



Fiscal Year 2008 Annual Plan:
Ecosystem Restoration and Hurricane Protection
in Coastal Louisiana

April 2007

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Submitted to the

Senate Natural Resources Committee
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House Natural Resources Committee
Honorable Wilfred Pierre, Chairman

Senate Transportation, Highways and Public Works Committee
Honorable Noble E. Ellington, Chairman

House Transportation, Highways and Public Works Committee
Honorable Roy Quezairé Jr., Chairman

by

The Coastal Protection and Restoration Authority
Sidney Coffee, Chairperson

In accordance with R.S. 49:213.6. and R.S. 38:241-248

Preface

The Coastal Protection and Restoration Authority is pleased to submit to the House and Senate Natural Resource Committees and the House and Senate Transportation, Highways and Public Works Committees for full Legislative approval during the 2007 Regular Session of the Louisiana Legislature, the Annual Coastal Protection and Restoration Plan (Plan). The Plan was developed pursuant to R.S. 49:213.6 as amended and R.S. 38: 241-248, consistent with legislative intent and with the policy developed by the Coastal Protection and Restoration Authority.

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1 Coastal Protection & Restoration Authority Mandate

1.1 Introduction

1.1.1 America's Wetland - A Working Coast

South Louisiana encompasses internationally significant ecosystems, culturally unique communities, and world centers of shipping, fisheries, and industry.

Louisiana's coastal landscape provides a host of benefits; among them, protection from flooding. Barrier islands, healthy marshes, natural ridges adjacent to bayous, and cypress swamps provide a natural buffer during storms by slowing down and reducing incoming surges of water. This function, combined with man-made levees and other flood control measures, has allowed Louisiana's working coast to exist in a hurricane prone area.

1.1.2 Current Status

Extreme rates of land loss compounded with inadequate hurricane protection measures now threaten the viability of south Louisiana's communities and infrastructure. Over 1,000 Louisiana residents died, 2,000,000 homes sustained major or severe damage, and approximately 440,000 Louisiana citizens were still displaced from their homes one year after the storms.

To correct the root causes of these problems, the state is accelerating efforts to create a sustainable coast. As Hurricanes Katrina and Rita made clear, we cannot meet this goal unless we improve our hurricane protection systems and return the wetlands to health. Flood control and wetland restoration projects must be designed and built in tandem, taking into account how projects interact with each other.

1.1.3 Lessons from the Storms

For residents of coastal Louisiana, the loss of life and property remain devastating realities. In addition to human impacts, the storms had dramatic effects on south Louisiana's wetlands themselves. A study by the U.S. Geological Survey (USGS) reports that the 2005 storms converted approximately 217 square miles of marsh to water. Of this total, 98 square miles of land were lost in southwestern Louisiana, and 119 square miles were lost in southeastern Louisiana. Analyses of future growing seasons will indicate how much of this damage is permanent. Marsh plants may rebound in some spots and not in others. Regardless of the final outcome, the storms have aggravated an already dire land loss emergency.

1.1.4 Far reaching implications

Loss of crude oil and natural gas production in the Gulf of Mexico, along with significant disruptions to 20% of the U.S. refining capacity significantly increased gasoline and heating oil prices for households throughout the nation. (Testimony to Congress 2005. Congressional Budget Office, The Macroeconomic and Budgetary Effects of Hurricanes Katrina and Rita) Disruptions in offshore oil and gas production reduced supply and forced withdrawals from the Strategic Petroleum Reserves.

1.1.5 What is at stake?

Until the late 19th Century, Mississippi River floods regularly spread water and sediment across southeast Louisiana, helping to expand the Delta Plain and replenish swamps and marshes, and creating an ecosystem that endured for thousands of years. But in the last century, the river has been contained within confined channels and levees. The river's water and sediment are vital land building resources, which are now funneled into the Gulf of Mexico. Because the wetlands do not receive the materials that allow them to regenerate, they become waterlogged, sink, and turn into open water. Rising sea level, saltwater intrusion from man-made channels and a host of other factors all increase stress upon an already burdened ecosystem.

If this rate of loss is not reduced, critical energy infrastructure will be damaged or destroyed. Pipelines, offshore support centers, and other facilities constructed for inland conditions will be subject to the open water of the Gulf of Mexico. Should these trends continue, the nation can expect disruptions in the delivery and pricing of crude oil and gas. As we saw after Hurricanes Katrina and Rita, these conditions can impact the nation's economy.

Louisiana has already lived through the catastrophic scenario in which hurricanes claimed over 1,000 lives and billions of dollars worth of property. When one considers the human cost, the risks to infrastructure, and the danger to wildlife and landscape, it is clear that we must take bold action. Significant upgrades to our hurricane protection system are clearly in order, but levees alone cannot do the job. A sustainable coastal ecosystem will help storm protection projects diffuse flooding while safeguarding the infrastructure, fisheries and communities that are integral to our state and nation's security.

Implementing this comprehensive solution will require one of the largest public works programs our nation has ever attempted. And while Louisiana is willing to pay its fair share of the cost, federal funds will also be needed. Such assistance is not a handout, but rather an acknowledgement that south Louisiana's coast was altered so that it could better serve national energy and navigation interests. It only makes sense therefore, that having

reaped the benefit of Louisiana's geography and resources for over 100 years, the nation will invest in restoring the ecosystem and protecting the coast's defenses.

1.2 Legislative Authority and Procedures

Senate Bill 71, adopted by the legislature during the November 2005 Special Session and signed by the governor as Act 8, created the Coastal Protection and Restoration Authority (CPR Authority). This new authority, which replaces the Wetlands Conservation and Restoration Authority, is charged with articulating a clear statement of priorities and focusing the state's efforts on long-term, comprehensive coastal protection.

The CPR Authority's members include: the Governor's Executive Assistant for Coastal Activities; the Commissioner of the Division of Administration; the Commissioner of Insurance; four representatives from levee boards or authorities; two representatives from the Police Jury Association; the Chairman of the Governor's Advisory Commission on Coastal Protection, Restoration, and Conservation; the Director of the State Office of Homeland Security; and the secretaries of two lead state agencies—the Department of Natural Resources and the Department of Transportation and Development. Also participating are the secretaries of the following state departments: Wildlife and Fisheries, Environmental Quality, Economic Development, and Agriculture and Forestry.

The CPR Authority was given responsibility for coordinating hurricane protection and coastal restoration initiatives. To this end, the CPR Authority must create an annual Coastal Protection and Restoration Plan. Projects included herein have been subject to planning, design and public participation processes in accordance with the requirements of the program funding stream. Additionally, projects have also been evaluated to ensure they correspond to post-hurricane priorities.

This document represents the second annual Coastal Protection and Restoration Plan (Plan), and it has two functions:

- 1) The Plan describes how state agencies and their partners intend to protect and restore Louisiana's coast in FY 08. To this end, the plan outlines ongoing and future projects pertaining to hurricane protection and coastal restoration.
- 2) The Plan makes recommendations as to how dollars from the Coastal Protection and Restoration Fund (Fund), previously the Wetlands Conservation and Restoration Fund, should be applied to achieve these goals.

The Fund was Louisiana's first dedicated source of monies for state sponsored coastal restoration projects. A portion of the mineral income and severance taxes from oil and gas production on state lands provides the Fund's income. Analysis for planning and construction of elements and opportunities that are incorporated into annual plans are carried out at a coast-wide level. As a result of technical analyses and prioritization processes, some annual plans may not reflect activity in all basins. Information about activities that received monies from the Fund in previous years can be found in Wetlands Conservation and Restoration Plans submitted between 1990 and 2005.

In addition to the CPR Authority, the groups listed below also help develop the Plan:

- The Governor's Office of Coastal Activities coordinates policy among the many agencies involved in the state's coastal protection effort, and is responsible for the production and submittal of the Plan.
- The Department of Natural Resources (DNR) manages and administers the Fund. DNR's Office of Coastal Restoration and Management handles day to day implementation of coastal restoration initiatives, along with coastal zone management activities.
- The Department of Transportation and Development (DOTD) handles aspects of the plan related to hurricane protection.
- The public reviews a draft of the Plan and makes comments as to which program priorities should be adjusted.

1.3 State Funding for Coastal Protection and Restoration

Citizens throughout the U.S. received a wakeup call about the link between keeping Louisiana safe and maintaining a sound national economy. The 2005 hurricanes demonstrated that upgrading Louisiana's coastal hurricane protection system and building a sustainable coastal landscape are not just local concerns but matters of national urgency. Had these measures been in place before the storms struck, hundreds of lives would have been saved, and billions of dollars worth of infrastructure would have been spared. Clearly, further postponement of these long overdue initiatives is financially untenable and morally irresponsible.

There are two major current sources of funds that may be used to advance protection and restoration projects: the state Coastal Protection and Restoration Fund (Fund), and state Capital Outlay funds. Monies from the Fund may be used for state-only work and as match to federal and parish efforts. Annual requests will be made for Capital Outlay funds through the annual appropriations process to secure state cost-sharing monies for planning, engineering & design, and construction of levee projects with the US Army Corps of Engineers.

1.4 Deposits to the Fund

1.4.1 Recurring Deposits

Income for the fund is a dedication of a percentage of the state's mineral revenues and generates approximately \$25 million annually, dependent on the price of oil and gas. This fund formerly had a maximum of \$40 million unobligated balance. However, with the passage of a constitutional amendment in October of 2003, the unobligated balance allowed in the Fund was raised to \$500 million in anticipation of receiving a share of federal offshore oil and gas revenue.

1.4.2 Non-recurring Deposits

Also in October of 2003, two additional constitutional amendments were passed, one which requires the first \$35 million of mineral settlements or judgments deposited into the Mineral Revenue Audit and Settlement Fund be transferred to the Coastal Protection and Restoration Fund. The second allows the deposit of non-recurring state revenues into the fund with legislative authorization.

Further, the Louisiana Constitution was amended in September of 2006, to provide for the deposit of 20% of the proceeds from the securitization of tobacco proceeds. In the event this securitization occurs, it may produce up to \$350 million for deposit into the fund. A portion of this may be used for barrier island stabilization and preservation. The state Bond Commission and Joint Legislative Committee on the Budget must review the securitization plan, and the full Legislature must approve it prior to the securitization and subsequent deposit.

1.4.3 Coastal Impact Assistance Program

Enacted in August 2005, Section 384 of the federal Energy Policy Act authorized the Coastal Impact Assistance Program (CIAP). The CIAP provision appropriated \$250 million per year for fiscal years 2007 through 2010, to be distributed among eligible Outer Continental Shelf (OCS)-producing States (States) and their coastal political subdivisions (counties, parishes and boroughs). Allocations to each State are to be based on the ratio of qualified OCS revenues offshore of that State to the total qualified OCS revenues from all OCS producing States. Preliminary Minerals Management Service estimates provided in mid-2006 are that this program will dedicate up to \$523 million to Louisiana and its coastal parishes over four years. By law, actual allocations for fiscal years 2007 and 2008 will be based on 2006 federal OCS revenues, and actual allocations for 2009 and 2010, will be based on 2008 OCS revenues. The CIAP provision requires that 35% (i.e., up to \$183 million in this case) be dedicated to coastal parishes. See Section 1.5.2 for further details about the program.

1.4.4 Outer Continental Shelf Revenues

Recent federal legislation has dedicated a portion of the Outer Continental Shelf (OCS) revenues to coastal oil producing states. According to estimates from our Congressional Delegation, upon passage of PL 109-342, Louisiana may anticipate a total of \$200 million in the first ten years of funding, with 20% of this funding being directed to the parishes. This averages \$16,000,000 to be used by the state per year for the first 10 years. After year 10, this funding could increase to approximately \$400,000,000 per year with the same distribution between the state and parishes.

1.5 Existing Programs for Coastal Protection and Restoration

The state Master Plan for hurricane protection and ecosystem restoration presents a conceptual vision of a sustainable coast based on the best available science and engineering. It builds upon past efforts and existing programs to provide this comprehensive vision, and serves to unite the work of on-going programs, such as those discussed below, toward a common goal. In this way, the programs described below serve as mechanisms by which the Master Plan may be implemented. It should be noted, however, that even this significant amount of work is not enough to fully implement the Master Plan in the necessary timeframe to respond to the urgency of the needs of our coast. As discussed in Chapter 3 of this document, the annual funding requirements will increase substantially in coming years, and we must prepare now to ensure that not only the funds, but also the infrastructure, are available to respond to the need.

1.5.1 Post Katrina Emergency Supplemental Appropriations

On Dec. 30, 2005, the President signed into law P.L. 109-148, the Department of Defense Appropriations Bill for FY 2006, which also provided Emergency Supplemental Appropriations to address Hurricanes in the Gulf of Mexico. This bill, the Third Supplemental appropriations since Hurricane Katrina struck in August, appropriated \$1.9 billion for the New Orleans District to repair and rehabilitate hurricane protection projects to their design heights and to accelerate completion of ongoing hurricane protection projects.

The Fourth Supplemental, so named because it is the fourth bill to provide emergency funds for the New Orleans District after Hurricanes Katrina and Rita, was signed by President Bush on June 16, 2006. It authorized supplemental funding for additional improvements to the hurricane protection system. The specific provisions in the Fourth Supplemental for the New Orleans area are:

- \$1.584 billion to reinforce or replace floodwalls in the New Orleans metropolitan area
- \$530 million for permanent pumps and gated closures at the three outfall canals
- \$495.3 million, to be cost shared with Louisiana, to raise levee heights for Lake Pontchartrain and West Bank levee projects
- \$350 million for construction of navigable closures on the Industrial Canal
- \$250 million to flood proof interior pumping stations
- \$215 million to replace, modify and incorporate non-federal levees in Plaquemines Parish into the federal system
- \$170 million to armor critical areas of the levees
- \$30 million to repair, replace, modify and improve non-federal levees in Terrebonne Parish
- \$20.2 million for coastal restoration to minimize future storm damage
- \$3.3 million to develop a comprehensive plan to de-authorize deep draft navigation on the Mississippi River Gulf Outlet.

