

Appendix G – Implementation and Adaptive Management

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G1 - Adaptive Management

G2 - Nonstructural Implementation Strategy

G3 - Environmental Compliance Overview

Please note this is a working-draft document currently undergoing review and revision. The final version will be posted in March 2012 along with the final version of the 2012 Coastal Master Plan

1.1 Introduction

The state has developed a clear path toward a sustainable coast and, in addition to the high level of project activity currently underway, will immediately begin implementing projects and programs presented in the 2012 Coastal Master Plan as funding is secured. The 2012 Coastal Master Plan provides the technical analysis needed to demonstrate that there are dire consequences of no new investment in our coast to the citizens of Louisiana and the rest of the nation, as well as great benefits from financial support in providing for a better future. The master plan is a long-term plan for the coast with clear economic, social and environmental benefits. Providing these future benefits to Louisiana and the nation clearly relies on one thing – securing the funding and financial support to implement the 2012 Coastal Master Plan. We will work with partners in federal agencies, business and industry, and the non-profit sector to identify and pursue funding opportunities to make this plan a reality. Over the coming years, the message will be clear - The consequences of no action are dismal, but there is hope for a future coastal system that provides important coastal benefits to Louisiana and the nation. The 2012 Coastal Master Plan is the centerpiece of a compelling case for funding and will allow us to make the most of state dollars and other funding sources to move implementation forward and create a sustainable coastal system.

To be prepared for future funding opportunities, as well as account for the complexity and magnitude of the effort, all state resources must be organized and coordinated to expedite delivery of the risk reduction and land building outcomes described in the plan. An adaptive management framework that captures this coordination is critical to successful implementation. It does so by ensuring that the Coastal Protection and Restoration Authority (CPRA) systematically considers new information and changing characteristics of both environmental and social systems in response to project implementation, and when necessary, makes appropriate adjustments at any stage of the implementation process to ensure continued progress toward achieving master plan objectives.

Successful implementation of restoration and structural protection projects can build on past experiences of CPRA and other coordinating agencies. While other proposed projects, such as nonstructural measures, will also depend on the development of new programs that provide mechanisms for funding, designing and constructing projects. In addition, compliance with environmental policies and regulations will be required to implement projects within the plan. This appendix aims to address some of the key next steps needed for successful implementation of the 2012 Coastal Master Plan.

1.2 Implementation

1.2.1 Project Prioritization

Implementation begins upon approval of the 2012 Coastal Master Plan by the Louisiana Legislature in 2012 and will continue throughout the next fifty years. The projects, as presented in the draft master plan, have been prioritized into two implementation periods (years 1-20 and years 21-50) based on the projected funding timeline and the benefits achieved overtime. In

addition, an implementation timeframe has been developed for each individual project that has been incorporated into the plan's outcomes. For instance, a large-scale sediment diversion project will require engineering and design (5 years) and construction (3 years) before the benefits of the project can start to be realized along the coast. The overall benefits of this plan take these various timelines into account. Thus, a large-scale diversion implemented in the second timeframe (years 21-50) will provide 21 years of on-the-ground benefits to the coast. A project's benefits (in terms of land building or risk reduction) and cost over time, taking into account the time needed for these early implementation steps, were used to determine which projects would be implemented in which timeframe to provide a balance of near-term and long-term benefits.

Many of the projects in the plan targeted for construction in the first implementation period are currently in the final stages of planning, engineering and design. Other projects, although not designed, are relatively straightforward, meaning we have been building similar types of projects for many years. To bring some larger-scale complex efforts to fruition we need several years of planning and design work before they can be constructed. In addition, the plan has identified a key strategy, the channel realignment, which needs urgent further study to determine how it can be moved forward. The developmental phase of each project is provided on the Project Fact Sheets in Appendix A.

