RESTORE ACT Direct Component Multiyear Plan Matrix — Department of the Treasury									OMB Approval No. 1505-0250
Applicant Name:	Coastal Protection and Restoration Authority								
1. MULTIYEAR PLAN VERSION (INITIAL OR AMENDMENT NUMBER):		1	**2a. DATE OF INITIAL MULTIYEAR PLAN ACCEPTANCE (mm/dd/yyyy):**			9/21/2015	**2b. DATE OF LAST MULTIYEAR PLAN ACCEPTANCE:**		9/21/2015
3. CUMULATIVE DIRECT COMPONENT ALLOCATION AVAILABLE FOR DISTRIBUTION TO APPLICANT:			$30,248,255.59		**4. TOTAL ALLOCATIONS PLUS KNOWN FUNDS NOT YET DEPOSITED IN TRUST FUND FOR DIRECT COMPONENT:**				$260,396,588.99
5. Primary Direct Component Eligible Activity Further Described in Application (Static Field)	**6. Activity Title (Static Field)**	**7. Location (Static Field)**	**8. Estimated Total Funding Contributions For Proposed Activity(ies)(refer to Instructions)**				**9. Proposed Start Date mm/dd/yyyy**	**10. Proposed End Date mm/dd/yyyy**	**11. Status (refer to Instructions)**
			8a. Direct Component Contribution	**8b. Other RESTORE Act Contribution**	**8c. Other Third Party Contribution**	**8d. Total Contribution**			
Restoration and protection of the natural resources, ecosystems, fisheries, marine and wildlife habitats, beaches, and coastal wetlands of the Gulf Coast Region	Houma	Terrebonne Basin- see map attached in Appendix B to the Plan	$16,000,000.00		$18,389,521.00	$34,389,521.00	11-2016	04-2018	Initial MYP Activity - Deleted in Amendment #1
Restoration and protection of the natural resources, ecosystems, fisheries, marine and wildlife habitats, beaches, and coastal wetlands of the Gulf Coast Region	Calcasieu Ship Channel Salinity Control Measures	Calcasieu, Cameron and Vermilion Parishes - see map attached Appendix A to the Plan	$16,000,000.00		$15,000,000.00	$31,000,000.00	11-2015	05-2018	Initial MYP Activity - Funded Activity at $16,000,000 with no 3rd party contribution.
Planning assistance	Adaptive Management	Louisiana coastal area	$2,400,000.00			$2,400,000.00	11-2015	05-2018	Initial MYP Activity - Deleted in Amendment #1
	Houma	Terrebonne Basin- see map attached in Appendix B to the Plan	-$16,000,000.00		-$18,389,521.00	-$34,389,521.00			Amendment #1 - Deleted Activity
	Adaptive Management	Louisiana coastal area	-$2,400,000.00			-$2,400,000.00			Amendment #1 - Deleted Activity
Restoration and protection of the natural resources, ecosystems, fisheries, marine and wildlife habitats, beaches, and coastal wetlands of the Gulf Coast Region	Calcasieu Ship Channel Salinity Control Measures - Amended	Calcasieu, Cameron and Vermilion Parishes	$20,400,000.00		-$15,000,000.00	$5,400,000.00	06-2017	12-2019	Amendment #1 - Amended to add $20,400,000 in DC Funds for a total project amount of $36,400,000, and delete 3rd party contribution of $15,000,000 from project funded in initial MYP
Restoration and protection of the natural resources, ecosystems, fisheries, marine and wildlife habitats, beaches, and coastal wetlands of the Gulf Coast Region	Calcasieu - Construction	Calcasieu, Cameron and Vermilion Parishes - see map attached Appendix B to the Plan	$45,569,002.00		$217,226,998.00	$262,796,000.00	01-2020	12-2022	Admendment #1 - New Activity
	12. ESTIMATED TOTAL FUNDING CONTRIBUTIONS FOR ACTIVITY(IES) (refer to Instructions)		$81,969,002.00	$0.00	$217,226,998.00	$299,196,000.00	**Please note: Grant awards may reflect non-material changes in proposed dates and estimated funding.**		

According to the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 1505-0250. Comments concerning the time required to complete this information collection, including the time to review instructions, search existing data resources, gathering and maintaining the data needed, and completing and reviewing the collection of information, should be directed to the Department of the Treasury, Office of Gulf Coast Restoration, 1500 Pennsylvania Ave., NW, Washington, DC 20220.