1.5.2 Coastal Impact Assistance Program

Authorized uses of CIAP funds by States and their coastal political subdivisions are:

- Projects and activities for the conservation, protection, or restoration of coastal activities, including wetlands.
- Mitigation of damage to fish, wildlife, or natural resources.
- Planning assistance and the administrative costs of complying with CIAP.
- Implementation of a federally approved marine, coastal or comprehensive conservation management plan.
- Mitigation of the impact of Outer Continental Shelf activities through funding of onshore infrastructure projects and public service needs.

DNR will administer the State's portion of CIAP funds (100% Federal funds which do not require state match), while the coastal parishes will administer their portion of those funds. CIAP funds will be provided to the State and coastal parishes via non-competitive grants administered by the Minerals Management Service once Louisiana's Coastal Impact Assistance Plan is submitted to that agency and approved by them. The CIAP grants will be issued by MMS for an award period of 1 to 4 years; time extensions of those grant award periods may be requested by the State or coastal parishes, and MMS will consider them on a case-by-case basis.

1.5.3 The Coastal Wetlands Planning, Protection and Restoration Act (CWPPRA) Program

The federal Coastal Wetlands Planning, Protection, and Restoration Act (CWPPRA, PL 101-646, Title III), also known as the Breaux Act, was signed into law in 1990. The act provides funding each year to Louisiana for coastal restoration projects. The act also established a task force made up of representatives from the U.S. Departments of Agriculture, Interior, Commerce; the Environmental Protection Agency; the Corps; and the Governor of Louisiana. The Task Force, with participation from supporting committees and the public, is responsible for creating prioritized lists of coastal restoration projects. These lists are used to allocate CWPPRA funds each year.

The federal government and the state of Louisiana split the cost of all CWPPRA projects; CWPPRA funds pay for 85% of project costs, and the state pays the remaining 15%. In addition, since 1999, the Corps and DNR have split the cost of a series of feasibility studies that have supplied important information for designing the large-scale coastal protection program. The Coastal Protection and Restoration Authority will evaluate all requests for state matching dollars supplied by the Fund.

1.5.3.1 Phase 1 CWPPRA Projects

In Phase 1 of CWPPRA, projects undergo the engineering and design that is necessary to ensure that projects are constructed in a way that is most likely to meet the desired

ecosystem goals and objectives. In order to enter Phase 1, projects must be approved by the CWPPRA Task Force.

1.5.3.2 Phase 2 CWPPRA Projects

After the preliminary engineering and design phase has been completed, the CWPPRA Task Force decides which projects should receive construction funding. Once a project is approved for construction, or Phase 2 funding, the CWPPRA Task Force and the state assume responsibility for operating, maintaining, and monitoring the project through its lifetime.

1.5.3.3 Demonstration Projects

CWPPRA demonstration projects are selected based on the following criteria: degree of innovation, applicability, potential environmental benefits, recognized need for the information to be acquired, potential for technological advancement, and adequacy of the monitoring plan.

1.5.3.4 Non-Cash Flow Projects Requiring Increased Funding

Non-cash flow projects are those that were planned for and budgeted before 1996 when the CWPPRA cash flow system was instituted. Project modifications and cost increases are occasionally encountered that make it necessary to request additional funds in order to begin construction.

1.5.3.5 Coastwide Reference Monitoring System–Wetlands (CRMS-Wetlands)

The CWPPRA monitoring program has two monitoring objectives: (1) to evaluate the effectiveness of each constructed restoration project, and (2) to scientifically evaluate how well the restoration projects create, restore, protect, and enhance coastal wetlands in Louisiana. The Coastwide Reference Monitoring System-Wetlands (CRMS-Wetlands) will help the state meet both of these objectives by providing a network or “pool” of reference sites that can be used to evaluate the effectiveness of individual projects. CRMS-Wetlands will also ensure that the state’s comprehensive coastal protection plan is indeed restoring hydrologic basins and entire coastal ecosystems—not just the areas directly affected by individual projects. CRMS-Wetlands should also provide data to fill information gaps and help refine hydrodynamic and ecological models developed as part of the state’s overall coastal protection program.

1.5.4 Louisiana Coastal Area

The Coast 2050 study began with a single basin review (Barataria Basin) which was initiated in FY 2000-2001. The study was amended in FY 02-03 and the Louisiana Coastal Area (LCA) Comprehensive Coastwide Ecosystem Restoration Study was initiated to address all major restoration strategies developed during the Coast 2050

planning effort. A draft comprehensive plan was submitted for federal review in November of 2003. In February 2004, guidance was received from the President's Administration to focus on a near-term program which consists of highly cost-effective projects that address the most critical ecological needs of coastal Louisiana. The LCA Study outlined a 10-year, near-term plan costing approximately \$1.9 billion. While awaiting authorization through the Water Resources Development Act (WRDA), planning for these near-term actions continues through annual appropriations from the federal government through a 50%/50% cost share between the state and the U.S. Army Corps of Engineers (Corps).

The 2004 LCA Study contained seven major components:

- 1) five priority projects for immediate implementation using a conditional authorization subject to the approval of the Secretary of the Army;
- 2) ten additional projects for implementation in the next 10 years under standard Corps authorization processes;
- 3) six large scale studies that will lay the groundwork for the systemic restoration of deltaic processes and natural system hydrology;
- 4) a Science and Technology Program that will implement the principles and practices of adaptive management;
- 5) a demonstration project program that will assist in resolving critical uncertainties;
- 6) a program to re-evaluate existing water resources structures for their potential to contribute to ecosystem restoration; and
- 7) a new program for expanded beneficial use of dredged material.

1.5.4.1 Five Priority Projects

Five projects were considered priority because they address critical needs of the Louisiana coastal area and have relatively few uncertainties associated with implementation. Therefore, they were proposed for immediate construction through conditional authorization from the Secretary of the Army. These projects include the Mississippi River Reintroduction into Bayou Lafourche, the Delta Building River Diversion at Myrtle Grove, the Mississippi River Reintroduction into Maurepas Swamp, the Barataria Basin Barrier Shoreline Restoration and the Mississippi River Gulf Outlet (MRGO) Environmental Restoration Features.

1.5.4.2 Ten Additional Projects

The LCA Plan recommended 10 additional critical near-term restoration features for recommendation for future Congressional authorization. These features, unlike the five priority projects, were not proposed for immediate construction authorization, but were projected to undergo the traditional preparation of design and decision documents. These proposed restoration features employ a variety of restoration strategies, such as freshwater and sediment diversions; interior shoreline protection; barrier island and barrier headland protection; and use of dredged material for marsh restoration.

1.5.4.3 Large-Scale Studies

To provide a sustainable solution to the degradation of Louisiana's coast, large scale concepts that provide long-term solutions must be investigated. The LCA study suggested several concepts including optimizing the utilization of freshwater and sediment in the Chenier Plain, "re-plumbing" the lower Mississippi River Delta to optimize the ecosystem functions while maintaining vital navigation functions, and optimizing water and sediment distribution at the Old River Control Complex.

1.5.4.4 LCA Science and Technology Program

The LCA Science and Technology (S&T) Program was created specifically to provide project execution and management personnel with the accumulated body of knowledge regarding the science and technology of coastal ecosystem restoration. Composed of the S&T Office (jointly run by the State and the Corps), the Science Board, the Science Coordination Team and ad-hoc review committees, the S&T Program also facilitates the development of applied analytical tools and funds scientific investigations to address relevant scientific and technical uncertainties, thereby improving both project and program-wide effectiveness.

1.5.4.5 Demonstration Program

Related to the S&T Program is a demonstration project program, which will enable the state and its partners to test new technology and restoration concepts in the field. The S&T Program will provide oversight to ensure that the execution of the demonstration projects maximizes learning opportunities.

1.5.4.6 Modification of Existing Features

Federally-authorized water resources projects in the coastal zone could possibly be used to increase benefits to the entire ecosystem. Modifying existing features and operations of these projects may provide the most cost-effective means of restoration in certain areas of the coast. The LCA Study makes recommendations for evaluating those opportunities.

1.5.4.7 Beneficial Use Program

The Corps estimates that up to half of the 70 million cubic yards dredged on an annual basis from federally maintained navigation channels may be used beneficially to restore wetland and aquatic habitats. Current funding and programmatic limitations make it possible to use only 14 million cubic yards of this vital resource for ecosystem restoration. The program would provide a quick and cost-effective means of building coastal features with a resource that is not currently utilized to benefit the coastal ecosystem.

1.5.5 Water Resources Development Act

The Water Resources Development Act (WRDA) authorizes the United States Army Corps of Engineers to study, modify, and construct various projects related to water resource issues throughout the United States. These include projects for navigation, environmental restoration, flood damage reduction, recreation, flood control, storm damage reduction, ecosystem restoration and shore protection, and aquifer storage and recovery. Construction or modification authorizations for such projects are subject to a final report from the Army Chief of Engineers and approval by the Secretary of the Army. There is also the requirement of identification of a non-federal partner that pays 50 percent of project planning costs, and 35 percent of engineering & design, and construction costs.

Authorization establishes a project's essential character, which is seldom substantially modified during appropriations. The appropriations process, however, plays a significant role in the realization of a project, as appropriations determine which studies and projects receive federal funds.

In recent decades, Congress has authorized not only navigation and flood control projects, but also ecosystem restoration, environmental infrastructure assistance, and other nontraditional activities. The federal hurricane levee projects in Louisiana have been authorized through one or both of these acts. Two major ecosystem restoration projects – the Caernarvon and Davis Pond freshwater diversions – were also authorized under WRDA.

In addition to other projects, the state of Louisiana is currently awaiting WRDA authorization for two important components of the Master Plan: the LCA Study (see section 1.5.4), the Morganza to the Gulf Hurricane Protection project (see section 2.2.1.1). If authorized, funds could be appropriated very soon to initiate engineering & design and construction of these crucial components of the solution for hurricane protection and ecosystem restoration of coastal Louisiana.

1.5.6 State Coastal Engineering & Science Program

The state will work to build its own capacity to reduce key uncertainties and to promote advances in the science, engineering and technology fields critical to implementation of the Master Plan. Over the life of Master Plan implementation, there will be a need for strategic data collection and management, improved forecasting tools, focused research and development, and assessment of program and project effectiveness. These needs may be related to the science and engineering, modeling, socio-economic impacts and changes, implementation, technical methodology, resource constraints, or effectiveness of measures. They may also be related to development and refinement of forecasting tools. Advances in the state of science, engineering and technology must be addressed in order to achieve full and balanced integration of protection and restoration objectives.

Existing programs, such as the Louisiana Coastal Area Science and Technology Program (see chapter 1.5.4.4), as well as other work discussed below, will be maximized and extended as a portion of this measure.

1.5.6.1 GPS Network

Accurate measurements of the coast's changing elevations are essential to the success of all restoration projects. The Coastal Zone Global Positioning System (GPS) network measures these changes by providing a series of permanent elevation benchmarks across Louisiana's coast. This network of benchmarks, which was completed in 2001, establishes markers within areas that were previously inaccessible. At previously existing benchmarks, the network ensures that accurate measurements are taken. The network allows an accurate comparison of wetland elevations between basins and across the entire coast.

1.5.6.2 Assessment of Offshore Sand Sources along the Outer Continental Shelf of Louisiana and Management of Geological, Geophysical and Geotechnical Data

In 2003, DNR began a multiyear cooperative program with the Minerals Management Service (MMS). The program's objective is to provide a single source of information on offshore sand resources, with special emphasis on mapping and assessing the distribution of Outer Continental Shelf (OCS) sediments and sands. This spatial database will be accessible through the Internet and will consist of coastal and offshore geological, environmental, and related data. When the program began, these data were dispersed among different agencies. Collecting the information and making it available to policy makers, coastal planners, engineers, environmentalists, and the public will facilitate coastal protection efforts in a key area.

1.5.7 State-Only Programs

1.5.7.1 Small Dredge Program

The DNR Small Dredge Program began in 1998 and is primarily financed by the Fund. The objective of this program is to use a mobile hydraulic dredge to move sediments out of small inland waterways and deposit the material in coastal marshes immediately adjacent to those waterways. This approach has the potential to rebuild many small areas of need over a relatively large area, if the dredge relocates frequently. Two such projects, the Lake Salvador project in St. Charles Parish and the Bayou Dupont project in Jefferson Parish, have been constructed to date. These successful projects have demonstrated the feasibility and successful implementation of this program.

Projects are selected according to how well they match a set of preferred conditions identified by DNR, such as the structural integrity of the existing marsh, the depth of the water, and the cost of implementing the project. After a DNR review shows that a project

meets these conditions, DNR staff gather additional information for project design. Selected projects are then completed as resources allow.

1.5.7.2 Louisiana's Coastal Wetlands Conservation Plan

Established in accordance with Section 304 of CWPPRA, the Louisiana's Coastal Wetlands Conservation Plan (Conservation Plan) serves as a framework for coordinating Louisiana's efforts to offset coastal wetland losses caused by development. The Conservation Plan's goal is to achieve no net loss of wetlands from development activities. Meeting this goal satisfies a critical requirement of CWPPRA and thus reduces the state match for CWPPRA restoration projects from 25% to 15%. The reduced match requirement saves Louisiana approximately \$6 million per year. DNR's Coastal Management Division coordinates implementation of the Conservation Plan. Most of the Conservation Plan's activities fall within the Coastal Zone boundary. Elements of the Conservation Plan include:

1. Coastal Wetland Reserve Program

Louisiana's Coastal Wetland Reserve Program (CWRP) is a special element of the Conservation Plan. The purpose of the CWRP is to restore coastal wetlands on lands that have been converted to agriculture. Several hundred acres of coastal wetlands have been restored under the CWRP in previous years. Louisiana has pledged to make available over \$200,000 each year in order to accomplish more of this vital coastal restoration work. The State is working with the Conservation Plan federal oversight agencies to obtain formal approval for shifting the funds for this program to focus on conservation of coastal forest through conservation easements purchased from willing landowners.