The Annual Plan is a legislatively required document that allows the public to provide input into project implementation priorities on an yearly basis. Because the uncertainty and variability of funding, which largely determines which projects can be implemented, the Annual Plan will be the vehicle that the state uses to prioritize projects for the next three years. The Annual Plan will propose allocation of available funding for project planning, engineering and design, construction, and operation and maintenance, and it will project future funding and project implementation for the next three years. Annual Plans for Fiscal Year 2013 (FY13) through Fiscal Year 2017 (FY17) will focus on directing existing funding, and any new funds which come available, on the following projects in the 2012 Coastal Master Plan:

- Constructing projects which are 'shovel ready'.
- Further the planning and design of large-scale projects that can provide a large benefit to the coast.
- Funding necessary studies to inform further consideration in the 2017 master plan update, specifically related to the channel realignment option.
- Implementing selected small scale projects that rely on proven techniques.

The Annual Plan will also report on overall progress towards implementing the 2012 Coastal Master Plan and updates on the adaptive management of the coastal program.

1.2.2 Program Focus Areas

The overall approach to implementation has identified the following five focus areas (program management, planning, research and development, policy and legal, and outreach and engagement) to deliver the coastal program and maximize collaboration, coordination, and communication.

- Leadership in project delivery and **program management** to engineer, design and construct projects quickly.
- **Planning** updates to ensure the Master Plan has identified the most beneficial projects for the protection of coastal communities and restoration of the coast, in addition to other systematic and project-specific planning efforts.
- **Research and development** that incorporates the latest science into the coastal program and works to understand the physical and social response to master plan implementation.
- **Policy and legal** guidance and support that strives to secure funding, address regulatory and policy challenges, and streamline implementation.
- Increasing public understanding and acceptance through targeted and strategic **outreach and engagement**.

Each of these five focus areas is instrumental to the successful implementation of the master plan and key information “feedback loops” between each are incorporated into the adaptive management framework. Each of the five focus groups will coordinate to eliminate duplication of effort and ensure results through project delivery.

1.2.3 Implementation Management

The complexity and magnitude of master plan implementation requires the resources of CPRA to be organized and focused. Organized around the current structure of CPRA, teams will be responsible for achieving the goals of each of the five focus areas. The teams must be integrated with other focus area teams to ensure a streamlined flow of project knowledge (Figure 1). For instance, project management staff can provide important constructability information to streamline the planning effort, while also learning about improving project design through the monitoring efforts of the research and development team.

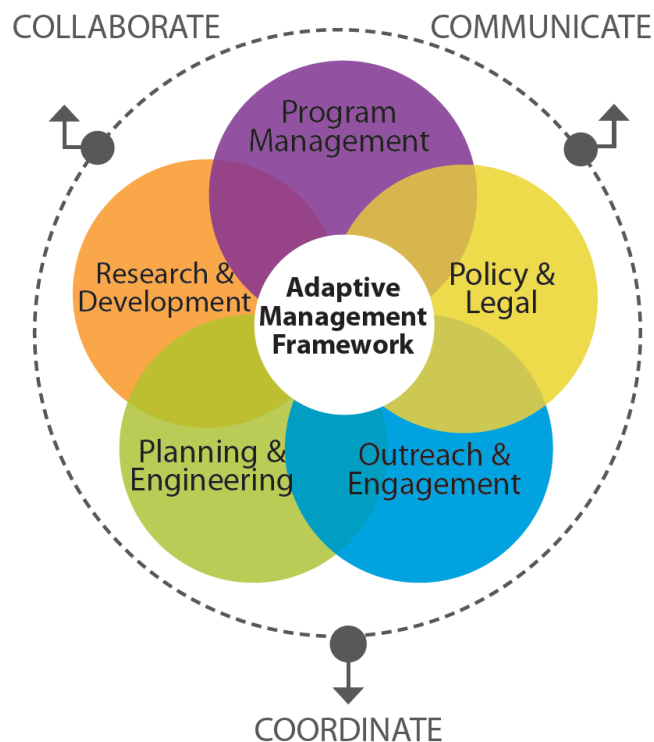


Figure 1. The existing structure of CPRA will provide the collaboration, communication and coordination for integrated teams focused on program management, planning, research and development, policy and legal, and outreach and engagement. The adaptive management framework (Attachment G-1) will incorporate learning into future coastal actions.

