Hours</b>	45	45	36	19	33	38	42	37	61	NA
<b>Total Hours for Lock Closures due to Mechanical Failures Lasting Longer than 24 Hours</b>	13,448	12,575	9,265	5,029	9,817	9,317	16,033	11,096	19,562	NA
<b>Target- Instances of Lock Closures due to Mechanical Failures Lasting Longer than 7 Days</b>	NA	NA	NA	NA	NA	NA	NA	NA	19	21
<b>Actual Instances of Lock Closures due to Mechanical Failures Lasting Longer than 7 Days</b>	25	27	19	13	21	18	28	19	37	NA
<b>Total Hours for Lock Closures due to Mechanical Failures Lasting Longer than 7 Days</b>	12,255	11,399	7,929	4,728	8,871	7,805	15,073	9,675	17,638	NA
HPPG implemented in FY 10. Prior year targets were not established.										

## Project Spotlight: New York and New Jersey Harbor Deepening Project



**District:** New York District

**Location:** Newark, Staten Island and Brooklyn Metro Area

**Project:** Deep Draft Navigation

The project deepens about 35 miles of the federal navigation channels to 50-53 foot-depths to provide larger vessel access to four major container terminals. The project includes beneficial use of dredged material, and environmental restoration to mitigate adverse environmental impacts. The port is the largest on the east coast and serves 35

percent of the American population. The port carries over 150 million tons of commerce annually. The \$2.5 billion project has a benefit-cost ratio of 2.7.



## Base Funding and Performance

The Base Plan program focuses on the most critical infrastructure repairs and replacements. Constrained funding levels will not keep pace with escalating dredging and construction costs. Unscheduled closures of inland navigation locks are expected to increase, and channel availability is expected to decrease. Critical maintenance funding will keep most key navigation infrastructure functioning; however, overall facility condition will continue to decline. Channels not maintained at authorized project depths could result in light-loading of vessels (carrying less cargo to enter shallower drafts), delays waiting for higher tides, diversion to other ports, or using trucking or rail. Ongoing construction will continue at constrained levels. The highest-return studies, preconstruction engineering and designs (PEDs), and projects will be funded, and other projects may receive little or no funding.

**Table 3: Five-Year Base Plan Navigation Business Program by Account  
(\$ Millions)**

<i>Fiscal Year</i>	<i>2011</i>	<i>2012</i>	<i>2013</i>	<i>2014</i>	<i>2015</i>
<b>Investigations</b>	\$ 20	\$ 19	\$ 18	\$ 19	\$ 19
<b>Construction</b>	\$ 291	\$ 279	\$ 269	\$ 275	\$ 276
<b>Operation and Maintenance (O&amp;M) Estimate</b>	\$ 1,297	\$ 1,242	\$ 1,197	\$ 1,226	\$ 1,231
<b>Mississippi River and Tributaries (MRT)</b>	\$ 45	\$ 43	\$ 42	\$ 42	\$ 43
<b>Total</b>	\$ 1,653	\$ 1,583	\$ 1,526	\$ 1,562	\$ 1,569
Note: Includes CAP and Remaining Items					

### Initiatives for Base Plan

- Support continued maintenance of high-use harbors and net exporting coastal ports, and high use inland and intracoastal waterways channels and locks.
- Continued development and implementation of Operational Condition Assessments to standardize and quantify risk and reliability criteria and prioritize necessary maintenance repairs at inland navigation structures to stop the trend of increasing unscheduled lock closures. Operational Condition Assessments were completed for all inland and intracoastal navigation structures by December 2010 and will be used in prioritizing maintenance requirements in FY 12 and beyond.
- Continue Facilities Equipment Management (FEM) implementation to apply consistent maintenance standards, develop standard maintenance data and provide a means to analyze maintenance trends and unaccomplished maintenance needs on all navigation facilities equipment.
- Use the standardized ‘Asset Management’ performance information in the budget decision process to optimize maintenance expenditures and improve the reliability for all large navigation structural assets.
- Continue performance measures and High Priority Performance Goal development and evaluation for inland navigation.

- Continue construction of New York/New Jersey Harbor, Texas City, and Sacramento Deepwater Ship Channel.
- Continue construction of Olmsted Lock and Dam on the Ohio River in Illinois and Emsworth Locks and Dam on the Ohio River in Pennsylvania. Ongoing construction at Chickamauga Lock on the Tennessee River in Tennessee, Kentucky Lock on the Cumberland River in Tennessee, and Locks and Dams 2, 3, 4, on the Monongahela River in Pennsylvania will be curtailed in the near-term and suspended in the long-term until sufficient revenues are generated in the IWTF to finance construction.
- Complete rehabilitation of locks at Locks 27 along the Mississippi River in Illinois.
- Construction and rehabilitation of ongoing inland and intracoastal waterways projects will be limited by annual IWTF revenues of approximately \$75-\$80 million. New construction or rehabilitation projects will not be undertaken until legislation is enacted to increase revenues in the IWTF.

**Table 4: Five-Year Base Plan Total Budget and Performance**

<i>Fiscal Year</i>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
<b>Budget</b> (\$ million)	\$1,653	\$1,583	\$1,526	\$1,562	\$1,569
<b>Segment availability</b> (000 hours)	32	34	36	38	40
<b>Channel availability, high-use projects</b> (Center half of channel)	28%	26%	24%	22%	20%

---

**Project Spotlight: John Day Downstream Lock Gate Replacement, John Day Lock and Dam,**





The downstream lock gate and the two friction sheaves for its lifting mechanism are being replaced at the John Day Lock and Dam on the Columbia River, Oregon and Washington. Advanced American Construction of Portland, Ore., is the prime contractor for the installation of the gate and sheaves. The contract was awarded for \$15.6 million. Oregon Iron Works was AAC's fabrication subcontractor. Work to begin removal of the John Day downstream lock gate is shown above.

**District:** Portland District

**Location:** Columbia River, Oregon and Washington

**Project:** Inland Navigation

**Link:**

<http://www.nwp.usace.army.mil/navigation/lockoutage.asp>

Construction of the John Day Lock and Dam began in 1958 and the downstream lock gate has been in use since its construction. The gate has a 113-foot maximum lift, and is the highest single-lift lock in the free world. The John Day navigation lock, along with The Dalles lock and Lower Monumental Lock on the Columbia-Snake River system are scheduled to be out of service from Dec. 10, 2010 through March 18, 2011 for replacement of the downstream lock gates and other ancillary work in an effort to keep navigation on the Columbia-Snake River system operating efficiently and reliably.

## Enhanced Funding and Performance

The enhanced plan program contains funding for continuation and completion of ongoing construction projects and highest return studies. Additional dam safety assurance, seepage control, and static instability correction projects such as Lock and Dam 25 on the Mississippi River and Montgomery Lock and Dam on the Ohio River will be initiated. In addition, funding is included to accomplish high priority inland navigation infrastructure repairs to reduce the number of unscheduled lock closures and additional maintenance and dredging of coastal ports, harbors, and channels. Increased investments in inland navigation infrastructure will reduce unscheduled lock closures and increased investment in ports and channels could increase channel availability.

**Table 5: Five-Year Enhanced Plan Navigation Business Program by Account (\$ Millions)**

<i>Fiscal Year</i>	<i>2011</i>	<i>2012</i>	<i>2013</i>	<i>2014</i>	<i>2015</i>
<b>Investigations</b>	\$ 41	\$ 42	\$ 43	\$ 43	41
<b>Construction</b>	\$ 397	\$ 404	\$ 413	\$ 419	401
<b>Operation and Maintenance (O&amp;M) Estimate</b>	\$1,538	\$1,564	\$1,599	\$1,624	\$1,555
<b>Mississippi River and Tributaries (MRT)</b>	\$ 47	\$ 48	\$ 49	\$ 50	48
<b>Total</b>	\$2,023	\$2,058	\$2,104	\$2,136	\$2,045
Note: Includes CAP and Remaining Items					

## Initiatives for Enhanced Plan

- Advance ongoing Feasibility studies and Preconstruction Engineering and Design work under the Investigations appropriation in order to complete studies and ready projects for construction.
- Advance construction of New York/New Jersey Harbor, Sacramento Deepwater Ship Channel, Mississippi River Regulating Works, and MR&T Dikes for Channel Improvements.
- Fund additional maintenance of high and moderate-use coastal ports and harbors and inland and intracoastal waterway channels and locks to increase channel availability and reduce lock closures due to mechanical failures.
- No additional work on construction or rehabilitation of ongoing inland and intracoastal waterways above the Base Plan will be performed until legislation is enacted to increase revenues in the IWTF.
- Fund additional construction of dredged material placement facilities for high use ports and harbors.
- Fund additional mitigation for sand lost as a result of construction of coastal navigation projects.

**Table 6: Five-Year Enhanced Plan Navigation Budget and Performance**

<i>Fiscal Year</i>	<i>2011</i>	<i>2012</i>	<i>2013</i>	<i>2014</i>	<i>2015</i>
<b>Budget</b> (\$ millions)	\$2,023	\$2,058	\$2,104	\$2,136	\$2,045
<b>Segment availability</b> (000 hours)	27	26	25	24	24
<b>Channel availability, high-use projects</b> (Center half of channel)	37%	39%	41%	43%	45%

## Potential Work with “Wedge Money”

---

If “wedge” money for new starts was received for this business program, additional projects could be considered. While specific funding decisions would be made at that time, several examples of projects that could be considered are:

- Boston Harbor Deepening, Massachusetts
- Norfolk Harbor and Channels Deepening, Virginia
- Savannah Harbor Expansion, Georgia
- Miami Harbor Deepening, Florida
- Corpus Christi Ship Channel, Texas
- Sabine Neches Waterway, Texas
- Freeport Harbor, Texas



# Flood Risk Management (FRM)

---



# Flood Risk Management (FRM)



*1993 Floods, Jefferson City, Mo*

## Key Statistics

- ❖ Constructed 8,500 miles of levees and dikes, 383 reservoirs and more than 90 storm damage reduction projects along 240 miles of the nation's 2,700-mile shoreline.
- ❖ The initial and continued investment in these projects has prevented an estimated \$706 billion in damages from coastal and riverine flooding; the cumulative cost for building and maintaining these projects is approximately \$120 billion, which yields a benefit to cost ratio of 6:1.

## Accomplishments

- Completed and submitted to Congress the Recommendations for a National Levee Safety Program draft report. The report details 20 recommendations for a National Levee Safety Program. The recommendations fall within three major concepts: (1) the need for leadership via a new National Levee Safety Commission; (2) the building of strong levee safety programs in and within all states; and (3) a foundation of well-aligned federal agency programs. The Committee reconvened in October 2009 and is working to further define the strategic implementation plan including supplementing supporting data on costs and benefits of a National Levee Safety Program, defining governance and strategic implementation, and researching federal alignment opportunities. In addition, the Committee conducted seven regional stakeholder meetings to further solicit feedback on the recommendations.
- Completed the development of a National Levee Database and completed inventories of over 14,600 miles of levees covering levees in the Corps' levee safety program. Completion of 822 project periodic inspections, approximately 400 levee segments screened with over 100 levee project screenings submitted for levee safety classification
- Silver Jackets –This program proposes establishing a state-led interagency team for each state with the state National Flood Insurance Program (NFIP) coordinator, the state Hazard Mitigation Officer, FEMA, and USACE as standing members of the team, as well as lead facilitators. Through collaborative partnerships, the state Silver Jackets teams optimize the use of Federal resources; leverage additional state/local/Tribal resources, including talent, data/information and funding; and prevent duplication of effort amongst agencies. These interagency teams create a mechanism to collaboratively solve flood risk management issues, implement initiatives at the State and local levels, and improve public risk communication.

Silver Jackets teams are currently active in 20 states and an additional 9 state teams are expected to become active in FY2011.

- Dam Safety Modification Studies and Construction
  - Construction Work continued on 4 DSAC I dams and 4 DSAC II dams.
  - Modification studies continued on 8 DSAC I dams and 23 DSAC II dams
  - These activities represent the 39 highest risk dams in USACE portfolio. The activities were limited to these projects to provide an efficient flow of projects into the construction queue.

Initiated 20 Periodic Assessments to integrate risk prioritization principles within the routine dam safety program.

## **Future Challenges**

---

- Execution of the efficient and effective operation, maintenance and rehabilitation of aging infrastructure to maintain the project's ability to function as designed
- Addressing the uncertainties associated with climate change as it may affect existing and planned water resources infrastructure
- The ability to address regional watershed issues due to limitations of the local, non-Federal sponsors to establish geographic, rather than political, flood risk management coalitions.

## **Program History and Performance**

---

The Flood Risk Management program has linked USACEs' Strategic Goal 1 and Goal 2, and the following Strategic Objectives to its business program objectives and performance measures.

**Strategic Objective 1.1:** Better balance economic, environmental, and quality of life objectives

- FCSDR Strategic Objective 1.1.2: Invest in flood and coastal damage reduction solutions when benefits exceed the costs.

**Strategic Objective 1.2:** Support the formulation of regional and watershed solutions to water resource problems.

**Strategic Objective 3.1:** Improve the efficiency and effectiveness of existing USACE water resource projects.

**Strategic Objective 3.2:** Address the operation and maintenance (O&M) backlog.

## Performance Measures

Performance indicators currently used are: (1) flood damages prevented from actual events by existing projects (ten year moving average), (2) people protected in the flood plain by projects brought on line, and (3) annual benefits (estimated future flood damages that would be avoided) by projects brought on line.

Additional indicators were recently established that will assist USACE to determine program progress in meeting this objective. USACE began collecting performance data relating to these indicators during the Fiscal Year 2009.

- ❖ **Flood damages prevented.** Measures the estimated annual dollars of property damage avoided from completed USACE flood control projects.
- ❖ **Increase in benefits realized.** This is the increase in the present value of benefits realized from construction work completed in the applicable fiscal year.
- ❖ **Additional people protected.** The increase in total affected population with reduced risk at project design attributed to completion of projects in the applicable fiscal year.
- ❖ **Operating projects in zones 21-25.** The number of operating projects (e.g., dams, levees, channels, flood gates) that are in zones 21-25 of the relative risk ranking matrix. These zones are defined in the Budget Engineering Circular EC 11-2-193 May 2008 (zones 21 to 25 are the projects in the worst condition with most adverse consequences of failure.) See Appendix III for the Condition Assessment Standards and Consequence Rating Criteria.
- ❖ **Operating projects in zones 1-6.** The number of operating projects (e.g., dams, levees, channels, flood gates) that are in zones 1-6 of the relative risk ranking matrix. These zones are defined in the Budget Engineering Circular. Zones 1 to 6 are the projects in the best condition and have the least adverse consequences of failure. See Appendix III.
- ❖ **Dam safety projects.** The percentage of the dams in the screening portfolio risk assessment (SPRA) that fall in Dam Safety Action Class (DSAC) I, II, or III.
- ❖ **Relative loss of life.** The total relative annualized loss of life per dam.
- ❖ **Dam Safety Action Classifications (DSAC) I, II, and III projects.** The number of DSAC I, II and III projects underway or completed during the applicable year.
- ❖ **Screening for Portfolio Risk Assessments (SPRA's) completed.** The number of SPRA screening level assessments completed in the applicable year.
- ❖ **Marginal cost of operations.** The marginal cost of operations and maintenance for all operating projects (e.g., dams, levees, channels, flood gates) relative to damages prevented.

The FRM business program identified performance-related indicators and ranking factors that enabled the FY 11 budgetary ranking of the relative merits of individual items of work and investment project increments.

These indicators include (but are not reported in this document):

- a. Benefit cost ratio (for PEDs and Construction)
- b. Net economic benefits
- c. Presence of dam safety, seepage, or static instability problems
- d. Number of people at risk in the 100-year flood plain (without project)
- e. Risk index (w/o project population at risk times average depth of flooding times average velocity of flooding divided by hours of warning)
- f. Presence of outputs from other business programs
- g. Percent of time available to operate as designed
- h. Cumulative operation and maintenance costs relative to cumulative economic benefits from operation and maintenance
- i. Inclusion of watershed management principles in project formulation

National flood damages, which averaged \$3.9 million annually in the 1980s, nearly doubled in the decade 1995 through 2004 despite USACE and other flood and storm damage prevention projects and programs. Total disaster assistance for both emergency response operations and subsequent long-term recovery efforts increased from an average of \$444 million during the 1980s to \$3.75 billion during the 1995 thru 2004 decade. Population migration to the coasts and development of floodplains explains much of the apparent contradiction between investment and national flood damages.

The performance history for flood damage reduction projects is shown in the following table which reflects the fact that if there are no floods in any given year, the project's performance cannot be measured. The only performance measures available at this time for riverine flood damage reduction projects is the annual 10-year running average of actual damages prevented. With coastal storms being less frequent, USACE does not yet have comparable data. Also performance can only be measured for completed projects.

## High Priority Performance Goals (HPPG)

In FY2010, USACE developed flood risk management HPPGs to reduce the nation's risk of flooding that damages property and places individuals at risk of injury or loss of life. Each program year the Corps construction program funded construction completion of ongoing construction projects in order to achieve this goal. In FY2010 the Grand Forks - East Grand Forks flood damage reduction project was funded for completion and construction of this project was completed on schedule.

The measures, targets, and results for the Flood Risk Management HPPG are shown in bold in the table below.

**Table 1: Flood Risk Management High Priority Performance Goal History**

	<b>FY 2008</b> Note 1	<b>FY 2009</b>	<b>FY 2010</b>
Expenditures (in millions of dollars)	1,107	1,343	1,135
Additional people protected (in thousands of dollars)	0	645	37
Flood damage prevented (in millions of dollars)	0	10.4	28

Note 1: FY2007 and prior year funds were for the total of all expenditures in the Coastal and Flood Damage Reduction program and should not be compared to the FY08 and later construction expenditures.

## Performance

The performance history for flood damage reduction projects is shown in the following table which reflects the fact that if there are no floods in any given year, the project's performance cannot be measured. The only performance measures available at this time for riverine flood damage reduction projects is the annual 10-year running average of actual damages prevented. With coastal storms being less frequent, USACE does not yet have comparable data. Also performance can only be measured for completed projects.

**Table 2: Flood Risk Management Historical Funding and Performance**

<b>Fiscal Year</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>
<b>Appropriation</b> (\$ Billions)	NA	NA	\$1.34	\$1.21	\$1.19	\$1.51	\$1.29	\$1.74	\$1.58	\$1.87
<b>Flood Damages Prevented</b> (\$ Billions)	\$21.90	\$23.10	\$15.70	\$22.50	\$24.00	\$9.20	\$42.3	\$40.3	29.5	NA*
Note 1: Includes CAP and Remaining Items										

\* Flood damages prevented data is not available until March 2011.

---

## Project Spotlight: Wolf Creek Dam

**District:** Nashville District

**Location:** Cumberland River, Russell  
County, KY

**Project:** Wolf Creek Dam



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.

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.

---

## Base Funding and Performance

The FY11 FRM base plan program includes additional work on high performing studies, and preconstruction engineering, and design (PED), plus funding of an investigation that will result in a report that describes the Nation's vulnerability to damage from floods, including the risk to human life; the risk to property; and the comparative risks faced by different regions of the United States.

For FY11 investigations, the budget level includes continuing requirements not to exceed FY10 amounts, plus additional work on the highest performing studies and design efforts, with preference given to high performing studies that: involve communities with larger numbers of people at risk in the flood plains, greater expected inundation damages occurring without the

projects; and those with watershed-system planning potential. The five-year program also includes funds for coordination with FEMA and other critical coordination and data collection efforts.

The FRM construction program includes funding for earnings on previously awarded contracts, plus associated Engineering and Design (E&D) and Supervision and Administration (S&A). It also includes work on a variety of projects including: completion of Cedar Hammock, Wares Creek, Florida and West Sacramento, California; as well on continuing significant work on several dam safety project and dam safety studies at the dams that have been identified as high-risk.

The FRM program for operation and maintenance includes critical operation, maintenance and repair work and capability work for the Inspection of Completed Works efforts and work on asset management and risk-base condition indices.

**Table 3: FRM Five-Year Base Plan by Account (\$ Millions)**

<i>Fiscal Year</i>	<i>2011</i>	<i>2012</i>	<i>2013</i>	<i>2014</i>	<i>2015</i>
<b>Investigations</b>	\$35	\$33	\$31	\$30	\$49
<b>Construction</b>	\$873	\$816	\$775	\$756	\$848
<b>Operation and Maintenance (O&amp;M)</b>	\$472	\$441	\$419	\$409	\$475
<b>Mississippi River and Tributaries (MRT)</b>	\$165	\$154	\$147	\$143	\$172
<b>Total</b>	\$1,545	\$1,481	\$1,428	\$1,460	\$1,468
Note: Includes CAP and Remaining Items					

## Base Plan Highlights

### Base Plan Highlights

- Water Resource Priorities Study (Section 2032 Flood Vulnerability Study): This study is authorized by 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.

This investigation will include 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. The investigation will include a technical element, which 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. The study will also include a public policy element assessing the extent to which existing Federal, state and local 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.

- Wise Use of Floodplains: A study of the “Wise Use of Floodplains” was funded in the 2008 Energy and Water Development and Related Agencies Appropriations Act with a focus on identifying any procedural or legislative changes that may be warranted to allow USACE to be more effective in working with other Federal agencies, states and local governments and stakeholders in the management of flood risk. The study is being conducted for the purpose of better understanding the effects of USACE programs and policies in different policy and watershed contexts on floodplain management choices affecting flood risk, and to describe options for policy, legislative or program reforms. Study activities were conducted throughout FY 2009 and the final study report will be completed in FY 2011.
  
- Dam Safety Assurance and Seepage Control: USACE is continuing a transition to risk-informed concepts for prioritization and decision making within the dam safety program. This includes program requirements, day-to-day routine activities such as inspections, instrumentation, and interim risk reduction measures. This effort is continuing, comprehensive, and integrated into the larger Civil Works program. One product is the justifications and prioritizations for dam safety actions, remedial structural and non-structural, based on a project’s risks and reliability determination. Projects are grouped into five Dam Safety Action Classifications (DSAC) based on a combination of risk, consequences, and reliability with the bottom two categories having the least risk. The top two classifications are the riskiest, and, to the extent possible, are being fast-tracked through the planning, design, and construction process. They also include substantial interim risk reduction measures such as reservoir restrictions, increased surveillance, and additional public awareness. The Periodic Assessment program continues in FY11 to assess each dam on a 10-year cycle. Many dams in preliminary risk screening have been recommended for an additional investigation. This additional investigation analyzes remediation appropriateness. The planning, design, and construction of remedies will continue for at least ten years or until all dams in the top three DSAC categories have been modified.
  
- Levee Safety Initiatives and Program Development: The National vision for this initiative follows the concept that federal levees should be 1) safe and reliable; 2) managed in a partnership of shared responsibilities, 3) assessed in a comprehensive and continuing program; and 4) effectively communicated to all stakeholders, decision-makers, and communities. Utilizing lessons learned and risk assessment, this program will use best existing resources and maximize its decision making processes. USACE has approximately 2,000 levees in its nationwide portfolio with many caretakers nationwide. USACEs' Levee Safety Program is continuing to research, develop and implement specific tools, policies, and methods which include: a levee screening tool and classification process to assess the entire USACE portfolio on a consistent basis and characterize the results, interim risk reduction methods and concepts until permanent remediation is achievable, methodology testing and finalization of periodic inspection and assessment criteria, a Levee Portfolio Risk Management Process, a comprehensive Engineer Regulation for Levee Risk Management, a levee inventory and inspection process. These various products and evaluation processes will provide a solid

foundation for USACEs' Levee Safety Program and a significant advancement in flood risk management.

**Table 4: FRM Five-Year Base Plan Performance**

<i>Fiscal Year</i>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
<b>Budget (\$ Millions)</b>	\$1,545	\$1,481	\$1,428	\$1,460	\$ 1,468
<b>Additional People Protected in Flood Plain (000)</b>	500	384	1,712	2,267	2,822
<b>Cumulative People Protected in Flood Plain (000)</b>	3,265	3,649	5,361	7,628	9,895
<b>Annual Benefits Brought On Line (\$ Millions)</b>	\$6	\$262	\$ 375	\$ 248	\$ 121
<b>Cumulative Annual Benefit Brought On Line (\$ Millions)</b>	\$83	\$345	\$ 720	\$ 968	\$1,216
Note: Includes CAP and Remaining Items					

## Enhanced Funding and Performance

The enhanced plan program contains funding for completion of ongoing construction projects and highest return studies. The enhanced funding would bring some studies and projects to an earlier completion.

**Table 5: FRM Five-Year Enhanced Plan by Account  
(\$ Millions)**

<i>Fiscal Year</i>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
<b>Investigations</b>	\$70	\$71	\$73	\$74	\$71
<b>Construction</b>	\$844	\$859	\$877	\$891	\$855
<b>Operation and Maintenance (O&amp;M)</b>	\$458	\$466	\$476	\$484	\$464
<b>Mississippi River and Tributaries (MRT) Investigations</b>	\$187	\$190	\$194	\$197	\$189
<b>MRT Construction</b>	\$	\$	\$	\$	\$
<b>MRT O&amp;M</b>	\$	\$	\$	\$	\$
<b>MRT Remaining Items</b>	\$	\$	\$	\$	\$
<b>Total</b>	\$1,559	\$1,586	\$1,620	\$1,646	\$1,579
Note: Includes CAP and Remaining Items					

## Initiatives for Enhanced Plan

- Accelerate the Levee Safety Program.
- Accelerate high-performing projects and thus avoid potential cost increases in the future.
- Increase funding to reduce backlog of maintenance needs and increase reliability of existing projects.

**Table 6: FRM Five-Year Enhanced Plan Budget and Performance**

<b>Fiscal Year</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
<b>Budget (\$ Billions)</b>	\$1,559	\$1,586	\$1,620	\$1,646	\$1,579
<b>Additional People Protected in Flood Plain (000)</b>	743	647	2,283	7,942	3,624
<b>Cumulative People Protected in Flood Plain (000)</b>	3,651	4,298	6,581	14,523	8,467
<b>Annual Benefits Brought On Line (\$ Millions)</b>	\$ 45	\$ 402	\$ 498	\$ 302	\$401
<b>Cumulative Annual Benefit Brought On Line (\$ Millions)</b>	\$ 154	\$ 556	\$1,045	\$ 1,347	\$983

### **Potential Work with “Wedge Money”**

---

If “wedge” money for new starts was received for this business program, additional projects could be considered. While specific funding decisions would be made at that time, several examples of projects that could be considered are:

- Augusta, Georgia
- Greens Bayou, Houston, Texas
- Clear Creek, Texas

# Environment

---

- **Aquatic Ecosystem Restoration**
- **Environmental Stewardship**
- **Formerly Utilized Sites Remedial Action Program (FUSRAP)**



**Rivers  
Lakes  
Wetlands  
Coasts**



# Aquatic Ecosystem Restoration



*-Mud Lake Restoration near Dubuque, Iowa*

## Key Statistics

- ❖ In FY11, this program accounted for approximately 12% of the Civil Works program budget.
- ❖ \$180 million is included for continuing implementation of Everglades Restoration reflecting a continuing commitment to implementation of this historic restoration effort.
- ❖ For Louisiana Coastal Area, the base program includes \$16.595 million for the studies and design; and the science program. In addition, \$19 million is included to initiate construction.