2. Christmas Tree Projects Program

Christmas Tree projects aid marsh creation, restoration, and conservation by using recycled Christmas trees to reduce wave energies, trap sediment, and promote vegetation growth. This ongoing project also increases public awareness about coastal restoration and recycling. The program is run by the local governments of the state's 19 coastal zone parishes.

3. Vegetation Planting Program

This program employs a unique, three agency partnership to plant and monitor native vegetation throughout Louisiana's coastal zone. The program is funded and coordinated by DNR's Coastal Restoration Division, and implementation is handled by the Louisiana Department of Agriculture and Forestry and local Soil and Water Conservation Districts (SWCDs). The districts select, plan, and evaluate the planting tasks in a low cost, efficient manner. The benefits of this approach include the following:

- The program spreads tasks throughout the coastal zone, thereby engendering local support.
- By working solely on the Vegetation Planting Program with their own equipment and the assistance of the coastal SWCD and NRCS, project

managers and technicians produce better projects in a timely and professional manner.

- Project managers and technicians gain detailed knowledge of landowners, project areas, permitting issues, and site conditions.

1.5.7.3 Protection and Restoration Program Support Activities

There are many issues that will have to be addressed in the first few years to remove existing constraints to complete implementation of the Master Plan. These include policy, legislative, and institutional issues associated with effective execution of projects and the plan. The use of legal services to remove constraints to plan implementation is included within program management. Examples of implementation constraints include the need to develop federal partnerships to establish dedicated funding streams and cost sharing agreements; including the need to obtain Congressional authority and appropriations. Another major issue for early resolution includes passing necessary land use planning policies and legislation required for responsible growth in coastal Louisiana. Oversight and coordination of all efforts by both state and federal agencies will require staff and contractor support. Additional activities include: public outreach and education; non-structural and evacuation planning coordination by the CPRA member agencies; development of the levee school by LSU; and operations of the regional flood protection authorities as authorized by House Bill No. 9, Act No. 43 of the first extraordinary session of 2006.

1.5.7.4 America's Wetland Conservation Corps

America's Wetland: Campaign to Save Coastal Louisiana has partnered with national and local leaders to develop the America's Wetland Conservation Corps (AWCC). The campaign has joined with the National Wildlife Federation, the Louisiana Wildlife Federation, and the Coalition to Restore Coastal Louisiana to provide a structure for the AWCC. The AWCC will engage AmeriCorps members, volunteers, and communities in helping to save and restore Louisiana's coast.

The Louisiana State University AgCenter will serve as the hub for the coalition, the host sites, and AmeriCorps members throughout the state by providing education, training, and a full-time team leader. The LSU AgCenter is uniquely qualified to lead the AWCC given its long history of stewardship, education, and volunteer coordination activities.

AWCC will recruit, train and place 15 AmeriCorps members at five sites throughout Louisiana to coordinate hands-on coastal restoration projects such as, vegetative planting, restorative interventions, community-wide clean-ups, and educational projects. In addition to the restoration projects they will undertake, the AmeriCorps members will also share their observations through personal web blogs, which will be posted on the America's Wetland Campaign's website.

1.5.8 Emergency Response

The effects of Hurricanes Katrina and Rita have spurred the state to examine and improve its emergency response procedures. Accordingly, DNR and DOTD are working to ensure that appropriate measures are in place to allow staff to react quickly if a storm or other event impairs public safety and/or damages coastal resources.

Additionally, FEMA may provide funds through the Louisiana Office of Emergency Preparedness (LA OEP) for the rehabilitation or restoration of coastal projects once a Presidential Disaster Declaration is authorized. A project is eligible for FEMA funds only if it is not covered under another federal program. DNR applies for assistance for actions related to coastal restoration projects. The federal government will provide up to 75% of the cost, with the LA OEP providing another 25%. However, because FEMA intervention depends on a Presidential Disaster Declaration, these funds may not be available every year.

Types of projects that may be eligible for funding after a Presidential Disaster Declaration include: levees and dams, restoring drainage channels to pre-flood hydraulic capacity; removal of debris that is foreign to a natural stream and constitutes an immediate threat to life and property; man-made dunes that have been properly maintained; shore facilities (bulkheads and sea walls); replacement of trees on public property when they have a functional value; and restoration of beaches that have been engineer designed, constructed, and regularly maintained in accordance with a nourishment plan prior to the disaster.

2 Implementation – Fiscal Year 2008 Activities

Chapter 2 describes the activities and associated funding request for fiscal year 2008 in order to initiate implementation of the Comprehensive Master Plan.

2.1 Project Planning

2.1.1 Hurricane Protection

2.1.1.1 Hurricane Protection for Metro New Orleans and Northshore Lake Pontchartrain

State Total FY08: \$5,000,000

The Lake Pontchartrain Barrier Plan is the outer-most barrier to provide protection to the New Orleans Metro Area and Northshore. This barrier works in tandem with raising the St. Bernard 40 Arpent Levee to provide 0.2% level protection to the greater New Orleans area. As part of the PED analysis of the outer barrier, a reevaluation of the protection system along the South shore of Lake Pontchartrain, the Mississippi River levees, and other metro New Orleans protection systems to insure that all components collectively provide 0.2% level of protection to the greater New Orleans areas. Flood risks to the other areas surrounding Lake Pontchartrain still remain from storm surges that might develop from within Lake Pontchartrain in spite of an outer barrier system protecting New Orleans.

2.1.1.2 Donaldsonville, LA to the Gulf of Mexico Hurricane Protection Project

State Total FY08: \$1,500,000 (capital outlay)

It is currently estimated that an amount of \$1.5 million will be needed to cover expenditures in FY 2009 (Planning & feasibility cost) and an amount of \$1.9 million will be needed to cover expenditures in FY 2010 (PED cost). An additional \$5.7 Million will be needed after FY 2010 (PED & construction)

2.1.2 Coastal Restoration

2.1.2.1 Louisiana Coastal Area

State Total FY08: \$10,000,000

The LCA Study lays out a series of projects and programs that offer a first step toward achieving the large scale program's restoration goals. By focusing on critical projects, allowing for action on larger-scale restoration strategies, and supporting the program with science-based decision support systems, the state will be able to implement projects in the near-term that have relatively low risk. At the same time, the state can continue to develop the science and technology that will ultimately provide for sustainable restoration of Louisiana's coastal ecosystem.

At present, the State and USACE are working to prioritize activities to be accomplished in fiscal year 2007-2008. The State and USACE terminated the LCA Comprehensive 2050 Feasibility Study cost share agreement effective September 30, 2006, and are currently working toward execution of project-specific cost share agreements for priority items, including the following projects:

- 1) Science and Technology Program
- 2) Barataria Basin Barrier Shoreline Feasibility Study
- 3) Beneficial Use of Dredged Material Program Feasibility Study
- 4) Chenier Plain Freshwater and Sediment Management and Allocation Reassessment Study
- 5) Mississippi River Hydrodynamic and Delta Management Study
- 6) Medium Diversion with Dedicated Dredging at Myrtle Grove

2.2 Project Engineering and Design

2.2.1 Hurricane Protection

2.2.1.1 Morganza, La. to the Gulf of Mexico Hurricane Protection Project

State Total FY08: \$3,000,000 (capital outlay)

Capital Outlay funds requested for FY 2008 are \$3.0 million for PED.

2.2.1.2 Southwest Coastal Louisiana Project

No CPR Funds requested at this time

After completion of the reconnaissance study, a decision must be made whether to incorporate it into the state's CPRA Master Plan, LA Coastal Protection & Restoration study or obtain congressional authorization and appropriation to proceed to the

Feasibility Phase which would require local support. La DOTD has agreed to be the non-federal sponsor of this project. Funding request will be dependent on an approved feasibility cost share agreement.

2.2.1.3 West Shore-Lake Pontchartrain, Louisiana

No CPR Funds requested at this time

Study Cost: \$3,000,000 at a 50/50 cost share between the Corps of Engineers and the non-federal sponsor. Local funds are provided by the Pontchartrain Levee District. No state funds requested for FY08.

2.2.2 Coastal Restoration

2.2.2.1 Closure of the MRGO and Ecosystem Restoration

State Total FY08: \$3,000,000

Closure of the MRGO at the Bayou la Loutre ridge will be immediately initiated for this group of measures. Funding for the physical closure of the MRGO will be through the USACE. Once completed, the closure will facilitate construction, operation, and maintenance of the other measures in the group. Closure of the MRGO at the Bayou la Loutre ridge will be an earthen plug. The economic impacts of this closure need to be analyzed and mitigated appropriately. Once the closure at the Bayou la Loutre ridge is constructed, a large Violet Diversion will help sustain the marshes in the vicinity of the MRGO and the Biloxi Marshes. Additionally, maintaining the MRGO-Lake Borgne landbridge and restoration of the Bayou La Loutre Ridge will also serve to protect, restore, and nourish fragile landscapes.

2.2.2.2 CWPPRA Phase I

State Total FY08: \$1,293,654

Table 2-1 presents the projects ready for Phase 1 engineering and design and have been approved by the CWPPRA Task Force.

Table 2-1 Phase I CWPPRA Projects and State Match Requirements

Project Name	Total Phase I Cost	State Match (15%)
PO-34 Alligator Bend Marsh Restoration and Shoreline Protection	\$1,660,985	\$249,148
ME-24 Southwest LA Gulf Shoreline Nourishment and Protection	\$1,266,842	\$190,026
TE-51 Madison Bay Marsh Creation and Terracing	\$3,002,170	\$450,326
TE-52 West Belle Pass Headland Restoration	\$2,694,363	\$404,154
Totals	\$8,624,360	\$1,293,654

2.2.2.3 CWPPRA Demonstration Projects

State Total FY08: \$137,940

CWPPRA demonstration projects are selected based on the following criteria: degree of innovation, applicability, potential environmental benefits, recognized need for the information to be acquired, potential for technological advancement, and adequacy of the monitoring plan. For FY08, a demonstration project Enhancement of Barrier Island Vegetation was authorized by the CWPPRA Task Force. The total cost of the project is \$919,599; the state's share is \$137,940.

2.2.2.4 CIAP

State Total FY08: \$21,473,287

With the first year of funding, CIAP will initiate planning and engineering design for the following projects:

- 1) Violet Diversion - \$2,996,655
- 2) Mississippi River Delta Management Strategic Planning - \$5,000,000
- 3) Orleans Land Bridge Shoreline Protection and Marsh Creation - \$1,039,996
- 4) Bayou Lamoque Floodgate Removal - \$633,331
- 5) Blind River Freshwater Diversion - \$1,863,326
- 6) Central Wetlands Assimilation Project (Phase I) - \$6,249,993
- 7) Freshwater Bayou Bank Stabilization - \$1,049,996
- 8) Mississippi River Long Distance Sediment Pipeline - \$2,639,990

If conditions warrant, engineering and design of projects in addition to those mentioned may be accelerated.

2.2.2.5 Mississippi River Reintroduction into Bayou Lafourche

State Total FY08: \$5,000,000

The engineering and design will be completed for the Bayou Lafourche project including a set of Plans and Specifications ready to bid for construction. Tasks to be accomplished include but are not limited to: Pump Station design, channel design, drainage analysis, operation and maintenance schemes, and fore-bay design.

2.3 Project Construction

2.3.1 Hurricane Protection

2.3.1.1 Morganza, La. to the Gulf of Mexico Hurricane Protection Project

State Total FY08: \$13,000,000 (capital outlay)

Capital Outlay funds requested for FY 2008 are \$13.0 million for construction.

2.3.1.2 Grand Isle, LA & Vicinity Hurricane Protection Project

State Total FY08: \$4,810,000 (capital outlay)

Capital Outlay funds requested for FY08 are \$4.8 million for construction of 10 breakwaters and levee rehabilitation that were damaged by Hurricane Katrina. DOTD continues to be involved in this project as a joint non-Federal sponsor with the Town of Grand Isle. The Southside Hurricane Protection project is currently in the Plans and Specifications Phase.

2.3.1.3 Lake Pontchartrain, LA & Vicinity Hurricane Protection Project

No CPR Funds requested at this time

Non-Federal funds are provided by local levee districts. No state funds requested for FY08. Federal funds were authorized in the Third Emergency supplemental appropriations in 2005 and Fourth Emergency supplemental appropriations in 2006 to repair the flood protection system and advance the completion of the project at 100% Federal cost, therefore no state funds are requested for fiscal year 2008.

2.3.1.4 La Rose to Golden Meadow, LA Hurricane Protection Project

No CPR Funds requested at this time

Current activities include repairs to the levee system associated with hurricane damages. Levees are being completed based on original design conditions. Because of subsidence and sea-level rise, these levees cannot provide the same level of protection. The South Lafourche Levee District is in the process of constructing levee lifts to account for the outdated benchmarks and changing environmental conditions. Additional funds in the amount of \$180 million are needed to raise the entire levee system and offset subsidence and sea-level rise.

2.3.1.5 New Orleans to Venice, LA Hurricane Protection Project

No CPR Funds requested at this time

Local funds are provided by the Plaquemines Parish Government. No state funds requested for FY08. Federal funds were authorized in the Third Emergency supplemental appropriations in 2005 and Fourth Emergency supplemental appropriations in 2006 to repair the flood protection system and advance the completion of the project at 100% Federal cost, therefore no state funds are requested for fiscal year 2008.

2.3.1.6 Southeast, LA Urban Flood Control

No CPR Funds requested at this time

No state funds requested for FY08. Federal funds were authorized in the Third Emergency supplemental appropriations in 2005 and Fourth Emergency supplemental appropriations in 2006 to repair the flood protection system and advance the completion of the project at 100% Federal cost, therefore no state funds are requested for fiscal year 2008.

2.3.1.7 West Bank Hurricane, New Orleans, LA Hurricane Protection

State Total FY08: \$3,000,000 (capital outlay)

Federal Funds in the amount of \$591,300,000 were authorized in the Fourth Emergency Supplemental Appropriations bill for the construction of levee components to the 100 year level of protection with a 65/35 cost share. It is currently estimated that an amount of \$7 million will be needed to cover construction expenditures in FY 2009 and an amount of \$7 million will be needed to cover expenditures in FY 2010. An additional \$14 Million will be needed after FY 2010. DOTD and the West Jefferson Levee District are the local non-federal cost share sponsors.