RESTORE ACT Direct Component Multiyear Plan Narrative

Department of the Treasury

OMB Approval No. 1505-0250

Directions: Use this form for the Initial Multiyear Plan and any subsequent amendments to an accepted Multiyear Plan. For amendments, include only new and/or materially modified activities.

Multiyear Plan Version (Initial or Amendment Number):	First Amended Multiyear Plan
Date of Initial Multiyear Plan Acceptance:	September 21, 2015
Date of Last Multiyear Plan Acceptance:	September 21, 2015

Eligible Applicant Name:	The Coastal Protection and Restoration Authority of Louisiana
Name and Contact Information of the Person to be contacted (POC) on matters concerning this Multiyear Implementation Plan:	
POC Name:	Vida Carver
POC Title:	Project Manager
POC Email:	Vida.Carver@la.gov
POC Phone:	(225) 342-2799

NARRATIVE DESCRIPTION:

1. A description of each activity, including the need, purpose, objective(s), milestones and location. Include map showing the location of each activity.

As an update to the State's initial RESTORE Act Multiyear Implementation Plan which was accepted by Treasury on September 21, 2015, one project and two programs have been removed from funding under the Direct Component under this First Amended RESTORE Plan and will instead be funded under the Spill Impact Component: The Houma Navigation Canal Lock Complex, Adaptive Management and the CPRA-Parish Matching Opportunities Program. The project proposed for Direct Component funding in this First Amended RESTORE Plan is the Calcasieu Ship Channel Salinity Control Measures project (See The State of Louisiana's First Amended RESTORE Plan pp. 14-19 and Appendix A pp. 34-35.) The total estimated funds that will be requested for this project from the Direct Component are $260.4 million, which includes the previously awarded funds of $16 million, the currently available funds of $30.2 million and approximately $214.2 million which will be paid into the RESTORE Trust Fund over a 15 year period and is therefore not currently available. This project is described in more detail below.

(Please see attached sheet for the remainder of this information).

2. How the applicant made the multiyear plan available for 45 days for public review and comment, in a manner calculated to obtain broad-based participation from individuals, businesses, Indian tribes, and non-profit organizations, such as through public meetings, presentations in languages other than English, and postings on the Internet. The applicant will need to submit documentation (e.g., a copy of public notices) to demonstrate that it made its multiyear plan available to the public for at least 45 days. In addition, describe how each activity in the multiyear plan was approved after consideration of all meaningful input from the public and submit documentation (e.g., a letter from the applicant's leadership approving submission of the multiyear plan to Treasury or a resolution approving the applicant's multiyear plan).

The project selected for Direct Component funding in this RESTORE Plan is the result of decades of planning and the information developed through the Coastal Master Plan process. Louisiana's Coastal Master Plan, on which this First Amended RESTORE Plan is based, represents the result of a broad-based collaboration among local, state and national stakeholders and uses cutting edge technical analysis to think big and evaluate the needs of the entire coast. (See generally The State of Louisiana's First Amended RESTORE Plan pp. 8-13.)

(Please see attached sheet for the remainder of this information).

3. How each activity included in the applicant's multiyear plan narrative meets all the requirements under the RESTORE Act, including a description of how each activity is eligible for funding based on the geographic location of each activity and how each activity qualifies for at least one of the eligible activities under the RESTORE Act.