The CPRA Program Manager is responsible for leading the teams and providing overall guidance to the direction of the coastal program. A key responsibility of the CPRA Program Manager is to oversee timelines and review the effectiveness of an individual team efforts and collective effort of the team to deliver projects and results for the coast of Louisiana. Each team is led by a team leader who provides subject matter expertise and experience in the focus area. The actual size and composition of each team will depend on program activities at any given time and will initially be determined by the CPRA Program Manager. The CPRA Program Manager is assisted by the Adaptive Management Advisor, who is responsible for ensuring a strategic and program-wide learning process.

2012 Coastal Master Plan Implementation Team Structure

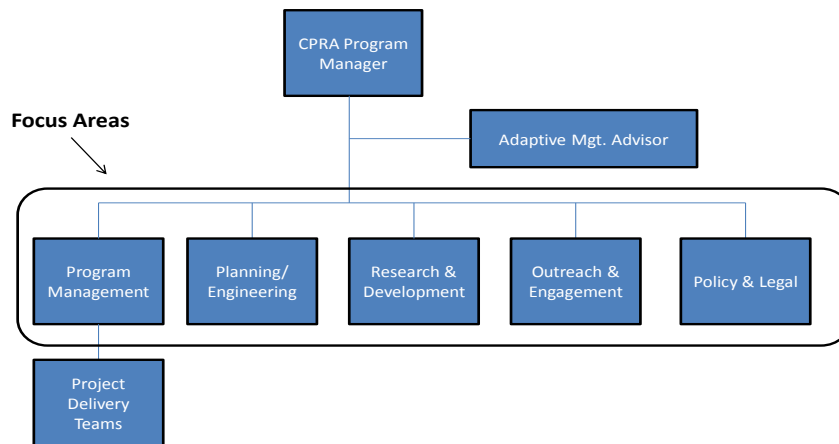


Figure 2. Proposed structure for managing implementation teams within the existing CPRA structure.

The Adaptive Management Advisor is a proposed new position in CPRA responsible for the development and implementation of the adaptive management framework into all coastal efforts. The advisor will facilitate the coordination and collaboration of emerging information among the program staff teams on a routine basis. New information and lessons learned from the planning, design, and implementation phases of a project, or as a result of applied scientific research, additional programmatic modeling, or system response monitoring will be vetted and disseminated by the advisor to the CPRA Program Manager and focus teams.

1.2.4 Project Delivery

Project delivery teams concentrate on the delivery of individual projects within the program. Typically project delivery teams are led by members of the project management team and are multi-agency, multi-discipline teams that are responsible for pursuing the work necessary to plan, design, construct, and transfer a completed project to a local sponsor. There is one project delivery team per project. Membership varies according to the phase of the project, i.e. planning, design, construction, etc. While the team is led by the project manager during each phase of the project a different technical lead usually leads the specific work effort leveraging the required expertise on the team to accomplish the work required for that phase.

Project delivery team membership is incorporates expertise from all focus areas to provide streamlined communications and transfer of project information. Depending on the discipline of the team member they can support more than one project delivery team. Each team will generally have one or more of the following disciplines:

- Project Manager
- Planner

- Engineer
- Construction Manager
- Land Specialist

In addition to the disciplines above, project delivery teams can also be supported by external resources such as contracted technical expertise and expertise found within other state and federal agency staffs. Local stakeholders may also be represented on the team. These representatives provide local and regional perspectives to the team during the project’s development.