2.3.2 Coastal Restoration

2.3.2.1 CWPPRA Phase II

State Total FY08: \$5,177,337

Projects listed in Table 2-2 have been authorized by the CWPPRA Task Force for construction, or Phase 2 funding.

Table 2-2 Phase II CWPPRA Projects and State Match Requirements

Project Name	Total Phase II Cost	State Match (15%)
BA-36 Dedicated Dredging on the Barataria Landbridge, Fill Site 1	\$15,378,401	\$2,306,760
PO-33 Goose Point/Pointe Platte Marsh Creation	\$19,137,181	\$2,870,577
Totals	\$34,515,582	\$5,177,337

2.3.2.2 CIAP

State Total FY08: \$104,870,000

With the first year of funding, CIAP will initiate construction activities for the following projects:

- 1) East Grand Terre Island Restoration - \$21,000,000
- 2) Grand Lake Shoreline Protection - \$10,600,000
- 3) Gulf Intracoastal Waterway (GIWW) Bank Restoration of Critical Areas of Terrebonne - \$7,970,000

- 4) Barataria Land Bridge Dedicated Dredging - \$18,000,000
- 5) Rockefeller Refuge Shoreline Protection Demonstration Project - \$8,000,000
- 6) Lake Salvador Shoreline Protection (Phase III) - \$1,300,000
- 7) Marsh Creation via Beneficial Use - \$20,000,000
- 8) Coastal Forest Conservation Initiative - \$18,000,000*

* Coastal Forest Conservations Initiative costs primarily involve acquisition of land conservation rights, rather than construction.

2.3.2.3 Bank Stabilization along Bush Canal and Bayou Terrebonne

State Total FY08: \$1,000,000

The project consists of dredging material from Bush Canal and using the material to rebuild the eroded bank line which will then serve to diminish storm surge as well as reduce saltwater intrusion. Approximately 1.5 miles of bankline stabilization will be completed. The project will provide protection to the wetlands in the area, the Bush Canal Hurricane Protection Levee, and the 4,300 acre LaCache Marsh Management Area.

2.3.2.4 Beneficial Use of Dredged Material (Federal Projects)

State Total FY08: \$1,500,000

Provide for the beneficial use of spoil materials generated from the maintenance of federal navigation channels or other restoration activities. The schedule and site locations are tentative. Actual construction is dependant on the availability of federal funding, dredge needs and schedule, and congressional and local influences. The \$1,500,000 represents the state's 25% match for these types of projects.

2.3.2.5 Small Dredge Program

State Total FY08: \$3,500,000

DNR Small Dredge Program began in 1998 and is primarily financed by the Fund. The objective of this program is to create marsh by using small portable hydraulic dredges to generate dredge materials. Total area to be benefited is between 90 and 140 acres. Two large areas, the Lake Salvador sites in St. Charles Parish and the Bayou Dupont sites in Jefferson Parish, have been constructed to date. These successful projects have demonstrated the feasibility of dedicating a small dredge to this program for an extended period of time.

2.3.2.6 Bayou Lafourche Salt Water Barrier

State Total FY 08: \$5,000,000

This involves installation of a removable barrier in Bayou Lafourche north of the Gulf Intracoastal Waterway at Larose to prevent upstream movement of salt water into drinking water supplies during low flow periods. The design of the barrier would be similar to the one now present on Company Canal. Design would have to be completed and permits obtained (e.g., U.S. Coast Guard).

2.4 Operations and Maintenance

2.4.1 Hurricane Protection

The federal appropriations for flood protection projects are obtained through the Water Resources Development Act (WRDA). This act establishes the federal policy to assist in the construction, but not the maintenance of flood protection projects. The U.S. Code of Federal Regulations (CFR 33 Part 208.1) regulates the operation and maintenance of structures and facilities of flood protection works, including periodic inspections which shall be made at intervals not to exceed 90 days.

The Department of Transportation and Development and the local levee district or parish government provide the non-federal cost share, but the local levee districts or parish are responsible for the maintenance of completed projects. Since DOTD does not have the authority to maintain levees, DOTD enters into contractual agreements with the local entity to meet the federally mandated maintenance responsibilities including the required inspections. DOTD has the responsibility of assuring that the levee districts perform and properly document the periodic inspections as well as correcting any deficiencies noted in the inspections.

2.4.2 Coastal Restoration

2.4.2.1 CWPPRA Projects with O&M Budget

State Total FY08: \$135,878

The purpose of CWPPRA is to plan, design, construct, operate, maintain, and monitor coastal wetlands restoration projects that provide for long-term conservation of wetlands and dependent fish and wildlife populations.

2.4.2.2 CWPPRA Projects without O&M Budget

State Total FY08: \$15,000

Maintenance of CWPPRA Projects without a Federal O&M budget examples of which include Bayou LaBaranch Wetland Creation (PO-17), Chandeleur Island Marsh Restoration ((PO-27), Isle Dernieres Restoration East/Trinity (TE-20/24), East Timbalier Sediment Restoration Phases I and II (TE-25/30), and Whiskey Island Restoration (TE-27).

2.4.2.3 CWPPRA Coastwide Nutria Control Program

State Total FY08: \$491,593

The goal of the CWPPRA Coastwide Nutria Control Program is to significantly reduce the damage to coastal wetlands caused by nutria herbivory. Based on promising results from previous years, the CWPPRA Task Force and LDNR continue to support the program as a cash-flow project, maintaining a three year budget.

2.4.2.4 Caernarvon Freshwater Diversion

State Total FY08: \$711,912

Provide for the ongoing operations, maintenance, biological monitoring (DNR) and emergency repairs for the Caernarvon project. Caernarvon was authorized by the Flood Control Act of 1965 (PL 89-298), the Water Resources Act (WRDA) of 1974 (PL 93-251), and WRDA of 1986 (PL 99-622). The project is located on the east bank of the Mississippi River near the St. Bernard/Plaquemines Parish line. The project diverts fresh water and its accompanying nutrients and sediments from the Mississippi River to coastal bays and marshes in Breton Sound. The project has been operated since 1991. DNR is obligated to provide operations, maintenance, biological monitoring and emergency repairs during the project's 50-year life.

2.4.2.5 Davis Pond Freshwater Diversion

State Total FY08: \$544,000

Provide for the ongoing operations, maintenance, biological monitoring (DNR) and emergency repairs for the Davis Pond project. Davis Pond was authorized by the Flood Control Act of 1965 (PL 89-298), the Water Resources Development Act (WRDA) of 1974 (PL 93-251), WRDA 1986 (PL 99-622), and WRDA 1996 (PL 104-303). The project is located on the west bank of the Mississippi River in St. Charles Parish near the town of Luling, LA. The project diverts freshwater, with its accompanying nutrients and sediments, from the Mississippi River into the Barataria Basin to reduce saltwater intrusion and establish favorable salinity conditions in the area, thus combating land loss. This diversion will also increase commercial and recreational fish and wildlife productivity, and enhance vegetation growth for a healthier estuarine ecosystem in the

Barataria Basin. Construction began in November 1996, all project features were completed in 2002. An amendment with USACE/MVN is pending which would increase the cost of the project, but the final figure has not been agreed upon.

2.4.2.6 Repairs to Rycade Canal (CS-02) Hydrologic Boundary Levee

State Total FY08: \$2,045,075

This project was funded by the State Wetlands Trust Fund in the amount of \$691,450 and completed in September, 1994. The project area is approximately 6,575 acres of brackish marsh and open water. The project's features include levees along the bank of Rycade Canal and two variable crested weirs/flapgated water control structures. Hurricane Rita damaged the levees and water control structures. The water control structures have been repaired, but breaches in the levee are allowing high salinity water to bypass the structures. This repair project will address the following issues:

1. Refurbish 21,000 linear feet of existing levee
2. Place rock revetment on approximately 5,000 of the most vulnerable sections of levee
3. Plug approximately 100 linear feet of damaged embankment along the southern bank of the GIWW
4. Plug an existing culvert under the oilfield road near one of the water control structures.

2.4.2.7 Maintenance for State Only Projects

State Total FY08: \$818,000

Ongoing operations, maintenance, and repairs are conducted on state-only projects through a schedule developed by staff at DNR. When rehabilitation is necessary, studies are undertaken to determine which projects will receive funds.

2.4.2.8 Structure Operations and Inspections for State Only Projects

State Total FY08: \$208,000

Operations and Inspection of State Only Projects, examples of which include Bayou LaCache, West Point a la Hache Siphon, Naomi Siphon, Violet Siphon, Rycade Canal, and periodic inspection of various projects as required.

2.4.2.9 Barrier Island Maintenance

State Total FY08: \$3,500,000

House Bill No. 429, Act No. 407 called for the Louisiana Department of Natural Resources (DNR) to establish a program for barrier island and shoreline stabilization and

preservation. This Act outlined the process for annually developing a priority list of projects to be submitted to the House and Senate Committees on Natural Resources. House Bill No. 1034, Act No. 786 of the 2004 Session established the Barrier Island Stabilization and Preservation Fund. This Act established a funding source for the program including appropriations, donations, grants, and other monies.

2.4.2.10 North Prong Schooner Bayou Levee Rehabilitation

State Total FY 08: \$1,000,000

The Vermilion Parish Police Jury recently requested an advance of \$1,000,000 in CIAP funds for early implementation of part of that project. The Vermilion Parish portion of the Draft CIAP Plan includes \$1,000,000 for that project, but those funds are not likely to be available for expenditure by the parish until the winter of 2007. Severe breaches in the east spoil bank of the North Prong of Schooner Bayou are allowing higher salinity water to by pass the Schooner Bayou Control Structure, threatening sources of fresh water used to irrigate adjacent rice-growing areas.

2.5 Science and Technology

2.5.1 Applied Coastal Engineering & Science Program

State Total FY08: \$2,500,000

The state will work to advance its S&T capabilities in areas such as: improving and integrating forecasting and design tools required to assess plan and project effectiveness; supporting a robust data collection and information management program; supporting focused research and demonstration projects to reduce uncertainties or test new technologies associated with plan implementation; ensuring adequate program performance assessment and feedback mechanisms; and, increasing stakeholder and public participation. The funds requested for the Coastal Engineering & Science Program is an additional request to extend and maximize existing programs, such as the LCA Science and Technology Program, as well as other ongoing activities.

2.5.2 LCA Science and Technology Program

State Total FY08: \$5,000,000

In 2005, an ad hoc committee comprised of state, federal and academic personnel was formed in order to initiate studies on critical scientific uncertainties and to help staff the program and its board. This committee is currently directing several efforts including implementing an adaptive management framework and three efforts to improve modeling capabilities. This work will continue in FY08. Partially funded through the LCA S&T program, the BICM Program will begin collecting data, conduct a barrier coastline storm

assessment, analyze shoreline change from the 1880s to 2005, and analyze habitat change from 1996 to 2005

2.5.3 Monitoring of CWPPRA Projects

State Total FY08: \$825,000

DNR is responsible for monitoring the effectiveness of the wetland restoration projects implemented under CWPPRA, as well as those financed entirely by the Fund.

Monitoring activities begin before construction and persist for the entire project life (approximately 20 years). DNR works with federal partners, ecologists, and statisticians to develop a monitoring plan for each project based on essential variables and available budgets. Data are collected and analyzed to evaluate each project's effectiveness.

The type of data collected varies by project and is typically governed by project type, goals, and strategies. Most projects are monitored using aerial photography to provide a pictorial history of changes in land, water areas, and habitat types. Other kinds of monitoring data include water levels, salinities, water depths, water temperatures, vegetation, soil characteristics, sediment elevations, and shoreline movements. DNR also has several real-time data collection platforms throughout the coastal zone that can provide hourly reading via satellite.

2.5.4 CIAP Performance Evaluation and Science Monitoring

State Total FY08: \$500,000

The State of Louisiana will perform project-specific performance analysis on a limited number of projects, and general performance analysis on all completed CIAP conservation and restoration projects, in conjunction with the Coastwide Reference Monitoring System (CRMS) administered by DNR for the CWPPRA program. Project-specific performance monitoring will be conducted on a limited number of CIAP projects to answer specific questions regarding coastal restoration and conservation effectiveness. DNR intends to carry out an internal and external review of selected restoration issues and/or project types, and potentially a performance analysis that could address those issues, to identify the specific intensive monitoring activities to be implemented through this Program. In addition, pre- and post-implementation aerial imagery will be analyzed on all CIAP-funded restoration projects, using coastwide aerial imagery being collected for the CRMS monitoring of CWPPRA restoration projects. DNR will use CIAP funds to pay for the incremental cost of specific monitoring-related analysis of CIAP-funded projects to determine their effectiveness.

2.5.5 GPS Network

State Total FY08: \$100,000

Accurate measurements of the coast's changing elevations are essential to the success of all restoration projects. The Coastal Zone Global Positioning System (GPS) network measures these changes by providing a series of permanent elevation benchmarks across Louisiana's coast. This network of benchmarks, which was completed in 2001, establishes markers within areas that were previously inaccessible. At previously existing benchmarks, the network ensures that accurate measurements are taken. The network allows an accurate comparison of wetland elevations between basins and across the entire coast. State funds are required to provide for maintenance of the network of permanent elevations benchmarks across Louisiana's coast.

2.5.6 MMS Sand Inventory

State Total FY08: \$70,000

In 2003, DNR began a multiyear cooperative program with the Minerals Management Service (MMS). The program's objective is to provide a single source of information on offshore sand resources, with special emphasis on mapping and assessing the distribution of Outer Continental Shelf (OCS) sediments and sands.

This spatial database will be accessible through the Internet and will consist of coastal and offshore geological, environmental, and related data. When the program began, these data were dispersed among different agencies. Collecting the information and making it available to policy makers, coastal planners, engineers, environmentalists, and the public will facilitate coastal protection efforts in a key area.

2.5.7 GIS Lab Support

State Total FY08: \$200,000

Provide funding for work performed by the GIS Lab that cannot be charged back to a specific project and thereby reclaimed as match.