## Accomplishments

- The ecosystem restoration program, although relatively young, continues to make progress through accomplishment of large and small projects across the country. In FY10, 4540 acres of habitat were restored, created or protected. Of these, approximately 80% were nationally significant.
- Significant investments, including \$137 for Columbia River Fish Mitigation and \$78 million for Missouri River Recovery, were made to facilitate efficient progress in compliance with the biological opinions.

## Future Challenges

---

The demand for aquatic ecosystem restoration projects continues to exceed the resources available to respond. In the absence of a standard performance measure to be used across all agencies, USACE continues to work toward the development of metrics and significance criteria to facilitate evaluation and prioritization of projects. This would eventually allow more objective comparison of disparate ecosystem restoration projects that occur in varied geographic regions across the country.

## Program History and Performance

---

This subprogram is an integral part of Integrated Water Resources Management and supports the Civil Works Strategic Goal 2 and objectives as described below:

**Strategic Objective 2.1:** Invest in economically and environmentally justified and socially acceptable water resources solutions.

**Sub Objective is 2.1.12:** Implement integrated and collaborative approaches to effectively solve water resource problems.

**Table 1: Aquatic Ecosystem Restoration Historical Funding and Performance**

<i>Fiscal Year</i>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>
<b>Appropriation (\$ Millions)</b>	\$516	578 <sup>2</sup>	\$515	532	568
<b>Acres of habitat restored, created, improved, or protected</b>	13,000	4,800	2,445	10,200	4,540
<b>Nationally significant acres of habitat restored, created, improved, or protected</b>	5,500	3,000	1,986	1,700	3,760
<b>Cost per acre to restore, create, improve, or protect nationally significant habitat</b>	\$9,800	\$6,770	\$6,700	\$18,000	\$9,600
<b>Percent of all restored, created, improved, or protected acres of habitat that is nationally significant</b>	42%	62%	69%	17%	80%
Note 1: Performance measures were developed in FY 06, and it is the first year of reporting					
Note 2: After 2006 all appropriations include all remaining items assigned to AER					
Note 3: Results are estimates					

## Performance Measures

Below are the applicable performance measures for Aquatic Ecosystem Restoration:

- ❖ Acres of habitat restored, created, improved, or protected. This is an annual output measure and the baseline is FY05.
- ❖ Nationally significant acres of habitat restored, created, improved, or protected. This measures the subset of acres of habitat restored each year that have high quality outputs as compared to national needs. This is an annual output measure.
- ❖ Percentage of all acres of habitat restored, created, improved or protected in a four-year period that are nationally significant. The long-term goal is for 75 percent of the total acres restored, created, improved, or protected. This is an annual measure.
- ❖ Dollars per acre to restore, create, improve or protect nationally significant habitat. The cost of the projects that produce nationally significant acres in any given year will be used to calculate this figure. The goal would be to restore more acres per dollar expended in the long run through efficiencies in project execution or other considerations.

Starting with 2008 this business program is crediting acres in a given year when physical construction is complete, instead of the last year that the project is budgeted in the construction account. This is due to the increased use of fully-funded contracts and the out-year monitoring requirements for many projects.

The Aquatic Ecosystem Restoration business program developed a set of seven criteria that together provide a basis for evaluating project significance and aid in setting FY 2010 funding priorities. The seven criteria are weighted and criteria definitions have been established to determine the extent to which a project contributes to the measure details of these performance measures are not included in this report).

### The criteria are:

- 1) **Habitat scarcity and status:** The goal is to promote the restoration of scarce habitat with an emphasis on nationally scarce habitat that continues to become scarcer.
- 2) **Connectivity:** Criterion addresses the extent to which a project facilitates the movement of native species by contributing to the connection of other important habitat pockets within the ecosystem, region, watershed, or migration corridor, or adds a critical component to an ecosystem or increases biodiversity.
- 3) **Special Status Species:** Acknowledges projects that provide a significant contribution to some key life requisite of a special status species.
- 4) **Hydrologic Character:** This criterion recognizes the importance of appropriate hydrology in maintaining the ecological functions of aquatic, wetland, and riparian systems.
- 5) **Geomorphic Condition:** This criterion relates to the establishment of suitable structure and physical processes for successful restoration.



- 6) **Plan Recognition:** Documents the extent to which a project contributes to watershed or basin plans as emphasized in the Civil Works Strategic Plan.
- 7) **Self Sustaining:** Ecosystem sustainability is the ultimate goal of restoration efforts but is difficult to measure. As a proxy, the cost of the project's average annual Operation and Maintenance cost is used to measure the degree of project sustainability.

The first three measures along with Plan Recognition are used to determine national and regional significance. These criteria are reviewed and revised annually.

### Project Spotlight: Everglades

**District:** Jacksonville District

**Location:** South Florida

**Link:** [www.evergladesplan.org](http://www.evergladesplan.org)

The objective of the South Florida Everglades Ecosystem Restoration Program is to restore, protect and preserve the south Florida ecosystem, while providing for other water-related needs of the regions. The South Florida Greater Everglades ecosystem includes a diverse mosaic of upland, marsh, freshwater, estuarine, and saltwater habitats in a watershed encompassing approximately 16,000 square miles.



The South Florida Everglades Ecosystem Restoration Program includes the Central and Southern Florida Project (C&SF), the Kissimmee River Restoration Project, and the Everglades and South Florida Restoration Project, Modified Water Deliveries Project, and the Comprehensive Everglades Restoration Plan (CERP). In FY10, the program was funded at \$181 million and was funded at 180 million in the FY11 Administration Budget.

Under C&SF a systems approach is used in the implementation of CERP. Individual CERP projects are selected based on the principal of "system formulation". Individual projects are justified and evaluated based on their contribution to overall hydrologic connectivity and synergistic impact in the immediate and larger watershed context. The project's separable elements must be consistent with the Governor's Commission's Conceptual Plan and produce independent, immediate, and substantial restoration, preservation and protection benefits. Four projects have been completed under this authority; a fifth is nearly complete; and a sixth is expected in coming few years. In this discussion we highlight two components: Kissimmee River Basin and Modified Water Deliveries.



*The Kissimmee River Basin (pictured)* is approximately 3,000 square miles located between Orlando and Lake Okeechobee. Work is being completed to restore and re-establish similar historic wetland conditions for more than 40 square-miles of river-floodplain ecosystem including almost 27,000 acres of wetlands and 52 miles of historic river channel. To date, 10 miles of the 22 miles of the C-38 canal have been backfilled, restoring hydrologic conditions.



Native flora and fauna have responded with dramatic improvements. Continuing construction in the next few years is expected to include backfill work on the remaining canal reaches and will restore significant segments of the original river system.

*The Modified Water Deliveries to Everglades National Park (MWD)* involves construction of modifications to the C&SF Project and related operational changes to provide improved water deliveries to Everglades National Park. These modifications will improve hydrologic connectivity between the Water Conservation Areas north of the Park and across the Tamiami Trail (Highway 41) to the headwaters of Shark River Slough within the Park, while providing flood mitigation to the 8.5 Square Mile Area (SMA- a residential area adjacent to the Park). Wetland habitat in the Park should improve through deep sloughs and sheetflow restoration in the Northeast Shark River Slough, and promoting a more natural hydroperiod while reducing the biological affects that the C&SF Project has had on the Park.

---

## Base Funding

---

The total FY11 budget request for the program is \$586 million. The base program for studies and design includes continuing requirements not to exceed FY10 amounts, plus additional work on the highest performing studies and design efforts with preference given to high performing studies in the last year of a phase.

There is continuing need to refine the methods used for identifying restoration priorities, planning, and implementation. The FY11 program continues to emphasize research on Environmental Benefits Assessment that will contribute to increased program consistency, enhanced reliability of benefit estimates, and scientifically supported project justifications. This will eventually result in improved performance measures and assessment, as well as improvements in priority setting, evaluation and accountability.

Budget priority is placed on studies or projects that contribute to the cost-effective restoration of regionally or nationally significant ecosystems where USACE is uniquely well suited due to the requirement for hydrologic and geomorphic alterations or where a USACE project has contributed to the degradation of the area to be restored. The objectives of the business program, with regard to budgeting high-performing projects, are to implement projects that provide high value, cost-effective outputs. Value is determined by assessing the project in terms of its impact on scarcity, connectivity, special status species, hydrologic and geomorphic character, plan recognition and sustainability.

**Table 2: Aquatic Ecosystem Restoration Base Funding  
(In Millions)**

<i>Fiscal Year</i>	<i>2011</i>	<i>2012</i>	<i>2013</i>	<i>2014</i>	<i>2015</i>
<b>Investigations</b>	\$ 35	\$ 34	\$ 32	\$ 33	33
<b>Construction</b>	\$ 530	\$ 508	\$ 490	\$ 501	\$ 503
<b>Operation and Maintenance (O&amp;M) Estimate</b>	\$ 18	\$ 17	\$ 17	\$17	17
<b>Mississippi River and Tributaries (MRT)</b>	\$ 3	\$ 3	\$ 3	\$ 3	\$ 3
<b>Total</b>	586	\$ 562	\$ 542	\$ 554	556

## Base Plan Highlights

- The FY11 proposed program would restore over 11,000 acres, of which most would be considered nationally significant. The remaining projects are of regional and local importance for overall ecosystem health.
- Funding of \$16,595 million for the Louisiana Coastal Area studies, design and science program and \$19 million for construction.
- Substantial Everglades funding at \$180 million
- Upper Mississippi River Restoration is funded at \$21 million, including two scheduled project completions.
- \$12 million for continuing construction work on the Chicago Sanitary and Ship Canal Dispersal Barriers I and II and operation and maintenance of the completed components.

The following table displays outputs that would be expected in the base plan program FY11 through FY15, assuming completion of additional projects.

**Table 3: Aquatic Ecosystem Restoration Base Funding and Performance**

<i>Fiscal Year</i>	<i>2011</i>	<i>2012</i>	<i>2013</i>	<i>2014</i>	<i>2015</i>
<b>Appropriation (\$ Millions)</b>	\$ 586	\$ 562	\$ 542	\$ 554	\$ 556
<b>Acres of habitat restored, created, improved, or protected</b>	11,300	70,100	5,300	931,600	5400
<b>Nationally significant acres of habitat restored, created, improved, or protected</b>	11,300	70,100	5,300	931,600	5400
<b>Percent of all restored, created, improved, or protected acres of habitat that is nationally significant</b>	100%	100%	100%	6%	100%
<b>Cost per acre to restore, create, improve, or protect nationally significant habitat</b>	\$4,600	3,600	\$17,100	\$770	\$11,200

Note: Cost per acre is based only on nationally significant projects completing in the specified year. It is strongly influenced by individual projects of very high acreage and low cost.

## Enhanced Funding and Performance

---

The enhanced plan will improve program performance beyond the base plan. More acres will be restored, created or improved throughout FY11 to FY15. More acres can be restored over the base plan by FY13. Some projects planned in the base can be advanced more quickly with additional funds. Completing projects more quickly can lead to even higher project outputs in future years since restoration projects start flourishing once complete.

**Table 4: Aquatic Ecosystem Restoration Enhanced Funding  
(In Millions)**

<i>Fiscal Year</i>	<i>2011</i>	<i>2012</i>	<i>2013</i>	<i>2014</i>	<i>2015</i>
<b>Investigations</b>	\$ 67	\$ 68	\$ 70	\$ 71	\$ 68
<b>Construction</b>	\$ 608	\$ 619	\$ 632	\$ 642	\$ 614
<b>Operation and Maintenance (O&amp;M)</b>	\$ 14	\$ 14	\$ 14	\$ 15	\$ 14
<b>Mississippi River and Tributaries (MRT) Project</b>	\$ 3	\$ 3	\$ 3	\$ 3	\$ 3
<b>Total</b>	\$ 692	\$ 704	\$ 719	\$ 731	\$ 699

### Enhanced Plan Initiatives

- Advance South Florida Everglades project
- Advance Louisiana Coastal Area Restoration
- Advance Lower Columbia Restoration
- Advance watershed studies

The following table displays outputs produced in the enhanced plan program FY11 thru FY15, based on completion of construction of additional projects.

**Table 5: Aquatic Ecosystem Restoration Enhanced Funding and Performance**

<i>Fiscal Year</i>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
<b>Appropriation (\$ Millions)</b>	692	704	719	731	699
<b>Acres of habitat restored, created, improved, or protected</b>	11,300	71,300	5,300	931,600	6,300
<b>Nationally significant acres of habitat restored, created, improved, or protected</b>	11,300	71,300	5,300	55,900	6,300
<b>Percent of all restored, created, improved, or protected acres of habitat that is nationally significant</b>	100%	100%	100%	6%	100%
<b>Cost per acre to restore, create, improve, or protect nationally significant habitat</b>	\$4,600	\$4,200	\$17,100	\$770	\$9,800

Note: Cost per acre is based only on nationally significant projects completing in the specified year. It is strongly influenced by individual projects of very high acreage and low cost. 2009 figures are estimates.

### **Potential Work with “Wedge Money”**

---

If “wedge” money for new construction starts was received for this business program, additional projects could be considered. While specific funding decisions would be made at that time, several examples of projects that could be considered, in some cases subject to additional project authorization, are:

Some examples are:

- Hamilton City, California
- Louisiana Coastal Area Construction Starts
- Smith Island, Maryland

# Environmental Stewardship

---



## Key Statistics

- ❖ Stewardship provided on about 12 million acres comprising about 8% of Federal acreage east of the Rockies
- ❖ Over 4 million USACE acres have significant waterfowl use or improvement potential
- ❖ 56,000 miles of shoreline managed
- ❖ Nearly 47,000 known cultural resources sites exist on USACE property; 846 listed on the National Register of History Places and 7,500 eligible for listing
- ❖ 20 million fish produced annually at Corps projects to mitigate dam impacts

## Accomplishments

---

- Participating in recovery of 58 federally listed threatened or endangered species on 139 USACE operating projects. These efforts contributed to the delisting of the bald eagle.
- Stewardship on USACE lands and waters provides the basis for quality outdoor recreational opportunities, and annually supports 91 million fishing visits, 8 million hunting visits, and 63 million wildlife watching visits
- The Audubon Society and the American Bird Conservancy designated 23 Important Bird Areas on USACE properties.
- Program manages diverse resources to promote sustainability, e.g. fish, wildlife, water, woodland, wetland, and cultural. These administered acres provide key habitats: water, edge, forage, cover, and critical green space for human populations.

## Future Challenges

---

- Maximizing the effective use of online tools and information, such as Geographic Information Systems (GIS) and satellite imagery, to streamline tracking of stewardship performance at the project level
- Improving the condition of USACE lands and waters such that they are sustainable and available for future generations while balancing increasing and conflicting demands for the use and development of project lands and water

- Meeting the minimum requirements of environmental mandates for resource protection, health and safety
- Prioritizing use of constrained fiscal resources.

## Program History and Performance

---

The Stewardship program supports Civil Works Strategic Goal 3 and five of its objectives. Seven performance measures assess progress toward meeting the identified goal and objectives.

**Strategic Objective 3.1:** Improve the efficiency and effectiveness of existing USACE water resources projects.

- ❖ **Performance Outcome 1:** Program efficiency is achieved. A percentage of program expenditures are recovered or leveraged through prudent natural resources use in accordance with the program mission.
  - **Efficiency Performance Measure:** *Cents per dollar of agency operation and maintenance spending that the program lessees or licensees pay for.* This assesses Federal costs avoided in relation to the program's cost, as an indicator of program efficiency. Annual revenue is from timber sales revenue, agricultural leases, and related contributions consistent with the resource protection and conservation program missions. For example, timber harvests are sometimes necessary to support healthy forested lands, and to prevent disease or wildfire. The timber must be disposed at Federal cost, or sold when possible to minimize disposal cost. Revenue is recovered by the project of origin. In many cases, revenues are used to replant, reseed and/or otherwise reclaim the site and results in no net revenue gain. Revenue recovered is equivalent to the federal costs avoided and will vary each year due to the nature and extent of the sustainability practices implemented. However, since the revenue generating sources cannot be predicted, this is not a driver for budget development.

**Strategic Objective 3.1.3:** Ensure healthy and sustainable lands and waters and associated natural resources on USACE lands in public trust to support multiple purposes.

- ❖ **Performance Outcome 2:** USACE lands and waters are maintained in, or managed toward, a healthy and sustainable condition. Intensive management needs and costs are reduced as lands move to a healthy, sustainable state.
  - **Basic Stewardship (formerly Healthy and Sustainable Lands and Waters) Performance Measure:** *Percent of healthy and sustainable acres on USACE fee-owned property.* This is defined as the number of USACE fee-owned acres classified as in a sustainable condition divided by the total number of USACE fee-owned acres. The result provides an indicator of the condition status of all USACE fee-owned acres. Sustainable is defined as meeting the desired state. The acreage is not significantly impacted by any factors that can be managed and does not require intensive management to maintain the health. The acreage also meets operational goals and objectives set forth in applicable management documents.

**Strategic Objective 3.1.3.1:** Protect, preserve and restore significant ecological resources in accordance with master plans.

❖ **Performance Outcome 3:** Endangered and threatened species are protected on USACE property.

- **Endangered Species Protection Performance Measure:** *This measure is a percent defined as the total number of projects that are meeting Endangered Species Act (ESA) responsibilities of the year divided by the total number of USACE projects that have ESA compliance responsibilities in the year.*

❖ **Performance Outcome 4:** The identification and assessment of quality and quantity of ecological resources on USACE property is achieved.

- **Level One Natural Resources Inventory Completion Performance Measure:** *Percent of minimum Level One Natural Resources Inventory completed on USACE property.* This demonstrates the status of USACE efforts in completing basic, Level One Natural Resources Inventories required by Engineer Regulation 1130-2-540. Such inventories are necessary for sound resource management decisions and strategies development. The minimum inventory includes four standard components on each project: 1) classification and 2) quantification of vegetation, wetland, and land (soils) capability acreage, and 3) identification and 4) assessment of special status species for potential existence on USACE acreage. This is defined as the sum total acres of completed inventory for each of the four components divided by four times the total number of USACE fee-owned acres. The proportion (%) yielded is used to evaluate the relative completeness of the Inventory.

❖ **Performance Outcome 5:** Balanced public use and access to USACE project natural resources is achieved, while accomplishing USACE project missions.

- **Master Plan Completion Performance Measure:** *Percent of USACE-operated water resource projects with completed Master Plans in compliance with Engineer Regulation 1130-2-550 of the total number of required Master Plans.* A Master Plan is completed, per regulation, to foster an efficient and cost-effective project for natural resources, cultural resources, and recreational management programs. It provides direction for project development and use, and promotes the protection, conservation, and enhancement of natural, cultural and man-made resources. The Master Plan is a vital tool for responsible stewardship and demonstrates USACE commitment to fully integrate environmental stewardship.

**Strategic Objective 3.1.3.2:** Ensure that the operation of all Civil Works facilities and management of associated lands, including out-granted lands (lands leased or licensed to others for various purposes), complies with the environmental requirements of relevant Federal, state, and local laws and regulations.

❖ **Performance Outcome 6:** Cultural resources on USACE property are managed in accord with cultural resources management mandates.

- **Cultural Resources Management Performance Measure:** *Percent of projects meeting federally mandated cultural resources management responsibilities.* This demonstrates the status of efforts to protect and preserve cultural resources on USACE administered lands



and waters. It is defined as the total number of USACE projects meeting federally mandated cultural resources management responsibilities divided by the total number of USACE projects with federally mandated cultural resources management responsibilities.

**Strategic Objective 3.1.3.3:** Meet the mitigation requirements of authorizing legislation or applicable USACE authorization decision document.

- ❖ **Performance Outcome 7:** USACE requirements are met for the mitigation of impacts to ecological resources, as specified in project authorizing legislation.
  - **Mitigation Compliance Performance Measure:** *Percent of USACE administered mitigation lands (acres), or the percent of pounds or numbers of mitigation fish produced at mitigation hatcheries, meeting the requirements in the authorizing legislation or relevant USACE authorization decision document.* This measure demonstrates USACE status in meeting mitigation requirements that are specified in project authorizations. Achievement of mitigation contributes to restoring lands and other resources to a healthy and sustainable condition. The measure is defined as either the mitigation acres meeting mitigation requirements divided by the total designated mitigation acres, or the total mitigation fish produced divided by the total mitigation fish needed to meet requirements.

## History

Funding and performance history for the Environmental Stewardship business program as a distinct entity did not exist prior to FY05, when budgeting by business program was first implemented. Performance results data are presented in Table 1 for all measures applicable in a given year. Some historic data was incomplete and therefore inaccurate due to inconsistent implementation of a new data collection system deployed in late FY05. However, the actual results for each measure are displayed in the table as they were recorded each year. Results are directly related to, and derived from, the funding provided.

The number of projects which are able to satisfy a majority of their annual requirements has remained fairly constant from year to year. Performance levels for several measures are low and unable to improve substantially due to the relatively flat budget trend for Stewardship. It should be noted that more than half of the Stewardship program budget has been typically dedicated to critical annual requirements in support of endangered species, mitigation, and cultural resources, even though these requirements do not exist on every USACE project. Approximately \$4 per acre was left over to fund most stewardship responsibilities, i.e. those remaining essential, day-to-day requirements necessary at each project to support project purposes, prevent resource degradation or loss and achieve healthy and sustainable lands.

Master Plan Completions remained fairly low which unfortunately hampered projects' ability to adequately plan for and adjust to increasing pressures on Corps "green space" caused by rising population growth.

**Table 1: Environmental Stewardship Historical Funding and Performance**

<i>Fiscal Year</i>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>
Operation and Maintenance (O&M)	\$91	\$85	\$93	\$106	\$90
Mississippi River and Tributaries (MR&T O&M)	\$9	\$9	\$2	\$4	4
<b>Appropriation (\$ Millions)</b>	<b>\$100</b>	<b>\$94</b>	<b>\$95</b>	<b>\$110</b>	<b>\$94</b>
<b>Mitigation Compliance</b>	<b>76%</b>	<b>61%</b>	<b>77%</b>	<b>100%</b>	<b>100%</b>
# Acres meeting mitigation requirement (in millions)	0.61	0.27	0.50	0.65	0.65
# Acres authorized for mitigation (in millions)		0.45	0.65	0.65	0.65
# lbs of mitigation fish produced (millions)	--	--	--	1.10	1.10
# lbs of mitigation fish required (millions)	--	--	--	1.10	1.10
# of mitigation fish produced (millions)	--	--	--	19.8	19.8
# of mitigation fish required (millions)	--	--	--	19.8	19.8
<b>Endangered Species (ES) Protection</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>100%</b>	<b>100%</b>
# Projects meeting ES Act requirements	--	--	--	237	164
# Projects with ES Act requirements	--	--	--	237	164
<b>Cultural Resources Management</b>	<b>NA</b>	<b>NA</b>	<b>63%</b>	<b>72%</b>	<b>67%</b>
# Projects meeting cultural resources requirements	--	--	153	141	141
# Projects with cultural resources requirements	--	--	244	197	212
<b>Healthy and Sustainable Lands and Waters</b>	<b>37%</b>	<b>21%</b>	<b>18%</b>	<b>25%</b>	<b>38%</b>
# Fee acres classified as in sustainable condition (millions)	1.06	1.41	1.45	2.00	3.00
# Fee acres (millions)	2.8	6.73	7.94	7.94	7.97
<b>Level One Natural Resources Inventory Completion Index</b>	<b>33%</b>	<b>38%</b>	<b>40%</b>	<b>41%</b>	<b>50%</b>
Average # acres with completed inventory (millions)	2.33	2.54	3.24	3.3	3.50
Average # acres requiring inventory (millions)	7.17	6.99	7.94	7.94	6.99
<b>Master Plan Completion</b>	<b>32%</b>	<b>27%</b>	<b>27%</b>	<b>27%</b>	<b>27%</b>
# Up-to-date master plans	101	104	101	101	104
# Master plans required	306	380	379	379	380
<b>Efficiency (cents per dollar)</b>	<b>\$0.09</b>	<b>\$0.10</b>	<b>\$0.12</b>	<b>\$0.11</b>	<b>0.11</b>
\$ Revenue (millions)	\$ 9.23	\$ 9.87	\$ 11.38	\$ 12.10	\$10.00
\$ Appropriation (millions)	\$ 100	\$ 94	\$ 95	\$ 110	\$ 94
Note: 2008 values are estimated					

Improved annual performance is noted in Mitigation Compliance and Endangered Species Protection Performance Measures. The annual minimal requirements of environmental and legal mandates are projected to be met in FY10. However, past constrained budgets have allowed meeting only the highest priorities: the minimal requirements of Cultural Resources Management, and Healthy and Sustainable Lands and Waters outputs. For Cultural Resources Management, the

number of projects with an annual compliance requirement decreased from FY09 to FY10. However, the number of projects that satisfy the annual requirements remained fairly constant, causing the estimated performance output percentages to increase. For Healthy and Sustainable Lands and Waters Performance Measure acreage, performance was projected based on work and output descriptions, prior year results, and the similar budget amounts for these activities, from FY09 to FY10. It is noted more than half of the FY10 Stewardship program budget was intended to accomplish the critical annual requirements of endangered species, mitigation, and cultural resources. These requirements do not exist on every USACE project. Approximately \$4 per acre was available to support most stewardship responsibilities: those remaining mandated or essential, day-to-day requirements necessary at each project to meet project purposes; prevent resources degradation or loss; and achieve healthy and sustainable lands.

Results in Level One Natural Resources Inventory and Master Plan Completions have remained fairly constant. Constrained past budgets have limited progress and additional output is budget dependent in these areas. The Efficiency results have averaged at \$0.10 recovered on each dollar of program funding, exceeding the annual target. Since the efficiency result is not directly related to the budget and revenue recovery may not be predicted, the target was set at \$0.01 each year to avoid promoting revenue recovery at the expense of resource sustainability.

---

### Project Spotlight: Fern Ridge

**District:** Portland District

**Location:** Southern Willamette River Valley in Oregon

**Project:** Healthy and Sustainable Lands and Endangered Species



The Fern Ridge Dam provides for flood damage reduction, fish and wildlife, irrigation, recreation, navigation, and improved water quality. Fern Ridge has over 12,000 acres of land and reservoir, of which hundreds of acres are prairie habitat that is home to endangered plants and butterflies (Fender's Blue), as well as numerous special status species. Level 1 Inventories ascertained that endangered species existed here. The Master Plan developed and outlined management activities to ensure the Endangered Species will persist on project lands and federal lands and waters are kept in a healthy and sustainable condition (Compliance with NEPA Section 101).

Land management activities included prescribed burns, removal of non-native vegetation, enhancing native vegetation through seed collection and plantings, and creating habitat diversity. These land management functions are done in partnership with multiple agencies and also serve to benefit recreation opportunities at the lake by providing pristine natural areas for hiking, bird



watching, and hunting. In addition, management and habitat development for the Fender's Blue Butterfly is improving its viability at and near Fern Ridge in several ways. Habitat development provides sufficient food resources for the species and allows populations to expand to habitats both on and off USACE lands. This all helps protect the species from extinction and potentially lead toward recovery.