1.3 Implementation Focus Teams

1.3.1 Team Formation

In formulating the project delivery teams, CPRA will utilize resources within its current structure and identify essential knowledge needs from other sources. Each team must address several initial steps to form or solidify procedures and processes which will provide them the “playbook” to advance their part of the program:

- Assess the scope, schedule, budget and expertise necessary to accomplish the work
- Review existing processes and procedures and modify where necessary
- Identify external expertise essential to delivering results
- Assign roles and responsibilities to team members
- Identify short-term and long-term goals
- Develop or refine a detailed work plan or strategy to accomplish the work, e.g., Program Management Plan, Outreach and Engagement Strategy

1.3.2 Collaboration, Communication and Coordination

The complex coastal program requires excellent relationships and strong communication protocols among teams and their members. Knowing each team’s focus and function will help in developing the collaborative relationships and trusted communications needed to succeed. Developing this knowledge will eliminate efforts that may be duplicative or counterproductive between the teams and provide coordination needed to advance the coastal program forward in an expeditious manner. Figure 1 demonstrates that communication, collaboration and coordination are critical aspects of the implementation process.

Experts on focus teams are not limited to CPRA employees. Collaborative partnerships with federal and local agencies, other state agencies, and key stakeholders (e.g., navigation industry experts on river projects) is essential to successful implementation, and in many cases, implementation can be streamlined by embedding external expertise into the focus teams. In cases where knowledge gaps are identified or challenges are encountered, the teams should engage outside expertise that would bring the needed knowledge to ensure project

implementation. Contracting out specific tasks can not only provide external expertise and oversight, but could also expedite the realization of results.

1.4 Focus Teams

1.4.1 Project Management Team

The Project Management Division of CPRA is the state’s lead in implementing projects. The division’s staff have expertise in project management, engineering, construction management and moving projects from the planning stage to construction. Team staff will be responsible for the timely and cost effective delivery of well-designed projects. The Project Management Division has existing procedures and processes, existing team structures and existing expertise for successful execution.

Near-term actions:

- Continue on-going efforts to deliver projects.
- Assign project managers to form project delivery teams and begin work on projects identified as early starts.
- Identify program risks, manage and track them during life of the program.
- Review and refine, as necessary, engineering design standards.
- Establish Program Controls that:
 - Provides a master program schedule
 - Provides detailed project schedules
 - Provides detailed program and project budgets
 - Establishes a document control system
 - Provides a reporting dashboard to track program performance
 - Support annual program status reporting through the Annual Plan
- Establish procedures to use alternative project delivery when and where appropriate.
- Assess contracting and procurement capabilities to support the program.
- Develop transfer protocols for project operation and maintenance to local sponsors.

1.4.2 Planning Team

The planning process includes activities to ensure program implementation follows certain guidelines to support a consistent and technically-based decision-making process that advances good projects to implementation quickly. Good planning also ensures that all environmental regulations and legal requirements are being met. Staff will leverage the work of the master plan to support other complimentary ongoing or future efforts such as the Corps of Engineers Section 7002 Comprehensive Plan and the Mississippi River Hydrodynamic and the Delta Management Study. The planning team will lead the planning aspect of developing individual projects through to engineering and design and participate on project management teams to ensure project knowledge is maintained throughout project delivery. Planning team members will participate in the development and implementation of the adaptive management framework, under the

guidance of the Adaptive Management Advisor, and on-going master plan efforts. The Planning Division of CPRA has existing procedures and processes, existing team structures and existing expertise for successful execution of these activities.

Near term actions:

- Participate in the programmatic adaptive management framework.
- Support Corps of Engineers Section 7002 Comprehensive Plan, Mississippi River Hydrodynamic and Delta Management Study, and other regional or systematic planning efforts.
- Lead on-going efforts, or develop new efforts, to advance individual project specifications (e.g., channel realignment).
- Development of a coast wide nonstructural program.
- Provide planning support to Project Delivery Teams and other teams.
- On-going development of decision support tools for future master plan updates.
- Develop a framework that can provide transitional assistance for those communities and resources displaced by a project or land loss along the coast.
- Coordinate with the Gulf Coast Ecosystem Restoration Task Force on the state's progress toward achieving the priority actions identified in their final report.
- Track and report on progress in addressing Louisiana's portion of the Gulf Hypoxia Action Plan.
- Develop a process to address landowner interactions across the coast and support the project delivery teams in the development of partnerships with landowners to implement projects.
- Coordinate and provide guidelines for a process that allows for the review and potential endorsement of new projects to be incorporated into the master plan process.