Under 31 C.F.R. §34.303(d)(1) activities proposed for Direct Component funding must meet the statutory requirements for eligibility. The Calcasieu Salinity Control Measures project proposed for Direct Component funding under this Plan is an eligible activity under 31 C.F.R. §34.201 because by allowing for the maintenance of thousands of acres of critical marsh environment which provide essential fish and wildlife habitat, the project's primary purpose is to restore and protect the natural resources, ecosystems, fisheries, marine and wildlife habitats and coastal wetlands of the Gulf Coast region. (Eligible Activity (1)).

(Please see attached sheet for the remainder of this information).

4. Criteria the applicant will use to measure the success of the activities included in the multiyear plan narrative in helping to restore and protect the Gulf Coast Region impacted by the Deepwater Horizon oil spill.

At the project-scale level, performance success measures will track the progress towards meeting management goals and objectives. (See The State of Louisiana's First Amended RESTORE Plan p. 30). Establishment of detailed monitoring requirements will be finalized for the Calcasieu Ship Channel Salinity Control Measures project upon completion of the engineering and design phase of the project. However, monitoring for the Calcasieu Ship Channel Salinity Control Measures project will likely include surface and marsh porewater salinity, which can use previous studies, including work done as part of the Southwest Coastal Louisiana Study to establish background conditions for comparison of project effects. Other monitoring parameters for this project could include water level conditions in emergent marshes, local hydrodynamics near project features, and fish and wildlife monitoring.

5. How the activities included in the multiyear plan narrative were prioritized and list the criteria used to establish the priorities.

The Calcasieu Salinity Control Measures project was prioritized for RESTORE Direct Component funding due to its regional nature and far-reaching benefits to the overall ecological and economic recovery of the Gulf. In addition, this project was identified as a top performer through the Coastal Master Plan's Planning Tool. For example, the Planning Tool's modeling results showed that in certain cases, the sustainability of marsh creation projects increased from being completely unsustainable to being sustainable for more than 50 years when modeled as part of a group of projects including hydrologic restoration and salinity control structures. (See 2012 Master Plan p. 90).

(Please see attached sheet for the remainder of this information).

6. If applicable, describe the amount and current status of funding from other sources (e.g., other RESTORE Act contribution, other third party contribution) and provide a description of the specific portion of the project to be funded by the RESTORE Act Direct Component.

CPRA has previously been awarded funds in the amount of $16 million to support engineering and design up to at least the 30% design milestone. The State of Louisiana currently has an available balance of $30.2 million in Direct Component funds, $20.4 million of which will be requested for the completion of engineering and design, permitting, and all other tasks required to move the project into construction. CPRA will then request approximately $45.6 million, which will be available in the Direct Component at the end of 2019, in order to initiate construction in 2020. The total estimated funds that will be requested for this project from the Direct Component are $260.4 million, which includes the previously awarded funds, of $16 million, the currently available funds of $30.2 million and approximately $214.2 million which will be paid into the RESTORE Trust Fund over a 15 year period and is therefore not currently available. The information learned through the design process of this project will help inform the construction sequence and methodology that may ultimately be used for this project and will help determine the approach to funding the project through completion. Additional funds for this project may be provided in the future from funds in the State's Coastal Protection and Restoration Fund, including without limitation revenues from the Gulf of Mexico Energy Security Act (GOMESA), and/or funds from other RESTORE funding components.

Additionally, CPRA recognizes that operations and maintenance of this project is reflected in the overall budget estimate; however the funding source for that phase of this project will be identified in the future.

Attachment to the RESTORE Act Direct Component Multiyear Plan Narrative

NARRATIVE DESCRITPION
1. A description of each activity, including the need, purpose, objective(s), milestones and location. Include map showing the location of each activity.