2.5.8 OCRM Database Integration

State Total FY08: \$300,000

Support the continued development and maintenance of OCRM databases through IT Division staff and contractors.

2.5.9 Oyster Database

State Total FY08: \$65,000

To provide funds necessary to maintain the oyster database in support of coastal restoration projects.

2.5.10 WAVCIS

State Total FY08: \$100,000

Contract with Greg Stone of LSU to provide wave information (sea state) including wave height, period, direction of propagation, water level, surge, near surface current speed and direction and meteorological conditions on a real time basis around the entire Louisiana coast.

2.6 Other Initiatives

2.6.1 Protection and Restoration Program Support Activities

State Total FY08: \$5,000,000

There are many issues that will have to be addressed in the first few years to remove existing constraints to complete implementation of the Master Plan. These include policy, legislative, and institutional issues associated with effective execution of projects and the plan. The use of legal services to remove constraints to plan implementation is included within program management. Examples of implementation constraints include the need to develop federal partnerships to establish dedicated funding streams and cost sharing agreements; including the need to obtain Congressional authority and appropriations. Another major issue for early resolution includes passing necessary land use planning policies and legislation required for responsible growth in coastal Louisiana. Oversight and coordination of all efforts by both state and federal agencies will require staff and contractor support. Additional activities include: public outreach and education; non-structural and evacuation planning coordination by the CPRA member agencies; development of the levee school by LSU; and operations of the regional flood protection authorities as authorized by House Bill No. 9, Act No. 43 of the first extraordinary session of 2006.

2.6.2 Emergency Response

State Total FY08: \$5,100,000

FEMA may provide funds through the Louisiana Office of Emergency Preparedness (LA OEP) for the rehabilitation or restoration of coastal projects once a Presidential Disaster Declaration is authorized. A project is eligible for FEMA funds only if it is covered under another federal program. DNR applies for assistance for actions related to coastal restoration projects. The federal government will provide up to 75% of the cost, with the

LA OEP providing another 25%. However; because FEMA intervention depends on a Presidential Disaster Declaration, these funds may not be available every year. These state funds would cover the applicant's (DNR's) 25% match for FEMA funds received in the event of a natural disaster, such as hurricane damage to any CRD/CED projects which were filed for and were awarded FEMA funds to repair the projects.

Additionally, these funds include the inspection/assessment of coastal restoration projects following a storm or other event which impairs public safety and or damages coastal resources (as required).

2.6.3 Implementation of Non-Structural Recommendations

State Total FY08: \$500,000

Develop and initiate a statewide education/outreach campaign through the use of professional media consultants utilizing public service and/or paid announcements on television, radio, and in newspapers, etc. Develop and initiate flexible education/training programs, to present statewide to numerous and varied audiences, in order to promote sound floodplain management and risk awareness.

2.6.4 Louisiana's Coastal Wetlands Conservation Plan

State Total FY08: \$1,045,500

Established in accordance with Section 304 of CWPPRA, the Conservation Plan serves as a framework for coordinating Louisiana's efforts to offset coastal wetland losses caused by development. The Conservation Plan's goal is to achieve no net loss of wetlands from development activities. Meeting this goal satisfies a critical requirement of CWPPRA and thus reduces the state match for CWPPRA restoration projects from 25% to 15%. The reduced match requirement saves Louisiana approximately \$6 million per year. DNR's Coastal Management Division coordinates implementation of the Conservation Plan. Most of the Conservation Plan's activities fall within with the Coastal Zone boundary.

The DNR Coastal Management Division's Permits and Mitigation Program is funded by the Coastal Resources Trust Fund (CRTF), federal Coastal Zone Management Act (CZMA) grants, self-generated revenue, and the Wetland Trust Fund. For areas inside the Coastal Zone, the coastal use permitting process requires mitigation of unavoidable coastal wetland impacts. For areas outside the Coastal Zone boundary, a Conservation Plan analyst reviews Corps permit applications. That analyst, with the assistance of a DNR field investigator, then coordinates with the Corps to request that the required mitigation be implemented in the Conservation Plan area. In addition to review of Corps permit public notices and evaluation for wetland impacts in the Plan area, the Conservation Plan staff carried out contract management, report compilation, and supplementary field monitoring. DNR also supports the plan with staff assignments and continues efforts to improve the effectiveness of the coastal permitting process.

At this funding level, the staff activities of DNR's Mitigation Section will be fully funded with state revenues from the Fund and CRTF, and more Fund monies will be made available to support field monitoring needs, in both personnel and equipment.

The Coastal Wetland Reserve Program, Christmas Tree Projects and Vegetation Planting Program represent ongoing efforts in support of the Conservation Plan.

2.6.4.1 Coastal Wetland Reserve Program

Funds Previously Allocated

Louisiana's Coastal Wetland Reserve Program (CWRP) is a special element of the Conservation Plan. The purpose of the CWRP is to restore coastal wetlands on lands that have been converted to agriculture. Several hundred acres of coastal wetlands have been restored under the CWRP in previous years. Louisiana has pledged to make available over \$200,000 each year in order to accomplish more of this vital coastal restoration work. The State is working with the Conservation Plan federal oversight agencies to obtain formal approval for shifting the funds for this program to focus on conservation of coastal forest through conservation easements purchased from willing landowners.

2.6.4.2 Christmas Tree Projects

State Total FY08: \$350,000

Plan and implement marsh creation restoration and conservation through vegetation planting, sediment trapping, or low-cost shore protection utilizing recycled Christmas trees as base material. The program is run through local governments or other state agencies throughout the state's 19 coastal parishes. Participation varies from year to year.

2.6.4.3 Vegetation Planting Program

State Total FY08: \$400,000

This project is handled for DNR/CED by the LA Department of Agriculture and Forestry to provide for the planting of marsh plants in selected areas throughout the 19 coastal parishes. The benefits of this approach include:

- Developing local support with program tasks throughout the coastal zone.
- Working solely on the Vegetation Planting Program with their own equipment and the assistance of the coastal Soil and Water Conservation Districts and Natural Resources Conservation Service, project managers and technicians produce better projects in a timely and professional manner.
- Project managers and technicians gain detailed knowledge of landowners, project areas, permitting issues, and site conditions.

2.6.4.4 America's Wetland Conservation Corps

State Total FY08: \$500,000

The Louisiana State University AgCenter will serve as the hub for a coalition to recruit and train AmeriCorps members to coordinate hands-on coastal restoration projects.

2.7 Summary of FY08 Activities

The request for FY08 restoration and protection activities reflect a transition period from ongoing activities and commitments prior to the hurricanes of 2005 to reflecting activities to achieve the priority outcomes of the draft Master Plan. Table 2-3 presents the funding request for FY08 activities as detailed in sections 2.1 to 2.6. While this is a transition period, the activities initiated prior to the draft Master Plan for FY08 do help to achieve the year 1 goals of the draft Master Plan. However, all of the year 1 priorities of the draft Master Plan are not realized by ongoing activities. Specifically, engineering and design activities need to be initiated on both the Lake Pontchartrain Barrier Plan to achieve the outcome of Hurricane Protection for Metro New Orleans and the Northshore and the earthen plug to close the Mississippi River Gulf Outlet (MRGO) to achieve the outcome of the Closure of the MRGO and Ecosystem Restoration. Details on the process and outcomes of the prioritization of the draft Master Plan is presented in Chapter 3.

Additionally, it is anticipated that approximately \$200 million of the budget surplus will be appropriated for the Coastal Protection and Restoration Fund. If authorized, the funds would be used to design and construct high priority projects which advance the Master Plan as discussed in Chapter 3 of this Annual Plan. The CPRA will work with the Legislature to define uses of these funds, but the following criteria will be used to identify projects:

1. Selected projects must be consistent with the Urgent Early Actions of the Master Plan, as defined in Chapter 3 of this Annual Plan.
2. Selected projects should be able to proceed to construction immediately or within 18-24 months.
3. A balance of hurricane protection projects and ecosystem restoration projects must be selected, in keeping with the stated desire to maintain balance in the implementation of the Master Plan.
4. Projects will be selected from each of the three "major basins" identified in Chapter 3 of this Annual Plan.
5. Emergency project repairs or projects that address emergency needs related to continuing coastal ecosystem degradation or may be included.
6. A portion of the funds should be used to build scientific and technical capacity within the State in order to accelerate planning, engineering, and design of Master Plan projects.
7. No studies.
8. No administrative, personnel, or personnel related expenditures will be permitted due to limitations associated with non-recurring revenues.

Table 2-3 Fiscal Year 2008 Funding Request by Activity Type

PROJECT PLANNING	
Hurricane Protection	
Hurricane Protection for Metro New Orleans and Northshore Lake Pontchartrain	\$5,000,000
Donaldsonville, LA to the Gulf of Mexico Hurricane Protection Project ¹	\$1,500,000
Coastal Restoration	
Louisiana Coastal Area	\$10,000,000
Planning Subtotal (% total)	\$16,500,000 (7%)
PROJECT ENGINEERING AND DESIGN	
Hurricane Protection	
Morganza, LA to the Gulf of Mexico Hurricane Protection Project ¹	\$3,000,000
Southwest Coastal Louisiana Project ²	No CPR funds requested at this time
West Shore-Lake Pontchartrain, Louisiana ³	No CPR funds requested at this time
Coastal Restoration	
Closure of the MRGO and Ecosystem Restoration	\$3,000,000
CWPPRA Phase I PO-34 Alligator Bend Marsh Restoration and Shoreline Protection ME-24 Southwest LA Gulf Shoreline Nourishment and Protection TE-51 Madison Bay Marsh Creation and Terracing TE-52 West Belle Pass Headland Restoration	\$1,293,654
CWPPRA Demonstration Projects	\$137,940
CIAP Violet Diversion Mississippi River Delta Management Strategic Planning Orleans Land Bridge Shoreline Protection and Marsh Creation Bayou Lamoque Floodgate Removal Blind River Freshwater Diversion Central Wetlands Assimilation Project (Phase I) Freshwater Bayou Bank Stabilization Mississippi River Long Distance Sediment Pipeline	\$21,473,287
Mississippi River Reintroduction into Bayou Lafourche	\$5,000,000
Engineering & Design Subtotal (% total)	\$33,904,881 (15 %)

¹ Represents a request for capitol outlay funds necessary in FY 2008.

² The reconnaissance Study has not been completed at this point. LA DOTD has agreed to be the local project sponsor. Expenditures from the CPR Fund may be requested through an amendment to the Annual Plan.

³ Represents and ongoing project with a 50%/0% cost-share between the USACE and the local non-federal sponsor.

⁴ Federal funds authorized in supplemental appropriations advance the completion of the project at 100% federal expense.

Table 2-3 (Cont.) Fiscal Year 2008 Funding Request by Activity Type

PROJECT CONSTRUCTION	
Hurricane Protection	
Morganza, LA to the Gulf of Mexico Hurricane Protection Project ¹	\$13,000,000
Grand Isle, LA & Vicinity Hurricane Protection Project ⁴	\$4,810,000
Lake Pontchartrain, LA & Vicinity Hurricane Protection Project ⁴	No CPR funds requested at this time
La Rose to Golden Meadow, LA Hurricane Protection Project ⁴	No CPR funds requested at this time
New Orleans to Venice, LA Hurricane Protection Project ⁴	No CPR funds requested at this time
Southeast LA Urban Flood Control ⁴	No CPR funds requested at this time
West Bank and Vicinity, New Orleans, LA Hurricane Protection ¹	\$3,000,000
Coastal Restoration	
CWPPRA Phase II BA-36 Dedicated Dredging on the Barataria Landbridge, Fill Site 1 PO-33 Goose Point/Pointe Platte Marsh Creation	\$5,177,337
CIAP East Grand Terre Island Restoration Grand Lake Shoreline Protection Gulf Intracoastal Waterway (GIWW) Bank Restoration of Critical Areas of Terrebonne Barataria Land Bridge Dedicated Dredging Rockefeller Refuge Shoreline Protection Demonstration Project Lake Salvador Shoreline Protection (Phase III) Marsh Creation via Beneficial Use Coastal Forest Conservation Initiative	\$104,870,000
Bank Stabilization Along Bush Canal and Bayou Terrebonne	\$1,000,000
Beneficial Use of Dredged Material (Federal Projects)	\$1,500,000
Small Dredge Program	\$3,500,000
Bayou Lafourche Salt Water Barrier	\$5,000,000
Construction Subtotal	\$141,857,337 (63 %)

1 Represents a request for capitol outlay funds necessary in FY 2008.

2 The reconnaissance Study has not been completed at this point. LA DOTD has agreed to be the local project sponsor. Expenditures from the CPR Fund may be requested through an amendment to the Annual Plan.

3 Represents and ongoing project with a 50%/0% cost-share between the USACE and the local non-federal sponsor.

4 Federal funds authorized in supplemental appropriations advance the completion of the project at 100% federal expense.

Table 2-3 (Cont.) Fiscal Year 2008 Funding Request by Activity Type

OPERATIONS & MAINTENANCE	
CWPPRA Projects with O&M Budget	\$135,878
CWPPRA Projects without O&M Budget	\$15,000
CWPPRA Coastwide Nutria Control Program	\$491,593
Caernarvon Freshwater Diversion	\$711,912
Davis Pond Freshwater Diversion	\$544,000
Repairs to Rycade Canal (CS-02) Hydrologic Boundary Levee	\$2,045,075
Maintenance for State Only Projects	\$818,000
Structure Operations and Inspections for State Only Projects	\$208,000
Barrier Island Maintenance	\$3,500,000
North Prong Schooner Bayou Levee Rehabilitation	\$1,000,000
Operations & Maintenance Subtotal	\$9,469,458 (4%)
SCIENCE & TECHNOLOGY	
Coastal Engineering & Science Program	\$2,500,000
LCA Science and Technology Program	\$5,000,000
Monitoring of CWPPRA Projects	\$825,000
CIAP Performance Evaluation and Science Monitoring	\$500,000
GPS Network	\$100,000
MMS Sand Inventory	\$70,000
GIS Lab Support	\$200,000
OCRM Database Integration	\$300,000
Oyster Database	\$65,000
WAVCIS	\$100,000
Science and Technology Subtotal	\$9,660,000 (4%)

1 Represents a request for capitol outlay funds necessary in FY 2008.

2 The reconnaissance Study has not been completed at this point. LA DOTD has agreed to be the local project sponsor. Expenditures from the CPR Fund may be requested through an amendment to the Annual Plan.