---

## Base Funding and Performance

---

Under the Base Plan Scenario in Table 2, the funding for Stewardship decreases. This plan projects output reductions or no output gains for measures, because work may be delayed, conditions deteriorate, and costs increase. Continued flat or declining funds impact the ability to maintain healthy resources conditions. Timely and effective management actions that help prevent resource degradation and that promote sustainability are essential to meet USACE environmental trustee responsibilities. Some of these actions would likely be delayed as funding to support these efforts decreases. Management needs grow quickly in scope and often become more expensive when important management efforts are forgone, such as the control of invasive species, and threaten the continued viability of native ecological resources.

A strong emphasis in meeting specific environmental mandates and requirements continues in this scenario. In any given year, there may be several minimum output requirements for certain projects. Most of these minimum output requirements are met successfully; however, the success of meeting requirements is contingent on funding levels during the given year. Cultural Resources Management responsibilities will not be fully met in this funding scenario. Risk to cultural resources will likely be higher, since the minimum required management activities go unfunded.

A related decrease in anticipated performance output will manifest over the period. Over the five-year period, vital stewardship requirements (such as trespass and encroachment prevention; erosion, fire, pest, and invasive species control and prevention, boundary surveillance and monitoring, and shoreline use evaluation), and staffing levels necessary to achieve Healthy and Sustainable Lands and Waters outputs could remain unfunded. Similarly, the cost for those efforts could increase, forcing the annual targets to trend downward. Outputs for Healthy and Sustainable Lands and Waters could shift to avoid a compromise of minimum safe project operating conditions.

The Level One Natural Resources Inventory Completion and Master Plan Completion performance targets will not change over the five-year period, due to targeting resources at other priority activities. Lack of progress compromises the ability to develop and implement best

resource management strategies and decisions. This is due to the lack of standard up-to-date resource quality and quantity data, and up-to-date project resources management guides.

Efficiency targets are held at \$0.01 recovered per program dollar over the five-year term, to maintain consideration of the program goal, but to avoid promoting revenue recovery at the expense of resources sustainability.

**Table 2: Environmental Stewardship Base Funding**

<i>Fiscal Year</i>	<i>2011</i>	<i>2012</i>	<i>2013</i>	<i>2014</i>	<i>2015</i>
<b>Investigations</b>	-	-	-	-	-
<b>Construction</b>	-	-	-	-	-
<b>Operation and Maintenance (O&amp;M)</b>	\$ 103	\$100	\$ 95	\$ 97	\$97
<b>Mississippi River and Tributaries (MRT) Project</b>	\$ 5	\$ 4	\$ 5	\$ 5	\$ 5
<b>Total</b>	\$108	\$104	\$100	\$102	\$102
Note: Includes Remaining Items					

**Initiatives for Base Plan**

The program priorities are aligned with goals and objectives of the Civil Works Strategic Plan. Initiatives in the Base Plan scenario include meeting the minimum critical requirements of environmental and legal mandates to assure project compliance, assuring safe project operation, and preventing loss or degradation of resources. To the extent practicable, the Base Plan will seek to maintain performance output levels close to those achieved in FY08, and to minimize impacts to the program outcome of Healthy and Sustainable Lands and Waters.

**Table 3: Environmental Stewardship Base Funding and Performance**

<i>Fiscal Year</i>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
Operation and Maintenance (O&M)	\$108	\$104	\$100	\$102	\$102
<b>Appropriation (\$ Millions)</b>	<b>\$108</b>	<b>\$104</b>	<b>\$100</b>	<b>\$102</b>	<b>\$102</b>
<b>Mitigation Compliance</b>	<b>76%</b>	<b>98%</b>	<b>98%</b>	<b>98%</b>	<b>98%</b>
# Acres meeting mitigation requirement (in thousands)	0.49	0.566	0.566	0.566	0.566
# Acres authorized for mitigation (in thousands)	0.65	0.578	0.578	0.578	0.578
# lbs of mitigation fish produced (millions)	1.1	1.16	1.16	1.16	1.16
# lbs of mitigation fish required (millions)	1.1	1.16	1.16	1.16	1.16
# of mitigation fish produced (millions)	19.8	19.62	19.62	19.62	19.62
# of mitigation fish required (millions)	19.8	19.62	19.62	19.62	19.62
<b>Endangered Species (ES) Protection</b>	<b>61%</b>	<b>99%</b>	<b>99%</b>	<b>99%</b>	<b>98%</b>
# Projects meeting ES Act requirements	112	162	162	160	160
# Projects with ES Act requirements	185	164	164	164	164
<b>Cultural Resources Management</b>	<b>53%</b>	<b>57%</b>	<b>57%</b>	<b>57%</b>	<b>57%</b>
# Projects meeting cultural resources requirements	123	120	120	120	143
# Projects with cultural resources requirements	233	212	212	212	212
<b>Healthy and Sustainable Lands and Waters</b>	<b>45%</b>	<b>26%</b>	<b>25%</b>	<b>24%</b>	<b>23%</b>
# Fee acres classified as in sustainable condition (millions)	3.61	2.06	1.98	1.9	1.82
# Fee acres (millions)	7.97	7.94	7.94	7.94	7.94
<b>Level One Natural Resources Inventory Completion Index</b>	<b>54%</b>	<b>46%</b>	<b>46%</b>	<b>46%</b>	<b>46%</b>
Average # acres with completed inventory (millions)	3.82	3.65	3.65	3.65	3.65
Average # acres requiring inventory (millions)	7.1	7.94	7.94	7.94	7.94
<b>Master Plan Completion</b>	<b>32%</b>	<b>27%</b>	<b>27%</b>	<b>27%</b>	<b>27%</b>
# Up-to-date master plans	121	106	106	106	106
# Master plans required	380	380	380	380	380
<b>Efficiency (cents per dollar)</b>	<b>\$0.01</b>	<b>\$0.01</b>	<b>\$0.01</b>	<b>\$0.01</b>	<b>\$0.01</b>
\$ Revenue (millions)	\$ 1.08	\$ 1.04	\$ 1.00	\$ 1.02	\$ 1.02
\$ Appropriation (millions)	\$ 108	\$ 104	\$ 100	\$ 102	\$ 102

## Enhanced Funding and Performance

---

The Enhanced Plan Scenario in Table 4 provides increased annual funding over the five-year period; however, the effective value of each increase is diminished due to inflation with the exception of FY11, which experienced a number of budget items added to Environmental Stewardship. The effective value of the increase is diminished due to inflation. The projected performance measures of the enhanced plan are based on historic performance results and funding. In general, minor incremental increases in performance output may be realized over the five-year period as most program outputs are budget dependent. This scenario seeks to maintain or improve performance outputs and to accomplish the overall program outcome of Basic Stewardship.

High targets for outputs of Mitigation Compliance and Endangered Species Protection continue to meet specific critical requirements of environmental mandates. Minor increases in Cultural Resources Management outputs are also anticipated in each year. Resource losses are prevented, but completely meeting annual requirements is not anticipated in any year of this scenario. Together, maintenance, or minor improvements continue to positively support the objectives to manage USACE lands and resources to comply with environmental requirements of relevant Federal laws and regulations, and to protect or conserve significant ecological resources.

Acreage targets, classified in a sustainable condition, are also increased to advance the program’s overall outcome. Nearly one third of USACE fee-owned acreage is projected to be classified in this condition by FY13. Target increases for Level One Natural Resources Inventories are raised slightly to promote completion of high priority inventories over the period. However, only a small number of additional Master Plan completions will be afforded over the period due to constrained funds. As explained previously, the Efficiency measure targets hold constant at \$0.01 recovered per dollar of program funding over the term.

**Table 4: Enhanced Five-Year Budget**

<i>Fiscal Year</i>	<i>2011</i>	<i>2012</i>	<i>2013</i>	<i>2014</i>	<i>2015</i>
<b>Investigations</b>	-	-	-	-	-
<b>Construction</b>	-	-	-	-	-
<b>Operation and Maintenance (O&amp;M)</b>	\$ 133	\$137	\$140	\$ 145	\$ 150
<b>Mississippi River and Tributaries (MRT) Project</b>	\$ 6	\$ 6	\$ 7	\$ 7	\$ 7
<b>Total</b>	\$ 139	\$143	\$147	\$152	\$157
Note: Includes Remaining Items					

### Initiatives for Enhanced Plan

- Meet minimum requirements of environmental and legal mandates to assure project compliance and safe operation
- Prevent loss or degradation of resources and promote the sustainability of resources
- Advance the completion of high priority project natural resource inventories and master plans, which guide the effective and efficient management of existing project natural and cultural resources.

**Table 5: Environmental Stewardship Enhanced Budget and Performance**

<i>Fiscal Year</i>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
Operation and Maintenance (O&M)	\$139	\$143	\$147	\$152	\$155
<b>Appropriation (\$ Millions)</b>	<b>\$139</b>	<b>\$143</b>	<b>\$147</b>	<b>\$152</b>	<b>\$155</b>
<b>Mitigation Compliance</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>
# Acres meeting mitigation requirement (in thousands)	0.65	0.65	0.65	0.65	0.65
# Acres authorized for mitigation (in thousands)	0.65	0.65	0.65	0.65	0.65
# lbs of mitigation fish produced (millions)	1.10	1.10	1.10	1.10	1.10
# lbs of mitigation fish required (millions)	1.10	1.10	1.10	1.10	1.10
# of mitigation fish produced (millions)	19.80	19.80	19.80	19.80	19.80
# of mitigation fish required (millions)	19.80	19.80	19.80	19.80	19.80
<b>Endangered Species (ES) Protection</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>
# Projects meeting ES Act requirements	185	185	185	185	185
# Projects with ES Act requirements	185	185	185	185	185
<b>Cultural Resources Management</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>
# Projects meeting cultural resources requirements	233	233	233	233	233
# Projects with cultural resources requirements	233	233	233	233	233
<b>Healthy and Sustainable Lands and Waters</b>	<b>60%</b>	<b>65%</b>	<b>70%</b>	<b>75%</b>	<b>80%</b>
# Fee acres classified as in sustainable condition (in millions)	4.78	5.18	5.58	5.98	6.38
# Fee acres (in millions)	7.97	7.97	7.97	7.97	7.97
<b>Level One Natural Resources Inventory Completion Index</b>	<b>65%</b>	<b>72%</b>	<b>79%</b>	<b>86%</b>	<b>93%</b>
Average # acres with completed inventory (millions)	4.62	5.11	5.61	6.11	6.60
Average # acres requiring inventory (millions)	7.1	7.1	7.1	7.1	7.1
<b>Master Plan Completion</b>	<b>33%</b>	<b>35%</b>	<b>37%</b>	<b>39%</b>	<b>43%</b>
# Up-to-date master plans	125	133	141	148	163
# Master plans required	380	380	380	380	380
<b>Efficiency (cents per dollar)</b>	<b>\$ 0.01</b>	<b>\$ 0.01</b>	<b>\$ 0.01</b>	<b>\$ 0.01</b>	<b>\$ 0.01</b>
\$ Revenue (millions)	\$ 1.39	1.431	1.47	1.52	1.55
\$ Appropriation (millions)	\$ 139	\$ 143	\$ 147	\$ 152	\$ 155

### Potential Work with “Wedge Money”

This program is not included in the assumptions for potential wedge funding in this Five Year Development Plan.



# FUSRAP

## Formerly Utilized Sites Remedial Action Program



### Radiological Scanning of Soil Core Key Statistics

- ❖ There are currently 24 active sites located in 10 states.
- ❖ The program remediates more than 100,000 cubic yards (on average) of contaminated material per year.
- ❖ Currently more than \$1.3 billion additional dollars needed to complete work on active sites.

### Accomplishments

---

- Remedial activities completed on schedule at 15 vicinity properties at the St. Louis sites In Missouri and 1 area at the Maywood site in New Jersey.
- Completed the remedial investigation at the Sylvania Corning Site and a Preliminary Assessment was completed at the Middlesex Municipal Landfill site.
- A groundwater Record of Decision was completed for the Colonie Site.
- The program excavated 181,687 cubic yards of contaminated material in FY10.

### Future Challenges

---

- The Corps continues to work to improve cost and scheduling risk analysis to better anticipate increases in soil volumes affecting schedule and associated project growth costs.
- Additional eligible, “potential” sites are currently being evaluated:
  - Middlesex Municipal Landfill site in Middlesex, New Jersey
  - Staten Island Warehouse site in Staten Island, New York
- Progress for this program is commensurate with funding.

## Program History and Performance

---

Strategic Goal 2 and Strategic Objective 2.3 directly relate to FUSRAP and influenced its specific objective. The FUSRAP Strategic Objective has correlating outcomes and those outcomes have various performance measures.

**FUSRAP Strategic Objectives 2.3.1:** Achieve the clean-up objectives of the Formerly Utilized Sites Remedial Action Program.

❖ **Performance Outcome:** To minimize risk to human health and the environment.

**Performance Measures:**

- Number of Records of Decision (RODs) signed. The number of RODs will increase as studies are completed and best alternatives for cleanup activities are decided. A ROD establishes the final cleanup standard, which controls the actual estimate of the remaining environmental liability for each site.
- Number of Remedial Investigations (RI) completed. The RI establishes the baseline risk assessment whereby the level of risk to human health and the environment is identified.
- Number of action memorandums signed. Where warranted by risk or other limited factors, action memorandums allow the USACE to move toward reducing risk more rapidly than through production of a ROD. No action memorandums are presently identified.

❖ **Performance Outcome:** To maximize the cubic yardage of contaminated material disposed in a safe and legal disposal facility.

**Performance Measures:**

- Cubic yardage of contaminated material disposed. Target soil amounts after FY10 are dependent on previous year funding and scheduled activities. Therefore, at this time it is not possible to predict target soil amounts for out-years.
- Total cost of disposal of contaminated material as measured in cubic yards.

❖ **Performance Outcome:** To return the maximum number of affected individual properties to beneficial use.

**Performance Measures:**

- Number of individual properties returned to beneficial use.

❖ **Performance Outcome:** To have all remedies in place as quickly as possible within available funding limits

**Performance Measures:**

- Cumulative percentage of FUSRAP funding that is expended on cleanup activities rather than studies.
- As the program matures, the percentage of funding expended on cleanup activities will be greater than funding spent on conducting studies.
- This measure was evaluated in FY08. The target goal was 80%. The program exceeded the goal at 84.3%. This measure will next be evaluated in FY16.

- Number of remedies in place or response complete.
- As select portions of sites or complete sites meet their remedial action goals, the risk to human health and the environment is reduced to within acceptable levels and properties are able to be used within a community without fear of increasing cancer risk or further degrading the environment.

## History

Funding for the program has been relatively stable in nominal terms, although program scope has increased. USACE began managing FUSRAP in FY98 and the current program performance measures were developed in 2004. In FY05, the program received \$24 million above the President's Budget. That year performance measure targets were exceeded in four categories.

**Table 1: FUSRAP Funding and Performance History**

<i>Fiscal Year</i>	<i>2004</i>	<i>2005</i>	<i>2006</i>	<i>2007</i>	<i>2008</i>	<i>2009</i>	<i>2010</i>
Appropriation (\$ Millions)	\$139	\$164	\$139	\$139	\$140	\$140	\$134
Number of Records of Decision (RODs) signed	9	3	2	2	2	3	1
Remedial Investigations completed	21	5	4	0	2	2	2
Action Memos signed	3	0	1	0	0	0	0
Cubic yardage of contaminated material removed (in thousand cubic yards)	2,927	243	225	186	153.7	105	181.6
Total cost of disposal of contaminated material	\$675	NE	NE	NE	NE	\$600	NE
Individual Properties returned to beneficial use	65	5	15	27	40	52	72
Cumulative Funding expended on cleanup rather than studies	77%	NE	NE	NE	84.3%	NE	NE
Remedies in place or response complete	4	2	0	3	2	1	1

The program met or exceeded five of five performance measure targets set for FY10. USACE has found significantly more than the estimated volume of contaminated materials on several sites. At this time, no Action Memorandums are planned for any of these sites. However, this performance measure may change, pending the results of Remedial Investigations currently being conducted at some sites.

---

## Project Spotlight: Maywood Chemical Company Superfund Site

**District:** New York District

**Location:** Maywood, New Jersey  
(20 miles north of Newark adjacent to  
Interstate 80 and State Route 17)

**Link:** [www.fusrapmaywood.com](http://www.fusrapmaywood.com)



The Maywood site is on the EPA's Superfund National Priorities List. The site is 40 acres with 88 residential, commercial and industrial properties. There are approximately 281,000 cubic yards of subsurface contaminated material containing thorium-232, radium-226, and uranium-238. USACE is working under the Federal Facilities Agreement (FFA) signed by Department of Energy (DOE) and EPA, while negotiating a USACE/EPA FFA. About 25 percent of the land is federally owned and is being used as a cleanup staging area. USACE completed potentially responsible party (PRP) negotiations through the Department of Justice with the Stepan Company. The Stepan Company, operating a chemical factory, and Sears, operating a large distribution warehouse, occupy part of the site. The clean-up process began in the mid-1980s with about a third of the properties. USACE remediated 23 of an additional 39 remediated properties by FY00 based on a 1994 DOE Engineering Evaluation/Cost Analysis (EE/CA). After FY00, USACE completed a Remedial Investigation/Feasibility Study/Proposed Plan, Record of Decision, Remedial Design (RI/FS/PP/ROD/RD) for the remainder. USACE also prepared an EE/CA for an interim removal action for 10 commercial properties impacted by the New Jersey Department of Transportation projects. USACE also initiated remedial action for the remainder soils and this remaining cleanup plan is estimated to cost approximately \$380 Million beyond FY10.

---

## Base Funding and Performance

The five-year funding would enable the program to have seven individual portions (operable units) completed, as shown in the following table. These figures do not include adjustments for inflation or labor costs. Transportation costs have been increasing in recent years at a rate greater than inflation due to the increase in fuel costs and the demand for rail lines and rail cars; thus, reducing buying power. The table below shows the program with respective performance measures.

Work plans in FY11 and out-years will be developed by setting the following priorities:

- health & safety issues (evaluation and management of site risk)
- legal requirements
- program goal of closing out sites.

**Table 2: FUSRAP Five-Year Base Funding Plan and Performance**

<i>Fiscal Year</i>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
<b>Appropriation</b> (\$ Millions)	\$ 130	\$ 125	\$ 120	\$ 123	\$ 126
Number of RODs signed	2	3	2	1	1
Remedial Investigations completed	1	0	0	0	1
Action Memos signed	0	0	0	0	0
Cubic yardage of contaminated material removed (in thousand cubic yards)	110	100	100	105	105
Total cost of disposal of contaminated material	\$ 600	<i>NE</i>	<i>NE</i>	<i>NE</i>	<i>NE</i>
Individual Properties returned to beneficial use (annually)	4	3	3	2	2
Cumulative Funding expended on cleanup rather than studies	81%	82%	82%	83%	83%
Remedies in place or response complete	1	1	0	2	1
<i>Source: Information developed by CECW-IN during FY10 budget preparation. "NE" means not evaluated.</i>					

## Base Plan Initiatives

- **Coordination with other agencies on disposal contracts:** Transportation and disposal remain a large percentage of project costs. USACE is working to coordinate disposal requirements with the Department of Energy (DOE) and the Department of Defense (DOD) executive agent for radioactive waste disposal in order to reduce disposal costs.
- **Risk-informed waste management:** USACE is working with the Nuclear Regulatory Commission (NRC) to find ways to manage waste according to a material's risk to the public, workers, and the environment, rather than by its pedigree or origin. This is per recent recommendations from the National Academies of Science.

- **Stakeholder buy-in on program goals:**
  - USACE is working to focus more site specific and national stakeholder attention on the overall program, the goals of protecting the public, and closing out sites. USACE is working to show how individual site decisions impact this goal.
  - USACE continues to coordinate with the Department of Energy’s (DOE) Legacy Management (LM) GOAL 4: *Management of legacy land and assets, emphasizing protective real and personal property reuse and disposition*. DOE’s goal is to increase the percentage of LM managed federal property in beneficial reuse, which would decrease management costs. Four DOE properties are being managed and remediated by USACE under FUSRAP.
  - USACE is coordinating with the Nuclear Regulatory Commission (NRC) on four sites that will help them to meet their license termination strategic goal.

## Enhanced Funding and Performance

---

Projects would be accelerated with enhanced funding. If the program were to receive funding as projected in the Enhanced Plan Scenario for FY11 – FY15, 7 remedies would be completed as shown in the following table. The increased funding level for FY11 would enable projects to take better advantage of the remaining disposal capacity on current contracts. The program for the five years and respective performance measures are shown in table below.

**Table 3: FUSRAP Five-Year Enhanced Funding Plan and Performance**

<i>Fiscal Year</i>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
<b>Appropriation (\$ Millions)</b>	\$ 145	\$ 149	\$ 153	\$ 158	\$ 164
Number of RODs signed	2	3	2	1	1
Remedial Investigations completed	1	0	0	0	1
Action Memos signed	0	0	0	0	0
Cubic yardage of contaminated material removed (in thousand cubic yards)	120	125	128	132	136
Total cost of disposal of contaminated material	\$ 600	NE	NE	NE	NE
Individual Properties returned to beneficial use	5	5	6	5	4
Cumulative Funding expended on cleanup rather than studies	81%	82%	82%	83%	83%
Remedies in place or response complete	1	1	0	3	2
<i>Source: Information developed by CECW-IN during FY10 budget preparation. "NE" means not evaluated.</i>					

## **Enhanced Plan Initiatives**

- Iowa Army Ammunition Plant: Increases funds at a National Priorities List (NPL) site and shows good faith under the recent Federal Facilities Agreement in place with the state of Iowa, EPA, & DOE.
- Maywood Site in New Jersey: Accelerates completion of three Nuclear Regulatory Commission (NRC) licensed pits.
- Shallow Land Disposal Area in Pennsylvania: Accelerates soil removal completion at ten Nuclear Regulatory Commission (NRC) licensed pits.
- Linde Site in Tonawanda, New York: Accelerates soil removal completion.
- St. Louis Airport Vicinity Properties in Missouri: Accelerates completion of soil removal and returns numerous private properties to beneficial use.

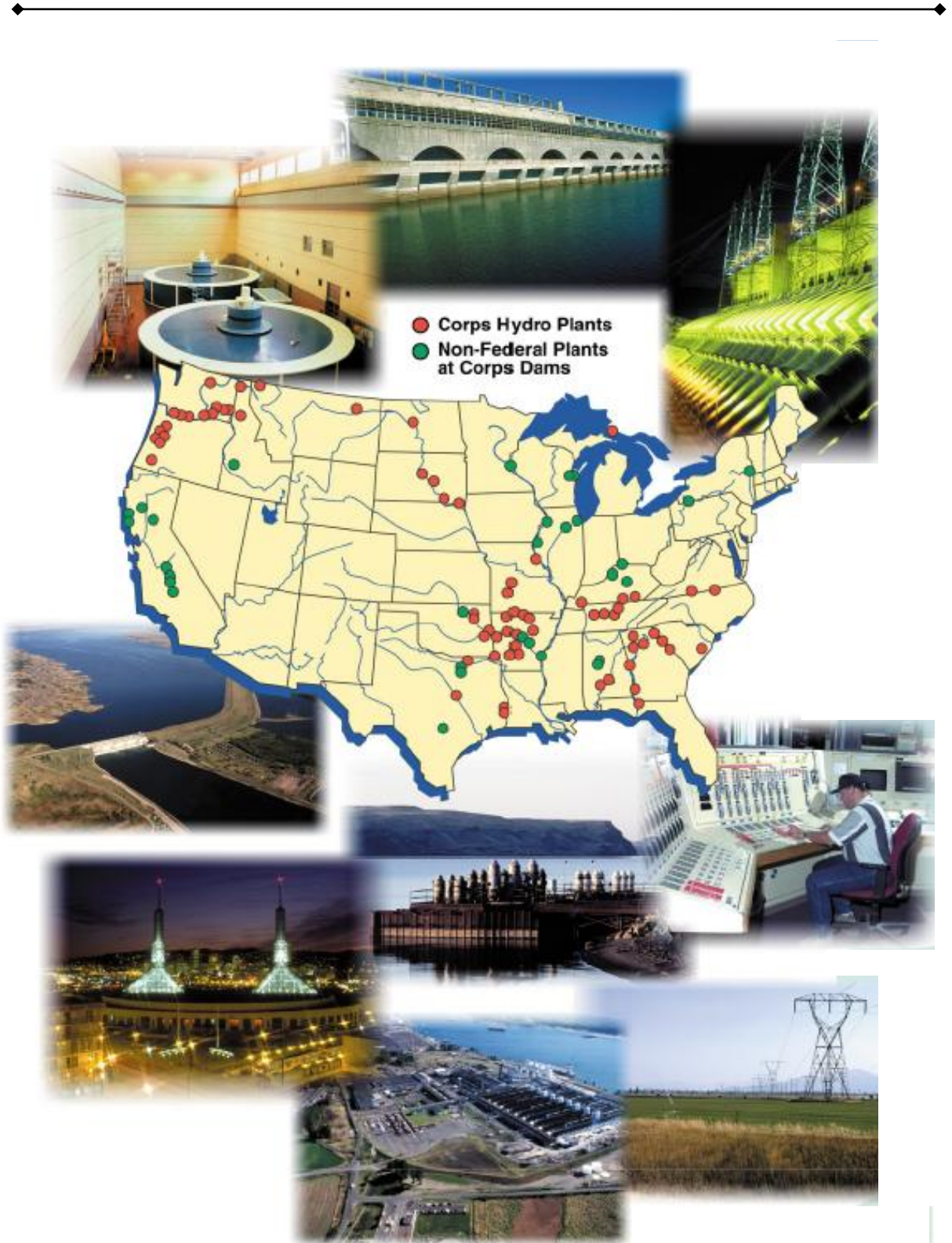
## **Potential Work with “Wedge Money”**

---

The FUSRAP Program is not included in the assumptions for potential wedge funding in this Five Year Development Plan.



# Hydropower





# Hydropower



*-Chief Joseph Dam on the Columbia River, WA*

## Key Statistics

- ❖ There are 75 power plants at USACE dams totaling a rated capacity of 20,475 Megawatts (MW), and a maximum capability of 22,900 MW
- ❖ Own and operate 353 hydroelectric units that represents 24% of the nations hydropower capability and 3% of the total electric capability
- ❖ USACE hydropower plants produce over 68 billion kilowatt-hours of average annual energy

- ❖ Hydroelectric power sales generate over \$4 billion in gross annual revenue
- ❖ 90 non-federal power plants are Federal Energy Regulatory Commission (FERC) licensed to operate at USACE dams representing about 2,300 MW of installed capacity

## Accomplishments

- Completed the development of the Hydropower Modernization Initiative Asset Investment Planning tool that informs the planning process for making major capital investments.
- Implemented the USACE Compliance Monitoring and Enforcement guidance for USACE Districts to comply with Federal Energy Regulatory Commission's Electric Reliability Compliance standards.
- Developed Baseline Recurring O&M Costs for each hydropower project to determine the minimum operating costs for budgeting purposes.
- Continued collaboration with the Bureau of Reclamation and the Department of Energy on major initiatives under the March 2010 energy Memorandum of Understanding that included a hydropower resource assessment study, develop methodologies for environmentally sustainable hydropower development, and improving Regulatory processes that impacts non-Federal hydropower development Conducted a successful workshop with USACE, FERC and non-Federal hydropower developers to explore ways to improve approval processes and inter-agency coordination.

Completed the publication of the Outlook Paper for the Corps of Engineers Hydropower Program, which examines the state of federal hydropower in the U.S. in the context of contemporary requirements for multi-use operations and other water users.