Question 1 (Continued)

- Need: The project is contained in the 2012 Coastal Master Plan as a hydrologic restoration project (Project 004.HR.06) and the 2017 Annual Plan (Project CS-0065)[1] and is needed to address modifications to hydrology that have caused an increase in salinity levels within the project area, resulting in degradation of the integrity of the surrounding marsh area and increased rates of wetland loss. This project will also mitigate damage to fish, wildlife and natural resources which rely on freshwater inputs and will limit the intrusion of salt water into freshwater marsh systems, thereby allowing for the maintenance of thousands of acres of wetlands which serve as critical wildlife habitat and nurseries for fisheries.
- Purpose: The purpose of the project is to manage salinities being introduced through the Calcasieu Ship Channel into adjacent water bodies to reduce the rate of wetland loss in the surrounding wetlands. Restoring this coastal ecosystem and lowering the risk associated with sea level rise, subsidence, and tropical events along the coast will also improve the long-term economic health of the region.
- Objectives: Design, construction, and operation of measures designed to limit the intrusion of saline water into Calcasieu Lake through the Calcasieu Ship Channel. These measures would control salinity spikes, provide storm surge benefits, and would be constructed in a manner that would allow for the continued functioning and, ideally, improvement and increased viability of the Calcasieu Ship Channel and the Port of Lake Charles. By allowing for the maintenance of thousands of acres of critical marsh environment which provide essential fish and wildlife habitat, the primary eligible activity of this project is to restore and protect the natural resources, ecosystems, fisheries, marine and wildlife habitats and coastal wetlands of the Gulf Coast region. (Eligible Activity (1)). The project also protects the wetlands of the Chenier Plain, which provide storm surge protection to communities and ports in the Lake Charles area. The ports of Lake Charles and Cameron are key parts of the economy of Southwest Louisiana and include critical infrastructure. The loss of wetlands reduces the viability of the ports because of the increased exposure to storm surge. In sum, this project will contribute to the overall ecological and economic recovery of the Gulf by saving an anticipated 21,000 acres of marsh environment from degradation over 50 years. (*See* Appendix A to The State of Louisiana's First Amended RESTORE Plan). Additionally, the project will be carried out in the Gulf Coast Region as defined in 31 C.F.R. §34.2 because it is located in the Calcasieu Ship Channel, and is anticipated to influence hydraulic conditions within the Calcasieu-Mermentau basin, which is in the coastal zone defined under section 304 of the Coastal Zone Management Act of 1972 that border the Gulf of Mexico. (*See* Appendix A to The State of Louisiana's First Amended RESTORE Plan for a

[1] This project is also included in the draft 2017 Coastal Master Plan as a hydrologic restoration project (Project 004.HR.06) at pp. 40, 108, 110 & 128 and the draft 2018 Annual Plan (Project CS-0065) at pp. 46 & 60.

map of the approximate boundaries of the project influence area).

- Funds Requested: The estimated total cost of the project is $441.1 million. This includes an estimated $36.4 million[2] for engineering, design and permitting, an estimated $262.8 million for construction and an estimated $141.9 million for operations, maintenance, monitoring, and adaptive management. This cost estimate is based on preliminary design that utilized professional judgment of an interdisciplinary team of engineers and existing data on the topography, bathymetry and geotechnical characteristics of the project sites. Cost estimates for design and operations, monitoring, maintenance and adaptive management are based on percentage estimates of the construction cost. Construction cost estimates reflect preliminary planning-level estimates of construction costs and schedules. As design advances these cost estimates will be revisited and are subject to change. All costs are reported in present dollar values and do not represent inflation or escalation.

  CPRA has previously been awarded funds in the amount of $16 million from the Direct Component to support engineering and design up to at least the 30% design milestone. The State of Louisiana currently has an available balance of $30.2 million in Direct Component funds, $20.4 million of which will be requested for the completion of engineering and design, permitting, and all other tasks required to move the project into construction. CPRA will then request approximately $45.6 million, which will be available in the Direct Component at the end of 2019, in order to initiate construction in 2020. The total estimated funds that will be requested for this project from the Direct Component are $260.4 million, which includes the previously awarded funds, the currently available funds and approximately $214.2 million which will be paid into the RESTORE Trust Fund over a 15 year period and is therefore not currently available. The information learned through the design process of this project will help inform the construction sequence and methodology that may ultimately be used for this project and will help determine the approach to funding the project through completion. Additional funds for this project may be provided in the future from funds in the State's Coastal Protection and Restoration Fund, including without limitation revenues from the Gulf of Mexico Energy Security Act (GOMESA), and/or funds from other RESTORE funding components.