1.4.3 Research and Development Team

The entire coastal program will be greatly benefited by having a robust and focused research and development team. Expanding collective understanding of the coast is not just a responsibility of CPRA, but numerous collaborative entities across the coast. The research and development team will be comprised of staff of the Louisiana Coastal Engineering and Science (LACES) Division of CPRA, as well as outside experts and entities, such as The Water Institute of the Gulf. Research and development (specifically monitoring) supports planning and policy efforts by providing technically based information to address key uncertainties, promote ingenuity in problem-solving, and ensure sound management practices. For coastal projects, research and development supports the project management team by providing the most current technical information, supporting engineering and construction problem solving, and conducting project and system monitoring. The project management, planning, and policy and legal teams will provide feedback to the research and development team to prioritize issues and uncertainties. The research and

development team would manage the work of multiple research institutions to answer the key questions of importance to the coastal program.

Near term actions:

- Support the development and implementation of the programmatic adaptive management framework.
- Develop an inventory of monitoring data and data gaps.
- Develop budget requirements and prioritizations of needed applied sciences.
- Manage improvement to planning decision support tools.
- Participate in the Corps of Engineers Section 7002 Comprehensive Plan, Mississippi River Hydrodynamic and Delta Management Study, and other regional or systematic planning efforts.
- Develop monitoring plans for projects and programs in the 2012 Coastal Master Plan.
- Work with other teams to understand key questions or uncertainties that deter or delay implementation and develop methods to address.
- Manage acquisition of data both internally and from external sources.
- Coordinate and manage specific contracted actions by external research institutions, including The Water Institute of the Gulf.

1.4.4 Policy and Legal Team

There are numerous policy and legal challenges that can delay or disrupt the implementation of the master plan. The policy and legal team will identify state and federal laws and policies that could hinder the successful advancement of the coastal program. This team is a collaborative effort between CPRA, as well as other state, local and federal coordinating agencies. A review of existing state and federal policies related to the program will highlight opportunities to make adjustments to streamline the program. Policies that have an impact on the implementation of the master plan and are candidates for review include, but are not limited to: NEPA streamlining, permitting, beneficial use of sediments, land use development, and mitigation. These policies are described in more detail in Chapter 6 of the draft master plan and Attachment G-3. Once issues are identified by staff they will coordinate discussions to resolve issues and propose new language for revisions and then track to resolution those changes needed to facilitate the program more effectively. CPRA has existing procedures and processes and existing team structures for successful execution.

Near-term actions:

- Develop guidelines for state agencies to comply with Executive Order 2007-08 requiring consistency of all state agencies with the master plan. Provide guidance to Coastal Zone Management on consistency of Coastal Use Permits.
- Identify, develop and secure funding streams necessary to implement the 2012 Coastal Master Plan.

- Review existing state policies relevant to risk reduction and restoration and identify any modifications necessary to streamline implementation.
- Identify and track new and existing federal policies that support or inhibit our ability to implement projects effectively.
- Work with project delivery teams to identify key challenges to implementation. Work with the outreach and engagement team to garner support of federal agencies and elected officials.
- Provide policy and legal guidance for new initiatives proposed in the 2012 Coastal Master Plan, such as the coast wide nonstructural program.
- Coordinate discussions and the resolution of the beneficial use of dredged material issues between the state and the U.S. Army Corps of Engineers.
- Coordinate discussions and the resolution of new ways to permit large restoration and risk reduction projects with federal agencies.
- Coordinate discussion and the resolution of the state’s mitigation policy to align the goals of the compensatory mitigation program with the intent of the master plan.
- Responsible for frequent communication and collaboration with resource agencies, including the State Office of Coastal Management.