## Future Challenges

---

The primary future challenges are related to asset management. Aging infrastructure and constrained funding for operating, maintaining, and replacing hydropower assets are difficult to balance. Due to the current state of the infrastructure, program performance measures have consistently been below industry standards for the previous ten operating years, except in the Pacific Northwest, where Bonneville Power Administration directly finances operation and maintenance and infrastructure modernization from revenues generated by USACE hydropower facilities. The key challenge to the program is incrementally improving program performance and asset reliability by targeting finite resources at the highest return projects over the next five years. Additional challenges include meeting new FERC electric reliability compliance standards and maintaining an adequately trained technical workforce.

## Program History and Performance

---

The Hydropower Business Program supports the Civil Works Strategic Goal 3 and five of its objectives. Five performance measures are used to assess program progress toward meeting the identified goal and objectives.

**Strategic Objective 3.1:** Improve the efficiency and effectiveness of existing USACE water resources projects.

### **Performance Measures:**

- ❖ **Forced Outage Rate:** This measures system reliability against industry standard. It is the percentage of regions achieving a system-wide annual forced outage rate of 2 percent or less.
- ❖ **Peak Availability Rate:** This measures system reliability. It is the percentage of system-wide availability of 98 percent during peak demand season.
- ❖ **Rate of Compliance to FERC Reliability Standards:** This measures the number of FERC electric reliability standards met or exceeded across all USACE hydropower facilities. It is the percent of Federal Energy Regulatory Commission (FERC) approved electric reliability standards applicable to Generator Owners and Operators in the bulk power system that are met or exceeded.
- ❖ **Amount of generating capacity rated as poor:** This measures the percent of unit generating capacity that has a component of its major power train rated as poor (as a result of a condition assessment with the hydroAMP Conditions Assessment tool). This is a new measure and should be available for FY11.
- ❖ **Meet O&M cost efficiency target:** This is an efficiency measure. It is the percentage of regions whose facilities achieve O&M cost efficiency as measured by cost per megawatt-hour or cost per megawatt, adjusted for unit size, compared to similar hydropower facilities. This is a newer measure and data should be available in FY11.

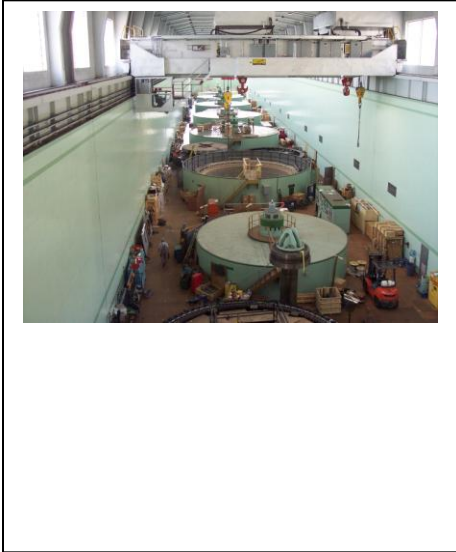
The total budgeted amount shown in Table 1 does not directly impact Hydropower Program performance measures. For budget years through FY09, approximately 30 to 35 percent of the program’s budgeted amount is funding requirements for Columbia River fish recovery programs in the Pacific Northwest. In FY09, only 67 percent of the total amount in the President’s Budget actually funds projects that directly affected performance measures. Therefore, about 33 percent of the program’s budget in FY09 was not used for hydropower maintenance, operations, or improvements that impact the performance measures. FY2010 represents the first year in which the full budget amount was used to fund hydropower specific requirements.

**Table 1: Hydropower Historical Funding and Performance**

<i>Fiscal Year</i>	<i>2003</i>	<i>2004</i>	<i>2005</i>	<i>2006</i>	<i>2007</i>	<i>2008</i>	<i>2009</i>	<i>2010</i>
Total Appropriation (\$ Millions)	\$194	\$245	\$285	\$263	\$285	\$291	\$320	\$211
Forced Outage (percent)	3.73%	4.28%	4.94%	3.98%	4.33%	4.65%	4.50%	4.28%
Peak Unit Availability (percent)	88.58%	87.33%	87.10%	88.47%	86.45%	85.25%	87.10%	86.16%
O&M Cost Efficiency Benchmark (\$/MWh)	NA	NA	NA	NA	NA	NA	NA	TBD
Note: 2008 values for Forced Outage and Peak Unit Availability are estimates. O&M Cost Efficiency data will not be available unit FY08.								
Source: O&M Business Information Link Database								

---

## **Project Spotlight: John H. Kerr Dam and Reservoir Power Plant Major Rehabilitation**



**District:** Wilmington District  
**Location:** North Carolina and Virginia  
**Project:** Multipurpose, one of two hydroelectric facilities in the Wilmington District that comprise the Kerr-Philpott system. Seven main generators and turbines with original plant capacity of 225 megawatts.

The John H. Kerr power plant major rehabilitation project is a 10-year effort to rewind all seven generator units to maximum capacity, replace the turbines and main power transformers, and replace or refurbish 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. The power plant, initially placed into operation in 1953, is showing signs of excessive wear of the generators, the peripheral equipment and the turbines, resulting in a loss of efficiency, reduced reliability of the units and lost power output for the units. There is growing concern with project reliability due to 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 damage observed in the turbine runner, stay ring and discharge ring of Unit Number 5. Final marketable upgrade generation capacity is to be determined by the Southeastern Power Administration (SEPA) upon completion of the project. However, for now the capacity of the rehabilitated plant will be 265 megawatts, an increase of 40 megawatts above the original plant capacity of 225 megawatts. The total project cost is \$90.0 million, which will be totally reimbursed in the future through the sale of the electric power generated by SEPA. Average annual benefits for hydroelectric power are \$17,485,000. The major rehabilitation project is scheduled to be completed in FY11.

---

## Base Funding and Performance

---

Budget priorities include avoiding plant closures, plant safety, increasing the reliable operation of hydropower facilities, assessing and reducing risks of major equipment failures, and quantifying consequences, both economically and operationally, of infrastructure failure. Additionally, improving upon percent of time generating units are available when electrical power is needed the most is another key program priority.

This Base Plan for the Hydropower Program is primarily driven by reducing maintenance backlogs and making investments in major maintenance. Major rehabilitations and replacements are included in this plan. However, the Base Plan does not address all maintenance and investment needs.

**Table 2: Hydropower Base Funding by Accounts**

<i>Fiscal Year</i>	<i>2011</i>	<i>2012</i>	<i>2013</i>	<i>2014</i>	<i>2015</i>
<b>Investigations</b>	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Construction</b>	\$ 21	\$ 20	\$ 19	\$ 20	\$ 20
<b>Operation and Maintenance (O&amp;M) Estimate</b>	\$ 186	\$ 178	\$ 172	\$ 176	\$ 176
<b>Mississippi River and Tributaries (MRT) Total</b>	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Total</b>	\$ 207	\$ 198	\$ 191	\$ 196	\$ 196

## Base Plan Initiatives

- Comply with approved Federal Energy Regulatory Commission (FERC) electric reliability standards and ensuring continued compliance. A comprehensive corporate reliability compliance plan is being implemented across USACE to voluntarily comply with approved FERC reliability standards. As a result of the electrical energy blackout of 2003, the FERC was given the authority to require all users, owners, and operators of facilities connected to the bulk power system to meet mandatory electric reliability standards. Although USACE is protected by sovereign immunity as a federal agency, it has made a commitment to the FERC to voluntarily comply with all approved reliability standards within constraints of appropriated resources and operating authorities.
- As part of the infrastructure reliability improvement initiative, risk will be assessed at each hydropower facility. It will measure risk exposure to major equipment breakdown or catastrophic failure and resulting economic and operational consequences, which will drive budget development decisions for FY11 and beyond.
- Complete the Hydropower Modernization Initiative Asset Investment Implementation Plan that will inform capital investment decision-making

**Table 3: Hydropower Base Funding and Performance**

<i>Fiscal Year</i>	<i>2011</i>	<i>2012</i>	<i>2013</i>	<i>2014</i>	<i>2015</i>
<b>Appropriation (\$ Millions)</b>	\$ 207	\$ 198	\$ 191	\$ 196	\$ 196
Forced Outage (percent)	4.28%	4.28%	4.28%	4.28%	4.28%
Peak Unit Availability (percent)	86.16%	86.10%	86.16%	86.16%	86.16%

## Enhanced Funding and Performance

---

Enhanced funding level priorities over this five-year plan would eliminate the program’s maintenance backlog and make significant investments in replacement of aged, inefficient and unreliable infrastructure, reducing risk exposure to major component failures. High priority projects identified by low condition indices, high risk factors and significant benefits would be funded under the Hydropower Modernization Initiative in this scenario.

**Table 4: Hydropower Enhanced Funding by Accounts**

<i>Fiscal Year</i>	<i>2011</i>	<i>2012</i>	<i>2013</i>	<i>2014</i>	<i>2015</i>
<b>Investigations</b>	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Construction</b>	\$ 35	\$ 35	\$ 35	\$ 35	\$ 35
<b>Operation and Maintenance (O&amp;M) Estimate</b>	\$ 245	\$ 233	\$ 224	\$ 230	\$ 231
<b>Mississippi River and Tributaries (MRT) Total</b>	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Total</b>	<b>\$ 280</b>	<b>\$ 268</b>	<b>\$ 259</b>	<b>\$ 265</b>	<b>\$ 266</b>

## Initiatives for Enhanced Plan

- Update and start construction on approved major rehabilitation plans
- Continue the Hydropower Modernization Initiative. The key objective is to establish a programmatic approach to prioritizing major powerhouse rehabilitations. The HMI Asset Investment Planning tool will be used to inform capital investment decision-making based on physical conditions, environmental impacts, plant importance to electrical system, and customer considerations.
- Sustain performance improvements from previous investments: sustain repair for O&M.
- Projects could include several generator rewinds and turbine replacements at projects such as the Allatoona in Alabama, Ft. Randall in South Dakota, and Webbers Falls in Oklahoma.

**Table 5: Hydropower Enhanced Funding and Performance**

<i>Fiscal Year</i>	<i>2011</i>	<i>2012</i>	<i>2013</i>	<i>2014</i>	<i>2015</i>
<b>Appropriation (\$ Millions)</b>	<b>\$ 280</b>	<b>\$ 268</b>	<b>\$ 259</b>	<b>\$ 265</b>	<b>\$ 266</b>
Forced Outage (percent)	4.28%	4.28%	4.28%	4.28%	4.28%
Peak Unit Availability (percent)	86.16%	87%	87.5%	88%	88.5%

Note: All values are estimates

## Potential Work with “Wedge Money”

---

If the business line modernization initiative is funded for new starts, the funds would be utilized for additional hydropower major rehabilitations with a competitive benefit-to-cost ratio and climate change benefits. While specific funding decisions would be made at that time, several examples of projects that could be considered are:

- Ft. Randall in South Dakota
- Barkley and Wolf Creek in Kentucky
- Center Hill and Old Hickory in Tennessee
- Allatoona in Georgia.



# Regulatory



## What Does the Regulatory Program Mean to You?

Just a few of the benefits of an effective regulatory program are:

- Cleaner water;
- A healthier environment;
- More jobs; and
- A stronger economy.



# Regulatory



## Key Statistics in FY10

- ❖ 68,800 public and private activities authorized
  - ❖ 3,700 Standard Permits/Letters of Permission
  - ❖ 13,470 Regional General Permits
  - ❖ 31,900 Nationwide Permits
  - ❖ 3,100 Permits Modified
- ❖ 9,810 No Permit Required Determinations
  - ❖ 275 Applications Denied
  - ❖ 63,100 Jurisdictional determinations completed
  - ❖ Over 80% of actions authorized by General Permits
  - ❖ 92% of General Permits processed < 60 days



## Accomplishments

---

On 30 July 2010, ERDC published the Operational Draft of the Regional Guidebook for the Functional Assessment of High-Gradient Ephemeral and Intermittent Streams in Western West Virginia and Eastern Kentucky. This science-based, rapid, and repeatable hydrogeomorphic (HGM) approach will be used to assess the function of high gradient streams and support mitigation decisions in West Virginia and Kentucky. Implementation of the HGM protocol includes training for Corps and other agency staff and workshops for the public and consulting community. In November 2010, USACE's Engineering Research Development Center (ERDC) invited other agencies and academia to participate in the development of the validation process.

The purpose of validation is to verify the accuracy and reliability of the protocol. The final guidebook will reflect the outcome of the validation process.

The 1987 Corps of Engineers Wetlands Delineation Manual (1987 Manual) provides the methodology for delineating wetlands for purposes of CWA §404 jurisdiction. Ten Regional Supplements to the 1987 Manual have been developed to reflect regional differences in wetland characteristics. The last of the Supplements was published in 2010. The 1987 Manual is being updated by a USACE-led interagency team comprised of representatives from USEPA, NRCS, and USFWS to clarify its relationship with the Regional Supplements, to eliminate obsolete and superceded information, and to address emerging issues not considered when it was originally written. A final implementation of the revised manual is expected in 2013.

The National Wetland Plant List (NWPL), a cooperative effort of USACE, USEPA, NRCS and USFWS, lists the wetland indicator status for plants found throughout the U.S. and is used extensively in determining wetland boundaries. The initiative to update the NWPL continues through a new web site that allows experts and interested parties to participate in the process. This information is useful when work is being done to restore wetlands and conducting ecological research.

Deployment of the Regulatory Avatar and video library continues, including on the Headquarters USACE Regulatory website. The Avatar and video library provide interactive modules that lead applicants through the application and permit evaluation process with step-by-step instructions. These comprehensive instructions and educational materials enhances the public understanding of the regulatory program and to enables accurate and appropriate completion of permit applications, which results in a more efficient permitting process.

## **Future Challenges**

---

The Regulatory program continues to be exciting as development pressures mount and national public awareness of the aquatic environment continues to rise. Appreciation for the contribution of wetlands to the overall natural environment has resulted in greater direct input from the public and environmental interest groups, leading to greater complexity and controversy in the review of permit applications. As the program becomes more complex, delays in making permit decisions increase.

Confusion regarding geographic scope of CWA jurisdiction created by Supreme Court decisions in 2001 and 2007 continues. These decisions caused a significant increase in workload associated with field visits to determine jurisdiction, documentation and coordination on jurisdictional determinations, and resulted in additional time delays for decisions on permit applications. The estimated annual cost to the program is \$30 million; these activities must compete with other, baseline activities for finite resources.

The Regulatory program's regulations have not been updated since 1986. As mentioned above, the dynamic evolution of the program via litigation challenges and public interest has resulted in substantial shifts in certain, specific areas of those regulations in the 25 years since they were

published. These shifts currently captured in separate pieces of guidance and regulation would be best communicated to the regulated public in a newly published, consolidated regulation.

Assessing cumulative effects effectively remains a challenge within the Regulatory program. In FY 10-11, the program developed a framework and strategy to further define expectations of and results from cumulative effects analyses, and how those results could inform permit decisions in the future. Much work remains relative to model development and verification, and implementation at the Regulatory project manager level.

There is a demonstrated need for energy within the U.S. This need comes into conflict with the Regulatory program when permits are needed to support the extraction of resources (e.g. oil, gas, coal), to emplace transmission infrastructure (e.g. wind, solar, gas, oil, nuclear) and to place structures and/or fill in jurisdictional waters (e.g. hydropower, hydrokinetic, wind, solar, oil, gas, nuclear, coal). Often, other Federal agencies provide oversight to these energy-driven projects and enable the Regulatory program to focus time and resources on the aquatic environment. However, as interest and need in renewable energy sources grows, the frequency with which the Regulatory program is the only Federal regulatory agency engaged with private interests on private lands will increase. This will challenge the expertise and resources of the Regulatory program.

Continued advancements of the OMBIL Regulatory Module, version 2 (ORM 2) database is another critical challenge. ORM 2 is a web-based, geospatial database that houses data that enables effective and efficient tracking of regulatory processes. ORM2 has been deployed in all districts. Historic data clean up to improve the ability to analyze past condition to inform future strategic decisions are a continuing need. Standard data entry and report development with companion standard operating procedures for Regulatory project managers continue to be developed to ensure consistent and accurate data entry and reporting. With increasing data accuracy, reflecting program accomplishments in all areas is a foreseeable goal.

Increased pressures and requirements to redevelop the Nation's infrastructure, spur economic growth, and efforts to maintain healthy resources, support ocean and coastal economies, and promote access and sustainable use the nations waters will continue to increase the complexity of the regulatory program. These competing public and private priorities will require careful evaluation, interagency coordination, and will bring continued high levels of litigation to the program.

## **Program History and Performance**

---

Develop Sound Water Resource Solutions, Sub-objective 2c: Improve Regulatory process to balance development and environmental sustainability; achieve greater consistency and streamline systems; and improve responsiveness and efficiency in decision making directly relate to the Regulatory Program and influence the development of performance measures for the Regulatory Program. The eight performance measures were developed to greatly improve the implementation of the Regulatory Program nationally resulting in increased consistency, improved streamlining and efficiency, and better protection of the aquatic environment, with the overall result of well

balanced decisions, which are also more responsive to customer needs. USACEs' Regulatory program has developed three specific strategic goals that are directly linked to our priorities.

**Strategic Regulatory Objective 1:** No Net Loss of Aquatic Resources

**Strategic Regulatory Objective 2:** Avoidance and Minimization of Impacts to Aquatic Resources

**Strategic Regulatory Objective 3:** Expedite Permit Processing

## Performance Measures

USACE measures the acres of wetlands impacted, avoided, and mitigated to confirm that the three goals are being met. However, to confirm that these goals are being met, USACE defined eight performance measures, which are designed to be measured quickly and easily while providing data on the goals. The XX below indicate a blank value; the actual value is in the tables below.

- ❖ **Individual Permit Compliance:** USACE shall complete compliance inspections on XX percent of the number of individual permits issued the preceding fiscal year, and select projects from those constructed within the preceding 5 years.
- ❖ **General Permit Compliance:** USACE shall complete compliance inspections of XX percent of the number General Permits (GPs and NWPs) with reporting requirements issued the preceding fiscal year, and select projects from those constructed within the preceding 5 years.
- ❖ **Mitigation Site Compliance\*\*:** USACE shall complete field compliance inspections of XX percent of active mitigation sites each fiscal year. Active mitigation sites are those authorized through the permit process and being monitored as part of the permit process but have not met final approval under the permit special conditions.
- ❖ **Mitigation Bank/In Lieu-Fee Compliance:** USACE shall complete compliance inspections/audits on XX percent of active mitigation banks and in lieu fee programs annually.
- ❖ **Resolution of Non-compliance Issues:** USACE will reach resolution on non-compliance with permit conditions and/or mitigation requirements on XX percent of activities determined to be non-compliant at the end of the previous fiscal year and determined to be non-compliant during the current fiscal year.
- ❖ **Resolution of Enforcement Actions:** USACE shall reach resolution on XX percent of all pending enforcement actions (i.e., unauthorized activities) that are unresolved at the end of the previous fiscal year and have been received during the current fiscal year.
- ❖ **General Permit Decisions:** USACE shall reach permit decisions on XX percent of all General permit applications within 60 days.
- ❖ **Individual Permits:** USACE shall reach permit decisions on XX percent of all Standard permits and Letter of Permission (LOPs) within 120 days. This standard shall not include Individual Permits with Formal Endangered Species Act (ESA) Consultations.

USACEs' Regulatory program has been collecting permit and enforcement data over the past 15 years. Compliance data has been collected only for the last four years in a newer database. A summary of the historic funding and performance data is shown in Table 1.

**\*\* Regulatory program High Priority Performance Goal**

USACEs' Regulatory program has been collecting permit and enforcement data over the past 15 years. Compliance data has been collected only for the last four years in a newer database. A summary of the historic funding and performance data is shown in Table 1.

**Table 1: Regulatory Historic Funding and Performance**

<i>Fiscal Year</i>	<i>2003</i>	<i>2004</i>	<i>2005</i>	<i>2006</i>	<i>2007</i>	<i>2008</i>	<i>2009*</i>	<i>2010*</i>	<i>2011 Target</i>
<b>Appropriation (\$ Millions)</b>	<b>\$138</b>	<b>\$139</b>	<b>\$143</b>	<b>\$158</b>	<b>\$159</b>	<b>\$176</b>	<b>\$183</b>	<b>\$190</b>	<b>\$193</b>
Individual Permit Compliance	18%	16%	14%	14%	11%	22%	25%	25%	10%
General Permit Compliance	6%	5%	5%	7%	7%	7%	11%	13%	5%
Mitigation Compliance	15%	11%	9%	10%	7%	18%	35%	17%	5%
Mitigation Bank Compliance	25%	20%	19%	25%	63%	39%	45%	34%	20%
Non-compliance Resolution	30%	26%	24%	37%	56%	28%	38%	40%	20%
Enforcement Resolution	25%	37%	23%	58%	82%	34%	37%	38%	20%
General Permit processing	88%	85%	85%	82%	80%	82%	88%	92%	75%
Individual Permit Processing	58%	61%	61%	61%	53%	51%	64%	67%	50%

*\* Regulatory Program targets we exceeded with the support of the American Recovery Reinvestment Act (ARRA) funds. The program received \$25M dollars.*



## **Activity Spotlights:**

---

### **DEEPWATER HORIZON OIL SPILL RESPONSE**

The Corps Regulatory Program regulations at 33 CFR 325.2 provide for the use of emergency permit processing procedures. In response to the Deepwater Horizon oil spill incident in the Gulf of Mexico, three Gulf Districts received 120 requests to conduct work under emergency procedures. As of September 30, 2010, 116 were approved, withdrawn or did not require a permit. One request is pending a decision, 2 were denied use of emergency procedures and 1 did not qualify. Authorized work included deploying booms, mooring barges, placing sand or sheet pile in barrier island cuts, and placing fill for barrier island protection. Regulatory also developed publicly accessible mapping tool and tracking reports to allow quick responses to inquiries related to these emergency actions.

### **SURFACE COAL MINING**

The Corps Regulatory Program is working to fulfill commitments under the June 2009 federal interagency MOU signed by the Department of the Army, EPA and DOI to reduce the adverse environmental impacts of surface coal mining in six Appalachian states and this remains a priority. Continued work to strengthen the review of these complex projects includes the development of a technical Regulatory Guidance Letter to improve the ecological success of stream mitigation; the development and implementation of a long-term compliance plan in the districts to prioritize the review of permits issued for surface coal projects; conducting a workshop to provide technical training to state and federal agencies to improve the review of stream mitigation plans; the completion of a cumulative impacts analysis model that will serve as a tool to support decision-making in the field pursuant to Section 404 and NEPA; the validation of and completion of the Draft Operational HGM methodology for high gradient streams in western WV and eastern KY; the continued development of field-level interagency agreements that address the alignment of the Surface Mining Control and Reclamation Act (SMCRA) and Clean Water Act where practicable; and the review of projects pursuant to the Enhanced Coordination Procedures. Further, the preparation of documents in response to on-going legal challenges in both district and appellate courts to multiple permit decisions and the Enhanced Coordination Procedures continues to require coordination with and input from Regulatory.

### **Base Funding and Performance**

---

The proposed budget for FY11 funding is at \$193 million, which is a \$3 million funding increase over the FY 2010 level. This funding level will result in a reduced level of performance for each of the eight performance measures. With recent national issues concerning mining, shale gas development, clean energy (wind, solar, clean coal, hydropower, nuclear, hydrokinetic), and potential changes to the Clean Water Act jurisdiction, the increase in funding in FY11 does not cover the projected increased workload associated with these actions. In addition, it is estimated that the base operational cost of the program will increase approximately 2% in FY 11 (\$3.8M).

The added workload associated with challenging national issues and changes that may arise from potential changes to the Clean Water Act jurisdiction will continue to pose a significant challenge on Project Managers to meet customer demands for timely permit decisions. The initial funding level would allow continued program work, but at a decreased level of productivity and timeliness, and would not provide sufficient funds to initiate or continue and new strategic objectives for the program, including watershed studies, new SAMPs (Special Area Management Plans), and new State Programmatic General Permits (SPGP's). The performance level for each of the measures is shown below.

**Table 2: Regulatory Base Funding and Performance**

<i>Fiscal Year</i>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
<b>Appropriation (\$ Millions)</b>	<b>\$ 193</b>	<b>\$ 185</b>	<b>\$ 178</b>	<b>\$ 182</b>	<b>\$187</b>
Individual Permit Compliance	10%	10%	10%	10%	10%
General Permit Compliance	5%	5%	5%	5%	5%
Mitigation Compliance	5%	5%	5%	5%	5%
Mitigation Bank Compliance	20%	20%	20%	20%	20%
Non-compliance Resolution	20%	20%	20%	20%	20%
Enforcement Resolution	20%	20%	20%	20%	20%
General Permit processing	75%	75%	75%	75%	75%
Individual Permit Processing	50%	50%	50%	50%	50%

## **Enhanced Funding and Performance**

---

The enhanced plan program funding level for FY11 is \$210 million. For this level of funding, the program is in a better position to maintain performance levels, maintain FY 10 execution levels, while addressing potential impacts of Clean Water Act Jurisdiction Guidance and proposed rule making. Additional funding would be used, develop programmatic efficiencies in the permit review processes, the effective implementation of compliance and enforcement activities, and providing clear and concise jurisdictional determinations.

In addition, funding may be made available for Wetlands Regulatory Assistance Program, which assists Districts' Regulatory offices with technical expertise and research. These activities will include continued support of the 1987 Corps of Engineers Wetlands Delineation Manual update, Wetlands Delineation Manual supplements, the National Wetland Plant List, and validation of HGM guidebook for high-gradient streams in western West Virginia and Eastern Kentucky.

The five-year enhanced plan program assumes the program funding starting at \$216 million in 2012 and rising gradually to \$237 million in FY15. Since the USACE Regulatory program is primarily funded for labor, performance would be expected to be sustained as funding rises



slightly below the normal inflation rate (approximately \$6 million per year). Table 3 provides estimates of static performance as funding equivalent to the inflation level.

### Initiatives for Enhanced Plan

- ORM 2 Database Enhancements
- Increase Public Access to Regulatory Data
- Cumulative Effects Analysis Model Deployment
- Support of Rule Making Initiatives

**Table 3: Regulatory Enhanced Funding and Performance**

<i>Fiscal Year</i>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
<b>Appropriation (\$ Millions)</b>	\$ 213	\$ 219	\$ 225	\$ 232	\$ 240
Individual Permit Compliance	10%	10%	10%	10%	10%
General Permit Compliance	10%	10%	10%	10%	10%
Mitigation Compliance	10%	10%	10%	10%	10%
Mitigation Bank Compliance	10%	10%	10%	10%	10%
Non-compliance Resolution	15%	15%	15%	15%	15%
Enforcement Resolution	10%	10%	10%	10%	10%
General Permit processing	75%	75%	75%	75%	75%
Individual Permit Processing	50%	50%	50%	50%	50%

### Potential Work with “Wedge Money”

---

The Regulatory Business Program is not included in the assumptions for potential wedge funding in this Five Year Development Plan.