  Previously awarded Direct Component funds will support 30% Engineering and Design as described below. Currently available Direct Component funds of $20.4 million will support completion of Engineering and Design, Permitting and work needed to acquire land rights. The remaining balance will be combined with future Direct Component funds and other third party funds to support construction.

  - 15% and 30% Engineering and Design: An initial amount of $16 million has been awarded from Direct Component funds to fund the project development up to at least the 30% design milestone. This work corresponds to milestones and Measures of Success 1 and 2 below. (*See also* The State of Louisiana's First Amended RESTORE Plan p. 18 for Measures of Success). Tasks required in order to reach these milestones include, but are not limited to:
    - Conduct a data gap analysis to identify the field data needed to design the project to the 15% and subsequently to the 30% level.
    - Collection of field data.

[2] Please note that estimates for engineering, design and permitting have been updated and refined in the time period since the State's Initial RESTORE Act Plan was accepted by Treasury on September 21, 2015, to take into consideration land rights and permitting support which were not fully factored into the earlier estimates.

- Tax assessment research and title research will be conducted to identify the ownership of land rights that may need to be acquired for construction.
- Application of planning and engineering models to support design, refine cost estimation and support environmental documentation.
- Engineering and Design.
- Preparation and submittal of a permit application for construction of the project
- Activities in support of the permit application, including wetland delineations, agency consultations, etc.

The estimated timeframe for completing 30% design is March 2018. The outcome of this phase will be a 30% design package. At the 15% design milestone, the project will be developed with sufficient detail to submit a permit application for construction.

- 60% Engineering and Design, Permitting and Final Design: The remaining funds needed for the E&D phase, or approximately $20.4 million, will support the completion of engineering and design, permitting, and all other tasks required to take the project into construction. Tasks included in this expanded scope of work include, but are not limited to:
  - Permitting and associated reviews and permissions (e.g. 404/10 permit, Section 408 review, National Environmental Policy Act). Permitting activities may be started in parallel with the 30% design work as opportunity allows.
  - Independent Technical Review.
  - 60% Design.
  - Development of an operations, maintenance, monitoring and adaptive management plan.
  - Land Rights research, including parcel surveys, abstracting, title opinions, title insurance, appraisals, and all other activities leading up to acquisition of land rights.
  - 95% Design.
  - Final Plans and Specifications.
  - Preparation of a bid package for construction.

During this phase of E&D, permitting and design proceed iteratively, with adjustments made to the design based on feedback received through the USACE public interest review process. Once the permit application has been submitted, USACE will review the application and determine whether an Environmental Assessment (EA) or Environmental Impact Statement (EIS) will be required to satisfy National Environmental Policy Act (NEPA) review of the Project.

The scope of this work corresponds to Milestones 3-5 and Measures of Success 3-6, and will be defined concurrently with completion of the 30% design. (*See also* The State of Louisiana's First Amended RESTORE Plan pp. 17-18 for Milestones and Measures of Success). This scope of work will be submitted to Treasury for approval as a grant amendment. It is estimated that the final permit reviews and final plans and specifications can be completed by December 2019.