3 Represents an ongoing project with a 50%/0% cost-share between the USACE and the local non-federal sponsor.

4 Federal funds authorized in supplemental appropriations advance the completion of the project at 100% federal expense.

Table 2-3 (Cont.) Fiscal Year 2008 Funding Request by Activity Type

OTHER INITIATIVES	
Protection and Restoration Program Support Activities	\$5,000,000
Emergency Response	\$5,100,000
Implementation of Non-Structural Recommendations	\$500,000
Louisiana's Coastal Wetlands Conservation Plan	\$1,045,500
Christmas Tree Projects	\$350,000
Vegetation Planting Program	\$400,000
America's Wetland Conservation Corps	\$500,000
Other Initiatives Subtotal (% total)	\$12,895,500 (6%)
FISCAL YEAR 2008 TOTAL	\$224,287,176
TOTAL - excluding capitol outlay requests	\$198,977,176

1 Represents a request for capitol outlay funds necessary in FY 2008.

2 The reconnaissance Study has not been completed at this point. LA DOTD has agreed to be the local project sponsor. Expenditures from the CPR Fund may be requested through an amendment to the Annual Plan.

3 Represents an ongoing project with a 50%/0% cost-share between the USACE and the local non-federal sponsor.

4 Federal funds authorized in supplemental appropriations advance the completion of the project at 100% federal expense.

3 Implementation of Louisiana's Comprehensive Master Plan for a Sustainable Coast

3.1 Introduction

The CPRA published the Integrated Ecosystem Restoration and Hurricane Protection: Louisiana's Comprehensive Master Plan for a Sustainable Coast (Master Plan) in 2007. This fulfilled the legislative mandate to develop a comprehensive master plan for coastal protection, including projects, programs, and policies designed to address hurricane protection and coastal restoration needs. As stated in the legislation, the Annual Plan is intended to represent an incremental step in implementation of this Master Plan. Although the Master Plan articulates general guidance for defining priorities and initiating new activities, it must be recognized that there is ongoing planning, design, construction, and operations and maintenance for both protection and restoration purposes. This Annual Plan is the first opportunity for the CPRA to begin the process of realigning these existing activities toward implementation of the Master Plan.

3.2 Prioritizing Master Plan Elements

The Master Plan specifies the process for examining plan elements and assessing which to move forward on a faster track as Urgent Early Actions. That process is summarized below.

3.2.1 Urgent Early Actions

The first step is to identify which activities must move forward on a faster track: the so-called Urgent Early Actions. Several criteria have been used to decide which of the Master Plan's measures should be included in the Annual Plan as Urgent Early Actions:

- Measures that will reduce key uncertainties and thereby help speed the construction of other projects. Mississippi River Delta Management planning would be seen as such a measure, because it will illuminate options for constructing major diversions that support the long-term sustainability of wetlands surrounding the Mississippi River while also maintaining navigation and other vital economic activities in the region.
- Projects that do not involve major new construction but are simply modifications of existing structures' operations. Modifying the ways that the Davis Pond and Caernarvon Diversion projects operate would be seen as Urgent Early Actions under this criterion, because the projects will have relatively low costs compared

to the number of ecosystem benefits that can be derived. We may need changes in federal laws to authorize these kinds of changes.

- Projects that protect concentrated and strategic assets that were identified in the Master Plan as needing a greater than 100 year level of protection, meaning protection over the level needed to withstand a storm that has a 1% chance of occurring in any given year. Beginning planning and design of the Lake Pontchartrain Barrier Plan to increase the effectiveness of New Orleans's hurricane protection system would be identified as an Urgent Early Action under this criterion.
- Projects that maintain or reestablish a landscape feature that is a linchpin for restoring or sustaining the flow of water or that buffer salinities and/or storm surge in a given area. The closure of the MRGO at Bayou La Loutre as well as barrier island restoration would be seen as Urgent Early Actions under this criterion.
- Projects that restore natural processes in an area of high projected land loss. The proposed Mississippi River diversions in the Master Plan would allow river water and sediment to sustain basin wetlands. Many of these diversions will be included as Urgent Early Actions under this criterion.
- Projects that sustain processes which are key to the social and economic viability of an existing community. Projects such as the Mississippi River diversion at Bayou Lafourche would be considered an Urgent Early Action under this criterion.

3.2.2 Supporting Measures

It will also be necessary to consider the remaining measures in the Master Plan to determine which are essential to the success of the Urgent Early Actions. For example, the MRGO/Lake Borgne land bridge must be maintained if the MRGO closure plan is to be viable. Similarly, Shell Island must be rebuilt to ensure the integrity of the Barataria barrier islands. A list of such supporting measures for each Urgent Early Action has been compiled.

3.2.3 Measure Status

The next step involved sorting the list of Urgent Early Actions and their supporting measures into one of the following categories:

- **Planning:** the concept is currently being evaluated or needs to be evaluated before engineering and design can begin.

- **Engineering and Design:** planning is complete, and the measure was found to be feasible. The project is either ready to be designed or engineering and design are already underway.
- **Awaiting Construction:** planning and design of the measure is complete; the project is awaiting or has received authorization, and construction is ready to begin.
- **Modification:** the measure has already been built and requires modifications either to the structure or to its operations.
- Understanding the implementation status of each Urgent Early Action helps to clarify our certainties about the projects' viabilities, potential costs, and schedules.

3.2.4 Implementation Schedule

Together, the selection of Urgent Early Actions, the identification of supporting measures, and the definition of each action's status provide the basis for deciding which new projects to begin in any given year.

3.3 Urgent Early Actions

Application of the process for identification of Urgent Early Actions (UEA), summarized in section 3.2 above, has resulted in the identification of a number of UEA measures that meet one or more of the defined criteria. Table 3-1 below identifies these measures and the basis for their selection as an UEA.

Table 3-1 Urgent Early Action measures

Measure	Description	Basis for UEA
LARGE SCALE PLANNING		
LSP-1	Mississippi River Delta Management	Outcomes are necessary to reduce uncertainties and prioritize further actions.
LSP-2	Optimize Flow Distribution at Old River Control Structure	Outcomes are necessary to reduce uncertainties and prioritize further actions.
LSP-4	Chenier Plain Freshwater and Sediment Management and Reallocation	Outcomes are necessary to reduce uncertainties and prioritize further actions.
LSP-5	Sediment Inventory and Allocation a) Beneficial Use of Dredged Material b) Dedicated Dredging from Rivers and Offshore	Outcomes are necessary to reduce uncertainties and prioritize efforts across all planning units
COASTWIDE PROGRAMATIC MEASURES		
PM-1	Applied Coastal Engineering and Science Program	Outcomes are necessary to reduce uncertainties and prioritize efforts across all planning units.
PM-2	Coordination with Hazard Mitigation Programs	Outcomes are necessary to reduce uncertainties and prioritize efforts across all planning units.
PM-3	CPRM Management and Capacity Building	Outcomes are necessary to reduce uncertainties and prioritize efforts across all planning units
PLANNING UNIT 1		
1-1	Lake Pontchartrain Barrier Plan: Caernarvon to Pearl River Hurricane Protection	Provides above 100 year level of protection for targeted areas
1-4	St. Bernard 40 Arpent Levee	Provides above 100 year level of protection for targeted areas

Table 3-1 Urgent Early Action measures

Measure	Description	Basis for UEA
1-6	Lake Pontchartrain and Vicinity Hurricane Protection	Provides above 100 year level of protection for targeted areas
1-7	North Shore of Lake Pontchartrain and Lake Maurepas Hurricane Protection	Provides above 100 year level of protection for targeted areas
1-9	Mississippi River Diversion at Hope Canal	Restores process to area with high projected future loss
1-10	Mississippi River Diversion at Convent/Blind River	Restores process to area with high projected future loss
1-11	Shoreline Stabilization on Maurepas Landbridge	Maintains hydraulic regime in area with high projected future loss
1-14	East Orleans Landbrige Restoration	Maintains hydraulic regime in area with high projected future loss
1-15	Close Mississippi River Gulf Outlet (MRGO) at Bayou La Loutre Ridge	Maintains hydraulic regime in area with high projected future loss
1-17	Central Wetlands Restoration	Development of and outcomes from this project will improve knowledge of cypress swamp regeneration
1-19	Mississippi River Diversion at Violet	Restores process to area with high projected future loss
1-20	Maintain MRGO-Lake Borgne Landbridge	Restores hydraulic regime in area with high projected future loss
1-21	Modify Authorization of Caernarvon Diversion	Revision of Operational scheme for existing structure
1-24	Maintain and Restore the Biloxi Landbridge and Barrier Reefs	Restores hydraulic regime in area with high projected future loss
1-26	Mississippi River Diversion at Bayou Lamoque	Revision of Operational scheme for existing structure
PLANNING UNIT 2		
2-1	Donaldsonville to the Gulf Hurricane Protection	Provides above 100 year level of protection for targeted areas
2-2	West Bank and Vicinity Hurricane Protection	Provides above 100 year level of protection for targeted areas

Table 3-1 Urgent Early Action measures

Measure	Description	Basis for UEA
2-7	Raise/Maintain Evacuation Routes Located Outside the Hurricane Protection Systems	Critical socio-economic measure
2-10	Mississippi River Diversion at Bayou Lafourche	Provides critical socio-economic measure
2-12	Modify Authorization of Davis Pond Diversion	Revision of Operational scheme for existing structure
2-13	Mississippi River Diversion at Myrtle Grove with Dedicated Dredging	Restores process to area with high projected future loss
2-14	Mississippi River Diversion at West Point a la Hache with Dedicated Dredging	Restores process to area with high projected future loss
2-15	Marsh Restoration Using Dredged Material in Barataria Basin	Restores hydraulic regime in area with high projected future loss
2-17	Barrier Shoreline Restoration: Barataria Basin	Restores hydraulic regime in area with high projected future loss
PLANNING UNIT 3A		
3a-1	Morganza to the Gulf Hurricane Protection	Provides above 100 year level of protection for targeted areas, in combination with measure 3a-2
3a-2	Gibson to Houma Hurricane Protection	Provides above 100 year level of protection for targeted areas
3a-4	Houma and Vicinity Hurricane Protection	Provides above 100 year level of protection for targeted areas
3a-7	Multipurpose Operation of the Houma Navigation Canal (HNC) Lock	Development of and outcomes from this project will improve knowledge and reduce key uncertainties
3a-9	Marsh Restoration Using Dredged Material in Terrebonne Basin	Restores hydraulic regime in area with high projected future loss
3a-11	Freshwater Introduction via Blue Hammock Bayou	Restores process to area with high projected future loss
3a-13	Maintain Landbridge Between Caillou Lake and Gulf of Mexico	Restores hydraulic regime in area with high projected future loss

Table 3-1 Urgent Early Action measures

Measure	Description	Basis for UEA
3a-14	Barrier Shoreline Restoration: Terrebonne Basin	Restores hydraulic regime in area with high projected future loss
3b-6	Convey Atchafalaya River Water Eastward via GIWW to Benefit Eastern and Lower Terrebonne Marshes	Restores process to area with high projected future loss
PLANNING UNIT 3B		
3b-1	Lafayette and Vicinity Hurricane Protection	Provides above 100 year level of protection for targeted areas
3b-6	Convey Atchafalaya River Water Eastward via GIWW to Benefit Eastern and Lower Terrebonne Marshes	Restores process to area with high projected future loss
3b-11	Bankline Protection for Gulf Intracoastal Waterway (GIWW)	Restores hydraulic regime in area with high projected future loss
3b-12	Raynie Marsh Restoration	Restores hydraulic regime in area with high projected future loss
3b-13	Convey Atchafalaya River Water Westward via GIWW	Restores process to area with high projected future loss
3b-16	Marsh Restoration using Dredged Material at Point Au Fer	Restores hydraulic regime in area with high projected future loss
PLANNING UNIT 4		
4-1	Lake Charles and Vicinity Hurricane Protection	Provides above 100 year level of protection for targeted areas
4-3	Raise and Maintain Highways 82 and 27	Critical socio-economic measure
4-5	Restore the Mermentau Lakes Basin Integrity	Critical socio-economic measure
4-11	Barrier Shoreline Restoration: Calcasieu River to Freshwater Bayou	Development of and outcomes from this project will improve knowledge and reduce key uncertainties
4-15	Fortify Spoil Banks of GIWW and Freshwater Bayou	Restores hydraulic regime in area with high projected future loss
4-18	Mermentau Basin Watershed Management Plan to Retain Freshwater Resources	Restores hydraulic regime in area with high projected future loss

3.4 UEA Implementation Groupings

In order to achieve the intended outcome, oftentimes measures will need to be progressed in association with others in a manner consistent with how they are intended to function from an engineering and ecological standpoint. These associated measures have been grouped together based upon the ‘outcomes’ they combine to deliver, for the purpose of developing schedules and costs.

Recognizing the functional relationships between the sub-basins within the coastal zone (divided by the major rivers), the groupings of measures identified to deliver the desired benefits, have been defined within three major basins:

- East of the Mississippi River;
- Mississippi River to Atchafalaya River; and
- Atchafalaya River to Sabine River.

In addition to these groupings, large scale and programmatic measures are defined separately.

The following sections identify the measure groupings and the synergies and interdependencies upon which the groupings are based. In some cases, measures that were not identified as UEA’s on their own were brought in as necessary early actions if they were needed to ensure that the intended outcome of UEA measures is realized.