# Recreation

*There's a Corps Lake Near You!*

# Recreation



## Key Statistics

- ❖ Largest Federal provider of outdoor recreation services. Over 4,200 recreation areas are located on USACE-managed lands at more than 400 lakes (352 budgeted projects) in 42 states.
  - ❖ Leader in developing partnerships; about 1,800 (43%) of recreation areas are operated and maintained by other entities, such as states and local governments, under a lease or license agreement.
- 
- ❖ Water-oriented recreation served 370 million visits at USACE sites and facilities in 2009
  - ❖ 90% of USACE lakes are near metropolitan areas (within 50 miles of a MSA offering recreation opportunities).

## Accomplishments

---

- 370 million visits per year in 2009 resulted in \$13 billion on total trip expenses and \$5 billion on durable goods including \$8 billion spent by visitors on trips in communities around USACE lakes. This contributes around \$22.4 billion to the national economy with the 'multiplier effect' and supports around 350,000 jobs.
- Recreation opportunities combat one of the nations' most significant health problems: lack of physical activity.
- Recreational programs and activities also help strengthen family ties and friendships; educate the public; provide opportunities for children to develop personal skills, social values, and self-esteem; and improve water safety.

## Future Challenges

---

- All lakes with recreation facilities are struggling to maintain current levels of customer service and park quality in the face of flat budgets.
  - Visitor safety is the highest priority. USACE will continue to commit the necessary resources to programs that provide patrols, water safety education, etc. However, expanding or improving safety programs to accommodate more visitors and add safety is challenging with current funding levels.
  - USACE recreation facilities are 45 years old on average with more than 30% older than 50 years. These facilities need substantial renovations to meet health and safety requirements that would be more costly than annual maintenance.

- Cost increases in contract maintenance, utilities, and operations costs often make service level reductions unavoidable.
- Parks shorten operating seasons, close some day use and camping areas, and reduce visitor services.
- High performing parks need improvements and maintenance. They also need a better funding prioritization process to plan for long-term increase in recreation growth.
- Working with stakeholders and the public to improve business practices and responsiveness to assure quality outdoor recreation is available for future generations

## Program History and Performance

---

The objectives and performance measures for the recreation business program are aligned with Civil Works Goal 3. Performance measures are directed toward three dimensions of the Recreation Program: Customer Service, Asset Management, and Program Efficiency.

**Strategic Objective 3.1.7:** Provide justified outdoor recreation opportunities in an effective and efficient manner at all USACE-operated water resources projects.

- ❖ **Total NED Benefit Program Efficiency Performance Measure:** contribution of USACE managed parks to National Economic Development (NED) benefits
- ❖ **Benefits/Cost Efficiency Performance Measure:** this is the ratio of NED benefits to actual expenditures or program budget
- ❖ **Cost Recovery Efficiency Performance Measure:** percentage of O&M spending paid through user fees; it is the amount of recreation receipts divided by the recreation program budget.

**Strategic Objective 3.1.8:** Provide continued outdoor recreation opportunities to meet the needs of present and future generations.

- ❖ **Park Capacity Asset Management Performance Measure:** this is a measure of the capacity of facilities in millions of site days/nights to provide recreation opportunities

**Strategic Objective 3.1.9:** Provide a safe and healthful outdoor recreation environment for USACE customers.

- ❖ **Health and Safety Services Customer Performance Measure:** the percent of visitors to USACE-managed recreation areas served at acceptable service levels. Activities that impact this measure are facility cleaning, mowing, visitor assistance, ranger patrols, park hosts, reservation services, and repairs.
- ❖ **Facility Condition Asset Management Performance Measure:** this is an average USACE managed recreation area facility condition score, based on a seven point scale 1 = poor to 7 = excellent. Acceptable facility condition standard = 3.5 or better
- ❖ **Facility Service Asset Management Performance Measure:** this is the percent of visitors served at acceptable facility condition standard

The following table presents a summary of the program's funding and performance. Performance information provided in the table is incomplete because the systematic program performance monitoring was initiated until 2004 with the development of Rec-BEST (Budget Evaluation SysTem) to support the budget development process.

**Table 1: Recreation Historic Funding and Performance**

<b>Fiscal Year</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>
<b>Appropriation (\$ Millions)</b>	\$261	\$274	\$262	\$270	\$268	\$267	\$267	\$271	\$283
<b>Visitor Health and Safety Services</b>	NA	NA	NA	51%	50%	49%	48%	47%	47%
<b>Park Capacity (millions of days)</b>	NA	NA	NA	74	74	74	74	74	74
<b>Facility Condition</b> (Based on seven point scale: 1=poor to 7=excellent)	NA	NA	3.7	3.7	3.7	3.7	3.6	3.6	3.7
<b>Facility Service</b> (% of visitors served at 'acceptable' parks)	NA	NA	NA	48%	48%	48%	47%	44%	51%
<b>National Economics Development (NED) Benefits (\$ Millions)</b>	NA	NA	1,223	1,242	1,271	1,353	1,452	1,500	1,610
<b>Program Efficiency (Benefit/Cost Ratio)</b>	NA	NA	4.22	4.25	4.46	4.49	4.70	4.30	4.47
<b>Cost Recovery</b> (% of total Recreation Receipts to Budget)	13%	14%	16%	17%	17%	16%	15%	16%	16%

---

## Project Spotlight: Partnering at Lake Ouachita, Arkansas

**District:** Vicksburg

**Location:** On the Ouachita River near Royal, Arkansas and at Blakely Dam

**Project Type:** Memorandum of Understanding (MOU) Partnership with the Lake Ouachita Citizen Focus Committee, Denby Bay Coalition, Arkansas Game and Fish Commission and Montgomery County, Arkansas



USACE's Challenge Partnership Agreement has leveraged funding through partnerships to accomplish needed improvements to natural resources management sites and facilities. Lake Ouachita is one example. Lake Ouachita has crystal-clear waters making the lake a popular site for scuba diving along with numerous camping, fishing, horseback riding, boating, and swimming opportunities. Many of these activities are supported through partnerships including local governments, community groups, volunteers, and other non-federal entities.

Through the efforts of a local partner group, the Denby Bay Coalition, they leveraged USACE's Handshake Partnership Grant into more than \$800,000 in partner contributions to build a trail. The Denby Bay Coalition has completed 14 miles of the Vista Hiking and Biking Trail. The third trail phase is 95% complete adding 6 more miles. The fourth phase is being investigated and volunteer "Pathfinders" are marking trail routes. This phase will be about 8 miles long connecting into the Crystal Springs Recreation Area. Denby Bay Coalition Members and individual volunteers have put in over 2000 volunteer hours assisting on Vista Trail construction, sign placement, bench placement, and initial trail maintenance.

In conjunction the Vista Trail, local grass root support engaged the Denby Bay Coalition to build a trail designed for the physically challenged. This quickly morphed into a Watchable Wildlife trail designed using Americans with Disabilities Act (ADA) principles. The ADA/Watchable Wildlife Trail is underway and will total 1.5 miles, including an elevated walkway exhibiting a wetlands environment.

Arkansas Game and Fish Commission along with project staff developed the ADA/Watchable Wildlife Elevated Trail (650' long X 6' wide) design plan, with Denby Bay Coalition volunteers currently installing the base support post. Montgomery County received a \$33,600 grant from the Arkansas Highway Department for the trail. The Arkansas Game and Fish Commission officially authorized and issued a \$150,000 grant for installing the elevated portion, and interpretive exhibits for the entire ADA/Watchable Wildlife trail. Through these partnerships, new alliances have been forged with local and state organizations for the betterment of Lake Ouachita, Montgomery County and the customers we serve.



## Base Funding and Performance

The recreation program focuses on providing acceptable service levels to visitors at USACE operated parks; however, the funding level will lead to declining service levels. Customer satisfaction is projected to steadily decline from decreasing Visitor Health and Safety Services, Site and Facility Condition, as a result of projected budget shortfalls. As part of customer satisfaction, the program will prevent essential recreation infrastructure loss for disabled visitors and mandated access. However, water safety initiatives will remain unfunded.

In regards to Asset Management, USACE will maintain public outdoor recreation opportunities nationwide with total recreation unit days available near 60 million annually as measured by Park Capacity. This is a reduced availability due to resource constraints. Strategy includes a combination of reduced service levels and reduced recreation opportunities implemented through partial and/or complete closures. The Facility Condition will slightly decline; funding is targeted at critical maintenance activities to keep key recreation infrastructure functioning.

Regarding Program Efficiency, service levels at individual recreation sites will be maintained and/or adjusted to reflect the level of visitation, relative to the cost of such maintenance, at those sites. Program efficiency, as measured by a Benefit/Cost Ratio, will decline under the Base Plan program.

**Table 2: Recreation Base Funding by Account and Performance**

<i>Fiscal Year</i>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
<b>Operation and Maintenance (O&amp;M)</b>	<b>\$ 264</b>	<b>\$ 256</b>	<b>\$ 244</b>	<b>\$ 250</b>	<b>\$ 251</b>
<b>MRT O&amp;M</b>	<b>\$ 16</b>	<b>\$ 12</b>	<b>\$ 15</b>	<b>\$ 15</b>	<b>\$ 15</b>
<b>Appropriation (\$ Millions)</b>	<b>\$ 280</b>	<b>\$ 268</b>	<b>\$ 259</b>	<b>\$ 265</b>	<b>\$ 266</b>
<b>Visitor Health and Safety Services</b>	47%	47%	47%	47%	47%
<b>Park Capacity</b> (millions of days)	74	74	74	74	74
<b>Facility Condition</b> (Based on seven point scale: 1=poor to 7=excellent)	3.7	3.7	3.7	3.6	3.6
<b>Facility Service</b> (% of visitors served at 'acceptable' parks)	51%	50%	50%	49%	48%
<b>National Economics Development (NED) Benefits</b> (\$ Millions)	1,483	1,419	1,372	1,404	1,409
<b>Program Efficiency (Benefit/Cost Ratio)</b>	4.41	4.34	4.27	4.20	4.14
<b>Cost Recovery</b> (% of total Recreation Receipts to Budget)	16%	16%	16%	16%	16%
Note: Includes CAP and Remaining Items					

## **Base Plan Initiatives**

The following initiatives are directed to improve program efficiency, sustainability and customer service:

- The Recreation Program Performance Improvement Initiative (RPPII) is directed toward
  - a) implementing new guidance toward park operations (including potential park closures),
  - b) developing guidance for modernization projects,
  - c) developing a suite of detailed management performance measures to improve program execution, and
  - d) sharing best practices using the Natural Resource Management Gateway to improve operational efficiencies.
  
- Civil Works Asset Management initiatives for recreation are directed toward optimizing infrastructure investment to support program objectives under the following activities
  - a) annually monitor the condition and utilization of recreation facilities to inform budget decisions, and
  - b) use critical maintenance indicator in Rec-BEST to inform budget decisions.
  
- A 'Customer Service Performance Measure' initiative will be established to
  - a) benchmark USACE service levels with other agencies and program partners,
  - b) develop minimum service levels (required for public health and safety) below which parks will be closed, and
  - c) review and, if necessary, adjust acceptable levels of service based on the results of items a and b above.



---

## Project Spotlight: Impacts to Operations and Partnerships

**District:** Vicksburg

**Locations:** Lakes Ouachita, Greeson, and DeGray, Arkansas in the region about 50 miles southwest of Little Rock.

Lake Ouachita, Greeson, and DeGray are all located within about an 80-mile radius from each other. Lake Ouachita is described in the above project spotlight. Lake Greeson is on the Little Missouri River and has hunting, fishing, camping, swimming and boating opportunities. The lake is a wintering site for bald eagles. A nature trail

allows the visitor to reach a cinnabar mine site that has red colorations from mercury ore. There is also a 31-mile-long cycle trail and the Chimney Rock geological formation. DeGray Lake is on the Caddo River in the foothills of the Ouachita Mountains. It is known for its camping facilities and geological formations; however, visitors also enjoy boating, fishing, swimming and scuba diving. A group camp area, which includes a dining hall and eight sleep shelters, is also available. The project offers a visitor center and a State park with a swimming pool, marina, lodge, and golf course.



–Lake DeGray

Like many USACE lakes, these lakes are facing the challenges of how to allocate limited program resources. Each project is evaluating options to serve as many customers as possible by focusing resources on the parks and campgrounds that receive the highest visitation. Options include reducing the service levels, limiting summer ranger hires, shorten operating seasons, partial area closures, and as a last resort permanent recreation area closures. The Vicksburg District and representatives of Federal, state, and local interests decided to modify services through a stakeholders' agreement on February 11, 2008. This would reduce costs, and open all Class A and B campgrounds at all three lakes starting on March 1, 2008. The modified services include less frequent trash pickup, janitorial services and grass mowing. Class C and D campgrounds will remain open with no service. Modifications would continue if the summer season can be sustained at these levels.

This operation plan also provides an opportunity for visitors to volunteer at these campgrounds to supplement the modified services. More volunteering and partnership will help keep costs lower



while providing more services. Leasing campgrounds is also being considered to sustain future campground availability. Despite these funding constraints, the Vicksburg District is committed to providing the best recreation opportunity to the visiting public at all USACE managed areas and will continue to do so in the most efficient ways with the resources available.

–Lake Greeson

## Enhanced Funding and Performance

The five-year performance projections reported under this scenario are based on estimates provided by field managers in Rec-BEST during the past four years. Visitor Health and Safety Services are expected to remain at the same level resulting from the flat budget after considering inflation. The downward trend in Facility Condition projected under the Base Plan program will be reversed and facility condition will be slowed down as a result of investments in high performing parks. Visitors served at facilities rated at “acceptable” or better will be virtually the same under Facility Service. Service levels at individual recreation sites will be maintained and/or adjusted to reflect the level of visitation, relative to the cost of such maintenance to improve program efficiency. Program efficiency, as measured by Benefit to Cost Ratio, will also remain flat or decrease slightly due to the deteriorations of park facilities. A combination of reduced service levels and reduced recreation opportunities implemented through partial and/or complete park closures will continue.

**Table 3: Recreation Enhanced Funding by Account**

<i>Fiscal Year</i>	<i>2011</i>	<i>2012</i>	<i>2013</i>	<i>2014</i>	<i>2015</i>
<b>Investigations</b>	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Construction</b>	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Mississippi River and Tributaries (MRT) Project</b>	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Operation and Maintenance (O&amp;M)</b>	\$ 274	\$ 275	\$ 281	\$ 285	\$ 276
<b>MRT O&amp;M</b>	\$ 12	\$ 16	\$ 16	\$ 17	\$ 16
<b>Total</b>	\$ 286	\$ 291	\$ 297	\$ 302	\$ 290
Note: Includes CAP and Remaining Items					

## Initiatives for Enhanced Plan

- Improve Visitor Health and Safety Services, such as:
  - Hiring additional temporary park rangers during peak season to conduct water safety programs and increase patrols in beach areas and USACE operated parks.
  - Modernize electrical service at high performing campgrounds
  - Improve operational efficiency
  - Improve access to facilities for disabled visitors
- Surveys to maintain monitoring capability of visitation levels at USACE projects

**Table 4: Recreation Enhanced Funding and Performance**

<b>Fiscal Year</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
<b>Appropriation (\$ Millions)</b>	\$ 286	\$ 291	\$ 297	\$ 302	\$ 290
<b>Visitor Health and Safety Services</b>	46%	48%	48%	48%	47%
<b>Park Capacity (millions of days)</b>	74	74	74	74	74
<b>Facility Condition</b> (Based on seven point scale: 1=poor to 7=excellent)	3.7	3.7	3.7	3.7	3.6
<b>Facility Service</b> (% of visitors served at 'acceptable' parks)	51%	50%	50%	49%	48%
<b>National Economic Development (NED) Benefits (\$ Millions)</b>	1,439	1,556	1,588	1,615	1,551
<b>Program Efficiency (Benefit/Cost Ratio)</b>	4.46	4.38	4.31	4.24	4.18
<b>Cost Recovery</b> (% of total Recreation Receipts to Budget)	16%	16%	16%	16%	16%
Note: Includes CAP and Remaining Items					

### **Potential Work with “Wedge Money”**

---

The Recreation Program is not included in the assumptions for potential wedge funding in this Five Year Development Plan.

# Emergency Management



# Emergency Management



## Key Statistics

- ❖ Over 700 personnel supported 15 flood events during FY10 with more than 21,000 person days.
- ❖ Trained 1,000 personnel during FY10 for emergency management.
- ❖ Supported 13 FEMA disaster responses in FY10

## Accomplishments

- Ensure USACE activities are ready, trained and equipped to respond to a broad range of disasters and emergencies.
- Coordinate, plan, and conduct response exercises with key local, state and federal stakeholders/ partners under USACEs' statutory authorities
- Conducted flood fighting/emergency operations (PL 84-99) in California, Arizona, Minnesota, North Dakota, New York, Rhode Island, Connecticut, Massachusetts, New Hampshire, Kentucky, Tennessee, Indiana, Iowa, Illinois, Montana, Wyoming, Missouri, South Dakota, Nebraska, and Wisconsin during FY10.
- Execution of the Supplemental Flood Control and Coastal Emergency (FCCE) Appropriations funded Louisiana and Mississippi eligible project repairs; Missouri River and Texas flood infrastructure repairs, and provided Drought Assistance.
- The Critical Infrastructure Protection and Resilience (CIPR) program completed the development of a conditional risk assessment methodology (Common Risk Model for Dams) for risk and vulnerability assessment of Corps critical projects to manmade threats. In addition, implemented a Consequence-Based Top Screening (CTS) methodology for identification and prioritization of high-consequence (critical) across the Corps portfolio using an all-hazards approach. The CIPR program implemented regional resilience efforts supporting the development of an integrated regional strategy to improve disaster preparedness and resilience in collaboration with Green River Valley public/private stakeholders (2010 Dams Sector Exercise Series – Green River Valley).



## Future Challenges

---

- Assessing, managing, and communicating flood risk to the impacted population in understandable terms, and generally improving the nations' resilience to flood events. Additionally, a major challenge remains in how to achieve a sensible balance between our responsibility to inform without increasing terrorist target attractiveness, and our responsibility to protect the public.
- Ongoing levee inventory, inspections, maintenance, and communication are essential. Trees and other woody vegetation can create structural and seepage instabilities, prevent adequate inspection, cause levee failure, and create obstacles to maintenance and flood fighting/flood control activities. Public dialogue is essential to communicate risks and consequences.
- Assessment and quantification of consequences associated with dam failures, levee breaches, or navigation lock disruptions needs consistency measures, particularly regarding the estimation of population at risk, loss of life, and quantification of direct and indirect economic impacts.
- Breaking traditional stakeholder and government agencies molds to create better collaboration and integrated processes for emergency planning.
- Maintaining a consistent preparedness level, training and credentialing requirements, and increased rehabilitation costs due to an aging flood control infrastructure.
- Implement an integrated risk assessment and management framework for critical infrastructure protection and resilience that is fully supported by effective inter- and intra-agency collaboration. This includes full integration of outcomes with USACE risk-informed life-cycle portfolio management (asset management) strategies.
- Achieve corporate understanding that critical infrastructure protection and resilience includes facility-specific actions and also addresses portfolio-wide resilience-enhancing programs.
- USACE is now implementing its Readiness XXI concept which further integrates and synchronizes civil and military contingency preparedness and response operations for much improved synergy, effectiveness, and superior performance. We are doing this through:
  - rigorous education, training, and credentialing programs for individuals, units, and expeditionary teams
  - optimizing our organizational structure for anticipatory response and recovery
  - improved Life Cycle Risk Management doctrine that clearly codifies how we think about response, recovery, mitigation, and preparation / training for natural and man-made emergencies
  - a state-of-the art Critical Infrastructure Protection and Resilience program of R&D, an all-hazards risk assessment protocol, physical inventories and assessments, and public-private recommended solutions
  - regional and National scenario-based exercises with our local, regional, National, and International partners that galvanize unified effort for domestic incidents and military contingencies in support of the Army, Department of Defense (DoD), Department of Homeland Security (DHS), Department of State (DOS), North Atlantic Treaty Organization (NATO), and the Nation.

- To maintain the current high standards of performance, our Major Subordinate Commands continue to develop, update, and implement standard operating procedures (SOPs); properly staff and train their assigned expeditionary teams; and meet established critical readiness metrics.

## History of Funding and Performance

---

The emergency management program focuses its support on Civil Works Strategic Goal 4. The underlying purpose of this goal is to manage the risks associated with all hazard types and to increase the responsiveness to disasters under this program in support of Federal, state, and local emergency management efforts. Disaster preparedness and response capabilities are not limited to water-related disasters; it also encompasses a broad range of natural disasters and national emergencies which draw on the engineering skills and management capabilities of the organization. Readiness to respond to disasters and emergency incidents is critical to national security.

### Performance Measures

The measures below include CIPR. CIPR was a recently added program to Emergency Management, and evolved from the initial Critical Infrastructure Security Program (CISP) established in 2004. CISP primary focused on the implementation of the Baseline Security Posture at USACE projects. The Baseline Security Posture (BSP), as defined by USACE's Office of Homeland Security, established the initial steps for physical security upgrades for those critical projects initially identified through the Risk Assessment Methodology for Dams (RAM-D) assessment evaluations, and was completed in April 2008.

- ❖ **Planning Response Team Status:** USACE has established designated Planning & Response Teams (PRT) that is organized to provide rapid emergency response for a specific mission area. Percent of time that Planning Response Teams for a given mission area are in "Green" readiness state (trained, fully staffed, ready to deploy).
- ❖ **Planning Response Team Performance:** Percent of time that the performance of the deployed PRT is rated at or above Highly Successful in support of FEMA under the National Response Plan
- ❖ **Flood Response Team Status:** Percent of time that PL 84-99(Flood) Response Teams are in the "Green" readiness state (trained, fully staffed, ready to deploy) at the beginning of flood/hurricane season.
- ❖ **Deployable Tactical Operation Status:** Percent of time that the National Deployable Tactical Operations System equipment and teams are in "Green" readiness status (trained, fully staffed, ready to deploy)
- ❖ **Inspections Performed:** USACE performs repairs of flood control projects damaged by flood or storm under authority of P.L. 84-99. Percent of annual, scheduled inspections performed for all non-Federal Flood Control Works in the Rehabilitation and Inspection Program (RIP), as required by ER 500-1-1. This measure is determined by the percentage of projects damaged during a fiscal year that are repaired prior to the next flood season.

- ❖ **Inspected Project Status:** Under USACE RIP, inspected projects are given condition ratings that characterize the project maintenance condition. Cumulative percent of Federal and non-Federal projects in the RIP with satisfactory ratings (minimally acceptable or higher rating).
- ❖ **Infrastructure Repairs:** Percent of time solutions are developed and implemented (either repaired to pre-flood conditions or possible non-structural alternative) prior to the next flood season. The five year plan only covers preparedness activities therefore accomplishment of this function is completely dependent on supplemental appropriations.
- ❖ **Effective execution of the National Training Program (USACE-wide) readiness life cycle.** Funding only covers minimum baseline training, new requirements would be impacted.
- ❖ **CIPR Consequence-based Portfolio Screening:** Implement portfolio-wide consequence-based prioritization to identify critical facilities using the Dams Sector Consequence-Based Topp Screen (CTS) methodology.
- ❖ **Regional All-Hazards Exercises:** Implement multi-jurisdictional efforts aimed at enhancing resilience and preparedness within a region.

The Emergency Management program is funded mostly from the Flood Control and Coastal Emergency (FCCE) account. Unlike other Civil Works accounts for which funding requirements are programmed based on scheduled work, the FCCE account can only project funding requirements for preparedness activities. The frequency and magnitude of emergency events determines the resources needed for actual emergency response in any given fiscal year, as does the obligation rate of FCCE funds. There has not been a regular appropriation for the Flood Control and Coastal Emergency Account since the 2003 appropriation of \$14.9 million. Performance measures for this program were established in FY04. Table 1 below shows program funding and performance measures for FY 05 through FY 10.



**Table 1: Funding and Performance History**

<i>Fiscal Year</i>	<i>2005</i>	<i>2006</i>	<i>2007</i>	<i>2008</i>	<i>2009</i>	<i>2010 Target</i>
Flood Control and Coastal Emergency (FCCE) Regular Appropriation (\$ Millions)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Flood Control and Coastal Emergency Supplemental Appropriation (\$ Millions)	\$348	\$5,408	\$1,561	\$3,608	\$754	\$20
Operation and Maintenance Regular Appropriation (\$ Millions)	\$5	\$5	\$5	\$4.70	\$5.458	\$6.652
Operation and Maintenance Supplemental Appropriation (\$ Millions)	\$ -	\$ -	\$ -	-	-	-
<b>Total Appropriations (\$ Millions)</b>	<b>\$353</b>	<b>\$5,413</b>	<b>\$1,566</b>	<b>\$3,613</b>	<b>\$759</b>	<b>\$26</b>
Planning Response Team Status (% of time in "Green" readiness state for a given mission)	82%	92%	72%	92%	83%	87%
Planning Response Team Performance (% of time team is rated highly successful)	86%	95%	100%	90%	95%	100%
Flood Response Team Status (% of time in "Green" readiness state for a given mission)	92%	92%	75%	90%	75%	82%
Deployable Tactical Operations Status (% of time in "Green" readiness state)	NA	92%	93%	92%	90%	90%
Inspections Performed (% of scheduled inspections performed)	96%	93%	97%	94%	67%	77%
Inspected Project Status (% of inspections with satisfactory rating)	94%	95%	90%	92%	79%	67%
Infrastructure Repair (% of time solutions are implemented prior to the next flood season)	92%	65%	29%	90%	14%	61%
Effective execution of the National Training Program (USACE-wide) readiness life cycle	94%	74%	83%	90%	90%	90%

---

## Project Spotlight: Hurricane Storm Damage Risk Reduction System

**Location:** Greater New Orleans  
Metropolitan Area  
**District:** New Orleans District



Under USACE Public Law (PL) 84-99 authority, a task force was established in the aftermath of Hurricane Katrina, September 2005. This was to repair the Greater New Orleans Federal hurricane and flood protection system from Hurricane Katrina damages to pre-storm conditions by 1 June 2006. The repair and restoration of 220 miles of floodwalls and levees has been completed to date. The repaired system included: 2.3 miles of new floodwalls, 22.7 miles of new levees, 195.5 miles of scour repair, 3 interim gated closure structures, and 4 closure structure repairs. Originally, USACE had identified 169 miles of levees and floodwalls to be repaired and restored. By the time the repairs and new construction was finished, 220 miles of levees and floodwalls had been repaired or restored. In addition, floodwall deficiencies were corrected and un-constructed portions of authorized projects were accelerated. USACE is currently undertaking work to provide the authorized level of protection for existing project facilities, and then to improve the system to provide 100-year storm protection.

---

### Base Plan and Performance

The funding level is \$43 million in FY11 and includes Base Plan funding FCCE preparedness (\$30 million), NEPP programs (\$7 million), and the CIPR (\$6 million). Consequently, this amount represents baseline readiness, and \$0 for response and recovery costs activities such as emergency operations during flood and hurricane seasons; repairs to flood damage reduction and hurricane shore protection projects damaged by floods or storms; drought assistance; and advance measures activities. Funding for response and recovery activities relies on supplemental appropriations. USACE has broad authority to transfer funds from other accounts to address emergency response situations, but response and recovery funding needs that exceed this reprogramming authority must rely on supplemental appropriations, which may also be used to repay funds transferred from other activities. Constrained funding is projected to result in a slight downward trend in program performance for actions related to preparedness activities. Other impacted preparedness activities include: additional training and exercises for the planning and response teams and for Public Law (PL) 84-99 training.