- Construction: The balance of the currently available funds ($9.8 million) will be used as part of a larger request of approximately $45.6 million, which will be available in the Direct Component at the end of 2019, and will be combined with future funding sources to support construction starting in 2020. Potential

future funding sources include the balance of the total funds to be requested from the Direct Component of an estimated $214.2 million, which will be paid into the RESTORE Trust Fund over a 15 year period and is therefore currently unavailable. Milestones 6-8 and Measures of Success 7-9 relate to the construction phase and are presented here for completeness and to demonstrate the full process to implementation of the project. (*See* pp. 17-18 for Milestones and Measures of Success). Construction is estimated to take at least two years and could be complete as soon as mid-2022.

CPRA has worked with the Chenier Plain Coastal Restoration and Protection Authority, the Cameron Parish Police Jury and Calcasieu Parish Police Jury throughout the plan selection process. All parties regularly communicated about the project status and important decision-making. It is anticipated that this collaboration will continue throughout the project life.

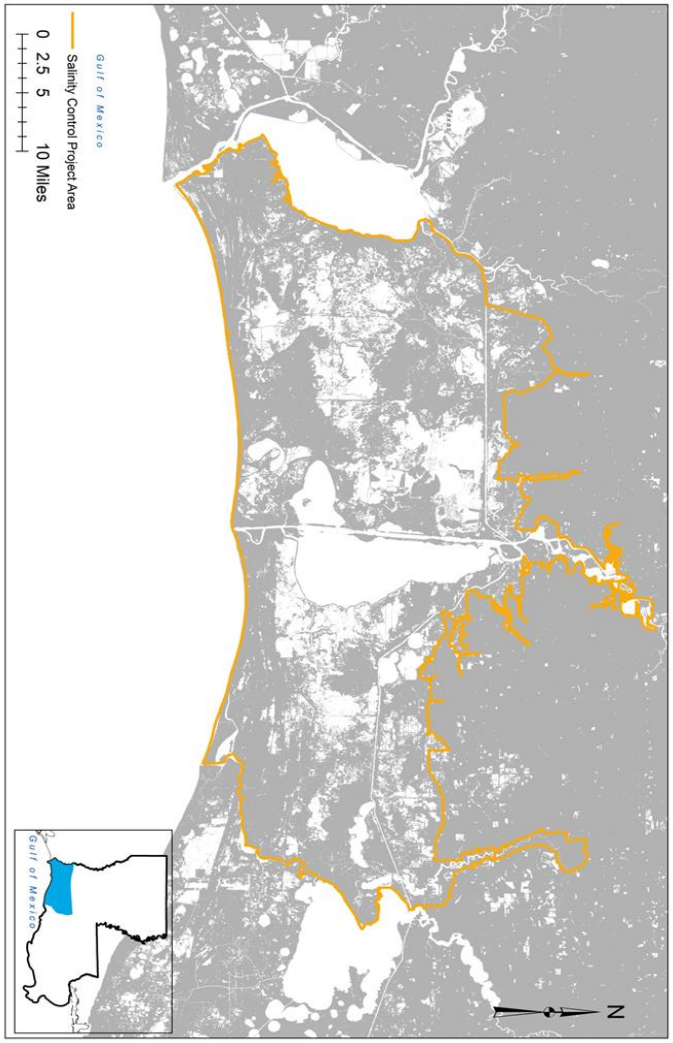
- High Level Milestones:
    1. 15% Design Package: Project development to the 15% design level.
    2. 30% Design Package: Development of the project to the 30% design level.
    3. Obtaining environmental permits to implement the Project: Work on this task will begin following completion of 15% engineering and design and will continue concurrently with the 30%, 60% and 95% design milestones. This high-level milestone corresponds to Measures of Success 2, 4, 6 and 7 below.
    4. 60% Design Package: development of the project to the 60% design level.
    5. 95% Design Package.
    6. Award of Construction Contract.
    7. Mobilization for Construction.
    8. Completion of Construction.
- Measures of Success: *See also* Plan Section VII.
    1. Achieving the 15% design level milestone.
    2. Submittal of a permit application for construction.
    3. Completion of 30% design package.
    4. Completion of a draft Environmental Impact Statement.
    5. Completion of 60% design package.
    6. Section 408 Review.
    7. Completion of a final Environmental Impact Statement.
    8. Completion of 95% design package.
    9. Advertisement of a Bid Package.
    10. Award of Construction Contract.
    11. Mobilization for Construction.
    12. Completion of Construction.
- Estimated Start and Completion Dates:

  15% design milestone: June 30, 2017.
    1. 30% design milestone: March 30, 2018.
    2. Completion of draft Environmental Impact Statement: July 23, 2018.
    3. 60% design milestone: September 4, 2018.
    4. Completion of Final Environmental Impact Statement: January 21, 2019.
    5. 95% design milestone: February 11, 2019.
    6. Award of Construction Contract: March 1, 2020.
    7. Construction Mobilization: April 1, 2020.

8. Completion of Construction: April 1, 2022.

The estimated construction timelines referenced above reflect an aggressive schedule which is driven by CPRA's sense of urgency for implementing large scale restoration projects. Given that RESTORE funds are subject to a 15 year payout, CPRA anticipates that it may need to access alternative funding streams through its Coastal Protection and Restoration Fund which would be reimbursed with RESTORE funds as those become available over time. CPRA is also exploring available accelerated financing options in order to meet the estimated timelines described herein. CPRA is evaluating alternative funding streams and accelerated financing options because, as explained in the Executive Summary above, Treasury cannot award a project grant for Direct Component funds until sufficient deposits are available for distribution based on the amount of funds shown in the Gulf Coast Restoration Trust Fund Allocation Tables on Treasury's RESTORE Act website.

Additionally, CPRA recognizes that operations and maintenance of this project is reflected in the overall budget estimate; however the funding source for that phase of this project will be identified in the future.



Calcasieu Ship Channel Salinity Control Measures

2. How the applicant made the multiyear plan available for 45 days for public review and comment, in a manner calculated to obtain broad-based participation from individuals, businesses, Indian tribes, and non-profit organizations, such as through public meetings, presentations in languages other than English, and postings on the Internet. The applicant will need to submit documentation (e.g., a copy of public notices) to demonstrate that it made its multiyear plan available to the public for at least 45 days. In addition, describe how each activity in the multiyear plan was approved after consideration of all meaningful input from the public and submit documentation (e.g., a letter from the applicant's leadership approving submission of the multiyear plan to Treasury or a resolution approving the applicant's multiyear plan).

Question 2 (Continued)

Louisiana's Coastal Master Plan Public Process

The CPRA established a strategic outreach and engagement framework for the State of Louisiana's 2012 Coastal Master Plan, which helped guide communications and interactions with diverse audiences throughout the planning process. (*See* 2012 Coastal Master Plan at pp. 120, 122, 126 & 160-163). These audiences included key citizen groups and organizations, non-governmental organizations, local and state officials, business groups and the general public. CPRA's outreach and engagement framework provides a variety of ways for stakeholders and citizens to learn about and participate in the master planning process, including small group gatherings, web offerings, direct communication with local and state government, and through monthly public meetings.

The CPRA's public outreach efforts for the 2012 Coastal Master Plan began with a meeting of 40 state legislators as well as coastal parish officials to gain their perspective about how coastal action affects communities. CPRA also met with community groups including rotary clubs, advocacy organizations, and school groups across the coast. Other groups were established to provide structured and ongoing advice from key businesses and industries, federal agencies, non-profits, Native American groups, and local organizations as well as coastal scientists and planning experts. These groups provided recommendations and guidance as the plan was developed so that the finished product would reflect broad perspectives and the best possible technical approach. These groups included a framework development team, focus groups of key coastal industries, a science and engineering board, and technical advisory committees.

Ten regional community meetings were held from July through September of 2011, where further input was received from residents. Approximately 600 citizens attended those regional community meetings. Together with online input, a total of 800 citizens expressed their views concerning coastal priorities. Once the draft plan was compiled, it was made available on the CPRA website, and three open house public hearings were held to receive feedback on the draft plan in Houma, New Orleans, and Lake Charles. All told, more than 2,200 comments were received at public hearings, via email, the website, and mail.