1.4.5 Outreach & Engagement Team

The outreach and engagement team is responsible for engaging the public during the on-going efforts of the master plan and implementation of the coastal program. The team will be comprised of staff from CPRA and external entities who work to support the education, outreach and engagement of key stakeholders including elected officials, business and industry leaders and the general public. Public understanding and acceptance is key to the success of the coastal program. Any large-scale program needs a unified constituency to be successful and it is the responsibility of the outreach and engagement team to build that understanding and support. CPRA will utilize collaborations with state and federal agencies, non-governmental groups, community leaders, and educational institutions (e.g., SeaGrant) to advance this goal.

Near-term actions:

- Evaluate and improve the outreach and engagement approach to increase the understanding and acceptance of the 2012 Coastal Master Plan by the public and key stakeholder groups as part of the adaptive management framework,
- Integrate outreach and engagement strategy used during the development of the master plan into existing CPRA Public Affairs functions.
- Refine the existing outreach and engagement strategy to reflect activities anticipated over the next five years to support coastal program implementation and on-going master plan efforts.
- Encourage active public involvement in the program through appropriate stakeholder and advisor engagement to enhance program transparency. This could include continued and expanded use of the Framework Development Team, Focus Groups, Science and Engineering Board, etc.

- Leverage federal, state, and non-governmental organization resources to develop educational programs to support a restoration and protection program that will span several generations.

1.5 Adaptive Management Framework

The dynamic nature of the Louisiana coast requires that we use adaptive management to successfully implement the projects recommended in the 2012 Coastal Master Plan using procedures and techniques that are flexible, agile, and based on the best available scientific, technical and social information, including modeling, monitoring, and system assessment. Uncertainties abound with regard to long-term coastal planning and implementation. For example, coastal conditions change, our understanding of coastal processes improve, and the amount of funding allocated to the coastal program is variable. CPRA must be able to react and adjust its course to unforeseen challenges in a nimble and strategic way. A key to ensuring the most effective use of future state and federal investment to provide for a sustainable coast will be the development of an Adaptive Management Framework. The purpose of adaptive management is to ensure that CPRA systematically considers new information and changing performance of both environmental and social systems in response to project implementation or changing on-the-ground conditions, and when necessary, makes appropriate adjustments to planning, designing, monitoring, operating, and implementing projects to ensure continued progress toward achieving master plan objectives.

The CPRA Adaptive Management Framework will help to ensure that the master plan objectives are achieved by identifying a sequence of activities that guide adjustments to planning, designing, monitoring, operating, and implementing projects with a programmatic perspective of accomplishment over the next 50 years. The Adaptive Management Framework will integrate project design and construction with system level monitoring by creating a comprehensive strategy to identify lessons learned and linking activities within CPRA and across different state agencies. In this way, CPRA intends to incorporate “adaptive learning” (changing sequential projects based on learning from prior projects) and true “adaptive management” (changing ‘within’ projects and their operation as they are evaluated).

The state understands a high level of commitment is needed to be successful with the Adaptive Management Framework.

- The state is committed to developing and implementing a programmatic Adaptive Management Framework in coordination with experts in coastal systems and adaptive management, agency personnel and key stakeholders.
- The state is committed to fully evaluating project synergies and conflicts through a systems monitoring and modeling approach.
- The state is committed to investing in a comprehensive repository of modeling tools that can continue to be refined and updated as additional data and information is gained.
- The state is committed to both short-and long-term planning efforts to support individual projects as well as the programs (e.g., nonstructural program development, annual plans, and ongoing master plan efforts).

- The state is committed to providing updates on the Adaptive Management Framework in the CPRA Annual plans.