**Table 2: Emergency Management Base Plan Funding by Account**

<i>Fiscal Year</i>	<i>2011</i>	<i>2012</i>	<i>2013</i>	<i>2014</i>	<i>2015</i>
Flood Control and Coastal Emergency (FCCE) Regular Appropriation (\$ Millions)	\$ 30	\$ 29	\$ 28	\$ 28	\$ 29
Operation and Maintenance Regular Appropriation (\$ Millions)	\$ 13	\$ 12	\$ 12	\$ 13	\$ 13
<b>Total (\$ Thousands)</b>	<b>\$ 43</b>	<b>\$ 41</b>	<b>\$ 40</b>	<b>\$ 41</b>	<b>\$ 42</b>
Note: Supplemental Appropriation is not included as it is funded during certain events.					

### **Base Plan Highlights**

- Coordination and planning with key local, State and Federal stakeholders/partners under USACE statutory authorities and in support of the Federal Emergency Management Agency (FEMA), Department of Homeland Security.
- Develop/update disaster response plans.
- Purchase and stockpiling of critical supplies and equipment and support facilities for Emergency Operations Centers. Readiness funding would pay personnel costs for Emergency Management personnel assigned to centers, and manage Crisis Management Teams, Crisis Action Teams, Planning and Response Teams, Special Cadres, and Levee Inspection Teams.
- Maintain Deployable Tactical Operating System (DTOS) units.
- Continuity of Operations Plan (COOP), Continuity of Government (COG) and critical Catastrophic Response Planning Initiatives.
- Critical Infrastructure Protection and Resilience (CIPR) Program:
  - Continue portfolio screening implementation using a Consequence-Based Top Screening (CTS) methodology to identify and prioritize high-consequence (critical) facilities.
  - Continue development of Consequence Assessment Studies at USACE Civil Works projects in support of screening efforts.
  - Conduct FY2011 pilot of Common Risk Model for Dams (CRM-D) methodology at a representative number of USACE critical facilities identified and prioritized as a result of the CTS screening process.
  - Complete DSES-10 regional resilience efforts (DSES-10 Regional Resilience Strategy).

**Table 3: Emergency Management Base Funding and Performance Measures**

<i>Fiscal Year</i>	<i>2011</i>	<i>2012</i>	<i>2013</i>	<i>2014</i>	<i>2015</i>
<b>Total Appropriations (\$ Millions)</b>	<b>\$ 43</b>	<b>\$ 41</b>	<b>\$ 40</b>	<b>\$ 41</b>	<b>\$ 42</b>
Planning Response Team Status (% of time in “Green” readiness state for a given mission)	63%	41%	30%	30%	30%
Planning Response Team Performance (% of time team is rated highly successful)	63%	41%	30%	30%	30%
Flood Response Team Status (% of time in “Green” readiness state for a given mission)	77%	65%	55%	45%	35%
Deployable Tactical Operations Status (% of time in “Green” readiness state)	80%	41%	30%	30%	30%
Inspections Performed (% of scheduled inspections performed)	40%	0%	35%	35%	35%
Inspected Project Status (% of inspections with satisfactory rating)	60%	0%	35%	35%	35%
Infrastructure Repair (% of time solutions are implemented prior to the next flood season)	35%	35%	35%	35%	35%
Effective execution of the National Training Program (USACE-wide) readiness life cycle	35%	30%	30%	30%	30%

*Note: The five year plan only covers preparedness activities therefore the above measures reflect accomplishments from supplemental appropriations. Regular appropriations only covers minimum baseline training; therefore, any, new requirements would be impacted. Performance Measures only apply to FCCE and NEPP. Other performance measures are being developed for the funds allocated to CISP.*

## **Enhanced Funding and Performance**

---

The enhanced budget includes funding the remaining FCCE preparedness program and emergency response, NEPP and CIPR program. Consequently, this amount represents an additional amount for preparedness and response.

The enhanced budget provides funding for training and exercise to meet minimal levels of training for all persons who deploy to respond to floods and in support of FEMA to hurricanes and other natural disasters. It provides funds for emergency response and inspection of non-Federal flood control works.

**Table 4: Emergency Management Enhanced Funding by Accounts**

<i>Fiscal Year</i>	<i>2011</i>	<i>2012</i>	<i>2013</i>	<i>2014</i>	<i>2015</i>
Flood Control and Coastal Emergency (FCCE) Regular Appropriation (\$ Millions)	\$ 50	\$ 51	\$ 53	\$ 55	\$ 56
Operation and Maintenance Regular Appropriation (\$ Millions)	\$ 12	\$ 13	\$ 13	\$ 13	\$ 14
<b>Total (\$ Thousands)</b>	<b>\$ 62</b>	<b>\$ 64</b>	<b>\$ 66</b>	<b>\$ 68</b>	<b>\$ 70</b>
Note: Supplemental Appropriation is not included as it is funded during certain events.					

### **Enhanced Plan Highlights**

- Conduct training, and develop and maintain credential emergency management workforce and emergency management accreditation program.
- Conduct response exercises with key local, State and Federal stakeholders/partners under USACE statutory authorities and in support of the Federal Emergency Management Agency (FEMA), Department of Homeland Security.
- Maintain training for Deployable Tactical Operating System (DTOS).
- Purchase and stockpiling of critical supplies and equipment and support facilities for Emergency Operations Centers. Readiness funding would pay personnel costs for Emergency Management personnel assigned to centers, Crisis Management Teams, Crisis Action Teams, Planning and Response Teams, Special Cadres, and Levee Inspection Teams.
- Inspect non-Federal flood damage reduction facilities to determine eligibility for rehabilitation.
- Limited response includes emergency operations during flood and hurricane seasons and advance measures activities
- Continuity of Operations Plan (COOP), Continuity of Government (COG) and critical Catastrophic Response Planning Initiatives.
- Critical Infrastructure Protection and Resilience (CIPR) Program:
  - Augment the number of USACE critical facilities where FY2011 pilot of Common Risk Model for Dams (CRM-D) methodology will be conducted identified and prioritized as a result of the CTS screening process.

**Table 5: Emergency Management Enhanced Funding and Performance**

<i>Fiscal Year</i>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
<b>Total Appropriations (\$ Millions)</b>	<b>\$ 62</b>	<b>\$ 64</b>	<b>\$ 66</b>	<b>\$ 68</b>	<b>\$ 70</b>
Planning Response Team Status (% of time in “Green” readiness state for a given mission)	68%	70%	72%	74%	76%
Planning Response Team Performance (% of time team is rated highly successful)	68%	70%	72%	74%	76%
Flood Response Team Status (% of time in “Green” readiness state for a given mission)	68%	70%	72%	74%	76%
Deployable Tactical Operations Status (% of time in “Green” readiness state)	70%	72%	74%	76%	79%
Inspections Performed (% of scheduled inspections performed)	71%	73%	75%	77%	80%
Inspected Project Status (% of inspections with satisfactory rating)	70%	72%	74%	76%	79%
Infrastructure Repair (% of time solutions are implemented prior to the next flood season)	35%	35%	35%	35%	35%
Effective execution of the National Training Program (USACE-wide) readiness life cycle	54%	56%	57%	59%	61%

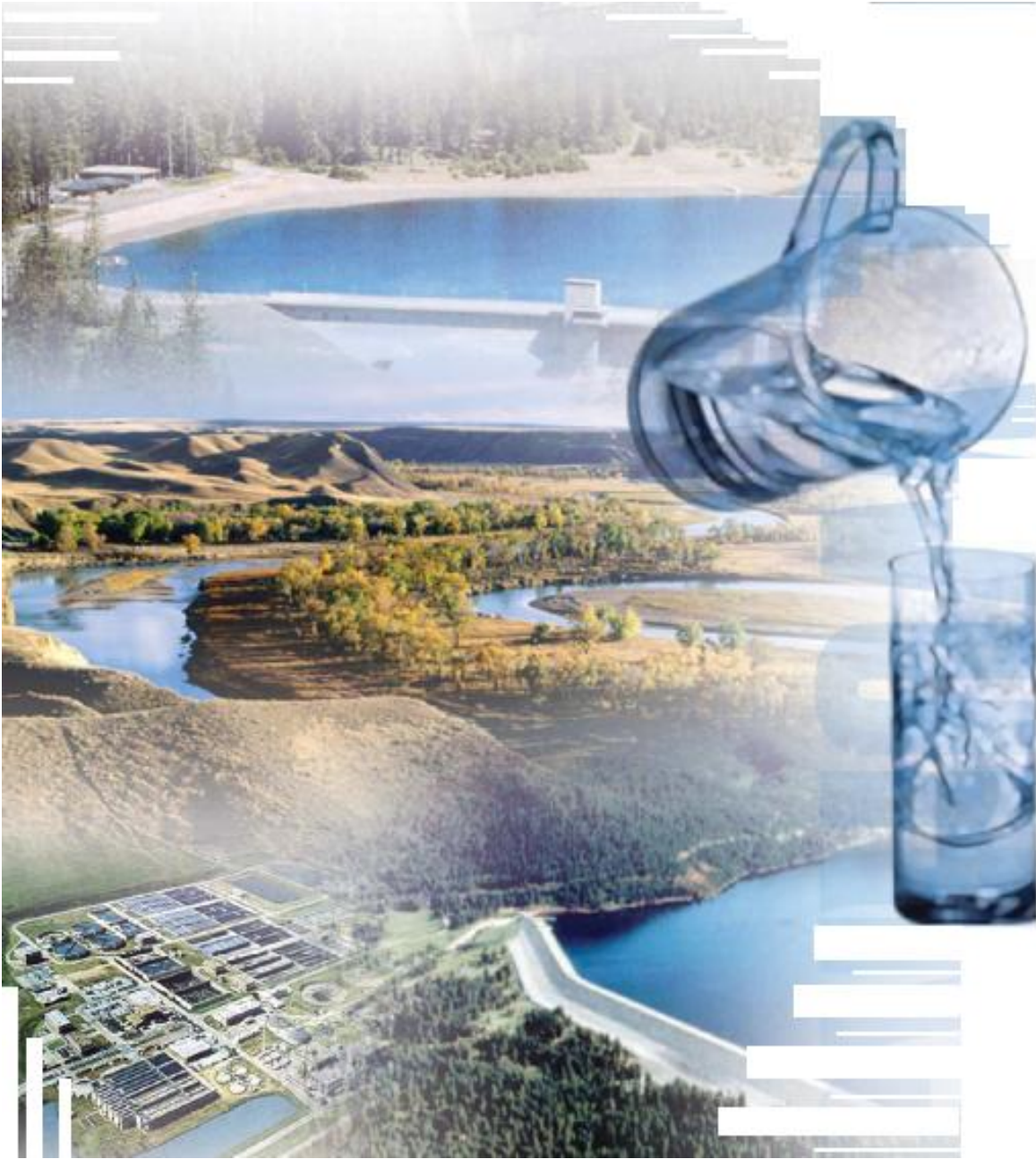
*Note: The five year plan only covers preparedness activities therefore accomplishment of this function is completely dependent on supplemental appropriations. Funding only covers minimum baseline training, new requirements would be impacted. Performance Measures only apply to FCCE and NEPP as other performance measures are being developed for the funds allocated to CISP.*

### **Potential Work with “Wedge Money”**

---

The Emergency Management Program is not included in the assumptions for potential wedge funding in this Five Year Development Plan.

# Water Supply





# Water Supply

---



*-Lost Creek in Oregon*

## Key Statistics

- ❖ 11.1 million acre-feet of storage space
- ❖ Water storage located in 133 multi-purpose reservoirs in 26 states
- ❖ 320 Water Supply Agreements
- ❖ \$1.5 billion in project costs being returned to the U.S. Treasury

## Accomplishments

---

- Provide storage space sufficient to meet about 2% of the nation's total municipal and industrial water supply needs.
- About 94% of total storage allocated to water supply is under repayment agreements.
- Return revenues to the U.S. Treasury through repayment agreements for project construction costs as well as annual operation and maintenance expense. Since becoming a business program in fiscal year 2005, the average amount collected for principal, interest and O&M has been about \$40 million dollars per year. With a budget of about \$4 million per year, the program more than pays for itself.

## Future Challenges

---

- Meeting the increasing competition for available water supplies as a result of rapid population and economic growth, including through reallocation of existing storage.
- Meeting this growing demand will require more efficient use of existing water supplies.
- Primacy over water supply development and management has been and will continue to reside with states and localities.



- Continue to play a significant role in helping non-Federal entities to secure and manage water supplies, including assisting states and other non-Federal interests in the preparation of comprehensive water resources development and drought management plans.
- Establishing and updating water supply agreements with local entities withdrawing water from USACE reservoirs.

## **History of Funding and Performance**

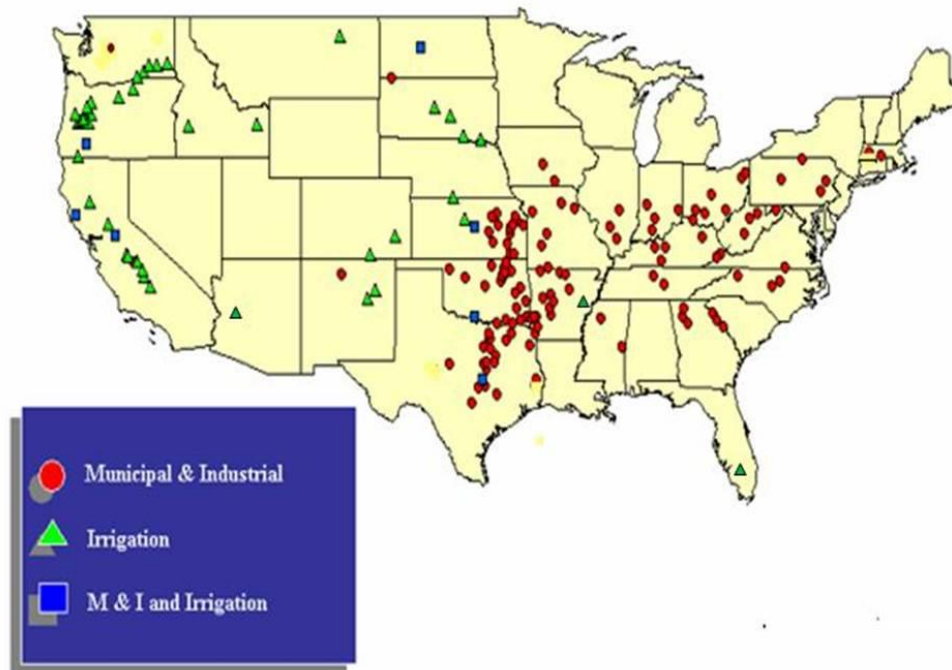
---

In partnership with non-Federal water management plans and consistent with law and policy, manage USACE reservoirs to provide water supply storage in a cost-efficient and environmentally responsible manner. Performance is measured by (1) acre-feet of storage under contract versus acre-feet available and (2) percent of costs covered by revenues returned to the U.S. Treasury.

Water supply has been reported in appropriations accounts going back to the requirements of Government Performance and Results Acts (GPRA) since the mid-90s. However, the FY05 budget was the first year that the USACE restructured the budget process to focus on the individual business program, including Water Supply, as the initial building blocks for development of the budget.

**Table 1: Water Supply Historic Funding and Performance**

<b>Fiscal Year</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>
<b>Operation and Maintenance</b> (Rounded in \$ Millions)	1.7	2.2	2.5	3.8	6.0	3.8	4.2
Billings, Collections & Project OM&R	1.0	1.5	2.1	2.3	2.7	2.4	2.7
Studies	0.7	0.7	0.3	0.6	0.5	0.4	0.4
ESA BiOps Program	0	0	0.1	0.6	2.1	0	0
Joint Costs @ Hydro Projects	0	0	0	0	0.4	0.4	0.5
National Portfolio Assessment	0	0	0	0.3	0.3	0.6	0.6
<b>Investigations</b> (\$Millions)	0.4	0.6	0	0	0	0	0
<b>Appropriations</b> (\$Millions)	2.1	2.8	2.5	3.8	6.0	3.8	4.2
<b>Acre-Feet under Contract versus Acre-Feet Available</b>							
Acre-Feet Available (Millions)	9.76	[1]	[1]	[1]	11.1	11.1	[2]
Acre-Feet Under Contract (Millions)	9.36	[1]	[1]	[1]	10.5	10.5	[2]
Percent of Available Storage under Contract	95.9	NA	NA	NA	94.6	94.6	[2]
<b>Principal Costs to be Recovered versus Costs Recovered</b>							
Costs to be Recovered (\$ Millions)	1,459.8	[1]	[1]	[1]	1,420.0	1,453.0	[2]
Costs Recovered (\$ Millions) [3]	1,096.1	[1]	[1]	[1]	901.0	808.0	[2]
Percent Recovered	75.1	[1]	[1]	[1]	63.5	55.6	[2]
<p><i>Notes:</i></p> <p>[1] Prior to water supply becoming a business line in 2005, data were collected only on a case by case periodic basis. Beginning in 2006 an action was initiated to develop a water supply module in the Operation and Maintenance Business Information Link (OMBIL). This module will permit the required data to be collected on an annual basis through an automated system. During the development of this module water supply data were not collected.</p> <p>[2] Database for 2011(which will be current as of 31 December 2010) under development.</p> <p>[3] Prior to 2010, costs recovered was a reflection of the value of the storage space under a present use water supply agreement compared to the total water supply storage space available. Due to the development of the OMBIL water supply module, the actual remaining principal is recorded through financial data and as a result a more accurate value is permissible.</p>							



**Figure 1: Water Storage for Municipal and Industrial (M&I) Water Supply**

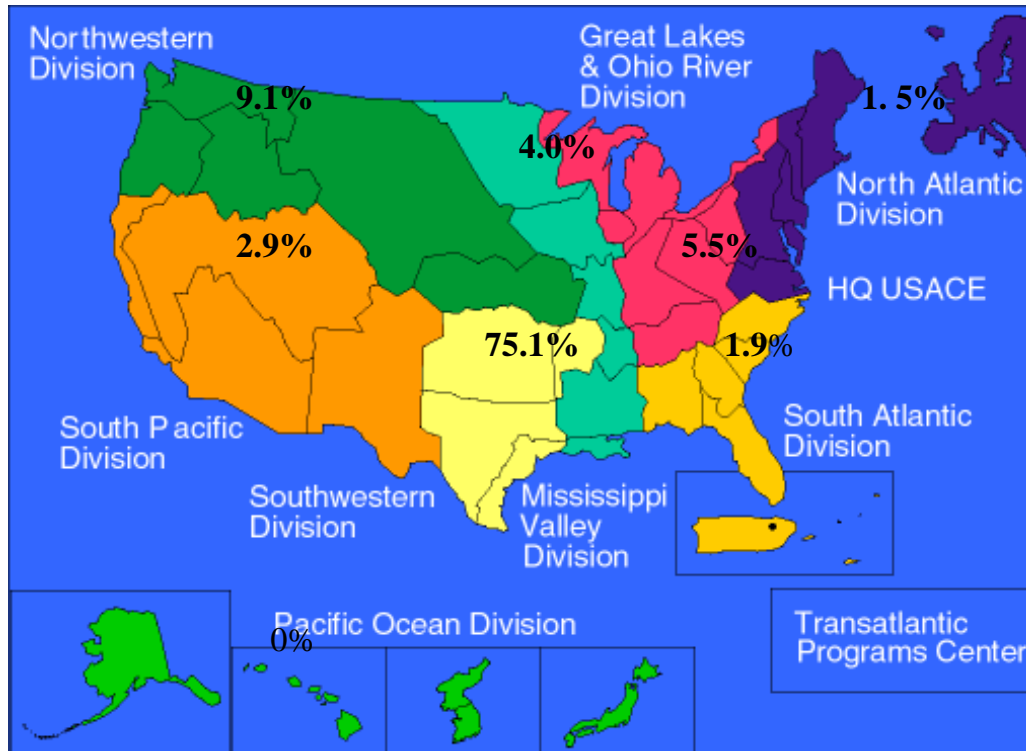
This picture displays the location of the 133 reservoir projects that contain storage space for municipal and industrial water supply and the 48 projects that contain irrigation storage. Irrigation at Corps reservoir projects in the western United States are administered by the Bureau of Reclamation.

---

### **Project Spotlight: A “Typical Project”**

Out of the USACEs’ 136 reservoir projects, which include Municipal & Industrial (M&I) Water Supply, there is not a “typical” project, but rather “examples” of projects. Such examples include projects where water supply was originally authorized and where storage has been reallocated from a previously authorized purpose to water supply. There are projects where we have one water supply agreement for the total storage space and there is one project where we have signed 34 agreements. We have signed M&I water supply agreements with states, Federal/Interstate commissions, river basin commissions, counties, cities, industries, private interests and individuals. Our agreements range in size from over 1.4 million acre-feet down to 1 acre-foot.

## Distribution by % of Authorized M&I Storage Space by MSC



6

**Figure 2: M&I Storage Space, Major Subordinate Command (MSC) Distribution by Percent**

This picture shows by percent the distribution of the storage space in Corps reservoir projects set aside for municipal and industrial water supply. As shown, the vast majority, about 75 percent is located in our southwestern division covering the states of Texas, Oklahoma and parts of Kansas, Missouri and Arkansas.

## Base Funding and Performance

---

The Base Plan program for O&M includes funding sufficient to meet minimum legal responsibilities for the operation and maintenance of the project facilities needed specifically for water supply as well as the development and renegotiation of water supply agreements and the billing and collection of payments and repayments. The FY11 program for O&M also includes the costs of two ongoing studies (the Alabama-Coosa-Tallapoosa / Apalachicola-Chattahoochee-Flint study and the Texas Water Allocation Assessment). The program also includes the joint costs allocated to water supply in the O&M budget as well as funding for the National Water Supply Portfolio Assessment. In FY 2010, the Portfolio Assessment program was increased to include an increment to fund the Sustainable Rivers project.

Water supply performance targets, percent of acre-feet under contract versus acre-feet available and percent of costs recovered versus costs to be recovered are impacted primarily by the negotiation, collections and billings portion of the O&M budget. This value is the same for the budget and enacted plans. While studies, surveys and investigations for water have the potential to increase the absolute number of acre-feet available for contracting and the potential revenues to be returned to the Treasury, this action can only take place through the normal planning process. This process consists of two steps: (1) a preliminary assessment funded through the O&M budget at Federal expense and (2) a feasibility study funded through the Investigation budget with costs shared 50/50 between the Federal Government and the local sponsor. If favorable, this investigation results in a water supply agreement between the parties with the local sponsor responsible for the assigned cost of storage and the annual OMRR&R expenses. The Federal billing and collection of these expenses are assigned to the O&M budget.

The performance targets for the two water supply performance measures are shown in Table 2 below.

**Table 2: Water Supply Base Funding by Account**  
(\$ Millions)

<i>Fiscal Year</i>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
<b>Investigations</b>	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Construction</b>	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Mississippi River and Tributaries (MRT) Project</b>	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Operation and Maintenance (O&amp;M)</b>	\$ 4	\$ 4	\$ 5	\$ 5	\$ 5
<b>MRT O&amp;M</b>	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Total (Round in \$ Millions)</b>	\$ 4	\$ 4	\$ 5	\$ 5	\$ 5

## Initiatives for Base Plan

The Portfolio Assessment for Water Supply was a new initiative included under Remaining Items in the FY08 Budget. This initiative developed a set of criteria to guide project or basin specific water reallocation studies. A portfolio of these studies was developed that showed the best studies on a national basis to justify further review. The assessment program also developed alternate funding arrangements that rely on program beneficiaries to provide the funding for any follow-up studies. The recommended plan required legislation to implement. Data collected during the survey for the National Portfolio Assessment and data developed during a combined survey on sedimentation and water management is currently being further developed and analyzed to develop procedures for the Corps to better manage our project with M&I water supply. The Portfolio Assessment initiative was expanded in 2010 to include an increment on the Sustainable Rivers project. This project supports the definition of environmental flow needs through model application and defines needed operational changes through monitoring at selected Sustainable Rivers project pilot sites.

**Table 3: Water Supply Base Funding and Performance**

<i>Fiscal Year</i>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
<b>Appropriation</b> (Rounded in \$ Millions)	\$ 4	\$ 4	\$ 5	\$ 5	\$ 5
<b>Acre-Feet under Contract versus Acre-Feet Available</b> (% of Available Storage under Contract )	94.6%	95.0%	95.5%	96.0%	96.5%
<b>Costs to be Recovered versus Costs Recovered</b> (% Recovered)	55.6%	60%	65%	70%	75%

## Enhanced Funding and Performance

While municipal and industrial water supply is primarily a state and local responsibility, and it is not a major mission of USACE, an enhanced funding plan for this business program is included as it would return additional revenues to the U.S. Treasury. Under this program well-justified O&M studies and investigations for water supply could be undertaken. In out years it is anticipated additional studies could be initiated as follow-on to the nationwide portfolio assessment. Records indicate that water supply is a well justified business program with at least \$10 returned to the U.S. Treasury for every \$1dollar expended. The Enhanced Funding and Performance Table for water supply follows:

**Table 4: Enhanced Funding and Performance  
(\$ Millions)**

<i>Fiscal Year</i>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
<b>Investigations</b>	\$	\$	\$	\$	\$
<b>Construction</b>	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Mississippi River and Tributaries (MRT) Project</b>	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Operation and Maintenance (O&amp;M)</b>	\$ 7	\$ 7	\$ 7	\$ 8	\$ 8
<b>MRT O&amp;M</b>	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Total (Round in \$ Millions)</b>	\$ 7	\$ 7	\$ 7	\$ 8	\$ 8

### **Initiatives for Enhanced Plan**

If “wedge” money for new starts was received for this business program, additional projects could be considered. While specific funding decisions would be made at that time, several examples of projects that could be considered are:

- Funding of the Middle Brazos, TX Water Supply Initiative
- Big Sandy River Watershed Re-evaluation, OH
- Willamette River Basin Review, OR
- Green River Water Supply Reallocation study, KY
- Rough River Water Supply Reallocation study, KY

For water supply the performance measures are based on storage space placed under contract and revenues collected. The water supply budget, regardless of the funding level always includes the minimum required to bill and collect revenues. While the absolute numbers of storage placed under contract and revenues to be collected may increase, the percent is what is measured. Future initiatives will impact targets much later on and the base/enhanced have the same existing projects.

### **Potential Work with “Wedge Money”**

---

The Water Supply Program is not included in the assumptions for potential wedge funding in this Five Year Development Plan.

# Executive Direction and Management





# Executive Direction and Management



## Key Statistics

- ❖ Provides for executive direction and management (ED&M) of the Civil Works Program, under the Director of Civil Works.
- ❖ ED&M is accomplished through 5 functions: command and control, policy and guidance, program development, national coordination, and quality assurance
- ❖ Authorized strength under USACE 2012 is 76 uniformed Army personnel and 997 civilian full-time equivalents (FTEs).