3.4.1 Coastwide

3.4.1.1 Non-structural & evacuation planning

The improved hurricane protection provided by range of measures presented in the Master Plan will significantly reduce the storm surge flooding risks to the majority of asset areas within coastal Louisiana. However, there will remain areas of population and commerce outside of the formal levee protection system for which it is vital that adequate evacuation routes are provided. A number of measures (each for a specific Planning Unit) are promoted within the Master Plan to ensure that evacuation routes in these more vulnerable areas are elevated and/or strengthened to ensure that they are capable of withstanding hurricane conditions. These measures have been defined individually, but a coastwide program for their improvement will be promoted.

Measures included:

- 1-8 Raise/Maintain Evacuation Routes Located Outside the Hurricane Protection Systems

- 2-7 Raise/Maintain Evacuation Routes Located Outside the Hurricane Protection Systems
- 3a-5 Raise/Maintain Evacuation Routes Located Outside the Hurricane Protection Systems
- 3b-4 Raise/Maintain Evacuation Routes Located Outside the Hurricane Protection Systems

3.4.1.2 Large Scale Planning

Through the process of developing the Master Plan, a number of major projects have been identified as potentially providing significant benefits to the future management of the Louisiana coast. However, these projects are currently very conceptual, and not well enough understood to be defined or evaluated in any detail. As such, each has been recommended as an initial study, to further consider the technical, environmental and economic feasibility and benefits of the proposals. Given the potential benefits of each of these for future management of the coast, it is important that the studies are progressed in the near future, such that their potential implementation can be better defined and taken account of in progressing the remainder of the Master Plan.

Measures included:

- LSP-1 Mississippi River Delta Management
- LSP-2 Optimize Flow Distribution at Old River Control Structure
- LSP-4 Chenier Plain Freshwater and Sediment Management and Reallocation
- LSP-5a Sediment Inventory and Allocation: Beneficial Use of Dredged Material
- LSP-5b Sediment Inventory and Allocation: Dedicated Dredging from Rivers and Offshore

3.4.1.3 Coastwide Programmatic Measures

Implementation of the various coastwide and local measures promoted within the Master Plan will require a significant programmatic coordination effort. In recognition of this a number of early tasks to develop this programmatic framework have been identified. These will provide for improved implementation processes, better use of resources and a consistent approach to identifying and reducing uncertainties within the program. Resolution of these issues will be critical to future implementation of the Master Plan.

Measures included:

- PM-1 Applied Coastal Engineering and Science Program
- PM-2 Coordination with Hazard Mitigation Programs
- PM-3 CPRA Management and Capacity Building

3.4.2 East of the Mississippi River

3.4.2.1 Hurricane Protection for Metro New Orleans and Northshore Lake Pontchartrain

The hurricane protection measure from Caernarvon to Pearl River (1-1) is the outer-most barrier of the structural barrier system. They work in tandem with raising the St. Bernard 40 Arpent Levee (1-4) to provide 0.2% level protection to the greater New Orleans area. In conjunction with the 1-1 and 1-4 measures, Lake Pontchartrain and Vicinity Hurricane Protection (1-6) involves reevaluation of the protection system along the South shore of Lake Pontchartrain, the Mississippi River levees, and other metro New Orleans protection systems to insure that all components collectively provide 0.2% level or protection to greater New Orleans areas. Because of the interaction between protection features and storm surge generated in a region, measure 1-6 must confirm the ability, or recommend necessary upgrades, of the levees along the South Shore of Lake Pontchartrain, the Mississippi River levees (east and west bank levees), and other protection systems to provide 0.2% level protection to the greater New Orleans area. The measures will take into account any funneling or pinch points created by the levee system and the impacts the levee has on regional surge levels.

Flood risks to the other areas surrounding Lake Pontchartrain still remain from storm surges that might develop from within Lake Pontchartrain in spite of an outer barrier system protecting New Orleans and Vicinity. As a result, the Lake Pontchartrain and Vicinity Hurricane Protection (1-6) and North Shore of Lake Pontchartrain and Lake Maurepas Hurricane Protection measures (1-7) will assess the risks to storm surge for communities surrounding Lake Pontchartrain with the outer barrier system in place. The measures evaluating residual risks to other Lake Pontchartrain communities inside the outer barrier will provide information on protection systems which may be necessary around the rim of Lake Pontchartrain.

It should be noted that within a measure (e.g. 1-1), certain reaches of the measure may be advanced as a priority based on a number of factors (e.g. the master plan's goals, funding, etc.). Additional planning efforts and analyses will be required during planning and engineering efforts to develop an implementation scheme for a measure.

Measures included:

- 1-1 Lake Pontchartrain Barrier Plan: Caernarvon to Pearl River Hurricane Protection
- 1-4 St. Bernard 40 Arpent Levee
- 1-6 Lake Pontchartrain and Vicinity Hurricane Protection
- 1-7 North Shore of Lake Pontchartrain and Lake Maurepas Hurricane Protection

3.4.2.2 Closure of MRGO and Ecosystem Restoration

Closure of the MRGO at the Bayou La Loutre Ridge (1-15) will be the linchpin measure for this group of measures that act as a barrier for incoming surge and halting saltwater intrusion and to facilitate construction, operation, and maintenance of the other measures in the group. Closure of the MRGO at the Bayou La Loutre Ridge will be an earthen plug. The economic impacts of this closure need to be analyzed and mitigated appropriately. Once the closure at the Bayou La Loutre Ridge is constructed, the Mississippi River Diversion at Violet (1-19) will help sustain the marshes in the vicinity of the MRGO and the Biloxi Marshes. Besides, Maintaining the MRGO-Lake Borgne Landbridge (1-20) and Restoration of the Bayou La Loutre Ridge (1-25) also serve to protect, restore, and nourish fragile landscapes.

Measure 1-25 (Restore Bayou La Loutre Ridge) is not a UEA in its own right; however it is included in this priority outcome grouping because of its synergistic relationship with the other measures in this grouping as it facilitates the effective conveyance of the Violet Diversion waters to targeted areas.

Sediment delivery by pipeline for the Central Wetlands Restoration (1-17), including establishment of cypress swamps, will serve as a demonstration project to reduce uncertainty for similar projects. This measure will use dredged sediments resulting from implementation of the Mississippi River Diversion at Violet (1-19), as well as benefiting from other elements (balancing, costs to plan, design, construct, and operate, etc) of that project.

Measures included:

- 1-15 Close Mississippi River Gulf Outlet (MRGO) at Bayou La Loutre Ridge
- 1-17 Central Wetlands Restoration
- 1-19 Mississippi River Diversion at Violet
- 1-20 Maintain MRGO-Lake Borgne Landbridge
- 1-25 Restore Bayou La Loutre Ridge

3.4.2.3 Restoration of critical land forms (land bridges, marsh creation, barrier shorelines)

An essential part of the strategy for reversing the current trends of land loss within the coastal wetlands is the stabilization of critical landforms to improve the structure and integrity of the landscape. Included in these landforms are the barrier islands and shorelines which act to reduce the exposure of the backing wetlands to open Gulf conditions, the landbridges which similarly provide shelter to backing areas, and the creation of marsh land in areas of open water. These landforms work together to provide the framework within which the coastal wetlands can be restored.

Measures included:

- 1-11 Shoreline Stabilization on Maurepas Landbridge
- 1-14 East Orleans Landbridge Restoration

3.4.2.4 Operation and sizing of diversions for balancing ecosystem objectives

There are four proposed new freshwater diversions off the Mississippi River to the east, aimed at modifying the salinity and hydrology of the recipient areas. Each of these diversions (together with modification to the authorization of the existing diversion at Caernarvon, 1-21), is intended to be proactively managed to deliver a balanced ecosystem outcome, both locally and regionally. Whilst the introduction of freshwater, nutrients and sediment will be beneficial for building or sustaining the landscape, it may have disproportionate detrimental effects on fisheries and other habitats, if not appropriately managed. As such, it is proposed that all diversions providing freshwater east from the Mississippi be designed and operated to provide a coordinated approach to management of the ecosystem at the basin scale. The Mississippi River Diversion at Violet (1-19), while part of the closure of MRGO and ecosystem restoration outcome, is also included under this outcome as part of the coordinated management of freshwater into the basin. The benefits provided by this outcome can be achieved in the near-term while the analysis and results of the Mississippi River Delta Management Study will determine the long-term strategy for managing the resources of the Mississippi River.

Measures included:

- 1-9 Mississippi River Diversion at Hope Canal
- 1-10 Mississippi River Diversion at Convent/Blind River
- 1-19 Mississippi River Diversion at Violet
- 1-21 Modify Authorization of Caernarvon Diversion
- 1-26 Mississippi River Diversion at Bayou Lamoque

3.4.3 Mississippi River to the Atchafalaya River

3.4.3.1 Hurricane Protection: Mississippi River to the Atchafalaya River

The levees in the Donaldsonville to the Gulf Hurricane Protection project (2-1) and raising the existing levee in the Larose to Golden Meadow Hurricane Protection project (2-3) will provide a minimum 1% level of protection against hurricane storm surge for those communities. In addition, these two measures will provide an increment of protection in tandem with the existing West Bank Protection System so the West Bank area (New Orleans vicinity) receives 0.2% level of storm surge protection.

The pending congressional authorization for the Morganza to the Gulf Hurricane Protection system (3a-1) will provide 1% level of storm surge protection to the communities north of the alignment. The Morganza to the Gulf Hurricane Protection system (3a-1) and the Larose to Golden Meadow Hurricane Protection levees (2-3), working in tandem with the Gibson to Houma Hurricane Protection levee (3a-2), and the internal Houma and Vicinity Hurricane Protection levee (3a-4), are to provide 0.2% level of protection for the Houma/Thibodeaux areas. The Multipurpose Operation of the

Houma Navigation Canal Lock measure (3a-7) is a key component of the Morganza to the Gulf project and will balance navigation, flood control, and environmental, hydrologic, salinity goals and objectives.

As the design processes for these measures move forward, evaluations will include analyses of alternate approaches that most effectively integrate the goals and objectives of the hurricane storm surge protection systems for those basins with the goals and objectives of maintaining, improving, balancing, and managing storm drainage, conveyance of freshwater resources, and land use planning efforts.

Measure 2-3 is not a UEA in its own right, however it is included in this priority outcome grouping because of its synergistic relationship with the other measures in the grouping, as it is critical to the provision of a 0.2% standard of protection to the New Orleans West Bank.

Measures included:

- 2-1 Donaldsonville, LA to the Gulf of Mexico Hurricane Protection
- 2-2 West Bank and Vicinity Hurricane Protection
- 2-3 Larose to Golden Meadow Hurricane Protection
- 3a-1 Morganza to the Gulf Hurricane Protection
- 3a-7 Multipurpose Operation of the Houma Navigation Canal (HNC) Lock
- 3a-2 Gibson to Houma Hurricane Protection
- 3a-4 Houma and Vicinity Hurricane Protection

3.4.3.2 Operation and sizing of diversions for balancing ecosystem objectives

There are three proposed new freshwater diversions off the Mississippi River to the west, aimed at modifying the salinity and hydrology of the recipient areas. Each of these diversions is intended to be proactively managed to deliver a balanced ecosystem outcome, both locally and regionally. Whilst the introduction of freshwater, nutrients and sediment will be beneficial for building or sustaining the landscape, it may have disproportionate detrimental effects on fisheries and other habitats, if not appropriately managed. As such, it is proposed that all diversions providing freshwater west from the Mississippi be designed and operated to provide a coordinated approach to management of the ecosystem at the basin scale. The Modify Authorization of Davis Pond Diversion (2-12), while part of the watershed management outcome, is also included under this outcome as part of the coordinated management of freshwater into the basin. The benefits provided by this outcome can be achieved in the near-term while the analysis and results of the Mississippi River Delta Management Study will determine the long-term strategy for managing the resources of the Mississippi River.

Measures included:

- 2-10 Mississippi River Diversion at Bayou Lafourche
- 2-12 Modify Authorization of Davis Pond Diversion
- 2-13 Mississippi River Diversion at Myrtle Grove with Dedicated Dredging

2-14 Mississippi River Diversion at West Point a la Hache with Dedicated Dredging

3.4.3.3 Restoration of critical land forms (land bridges, marsh creation, barrier shorelines)

An essential part of the strategy for reversing the current trends of land loss within the coastal wetlands is the stabilization of critical landforms to improve the structure and integrity of the landscape. Included in these landforms are the barrier islands and shorelines which act to reduce the exposure of the backing wetlands to open Gulf conditions, the landbridges which similarly provide shelter to backing areas, and the creation of marsh land in areas of open water. These landforms work together to provide the framework within which the coastal wetlands can be restored.

Measures included:

- 2-15 Marsh Restoration Using Dredged Material in Barataria Basin
- 2-17 Barrier Shoreline Restoration: Barataria Basin
- 3a-9 Marsh Restoration Using Dredged Material in Terrebonne Basin
- 3a-14 Barrier Shoreline Restoration: Terrebonne Basin

3.4.3.4 Ecosystem Restoration of lower Terrebonne Marshes

Freshwater Introduction via Blue Hammock Bayou (3a-11) and Maintaining Landbridge between Caillou Lake and Gulf of Mexico (3a-13) will act in tandem to provide increased freshwater conveyance of Atchafalaya River water into Lake Mechant and Caillou Lake from Four League Bay via Blue Hammock Bayou. Maintaining the Landbridge between Caillou Lake and the Gulf of Mexico (3a-13) will create, restore and nourish the marshes between Caillou Lake and the Gulf of Mexico while Freshwater Introduction via Blue Hammock (3a-11) will convey freshwater to help sustain the marshes.

Measures included:

- 3a-11 Freshwater Introduction via Blue Hammock Bayou
- 3a-13 Maintain Landbridge between Caillou Lake and Gulf of Mexico
- 3b-6 Convey Atchafalaya River Water Eastward via GIWW to Benefit Eastern and Lower Terrebonne Marshes

3.4.4 Atchafalaya River to Sabine River

3.4.4.1 Hurricane Protection for Morgan City to Lake Charles

The Lafayette and Vicinity Hurricane Protection system (3b-1) and the Lake Charles and Vicinity Hurricane Protection system (4-1) will provide a 0.2% level of storm surge protection to the areas landward of these structures. Both these hurricane protection levees are intended to work in tandem with landform restoration measures (see below) to provide a multiple lines of defense system for this basin.