The Adaptive Management Framework will provide roles and responsibilities for the five focus areas defined previously that are essential to adaptive learning and adaptive management. In addition, the Adaptive Management Advisor will be responsible for the development and implementation of the adaptive management framework into the entire coastal program. The advisor will facilitate the coordination and collaboration of emerging information among the program focus areas on a routine basis. The Adaptive Management Framework will rely on collaborative partnerships with federal and local agencies, other state agencies, and research institutions to participate as members of the Adaptive Management Framework. For more information on the development of the Adaptive Management Framework, see Attachment G-1.

1.6 Developing a Nonstructural Program

The 2012 Coastal Master Plan set targets for reducing flood risk for every inhabited area of the coast and recognizes that these targets for risk reduction cannot be met through structural flood protection projects only. The master plan proposes a multi-billion dollar investment in nonstructural measures, such as floodproofing, elevation and voluntary acquisition, across the coast, yet a fully coordinated federal, state and local program has not been developed. CPRA and our local and federal partners have years of experience in implementing many of the types of projects included in the 2012 Coastal Master Plan. Others, such as nonstructural measures, have not been implemented by the state on a coast wide programmatic scale. In order to ensure the successful implementation of the 2012 Coastal Master Plan, new programs must be developed that provide the mechanisms to plan, design and construct nonstructural projects across the coast.

The state proposes to build off previous efforts of local and state flood hazard mitigation plans, parish nonstructural plans and the tools developed for CPRA by the Center for Planning Excellence (CPEX). Additionally, to further understand how to implement a successful nonstructural strategy, expertise from other states (e.g. Mississippi Coastal Improvement Program (MsCIP) comprehensive plan) will be incorporated into the program development.

An effective nonstructural program will not only rely on constructible measures and project-specific implementation. Projects reduce risk for the existing building inventory, while programs focus on reducing risk for the future building inventory. Nonstructural programs can range from public education activities, to implementing ordinances and building codes with higher risk reduction standards, to preparing land use plans that integrate floodplain management concepts. An effective, comprehensive nonstructural strategy could include, but is not limited to:

- Land use planning
- Land use ordinances
- Hazard mitigation planning
- Higher regulatory standards
- Building codes
- Flood insurance requirements

- Public education

The 2012 Coastal Master Plan’s Nonstructural Implementation Strategy is intended to address these programs and recommend a course of action. While the master plan offers guidance and recommendations for nonstructural program implementation, it does not constitute a comprehensive implementation program. The master plan recognizes that many obstacles to implementation of a coast-wide nonstructural program exist, and that further coordination with state agencies, local governments and affected communities is critical to fully developing and implementing a successful nonstructural program. More detailed information on program development and recommendations for future actions are included in Attachment G-2.

1.7 Ensuring Environmental Compliance

Environmental regulations and legal requirements can greatly affect the state’s ability to implement the 2012 Coastal Master Plan in a timely and effective manner to achieve the needed risk reduction and land building benefits. To ensure progress in implementing projects identified in the 2012 Coastal Master Plan, an environmental compliance process is needed for additional studies that support project development and future Congressional authorizations. Specifically, compliance with the National Environmental Policy Act (NEPA) is required for Federal actions such as permitting, licensing and funding. Attachment G-3 intends to establish a collaborative planning environment that offers a means to integrate disparate initiatives into a holistic, comprehensive approach. This approach is one that addresses all federal, state, and local needs/interests. Solutions and any strategies envisioned and/or implemented should best fit the overall needs of the restoration and protection of the coast and not be biased towards any particular agency or federal projects. Moreover, these sentiments are increasingly tempered by the “reality” of tight federal fiscal constraints.

Further, given the urgency of the issues along the coast and critical ongoing efforts, the study duration must be substantially shorter than the time routinely taken by traditional studies. Stakeholders, resource agencies, partners and the public must maintain meaningful engagement throughout the process.