## Accomplishments

---

- **Command and Control,** Led development, defense, and execution of an \$11.6 billion Civil Works Program for FY10.
- **Policy and Guidance**
  - Produced documents detailing Civil Works' management activities, FY12 Program Development Engineering Circular (EC), FY10 Program Execution EC, and Engineering Manuals (EMs).
- **Program Management**
  - Developed FY11 President's Program of \$4.6 billion.
  - Justified and defended, before Congress, the FY11 President's Budget.
  - Managed execution of the FY10 Civil Works Program through monthly Project Review Board (PRB) reviews, quarterly Directorate Management Reviews (DMRs), and Command Management Reviews (CMRs).
  - Lean Six Sigma: Business transformation and process reevaluation.
- **National Coordination.**
  - Tracked and maintained database of more than 80 recurring national events including the Native American (Tribal Nation) Program; Inland Waterways Users Board; National Waterways Conference Budget/Legislative Summit.
- **Quality Assurance:** Executing Asset Management (AM) Program and the Quality Management Plan scope of Work (SOW).

## Future Challenges

---

- Evaluate and establish future performance measures that demonstrate program values to the nation through planned efficiency, outputs and outcome performances, rather than the current justification based on asserted resource needs.
- Improve Quality Assurance (QA) Assessments. Division offices perform one QA assessment per quarter and they have become more “virtual” and less “boots on the ground”, as operational funds have diminished.
- Strengthen Community of Practice (COP). The purpose is to develop a capable workforce for today and for the future. The workforce will be comprised of well motivated, functional Program Development Teams. The goal is to share workloads regionally ensuring expertise at all levels. Insufficient ED&M funding has caused a lack of division manpower and funding for travel, making it impossible to efficiently and adequately develop and staff necessary CoPs.

## History of Funding and Performance

---

The overall Strategic Plan is considered in all functions. The Program Account funds activities essential to supporting the Civil Works Program mission, including several USACE Strategic Plan Goals:

**Strategic Goal 1:** This is supported through DoD strategies and guidance for security cooperation by assisting in the development of civil/military emergency management competence, disaster preparedness, and consequence management.

**Strategic Goal 2:** This is supported through implementing the President’s Management Agenda for managing and operating assets. External contract support will assist in the execution of a national risk management framework, program management support, data integration support and other logistical services.

**Strategic Goal 5:** USACE will ensure its ability to accomplish civil works missions, and to provide expert scientific and engineering technical assistance to the Army, Department of Defense, other Federal agencies, and internationally. A solid technical foundation in core competencies while promoting organizational effectiveness, and fiduciary integrity will be maintained. The Program Account improved technical guidance, criteria documents, design, and construction standards. Additionally, the E-Government initiative supports Budget Formulation and Execution; USACEs’ share of the Federal Line of Business Initiatives and Recreation-One Stop.

Funding for the Expenses Program has not kept pace with inflation rates or program growth. Since 1995, Civil Works business programs grew, but the Expenses budget authority has remained flat in nominal terms. Over this time frame, USACE has reduced the number of Divisions from 11 to 8. FY08 funding supported approximately 60 military personnel and 876 Full Time Equivalents (FTE).

**Table 1: ED&M Funding and Performance History**

<i>Fiscal Year</i>	<i>2003</i>	<i>2004</i>	<i>2005</i>	<i>2006</i>	<i>2007</i>	<i>2008</i>	<i>2009</i>	<i>2010</i>
<b>Appropriation (\$ Millions)</b>	\$154	\$159	\$166	\$154	\$167	\$177	179	185

## **Base Funding and Performance**

---

The Five-Year base program provides funding levels which will continue to force the Executive Direction and Management (ED&M) program to undertake its activities with constrained resources, even though the budget has increased in nominal terms in recent years. At this funding level, the ED&M staffing could decline from 895 full-time FTEs in FY09 to approximately 799 FTE over five years. This increases individual workload particularly to our program and project management, national and regional coordination, and quality assurance functions.

Work plans in FY11 and out-years will be developed in accordance with the following priorities:

- Improving of program justification statements and program documentation;
- Improving budgeting and financial performance;
- Increasing training to retain, maintain and improve technical competence;
- Becoming a more efficient and effective organization through technology (E-government);
- Strengthening dam safety and levee safety and risk management;
- Strengthening business program management for the navigation, environmental restoration and hydropower programs.

**Table 2: ED&M Five-Year Base Funding Plan**

<i>Fiscal Year</i>	<i>2011</i>	<i>2012</i>	<i>2013</i>	<i>2014</i>	<i>2015</i>
<b>Appropriation</b> (\$ Millions)	\$ 185	\$ 185	\$ 171	\$ 175	\$ 179

### **Base Plan Initiatives**

- Review positions to determine need and priority.
- Consider need for new labor capability.
- Determine which existing labor capability can be “traded out” for needed additional and/or new labor capability.

### **Enhanced Funding and Performance**

---

The added funding would be used to improve the performance of management functions and to increase the level of effort on management initiatives. The enhanced level of funding provides investment opportunities that will allow USACE to better align with the USACE 2012 concept, which creates more integrated teams. The five-year enhanced funding for this program would enable the program to improve the performance of management functions and to increase the level of effort on management initiatives.

**Table 3: ED&M Five-Year Enhanced Funding Plan**

<i>Fiscal Year</i>	<i>2011</i>	<i>2012</i>	<i>2013</i>	<i>2014</i>	<i>2015</i>
<b>Appropriation</b> (\$ Millions)	\$ 195	\$ 200	\$ 206	\$ 213	\$ 220

### **Enhanced Plan Initiatives**

- Filling several key positions with responsibilities extending across most of the ED&M organizations.
- Reducing the backlog and processing time for water project review of Project Cooperation Agreements.
- Improving planning capabilities through the development and update of planning guidance and training.
- Expanding stakeholder coordination at the regional and national levels.
- Increasing training to retain, maintain and improve technical competence.
- Managing business process transformation.

## **Potential Work with “Wedge Money”**

---

This program is not included in the assumptions for potential wedge funding in this Five Year Development Plan.






---

# Appendix

---

# Appendix A: FY11 Relative Risk Ranking Matrix

Relative Risk Ranking Matrix						
Condition		Condition Classification				
		F	D	C	B	A
Consequence		(Failed)	(Inadequate)	(Probably Inadequate)	(Probably Adequate)	(Adequate)
Consequence Category	I	1	2	4	7	18
	II	3	5	8	11	20
	III	6	9	12	14	22
	IV	10	13	15	16	24
	V	17	19	21	23	25

-  High Consequence, Low Reliability (Failed)
-  Med-High Consequence, Low-Med Reliability (Inadequate)
-  Medium Consequence, Medium Reliability (Probably Inadequate)
-  Low Consequence, Med-High Reliability (Probably Adequate)
-  Minimal Consequences, High Reliability (Adequate)

<b>Performance Reliability Assessment Standards</b>	
<b>Condition Classification</b>	<b>Definitions</b>
<b>A Adequate</b>	<p>There is a <b>high level of confidence that the feature will perform well under the designed operating conditions</b>. This confidence level is supported by data, studies or observed project characteristics which are judged to meet current engineering or industry standards.</p> <p>There is a <b>limited probability</b> that the verified degraded <b>conditions will cause an inefficient operation, or degradation or loss of service</b>.</p>
<b>B Probably Adequate</b>	<p>There is a <b>low level of confidence that the feature will perform well under designed operating conditions</b>, and may not specifically meet engineering or industry standards. The feature may require additional investigation or studies to confirm adequacy.</p> <p>There is a <b>low probability</b> that the verified degraded <b>conditions will result in inefficient operation, or degradation or loss of service</b>.</p>
<b>C Probably Inadequate</b>	<p>There is a <b>low level of confidence that the feature will not perform well under designed operating conditions</b>, and may not specifically meet engineering or industry standards. The feature may require additional investigation or studies to confirm adequacy. The feature does not meet current engineering or industry standards.</p> <p>There is a <b>moderate probability</b> that the verified degraded <b>conditions will result in inefficient operation, or degradation or loss of service</b></p>
<b>D Inadequate</b>	<p>There is a <b>high level of confidence that the feature will not perform well under designed operating conditions</b>. Physical signs of distress and deterioration are present. Analysis indicates that factors of safety are near limit state. The feature deficiencies are serious enough that the feature no longer performs at a satisfactory level of performance or service.</p> <p>There is a <b>high probability</b> that the verified degraded <b>conditions will result in inefficient operation, or degradation or loss of service</b>.</p>
<b>F Failed</b>	<p>The feature has <b>FAILED</b></p> <p>Historically the feature <b>regularly experiences</b> scheduled or unscheduled <b>closures or loss of service</b> for repairs.</p>



Category	CONSEQUENCES
I	PAR → >100,000, TPAR → >1,000 National to Multi-Region/Basin disruption of essential facilities and access. Economic Impact-Massive Losses (>\$1B). Impact-National Massive environmental mitigation cost.
II	PAR → 50,000 to 100,000, TPAR → 500 to 1,000 Multi-Regional/Basin disruption of essential facilities and access. Economic Impact-Multi-regional losses. (\$500M to \$1B) major public and private facilities. Very large environmental mitigation cost.
III	PAR → 25,000 to 50,000, TPAR → 250 to 500 Regional disruption of essential facilities and services Economic Impact-Regional losses, (\$250M to \$500M). Large environmental mitigation cost.
IV	PAR → 10,000 to 25,000, TPAR → 125 to 250 Local to Regional disruption of essential facilities and access. Economic Impact-local to regional (>\$125M to \$250M). Medium Environmental mitigation cost.
V	PAR → <10,000, TPAR → <125 Local disruption of essential facilities and access. Economic Impact-local to regional (<\$125M). Minimal to no Environmental mitigation cost.

# Appendix Tables

The tables in this section are as follows:

- ❖ I-1 Five-year funding schedules under the Base Plan Scenario for the studies, preconstruction engineering and designs (PEDs), and Remaining Items funded from the Investigations account in the FY11 budget. No new studies or new PED phases are displayed after FY11. The amounts displayed after FY11 for the studies and PEDs represent “capability” level funding, that is, the maximum that USACE could efficiently use for the studies and PEDs. Remaining Items are allocated among business programs. Remaining funding is displayed in a consolidated line item for “Additional Study and PED Activities (including Remaining Items)” that initiates in FY12, when such funding would first become available. This line item represents the additional funding available in each fiscal year after FY11 for new studies, new PED phases, and increased effort on Remaining Items.
- ❖ I-2 Five-year funding schedules under the Enhanced Plan Scenario for the studies, PEDs, and Remaining Items funded from the Investigations account in the FY11 budget. The schedules differ from those in the Base Plan in that the individual studies and PEDs are funded at the capability level in FY11 as well as the out-years, and the line item for “Additional Study and PED Activities (including Remaining Items)” begins in FY11 and is higher in the out-years due to the overall funding level.
- ❖ C-1 Five-year funding schedules under the Base Plan Scenario for the projects, Continuing Authority Programs (CAPs), and Remaining Items funded from the Construction account in the FY11 budget. FY11 budget policy, including the construction funding guidelines, is assumed for all fiscal years. No new projects or resumptions are displayed. The amounts displayed after FY11 represent capability level funding. The CAPs and the Remaining Items are allocated among business program. Remaining funding is displayed in a consolidated line item for “Additional Projects and Programs (including CAPs and Remaining Items).” This line item represents the additional funding available in each fiscal year after FY11 for the initiation, continuation, or resumption of additional projects and programs, and for increased effort on CAPs and Remaining Items.
- ❖ C-2 Five-year funding schedules under the Enhanced Plan Scenario for the projects, CAPs, and Remaining Items funded from the Construction account in the FY11 budget.
- ❖ M-1 Five-year funding schedules under the Base Plan Scenario for the investigations and construction projects funded from the Mississippi River and Tributaries (MR&T) account in the FY11 budget. This table follows the procedures outlined above for Tables I-1 and C-1. However, there is no line item for additional construction projects because the projects in the FY11 budget could use all of the construction funds available for the account.
- ❖ M-2 Five-year funding schedules under the Enhanced Plan Scenario for the investigations and construction projects funded from the MR&T account in the FY11 budget. This table follows the procedures outlined above for Tables I-2 and C-2. However, there is no line item for

additional construction projects because the projects in the FY11 budget could use all of the construction funds available for the account.

**Table I-1: Investigation Account, Base Plan Scenario  
(\$ Thousands)**

DIV	PROJECT NAME	State	2011	2012	2013	2014	2015
POD	MATANUSKA RIVER WATERSHED, AK	AK	100	100	200	900	-
POD	YAKUTAT HARBOR, AK	AK	450	100	450	300	-
SPD	CALIFORNIA COASTAL SEDIMENT MASTER PLAN, CA	CA	900	900	-	-	-
SPD	COYOTE & BERRYESSA CREEKS, CA	CA	500	800	640	-	-
SPD	MALIBU CREEK WATERSHED, CA	CA	210	210	188	187	-
SPD	SAC-SAN JOAQUIN DELTA ISLANDS AND LEVEES, CA	CA	468	468	468	8,322	9,062
SPD	SOLANA BEACH, CA	CA	307	307	826	-	-
SPD	SUTTER COUNTY, CA	CA	339	339	5,000	4,250	3,750
SPD	UPPER PENITENCIA CREEK, CA	CA	177	177	3,500	3,000	3,000
SAD	LAKE WORTH INLET, PALM BEACH COUNTY, FL	FL	340	293	-	-	-
SAD	AUGUSTA, GA	GA	578	600	500	500	-
SAD	SAVANNAH HARBOR EXPANSION, GA	GA	600	600	600	4,000	-
SAD	TYBEE ISLAND, GA	GA	200	300	200	117	200
POD	ALA WAI CANAL, OAHU, HI	HI	408	550	800	800	800
LRD	DES PLAINES RIVER, IL (PHASE II)	IL	500	500	500	-	-
MVD	ILLINOIS RIVER BASIN RESTORATION , IL	IL	400	400	2,100	421	600
LRD	INTERBASIN CONTROL OF GREAT LAKES- MISSISSIPPI RIVER AQUATIC NUISANCE SPECIES, IL, IN, OH & WI	IL	400	400	3,780	5,000	1,000
LRD	INDIANA HARBOR, IN	IN	300	1,000	-	-	-
NWD	TOPEKA, KS	KS	100	569	273	273	-
MVD	BAYOU SORREL LOCK, LA	LA	2,000	2,000	-	-	-
MVD	CALCASIEU LOCK, LA	LA	1,000	1,000	-	-	-
MVD	LOUISIANA COASTAL AREA ECOSYSTEM RESTORATION, LA	LA	16,595	12,120	-	-	-
NAD	PILGRIM LAKE, TRURO & PROVINCETOWN, MA	MA	100	113	-	-	-
NAD	ANACOSTIA RIVER & TRIBUTARIES COMPREHENSIVE PLAN, MD	MD	183	-	-	-	-
NAD	EASTERN SHORE, MID CHESAPEAKE BAY ISLAND, MD	MD	483	169	1,000	2,758	-
LRD	GREAT LAKES NAV SYST STUDY, MI, IL, IN, MN, NY, OH, PA & WI	MI	400	400	250	-	-
MVD	MINNESOTA RIVER WATERSHED STUDY, MN & SD (MINNESOTA RIVER AUTHORITY)	MN	350	350	350	350	1,207
NWD	KANSAS CITIES, MO & KS	MO	500	-	-	-	-

**Table I-1: Investigation Account, Base Plan Scenario Continued  
(\$ Thousands)**

NWD	MISSOURI RIVER DEGRADATION, MO	MO	600	600	500	500	644
NWD	YELLOWSTONE RIVER CORRIDOR, MT	MT	200	500	-	-	-
SAD	CURRITUCK SOUND, NC	NC	300	300	250	300	200
SAD	NC INTERNATIONAL PORT, NC	NC	104	104	104	104	1,692
SAD	NEUSE RIVER BASIN, NC	NC	200	200	450	250	250
SAD	SURF CITY AND NORTH TOPSAIL BEACH, NC	NC	300	795	-	-	-
MVD	FARGO-MOORHEAD METRO, ND	ND	15,150	15,150	9,750		
MVD	RED RIVER OF THE NORTH BASIN, ND, MN, SD & MANITOBA, CANADA	ND	433	433	433	234	-
NAD	MERRIMACK RIVER WATERSHED STUDY, NH & MA	NH	200	200	400	306	100
NAD	DELAWARE RIVER COMPREHENSIVE, NJ	NJ	290	290	290	290	241
NAD	HUDSON - RARITAN ESTUARY, HACKENSACK MEADOWLANDS, NJ	NJ	200	100	500	-	-
NAD	HUDSON - RARITAN ESTUARY, LOWER PASSAIC RIVER, NJ	NJ	200	200	500	500	800
SPD	RIO GRANDE BASIN, NM, CO & TX	NM	500	300	500	157	-
NAD	HUDSON - RARITAN ESTUARY, NY & NJ	NY	200	223	1,000	531	177
NAD	JAMAICA BAY, MARINE PARK AND PLUMB BEACH, NY	NY	170	170	500	-	-
NAD	LAKE MONTAUK HARBOR, NY	NY	172	250	700	-	-
NAD	WESTCHESTER COUNTY STREAMS, NY	NY	200	250	350	350	350
NWD	LOWER COLUMBIA RIVER ECOSYSTEM RESTORATION, OR & WA	OR	300	750	639	500	1,000
NWD	WILLAMETTE RIVER ENVIRONMENTAL DREDGING, OR	OR	220	750	500	500	-
NWD	WILLAMETTE RIVER FLOODPLAIN RESTORATION, OR	OR	153	413	700	500	500
NAD	SCHUYLKILL RIVER BASIN, WISSAHICKON CREEK BASIN, PA	PA	214	200	73	-	-
LRD	UPPER OHIO NAVIGATION STUDY, PA	PA	749	749	749	749	10,000
SAD	EDISTO ISLAND, SC	SC	114	100	75	-	-
LRD	MILL CREEK WATERSHED, DAVIDSON COUNTY, TN	TN	50	50	50	50	50
SWD	BRAZOS ISLAND HARBOR, BROWNSVILLE CHANNEL, TX	TX	726	726	726	835	840

**Table I-1: Investigation Account, Base Plan Scenario Continued  
(\$ Thousands)**

SWD	DALLAS FLOODWAY, UPPER TRINITY RIVER BASIN, TX	TX	700	700	2,977	6,880	7,201
SWD	GIWW, HIGH ISLAND TO BRAZOS RIVER REALIGNMENTS, TX	TX	200	200	756	700	1,200
SWD	GUADALUPE AND SAN ANTONIO RIVER BASINS, TX	TX	600	600	2,300	2,135	2,397
SWD	LOWER COLORADO RIVER BASIN, TX	TX	425	425	966	828	1,125
SWD	NUECES RIVER AND TRIBUTARIES, TX	TX	250	250	250	1,077	1,077
SWD	SABINE PASS TO GALVESTON BAY, TX	TX	200	200	500	180	831
SAD	JOHN H KERR DAM AND RESERVOIR, VA & NC (SECTION 216)	VA	300	300	435	300	365
NAD	LYNNHAVEN RIVER BASIN, VA	VA	50	300	-	-	-
NAD	UPPER RAPPAHANNOCK RIVER BASIN COMPREHENSIVE, VA	VA	200	200	100	100	200
NWD	MOUNT SAINT HELENS, WA	WA	225	225	225	925	-
NWD	PUGET SOUND NEARSHORE MARINE HABITAT RESTORATION, WA	WA	400	400	400	400	2,100
	Total - INVESTIGATIONS (Listed under States)		54,383	52,368	50,273	51,359	52,959
	Remaining items		49,617	47,632	45,727	46,642	48,041
	Additional Studies and PEDS (including Remaining Items)		0	0	0	0	0
	Total Investigations Appropriations		104,000	100,000	96,000	98,000	101,000

**Table I-2: Investigation Account, Enhanced Plan Scenario  
(\$ Thousands)**

DIV	PROJECT NAME	State	2011	2012	2013	2014	2015
POD	MATANUSKA RIVER WATERSHED, AK	AK	100	1,000	200	-	-
POD	YAKUTAT HARBOR, AK	AK	450	100	450	300	-
SPD	CALIFORNIA COASTAL SEDIMENT MASTER PLAN, CA	CA	900	900	-	-	-
SPD	COYOTE & BERRYESSA CREEKS, CA	CA	500	800	640	-	-
SPD	MALIBU CREEK WATERSHED, CA	CA	210	210	188	187	-
SPD	SAC-SAN JOAQUIN DELTA ISLANDS AND LEVEES, CA	CA	468	2,624	10,000	5,000	-
SPD	SOLANA BEACH, CA	CA	307	1,133	-	-	-
SPD	SUTTER COUNTY, CA	CA	339	339	5,000	4,250	3,750
SPD	UPPER PENITENCIA CREEK, CA	CA	177	577	3,000	3,000	3,000
SAD	LAKE WORTH INLET, PALM BEACH COUNTY, FL	FL	340	293	-	-	-
SAD	AUGUSTA, GA	GA	578	600	500	500	-
SAD	SAVANNAH HARBOR EXPANSION, GA	GA	600	5,200	-	-	-
SAD	TYBEE ISLAND, GA	GA	200	300	200	117	200
POD	ALA WAI CANAL, OAHU, HI	HI	408	550	800	800	800
LRD	DES PLAINES RIVER, IL (PHASE II)	IL	500	500	500	-	-
MVD	ILLINOIS RIVER BASIN RESTORATION , IL	IL	400	1,000	2,100	421	-
LRD	INTERBASIN CONTROL OF GREAT LAKES- MISSISSIPPI RIVER AQUATIC NUISANCE SPECIES, IL, IN, OH & WI	IL	400	6,400	1,000	1,000	1,000
LRD	INDIANA HARBOR, IN	IN	300	1,000	-	-	-
NWD	TOPEKA, KS	KS	100	569	273	273	-
MVD	BAYOU SORREL LOCK, LA	LA	2,000	2,000	-	-	-
MVD	CALCASIEU LOCK, LA	LA	1,000	1,000	-	-	-
MVD	LOUISIANA COASTAL AREA ECOSYSTEM RESTORATION, LA	LA	16,595	12,120	-	-	-
NAD	PILGRIM LAKE, TRURO & PROVINCETOWN, MA	MA	100	113	-	-	-
NAD	ANACOSTIA RIVER & TRIBUTARIES COMPREHENSIVE PLAN, MD	MD	183	-	-	-	-
NAD	EASTERN SHORE, MID CHESAPEAKE BAY ISLAND, MD	MD	483	169	1,000	2,758	-
LRD	GREAT LAKES NAV SYST STUDY, MI, IL, IN, MN, NY, OH, PA & WI	MI	400	400	250	-	-
MVD	MINNESOTA RIVER WATERSHED STUDY, MN & SD (MINNESOTA RIVER AUTHORITY)	MN	350	1,000	1,257	-	-
NWD	KANSAS CITIES, MO & KS	MO	500	-	-	-	-

**Table I-2: Investigation Account, Enhanced Plan Scenario Continued  
(\$ Thousands)**

NWD	MISSOURI RIVER DEGRADATION, MO	MO	600	750	500	500	494
NWD	YELLOWSTONE RIVER CORRIDOR, MT	MT	200	500	-	-	-
SAD	CURRITUCK SOUND, NC	NC	300	300	250	300	200
SAD	NC INTERNATIONAL PORT, NC	NC	104	1,004	1,000	-	-
SAD	NEUSE RIVER BASIN, NC	NC	200	450	450	250	-
SAD	SURF CITY AND NORTH TOPSAIL BEACH, NC	NC	300	795	-	-	-
MVD	FARGO-MOORHEAD METRO, ND	ND	15,150	23,700	1,200		
MVD	RED RIVER OF THE NORTH BASIN, ND, MN, SD & MANITOBA, CANADA	ND	433	1,100	-	-	-
NAD	MERRIMACK RIVER WATERSHED STUDY, NH & MA	NH	200	300	400	306	-
NAD	DELAWARE RIVER COMPREHENSIVE, NJ	NJ	290	400	400	301	10
NAD	HUDSON - RARITAN ESTUARY, HACKENSACK MEADOWLANDS, NJ	NJ	200	100	500	-	-
NAD	HUDSON - RARITAN ESTUARY, LOWER PASSAIC RIVER, NJ	NJ	200	500	500	500	500
SPD	RIO GRANDE BASIN, NM, CO & TX	NM	500	300	500	157	-
NAD	HUDSON - RARITAN ESTUARY, NY & NJ	NY	200	400	1,000	531	-
NAD	JAMAICA BAY, MARINE PARK AND PLUMB BEACH, NY	NY	170	170	500	-	-
NAD	LAKE MONTAUK HARBOR, NY	NY	172	250	700	-	-
NAD	WESTCHESTER COUNTY STREAMS, NY	NY	200	250	350	350	350
NWD	LOWER COLUMBIA RIVER ECOSYSTEM RESTORATION, OR & WA	OR	300	750	639	500	1,000
NWD	WILLAMETTE RIVER ENVIRONMENTAL DREDGING, OR	OR	220	750	500	500	-
NWD	WILLAMETTE RIVER FLOODPLAIN RESTORATION, OR	OR	153	413	700	500	500
NAD	SCHUYLKILL RIVER BASIN, WISSAHICKON CREEK BASIN, PA	PA	214	200	73	-	-
LRD	UPPER OHIO NAVIGATION STUDY, PA	PA	749	5,363	7,900	8,100	8,400
SAD	EDISTO ISLAND, SC	SC	114	100	75	-	-
LRD	MILL CREEK WATERSHED, DAVIDSON COUNTY, TN	TN	50	200	-	-	-
SWD	BRAZOS ISLAND HARBOR, BROWNSVILLE CHANNEL, TX	TX	726	1,108	519	750	750



**Table I-2: Investigation Account, Enhanced Plan Scenario Continued  
(\$ Thousands)**

SWD	DALLAS FLOODWAY, UPPER TRINITY RIVER BASIN, TX	TX	700	3,500	9,855	5,000	
SWD	GIWW, HIGH ISLAND TO BRAZOS RIVER REALIGNMENTS, TX	TX	200	700	756	700	700
SWD	GUADALUPE AND SAN ANTONIO RIVER BASINS, TX	TX	600	800	2,300	2,135	2,197
SWD	LOWER COLORADO RIVER BASIN, TX	TX	425	950	966	828	600
SWD	NUECES RIVER AND TRIBUTARIES, TX	TX	250	1,000	800	800	254
SWD	SABINE PASS TO GALVESTON BAY, TX	TX	200	800	500	148	463
SAD	JOHN H KERR DAM AND RESERVOIR, VA & NC (SECTION 216)	VA	300	365	435	300	300
NAD	LYNNHAVEN RIVER BASIN, VA	VA	50	300	-	-	-
NAD	UPPER RAPPAHANNOCK RIVER BASIN COMPREHENSIVE, VA	VA	200	400	100	100	-
NWD	MOUNT SAINT HELENS, WA	WA	225	225	225	925	-
NWD	PUGET SOUND NEARSHORE MARINE HABITAT RESTORATION, WA	WA	400	1,700	500	-	-
	Total - INVESTIGATIONS (Listed under States)		54,383	91,790	62,451	43,087	25,468
	Remaining items		49,617	47,632	45,727	46,642	48,041
	Additional Studies and PEDS (including Remaining Items)		76,000	45,578	80,822	105,272	129,491
	Total Investigations Appropriations		180,000	185,000	189,000	195,000	203,000