Measures included:

- 3b-1 Lafayette and Vicinity Hurricane Protection
- 4-1 Lake Charles and Vicinity Hurricane Protection

3.4.4.2 Restoration of critical land forms (land bridges, marsh creation, barrier shorelines)

An essential part of the strategy for reversing the current trends of land loss and erosion within the coastal wetlands is the stabilization of critical landforms to improve the structure and integrity of the landscape. Included in these landforms are the barrier islands and shorelines which act to reduce the exposure of the backing wetlands to open Gulf conditions, the landbridges which similarly provide shelter to backing areas, and the creation of marsh land in areas of open water. These measures will target areas where shoreline erosion rates are greatest. These landforms will also work together to provide the framework within which the salinity of the coastal wetlands can be effectively managed.

Measures included:

- 3b-12 Raynie Marsh Restoration
- 3b-16 Marsh Restoration using Dredged Material at Point Au Fer
- 4-3 Raise and Maintain Highways 82 and 27
- 4-11 Barrier Shoreline Restoration: Calcasieu River to Freshwater Bayou
- 4-15 Fortify Spoil Banks of GIWW and Freshwater Bayou

3.4.4.3 Watershed Management Atchafalaya River to Sabine River

The Mermentau Basin Watershed Management Plan (4-18) will include for the optimal use of the available freshwater resources, to provide for wetland restoration and to support continued agriculture and navigation in the region. The hydraulic system and its management plan will strive to accommodate normal, day-to-day water management concerns regarding salinity control and drowned areas of the basin, as well as effective and timely drainage of storm surge waters that are trapped behind natural chenier's and manmade ridges (including proposed levees and the elevated highways 82 and 27).

To further improve management of freshwater resources in this area, the Master Plan also proposes to use earthen embankments, in conjunction with the existing Schooner Bayou salinity control structure, to restore the integrity of the Mermentau Lakes Basin (4-5), by closing potential avenues for saltwater intrusion.

Measures included:

- 4-5 Restore the Mermentau Lakes Basin Integrity
- 4-18 Mermentau Basin Watershed Management Plan to Retain Freshwater Resources

3.4.4.4 Maximize Atchafalaya River Water Influence in Coastal Wetlands

Measures to Convey Atchafalaya River Water Eastward via GIWW to Benefit Eastern and Lower Terrebonne Marshes (3b-6), Bankline Protection for Gulf Intracoastal Waterway (3b-11) and Convey Atchafalaya River Water Westward via GIWW (3b-13) will work in tandem to manage and convey freshwater and nutrients using Atchafalaya River waters to reduce saltwater intrusion and enhance/sustain marshes in southern Terrebonne, St Mary, Iberia and Vermilion parishes via the GIWW. Bank stabilization of the GIWW will be performed to provide an effective conveyance channel that does not adversely affect the existing landscape.

Measures included:

- 3b-6 Convey Atchafalaya River Water Eastward via GIWW to Benefit Eastern and Lower Terrebonne Marshes
- 3b-11), Bankline Protection for Gulf Intracoastal Waterway (GIWW)
- 3b-13 Convey Atchafalaya River Water Westward via GIWW

3.5 Implementation Sequence

Sections 3.1-3.4 identify and group the highest priority items from the Master Plan. These priorities have been established and coordinated with the public and independent scientific and technical review, and are included as part of the Annual Plan for approval by the CPRA and Legislature. A budget projection to accelerate activities in FY 2009 and FY 2010 is presented in Appendix A for informational purposes. During FY 2008, the CPRA will work to develop a detailed implementation plan which provides more specific details on projects to be built, their implementation schedule, and budget. Should additional revenues be made available to the CPRA for Master Plan implementation, these funds will be used to accelerate activities currently scheduled for FY 2009 and FY 2010.

Appendix A

Preliminary Budget Projections for Fiscal Year 2009 and Fiscal Year 2010

Appendix A: Preliminary Budget Projections for Fiscal Year 2009 and Fiscal Year 2010

A 1.1 Projected Activities – Fiscal Years 2009 and 2010

The implementation schedule for the Master Plan and Annual Plan is based upon the outcome groupings identified above. Implementation recommendations consider the following factors:

- status of on-going work,
- anticipated schedule for planning, design, and construction of each measure; and
- timescale to implement necessary institutional, policy and legislative changes

Implementation also pays due regard to the constraint of existing funding availability, however, this has not been used to cap the financial year 2008 budget as it is considered that additional funding should be sought where the implementation need is greater than the available funds.

Table A-1 provides the associated costs for the early years of implementation of the Master Plan. Estimated funding needs are presented not for legislative approval but instead to illustrate the increase in activities required to accomplish the outcomes of the Master Plan in a timeframe that meets the urgency of the need. In the upcoming year, the projections presented in Table A-1 will be refined, identifying constructable elements and schedules, to ensure a transparent implementation process.

Table A-1 Estimated Funding for Implementation of the Master Plan through FY10 ¹

Outcomes	Proposed FY09 Budget	Proposed FY10 Budget
East of the Mississippi River		
Hurricane Protection for Metro New Orleans and Northshore Lake Pontchartrain	\$10,000,000	\$47,925,000
<u>Measures:</u>		
1-1 Lake Pontchartrain Barrier Plan: Caernarvon to Pearl River Hurricane Protection		
1-4 St. Bernard 40 Arpent Levee		
1-6 Lake Pontchartrain and Vicinity Hurricane Protection		
1-7 North Shore of Lake Pontchartrain and Lake Maurepas Hurricane Protection		
Closure of MRGO and Ecosystem Restoration	\$29,384,000	\$15,193,000
<u>Measures:</u>		
1-15 Close Mississippi River Gulf Outlet (MRGO) at Bayou La Loutre Ridge		
1-17 Central Wetlands Restoration		
1-19 Mississippi River Diversion at Violet		
1-20 Maintain MRGO-Lake Borgne Landbridge		
1-25 Restore Bayou La Loutre Ridge		
Restoration of critical land forms	\$4,000,000	\$5,341,000
<u>Measures:</u>		
1-11 Shoreline Stabilization on Maurepas Landbridge		
1-14 East Orleans Landbridge Restoration		
1-24 Maintain and Restore the Biloxi Landbridge and Barrier Reefs		
Operation and sizing of diversions for balancing ecosystem objectives	\$7,869,000	\$9,302,000
<u>Measures:</u>		
1-9 Mississippi River Diversion at Hope Canal		
1-10 Mississippi River Diversion at Convent/Blind River		
1-19 Mississippi River Diversion at Violet		
1-21 Modify Authorization of Caernarvon Diversion		
1-26 Mississippi River Diversion at Bayou Lamoque		

Table A-1 (Cont.)

Mississippi River to the Atchafalaya River		
Hurricane Protection: Mississippi River to the Atchafalaya River	\$81,297,000	\$279,107,000
<u>Measures:</u>		
2-1	Donaldsonville to the Gulf Hurricane Protection	
2-2	West Bank and Vicinity Hurricane Protection	
2-3	Larose to Golden Meadow Hurricane Protection	
3a-1	Morganza to the Gulf Hurricane Protection	
3a-7	Multipurpose Operation of the Houma Navigation Canal (HNC) Lock	
3a-2	Gibson to Houma Hurricane Protection	
3a-4	Houma and Vicinity Hurricane Protection	
Ecosystem Restoration of lower Terrebonne Marshes	\$3,048,000	\$5,942,000
<u>Measures:</u>		
3a-11	Freshwater Introduction via Blue Hammock Bayou	
3a-13	Maintain Landbridge between Caillou Lake and Gulf of Mexico	
3b-6	Convey Atchafalaya River Water Eastward via GIWW to Benefit Eastern and Lower Terrebonne Marshes	
Operation and sizing of diversions for balancing ecosystem objectives	\$9,500,000	\$18,811,000
<u>Measures:</u>		
2-10	Mississippi River Diversion at Bayou Lafourche	
2-12	Modify Authorization of Davis Pond Diversion	
2-13	Mississippi River Diversion at Myrtle Grove with Dedicated Dredging	
2-14	Mississippi River Diversion at West Point a la Hache with Dedicated Dredging	
Restoration of critical land forms	\$15,200,000	\$13,513,000
<u>Measures:</u>		
2-15	Marsh Restoration Using Dredged Material in Barataria Basin	
2-17	Barrier Shoreline Restoration: Barataria Basin	
3a-9	Marsh Restoration Using Dredged Material in Terrebonne Basin	
3a-14	Barrier Shoreline Restoration: Terrebonne Basin	

Table A-1 (Cont.)

Atchafalaya River to Sabine River		
Hurricane Protection for Morgan City to Lake Charles	\$10,000,000	\$30,789,000
<u>Measures:</u>		
3b-1	Lafayette and Vicinity Hurricane Protection	
4-1	Lake Charles and Vicinity Hurricane Protection	
Maximize Atchafalaya River Water Influence in Coastal Wetlands	\$47,513,000	\$77,456,000
<u>Measures:</u>		
3b-6	Convey Atchafalaya River Water Eastward via GIWW to Benefit Eastern and Lower Terrebonne Marshes	
3b-11	Bankline Protection for Gulf Intracoastal Waterway (GIWW)	
3b-13	Convey Atchafalaya River Water Westward via GIWW	
Watershed Management Atchafalaya River to Sabine River	\$426,000	\$3,266,000
<u>Measures:</u>		
4-5	Restore the Mermentau Lakes Basin Integrity	
4-18	Mermentau Basin Watershed Management Plan to Retain Freshwater Resources	
Restoration of critical land forms	\$4,809,000	\$6,489,000
<u>Measures:</u>		
3b-12	Raynie Marsh Restoration	
3b-16	Marsh Restoration Using Dredged Material at Point au Fer	
4-3	Raise and Maintain Highways 82 and 27	
4-11	Barrier Shoreline Restoration: Calcasieu River to Freshwater Bayou	
4-15	Fortify Spoil Banks of GIWW and Freshwater Bayou	
Coastwide		
Non-structural & evacuation planning	\$1,532,000	\$21,439,000
<u>Measures:</u>		
1-8	Raise/Maintain Evacuation Routes Located Outside the Hurricane Protection Systems	
2-7	Raise/Maintain Evacuation Routes Located Outside the Hurricane Protection Systems	
3a-5	Raise/Maintain Evacuation Routes Located Outside the Hurricane Protection Systems	
3b-4	Raise/Maintain Evacuation Routes Located Outside the Hurricane Protection Systems	

Table A-1 (Cont.)

Large Scale Planning		\$16,000,000	\$12,000,000
<u>Measures:</u>			
LSP-1	Mississippi River Delta Management		
LSP-2	Optimize Flow Distribution at Old River Control Structure		
LSP-4	Chenier Plain Freshwater and Sediment Management and Reallocation		
LSP-5a	Sediment Inventory and Allocation: Beneficial Use of Dredged Material		
LSP-5b	Sediment Inventory and Allocation: Dedicated Dredging from Rivers and Offshore		
Coastwide Programmatic Measures		\$31,000,000	\$28,500,000
<u>Measures:</u>			
PM-1	Applied Coastal Engineering and Science Program		
PM-2	Coordination with Hazard Mitigation Programs		
PM-3	CPRM Management and Capacity Building		
Totals		\$271,578,000	\$575,073,000

¹ Represents total cost for an outcome, total cost is assumed to be cost-shared with other federal programs.

A 1.2 Funding Sources

Costs presented in table A-1, and those developed for all measures are total implementation costs, not taking into account the funding source or cost sharing provisions, i.e. not necessarily the State's funding requirement. It is anticipated that most measures would be promoted with some form of cost sharing, although some measures will be built at 100% State costs where others will be built at 100% Federal.

Normal project cost sharing with USACE for water resource projects is 50% Federal and 50% State for planning and 65% Federal and 35% State for construction. Navigation costs are generally 100% Federal. Operation and maintenance is usually a 100% State cost. However, these proportions are determined on a project by project basis. As such, it is not possible to proportion the total costs for the Master Plan between State and Federal sources at this time. However, clearly without substantial Federal cost sharing, known State controlled funding streams will not be adequate to construct all the measures recommended by the Master Plan in a reasonable time frame.

A 1.3 Costing Assumptions

Measures described in the Master Plan have varying levels of definition. Some measures define well known activities that have been designed and/or constructed many times

before and are adequately defined so that reasonably accurate costs can be estimated based on current pricing data. Conversely, some measures in the Master Plan are conceptual and either haven't been constructed before, haven't been constructed on the field conditions expected to be found, or have never been constructed before and will require significant research and study to determine if or how the measure can be constructed (for example: 1-1 Hurricane Protection from Caernarvon to Pearl River).

Costs and schedules for measures with significant unknowns should be considered "order-of-magnitude". Costs for conceptual measures are presented only to inform the reader of the relative costs associated with the concept and are not to be considered as actual construction cost estimates. Some Measures in the Master Plan are so conceptual that even "order-of-magnitude" costs could not be developed. In these cases the Master Plan only contains costs to study the concept enough to determine how a measure could be defined, before progressing to more detailed planning, design and engineering stages (for example: LSP-1 Mississippi River Delta Management). Conceptual Measures are included because they hold tremendous potential to deliver major improvements in our management of the coast towards our protection and restoration objectives. Obviously, substantial additional costs and benefits will ensue should research and engineering prove these conceptual measures to be feasible.

Schedules and costs for each of the measures are based on expedited planning, engineering, design, and construction and assume all necessary authorizations are in place. The schedule anticipates completion of most measures over the next 20 years. This is an extraordinary effort and cannot be accomplished through the normal Federal Water Resource Development Act and funding processes. Based on program management recommendations of the Master Plan, the implementation schedule assumes that a more streamlined and expeditious approach will be developed. It will be necessary for Louisiana to take the lead and direct significant State controlled funds to the effort while expedited processes are being developed for Federal cost sharing.

The Master Plan enumerates many legislative, policy, and institutional issues that must be addressed for the Master Plan to progress efficiently and expediently. Failure to adequately address these issues will impact the defined costs and schedules greatly.