**Table C-1: Construction Account, Base Plan Scenario  
(\$ Thousands)**

Program Code Name	State	2011	2012	2013	2014	2015
AKUTAN HARBOR, AK*	AK	7,000	0	0	0	0
AMERICAN RIVER WATERSHED (COMMON FEATURES), CA	CA	4,200	4,200	15,000	15,000	1,581
AMERICAN RIVER WATERSHED (FOLSOM DAM MODIFICATIONS), CA	CA	78,000	78,000	132,000	93,000	10,141
AMERICAN RIVER WATERSHED (FOLSOM DAM RAISE), CA	CA	500	8,500	24,000	30,000	27,000
HAMILTON AIRFIELD WETLANDS RESTORATION, CA	CA	20,000	20,000	20,000	15,000	12,000
NAPA RIVER, SALT MARSH RESTORATION, CA	CA	12,000	10,000	6,000	1,500	1,200
OAKLAND HARBOR (50 FOOT PROJECT), CA	CA	4,330	350	1,400	1,400	1,400
SACRAMENTO DEEPWATER SHIP CHANNEL, CA	CA	12,500	12,500	24,000	24,000	25,325
SACRAMENTO RIVER BANK PROTECTION PROJECT, CA	CA	10,000	10,000	10,000	10,000	10,000
SANTA ANA RIVER MAINSTEM, CA	CA	25,000	25,000	25,000	10,190	25,000
SOUTH SACRAMENTO COUNTY STREAMS, CA**	CA	4,800	5,000	0	0	0
SUCCESS DAM, TULE RIVER, CA (DAM SAFETY)	CA	500	18,000	100,000	100,000	80,000
WEST SACRAMENTO, CA*	CA	5,000	0	0	0	0
DELAWARE BAY COASTLINE, ROOSEVELT INLET TO LEWES BEACH, DE	DE	350	6,800	6,200	36	37
BREVARD COUNTY, CANAVERAL HARBOR, FL	FL	350	5,000	5,400	0	500
DADE COUNTY, FL*	FL	11,000	20,000	0	0	0
DUVAL COUNTY, FL	FL	7,500	100	93	310	186
FERNANDINA HARBOR, FL*	FL	350	0	0	0	0
HERBERT HOOVER DIKE, FL (SEEPAGE CONTROL)	FL	104,800	85,000	105,000	105,000	123,480
JACKSONVILLE HARBOR, FL	FL	6,000	7,000	0	300	77,250
MANATEE COUNTY, FL*	FL	100	100	0	0	0
MARTIN COUNTY, FL*	FL	8,000	0	0	0	0
NASSAU COUNTY, FL	FL	350	700	80	12,200	20
SOUTHERN FLORIDA ECOSYSTEM RESTORATION, FL	FL	180,000	63,500	15,936	12,188	24,439
ST. JOHN'S COUNTY, FL	FL	350	700	4	160	13,160
TAMPA HARBOR, FL*	FL	1,000	3,000	0	0	0
RICHARD B RUSSELL DAM AND LAKE, GA & SC	GA	1,000	3,200	1,000	1,000	1,000
SAVANNAH HARBOR, GA*	GA	400	0	0	0	0
ALTON TO GALE ORGANIZED LEVEE DISTRICTS, IL & MO*	IL	150	10,500	3,000	201	0
CHAIN OF ROCKS CANAL, MISSISSIPPI RIVER, IL (DEF CORR)*	IL	5,385	4,250	435	0	0
CHICAGO SANITARY AND SHIP CANAL DISPERSAL BARRIER, IL*	IL	5,200	5,200	5,200	5,200	5200

**Table C-1: Construction Account, Base Plan Scenario Continued  
(\$ Thousands)**

DES PLAINES RIVER, IL*	IL	6,500	11,000	5,000	1,760	0
EAST ST LOUIS, IL*	IL	1,000	8,100	16,997	0	0
LOCK AND DAM 27, MISSISSIPPI RIVER, IL (MAJOR REHAB) *	IL	350	200	0	0	0
MCCOOK AND THORNTON RESERVOIRS, IL	IL	40,000	40,000	15,000	67,613	2,000
OLMSTED LOCKS AND DAM, OHIO RIVER, IL & KY	IL	136,000	75,000	63,000	63,000	86,800
UPPER MISSISSIPPI RIVER RESTORATION, IL, IA, MN, MO & WI	IL	21,150	33,170	33,170	33,170	33,170
WOOD RIVER LEVEE, IL*	IL	1,098	6,230	3,600	2,877	0
INDIANA HARBOR, CONFINED DISPOSAL FACILITY, IN*	IN	8,000	0	0	0	0
LITTLE CALUMET RIVER, IN	IN	10,000	15,000	500	337	0
MISSOURI R FISH AND WILDLIFE RECOVERY, IA, KS, MO, MT, NE, ND & SD	IO	78,400	78,400	100,000	100,000	162,688
TURKEY CREEK BASIN, KS & MO	KS	8,000	4,000	4,000	4,000	6,000
KENTUCKY LOCK AND DAM, TENNESSEE RIVER, KY	KY	2,868	33,980	50,000	82,170	64,060
MARKLAND LOCKS AND DAM, KY & IN (REHAB)*	KY	5,400	0	0	0	0
WOLF CREEK DAM, LAKE CUMBERLAND, KY*	KY	134,000	100,000	31,300	32,000	0
J BENNETT JOHNSTON WATERWAY, LA	LA	1,500	2,000	2,000	2,000	2,000
LAROSE TO GOLDEN MEADOW, LA (HURRICANE PROTECTION)*	LA	5,500	20,300	0	0	0
LOUISIANA COASTAL AREA ECOSYSTEM RESTORATION, LA	LA	19,000	50,000	50,000	100,000	100,000
WEST BANK AND VICINITY, NEW ORLEANS, LA*	LA	5,000	0	0	0	0
MUDDY RIVER, MA*	MA	500	5,000	10,000	0	0
ASSATEAGUE, MD	MD	1,000	2,000	2,000	2,000	2,000
CHESAPEAKE BAY OYSTER RECOVERY, MD & VA	MD	5,000	5,000	5,000	5,000	3,500
POPLAR ISLAND, MD	MD	1,530	13,200	18,765	20,255	16,100
BLUE RIVER CHANNEL, KANSAS CITY, MO	MO	4,500	3,000	3,000	1,000	1,000
CHESTERFIELD, MO	MO	3,439	6,571	9,947	6,420	2,526
CLEARWATER LAKE, MO*	MO	40,000	40,000	2,246	-	-
KANSAS CITYS, MO & KS	MO	700	3,000	3,101	4,075	5,112
MISS RIVER BTWN THE OHIO AND MO RIVERS (REG WORKS), MO & IL	MO	4,345	10,120	12,560	12,560	12,560
ST LOUIS FLOOD PROTECTION, MO*	MO	100	200	0	0	0
``	NC	1,800	2,543	6,000	6,000	6,000
GARRISON DAM, LAKE SAKAKAWEA, ND*	ND	11,088	0	0	0	0
CAPE MAY TO LOWER TOWNSHIP, NJ	NJ	200	200	2,400	200	16,500
GREAT EGG HARBOR INLET AND PECK BEACH, NJ	NJ	500	500	1,220	9,721	1,300
LOWER CAPE MAY MEADOWS, CAPE MAY POINT, NJ	NJ	8,920	13,050	0	0	0
RARITAN RIVER BASIN, GREEN BROOK SUB-BASIN, NJ	NJ	1,000	1,000	46,200	41,235	33,322
RIO GRANDE FLOODWAY, SAN ACACIA TO BOSQUE DEL APACHE, NM	NM	10,000	10,000	9,000	9,000	9,000
ATLANTIC COAST OF NYC, ROCKAWAY INLET TO NORTON POINT, NY	NY	300	100	4,100	3,000	4,100

**Table C-1: Construction Account, Base Plan Scenario Continued  
(\$ Thousands)**

FIRE ISLAND INLET TO MONTAUK POINT, NY	NY	1,100	1,100	9,700	9,500	18,700
LONG BEACH ISLAND, NY	NY	300	5,000	10,000	10,000	10,000
NEW YORK AND NEW JERSEY HARBOR, NY & NJ*	NY	57,000	57,800	53,000	0	0
DOVER DAM, MUSKINGUM RIVER, OH (DAM SAFETY ASSURANCE)**	OH	36,000	5,000	2,561	0	0
CANTON LAKE, OK*	OK	24,334	4,000	21,040	21,670	0
LOWER COLUMBIA RIVER ECOSYSTEM RESTORATION, OR & WA	OR	4,700	7,950	8,100	9,250	450
EMSWORTH LOCKS AND DAM, OHIO RIVER, PA*	PA	11,500	10,000	6,000	1,100	0
LOCK AND DAMS 2,3, AND 4, MONONGAHELA RIVER, PA	PA	2,000	10,000	10,000	10,000	35,280
PRESQUE ISLE PENINSULA, PA (PERMANENT)	PA	1,000	1,500	1,000	1,000	1,000
PORTUGUES AND BUCANA RIVERS, PR	PR	39,539	45,000	2,250	4,500	575
RIO PUERTO NUEVO, PR	PR	12,000	34,000	17,000	17,000	23,500
CENTER HILL LAKE, TN*	TN	77,800	78,700	13,512	0	0
BRAYS BAYOU, HOUSTON, TX	TX	7,740	7,740	43,247	137,513	22,076
LOWER COLORADO RIVER BASIN (WHARTON/ONION),TX	TX	10,000	10,000	12,000	10,000	13,943
AIWW, BRIDGES AT DEEP CREEK, VA*	VA	1,590	4,410	0	0	0
JOHN H KERR LAKE, VA & NC*	VA	6,000	0	0	0	0
LEVISA AND TUG FORKS AND UPPER CUMBERLAND RIVER, VA, WV, & KY	VA	19,500	20,100	6,000	6,000	6,000
NORFOLK HARBOR AND CHANNELS, CRANEY ISLAND, VA	VA	1,000	1,000	50,000	52,216	139,000
ROANOKE RIVER UPPER BASIN, HEADWATERS AREA, VA*	VA	1,075	2,275	1,079	0	0
CHIEF JOSEPH DAM GAS ABATEMENT, WA *	WA	200	0	0	0	0
COLUMBIA RIVER FISH MITIGATION, WA, OR & ID*	WA	137,615	137,615	42,996		0
COLUMBIA RIVER TREATY FISHING ACCESS SITES, OR & WA*	WA	500	3,500	0	0	0
DUWAMISH AND GREEN RIVER BASIN, WA	WA	5,500	7,142	10,096	12,334	13,134
HOWARD HANSON DAM, WA	WA	500	30,000	32,000	100,000	100,000
LOWER SNAKE RIVER FISH & WILDLIFE COMPENSATION, WA, OR & ID	WA	1,500	1,500	3,000	3,500	5,000
MOUNT SAINT HELENS SEDIMENT CONTROL, WA	WA	800	800	3,045	5,800	20,722
MUD MOUNTAIN DAM, WA	WA	1,000	1,000	21,116	21,135	21,155
BLUESTONE LAKE, WV*	WV	15,000	15,000	55,000	0	0
<b>Total - Construction (Listed under States)</b>		<b>1,571,596</b>	<b>1,501,596</b>	<b>1,443,596</b>	<b>1,478,596</b>	<b>1,439,191</b>
Additional Projects and Programs (including CAP's and Remaining Items)		0	0	0	0	76,405
Continuing Authorities Programs		40,969	40,969	40,969	40,969	40,969
Remaining Items		77,435	77,435	77,435	77,435	77,435
Total - Construction Appropriations		1,690,000	1,620,000	1,562,000	1,597,000	1,634,000

**Table C-2: Construction Account, Enhanced Plan Scenario  
(\$ Thousands)**

DIV	Program Code Name	State	2011	2012	2013	2014	2015
POD	AKUTAN HARBOR, AK*	AK	7,000	0	0	0	0
SPD	AMERICAN RIVER WATERSHED (COMMON FEATURES), CA	CA	4,200	4,200	15,000	15,000	1,581
SPD	AMERICAN RIVER WATERSHED (FOLSOM DAM MODIFICATIONS), CA	CA	78,000	78,000	132,000	93,000	10,141
SPD	AMERICAN RIVER WATERSHED (FOLSOM DAM RAISE), CA	CA	500	8,500	24,000	30,000	27,000
SPD	HAMILTON AIRFIELD WETLANDS RESTORATION, CA	CA	20,000	24,300	20,000	15,000	12,000
SPD	NAPA RIVER, SALT MARSH RESTORATION, CA	CA	12,000	10,000	6,000	1,500	1,200
SPD	OAKLAND HARBOR (50 FOOT PROJECT), CA	CA	4,330	350	1,400	1,400	1,400
SPD	SACRAMENTO DEEPWATER SHIP CHANNEL, CA	CA	12,500	12,500	24,000	24,000	25,325
SPD	SACRAMENTO RIVER BANK PROTECTION PROJECT, CA	CA	10,000	10,000	10,000	10,000	18,000
SPD	SANTA ANA RIVER MAINSTEM, CA	CA	25,000	41,432	25,000	86,812	88,146
SPD	SOUTH SACRAMENTO COUNTY STREAMS, CA**	CA	4,800	5,000	0	0	0
SPD	SUCCESS DAM, TULE RIVER, CA (DAM SAFETY)	CA	500	18,000	100,000	100,000	80,000
SPD	WEST SACRAMENTO, CA*	CA	5,000	0	0	0	0
NAD	DELAWARE BAY COASTLINE, ROOSEVELT INLET TO LEWES BEACH, DE	DE	350	6,800	6,200	36	37
SAD	BREVARD COUNTY, CANAVERAL HARBOR, FL	FL	350	5,000	5,400	0	500
SAD	DADE COUNTY, FL*	FL	11,000	20,000	0	0	0
SAD	DUVAL COUNTY, FL	FL	7,500	100	93	310	186
SAD	FERNANDINA HARBOR, FL*	FL	350	0	0	0	0
SAD	HERBERT HOOVER DIKE, FL (SEEPAGE CONTROL)	FL	104,800	85,000	105,000	105,000	123,480
SAD	JACKSONVILLE HARBOR, FL	FL	6,000	7,000	0	300	77,250
SAD	MANATEE COUNTY, FL*	FL	100	100	0	0	0
SAD	MARTIN COUNTY, FL*	FL	8,000	0	350	0	0
SAD	NASSAU COUNTY, FL	FL	350	700	80	12,200	20
SAD	SOUTHERN FLORIDA ECOSYSTEM RESTORATION, FL	FL	180,000	63,500	15,936	12,188	24,439
SAD	ST. JOHN'S COUNTY, FL	FL	350	700	4	160	13,160
SAD	TAMPA HARBOR, FL*	FL	1,000	17,100	0	0	0
SAD	RICHARD B RUSSELL DAM AND LAKE, GA & SC	GA	1,000	3,200	1,000	1,000	1,000
SAD	SAVANNAH HARBOR, GA*	GA	400	0	0	0	0
MVD	ALTON TO GALE ORGANIZED LEVEE DISTRICTS, IL & MO*	IL	150	10,500	3,000	201	0
MVD	CHAIN OF ROCKS CANAL, MISSISSIPPI RIVER, IL (DEF CORR)*	IL	5,385	4,250	435	0	0
LRD	CHICAGO SANITARY AND SHIP CANAL DISPERSAL BARRIER, IL*	IL	5,200	48,675	1,500	1,000	
LRD	DES PLAINES RIVER, IL*	IL	6,500	11,000	5,000	1,760	0

**Table C-2: Construction Account, Enhanced Plan Scenario Continued  
(\$ Thousands)**

LRD	EAST ST LOUIS, IL*	IL	1,000	8,100	16,997	0	0
MVD	LOCK AND DAM 27, MISSISSIPPI RIVER, IL (MAJOR REHAB) *	IL	350	200	0	0	0
LRD	MCCOOK AND THORNTON RESERVOIRS, IL	IL	40,000	53,000	15,000	67,613	2,000
LRD	OLMSTED LOCKS AND DAM, OHIO RIVER, IL & KY	IL	136,000	75,000	148,604	178,396	173,760
MVD	UPPER MISSISSIPPI RIVER RESTORATION, IL, IA, MN, MO & WI	IL	21,150	33,170	33,170	33,170	33,170
LRD	WOOD RIVER LEVEE, IL*	IL	1,098	6,230	3,600	2,877	0
LRD	INDIANA HARBOR, CONFINED DISPOSAL FACILITY, IN*	IN	8,000	0	0	0	0
LRD	LITTLE CALUMET RIVER, IN	IN	10,000	15,000	500	337	0
NWD	MISSOURI R FISH AND WILDLIFE RECOVERY, IA, KS, MO, MT, NE, ND & SD	IO	78,400	94,930	100,000	100,000	146,158
NWD	TURKEY CREEK BASIN, KS & MO	KS	8,000	4,000	4,000	4,000	6,000
LRD	KENTUCKY LOCK AND DAM, TENNESSEE RIVER, KY	KY	2,868	33,980	86,246	82,170	64,060
LRD	MARKLAND LOCKS AND DAM, KY & IN (REHAB)*	KY	5,400	0	0	0	0
LRD	WOLF CREEK DAM, LAKE CUMBERLAND, KY*	KY	134,000	100,000	31,300	32,000	0
MVD	J BENNETT JOHNSTON WATERWAY, LA	LA	1,500	20,000	25,000	25,000	25,000
MVD	LAROSE TO GOLDEN MEADOW, LA (HURRICANE PROTECTION)*	LA	5,500	20,300	0	0	0
MVD	LOUISIANA COASTAL AREA ECOSYSTEM RESTORATION, LA	LA	19,000	102,420	100,000	100,000	100,000
MVD	WEST BANK AND VICINITY, NEW ORLEANS, LA*	LA	5,000	0	0	0	0
NAD	MUDDY RIVER, MA*	MA	500	5,000	10,000	0	0
NAD	ASSATEAGUE, MD	MD	1,000	2,000	2,000	2,000	2,000
NAD	CHESAPEAKE BAY OYSTER RECOVERY, MD & VA	MD	5,000	5,000	5,000	5,000	3,500
NAD	POPLAR ISLAND, MD	MD	1,530	13,200	18,765	20,255	16,100
NWD	BLUE RIVER CHANNEL, KANSAS CITY, MO	MO	4,500	3,000	3,000	1,000	1,000
MVD	CHESTERFIELD, MO	MO	3,439	6,571	9,947	6,420	2,526
MVD	CLEARWATER LAKE, MO*	MO	40,000	40,000	2,246	-	-
NWD	KANSAS CITYS, MO & KS	MO	700	11,400	3,101	4,075	5,112
MVD	MISS RIVER BTWN THE OHIO AND MO RIVERS (REG WORKS), MO & IL	MO	4,345	10,120	12,560	12,560	12,560
MVD	ST LOUIS FLOOD PROTECTION, MO*	MO	100	200	0	0	0
SAD	WILMINTGTON HARBOR, NC	NC	1,800	2,543	6,000	6,000	6,000
NWD	GARRISON DAM, LAKE SAKAKAWEA, ND*	ND	11,088	0	0	0	0
NAD	CAPE MAY TO LOWER TOWNSHIP, NJ	NJ	200	200	2,400	200	16,500
NAD	GREAT EGG HARBOR INLET AND PECK BEACH, NJ	NJ	500	500	1,220	20,000	1,300
NAD	LOWER CAPE MAY MEADOWS, CAPE MAY POINT, NJ	NJ	8,920	13,050	0	0	0
NAD	RARITAN RIVER BASIN, GREEN BROOK SUB-BASIN, NJ	NJ	1,000	1,000	46,200	41,235	33,322
SPD	RIO GRANDE FLOODWAY, SAN ACACIA TO BOSQUE DEL APACHE, NM	NM	10,000	10,000	9,000	9,000	9,000
NAD	ATLANTIC COAST OF NYC, ROCKAWAY INLET TO NORTON POINT, NY	NY	300	100	4,100	3,000	4,100

**Table C-2: Construction Account, Enhanced Plan Scenario Continued  
(\$ Thousands)**

NAD	FIRE ISLAND INLET TO MONTAUK POINT, NY	NY	1,100	10,650	9,700	9,500	9,700
NAD	LONG BEACH ISLAND, NY	NY	300	10,300	10,000	10,000	10,000
NAD	NEW YORK AND NEW JERSEY HARBOR, NY & NJ*	NY	57,000	57,800	53,000	0	0
LRD	DOVER DAM, MUSKINGUM RIVER, OH (DAM SAFETY ASSURANCE)**	OH	36,000	5,000	2,561	0	0
MVD	CANTON LAKE, OK*	OK	24,334	4,000	21,040	21,670	0
NWD	LOWER COLUMBIA RIVER ECOSYSTEM RESTORATION, OR & WA	OR	4,883	7,950	8,100	9,250	450
LRD	EMSWORTH LOCKS AND DAM, OHIO RIVER, PA*	PA	11,500	10,000	6,000	1,100	0
LRD	LOCK AND DAMS 2,3, AND 4, MONONGAHELA RIVER, PA	PA	2,000	60,625	103,000	103,000	70,000
LRD	PRESQUE ISLE PENINSULA, PA (PERMANENT)	PA	1,000	1,500	1,000	1,000	1,000
SAD	PORTUGUES AND BUCANA RIVERS, PR	PR	39,539	45,000	2,250	4,500	575
SAD	RIO PUERTO NUEVO, PR	PR	12,000	34,000	17,000	17,000	23,500
LRD	CENTER HILL LAKE, TN*	TN	77,800	78,700	13,512	0	0
SWD	BRAYS BAYOU, HOUSTON, TX	TX	7,740	102,359	86,243	137,513	22,076
SWD	LOWER COLORADO RIVER BASIN (WHARTON/ONION),TX	TX	10,000	20,000	12,000	10,000	3,943
NAD	AIWW, BRIDGES AT DEEP CREEK, VA*	VA	1,590	4,410	0	0	0
SAD	JOHN H KERR LAKE, VA & NC*	VA	6,000	0	0	0	0
LRD	LEVISA AND TUG FORKS AND UPPER CUMBERLAND RIVER, VA, WV, & KY	VA	19,500	63,800	44,500	46,096	29,500
NAD	NORFOLK HARBOR AND CHANNELS, CRANEY ISLAND, VA	VA	1,000	1,000	139,000	100,000	100,000
SAD	ROANOKE RIVER UPPER BASIN, HEADWATERS AREA, VA*	VA	1,075	2,275	1,079	0	0
NWD	CHIEF JOSEPH DAM GAS ABATEMENT, WA *	WA	200	0	0	0	0
NWD	COLUMBIA RIVER FISH MITIGATION, WA, OR & ID*	WA	137,615	42,996			0
NWD	COLUMBIA RIVER TREATY FISHING ACCESS SITES, OR & WA*	WA	500	3,500	0	0	0
NWD	DUWAMISH AND GREEN RIVER BASIN, WA	WA	10,482	5,710	10,096	12,334	13,134
NWD	HOWARD HANSON DAM, WA	WA	3,700	30,000	50,000	100,000	100,000
NWD	LOWER SNAKE RIVER FISH & WILDLIFE COMPENSATION, WA, OR & ID	WA	3,000	1,500	3,000	3,500	3,500
NWD	MOUNT SAINT HELENS SEDIMENT CONTROL, WA	WA	800	12,400	3,045	5,800	8,722
NWD	MUD MOUNTAIN DAM, WA	WA	1,000	1,000	21,116	21,135	21,155
LRD	BLUESTONE LAKE, WV*	WV	15,000	15,000	55,000	0	0
<b>Total - Construction (Listed under States)</b>			<b>1,581,461</b>	<b>1,817,596</b>	<b>1,873,596</b>	<b>1,880,573</b>	<b>1,585,287</b>
Additional Projects and Programs (including CAP's and Remaining Items)			194,135	0	0	63,023	432,309
Continuing Authorities Programs			40,969	40,969	40,969	40,969	40,969
Remaining Items			77,435	77,435	77,435	77,435	77,435
Total - Construction Appropriations			1,894,000	1,936,000	1,992,000	2,062,000	2,136,000

**Table M-1: Mississippi River and Tributaries, Base Plan Scenario  
(\$ Thousands)**

Project	ST	2011	2012	2013	2014	2015
<b>INVESTIGATIONS</b>						
<b>Survey and Collection and Study of Basic Data</b>						
COLDWATER RIVER BASIN BELOW ARKABUTLA LAKE, MS	MS	246	261	241	249	259
MEMPHIS METRO AREA, STORM WATER MGMT STUDY, TN	TN	100	96	92	94	96
COLLECTION AND STUDY OF BASIC DATA	NA	500	475	458	468	478
<b>Subtotal investigations</b>		846	832	791	811	833
<b>Additional Studies and PEDs</b>		0	0	0	0	0
<b>Total Investigations</b>		846	832	791	811	833
<b>CONSTRUCTION</b>						
ATCHAFALAYA BASIN, FLOODWAY SYSTEM, LA	LA	2,631	2,521	2,434	2,488	2,543
ATCHAFALAYA BASIN, LA	LA	6,300	6,038	5,828	5,959	6,090
CHANNEL IMPROVEMENT, DIKES, AR, IL, KY, LA, MS, MO & TN	MS	7,674	7,354	7,098	7,258	7,418
CHANNEL IMPROVEMENT, REVETMENT OPERATIONS, AR, IL, KY, LA, MS, MO & TN	LA	39,535	37,888	36,570	37,394	38,217
MISSISSIPPI RIVER LEVEES, AR, IL, KY, LA, MS, MO & TN	LA	29,150	27,935	26,964	27,571	28,178
<b>Total Construction</b>		85,290	81,736	78,893	80,670	82,447
<b>Total Maintenance (Project Specific Listing Omitted)</b>		153,864	147,448	142,317	145,519	148,720
<b>Total Mississippi River and Tributaries (MR&amp;T) Account</b>		240,000	230,016	222,000	227,000	232,000



**Table M-2: Mississippi River and Tributaries, Enhanced Plan Scenario  
(\$ Thousands)**

Project	ST	2011	2012	2013	2014	2015
<b>INVESTIGATIONS</b>						
<b>Survey and Collection and Study of Basic Data</b>						
COLDWATER RIVER BASIN BELOW ARKABUTLA LAKE, MS	MS	246	261	268	277	167
MEMPHIS METRO AREA, STORM WATER MGMT STUDY, TN	TN	100	106	109	113	116
COLLECTION AND STUDY OF BASIC DATA	NA	500	531	545	564	582
<b>Subtotal investigations</b>		846	898	922	953	865
<b>Additional Studies and PEDs</b>		0	0	0	0	119
<b>Total Investigations</b>		846	898	922	953	984
<b>CONSTRUCTION</b>						
ATCHAFALAYA BASIN, FLOODWAY SYSTEM, LA	LA	2,631	2,793	2,868	2,965	3,062
ATCHAFALAYA BASIN, LA	LA	11,537	12,246	12,577	13,003	13,428
CHANNEL IMPROVEMENT, DIKES, AR, IL, KY, LA, MS, MO & TN	MS	7,674	8,146	8,366	8,649	8,932
CHANNEL IMPROVEMENT, REVETMENT OPERATIONS, AR, IL, KY, LA, MS, MO & TN	LA	38,298	40,652	41,751	43,164	44,576
MISSISSIPPI RIVER LEVEES, AR, IL, KY, LA, MS, MO & TN	LA	29,150	30,942	31,778	32,853	33,929
<b>Total Construction</b>		89,290	94,779	97,341	100,634	103,928
<b>Total Maintenance (Project Specific Listing Omitted)</b>		153,864	163,323	167,737	173,412	179,088
<b>Total Mississippi River and Tributaries (MR&amp;T) Account</b>		244,000	259,000	266,000	275,000	284,000