The 2012 Coastal Master Plan was also published on CPRA's website and made available for public comment from January 12, 2012 through February 25, 2012 (45 days). Comments were reviewed and considered with great care in order to incorporate them into the final 2012 Coastal Master Plan. Project-specific comments were further evaluated to determine the implications of each proposed change. In some cases, significant changes were made to the draft plan regarding project location and design. The final plan was submitted and approved by the CPRA Board in a public meeting before proceeding to the

legislature for final approval. During the legislative process, the Coastal Master Plan was considered, debated, and open to further public input before receiving final approval by four committees: the House Transportation Committee, the House Natural Resources Committee, the Senate Transportation Committee, and the Senate Natural Resources Committee. Following approval by all four committees, the plan moved to the floor of the respective houses of the legislature where it was unanimously passed. All comments received on the plan as well as transcripts from the town hall meetings and other information related to the public outreach effort are available in Appendix G of the 2012 Coastal Master Plan.[3] The 2012 Coastal Master Plan was formally approved by the Louisiana Legislature on May 22, 2012.

The State of Louisiana's First Amended RESTORE Plan Public Process

In addition to the above Coastal Master Plan public process, the CPRA Board holds monthly meetings to provide the public with updates related to projects, programs, and policies. A public comment period is included at the close of each monthly meeting allowing the opportunity for citizens to ask questions or provide comments for the record. The Calcasieu Ship Channel Salinity Control Measures project which is proposed herein for Direct Component funding, has been identified and discussed specific to RESTORE Act funding at numerous CPRA Board meetings over the past four years. Specifically, this project was discussed at the following meetings: November 28, 2012, May 15, 2013, July 17, 2013, August 20, 2014, October 15, 2014, November 12, 2014, February 11, 2015, April 15, 2015, August 19, 2015, December 16, 2015, August 31, 2016, and November 30, 2016. Moreover, at each of these meetings, there was also a public comment period dedicated to comments related to the RESTORE Act.

CPRA staff regularly attends these meetings and are available before and after to discuss agency initiatives with members of the public. Meeting details, including itemized agendas, are posted to CPRA's online calendar which is located at www.coastal.la.gov.

Further, the First Amended RESTORE Plan was published on November 30, 2016 and made available for public review and comment for a minimum of forty five (45) days in a manner calculated to obtain broad-based participation from individuals, businesses, Indian tribes, and non-profit organizations in accordance with 31 C.F.R. §34.303(b)(8). The First Amended RESTORE Plan was made available on CRPA's website and the CPRA issued a press release seeking public feedback until January 14, 2017, and directing anyone with comments to submit those via email to: coastal@la.gov, or via regular mail to: CPRA, Attn: Chuck Perrodin, P.O. Box 44027, Baton Rouge, LA 70804.

Advertisements to solicit public comment on the First Amended RESTORE Plan were also placed in the following press outlets across Coastal Louisiana during the public comment period:

Abbeville Meridional 12/7
Baton Rouge Advocate 12/7
Belle Chasse Plaquemines Gazette 12/13
Houma Daily Courier 12/7
Lafayette Daily Advertiser 12/7
Lake Charles American Press 12/7
Morgan City Daily Review 12/7

[3] The 2012 Coastal Master Plan appendices may be accessed at http://coastal.la.gov/a-common-vision/2012-coastal-master-plan/cmp-appendices/.

New Orleans Times-Picayune 12/7

In addition, letters were sent via email and certified mail/return receipt request to the following federally recognized Indian Tribes to inform them of the public comment period for the First Amended RESTORE Plan and inviting them to comment:

Chitimacha Tribe of Louisiana
Coushatta Tribe of Louisiana
Jena Band of Choctaw Indians
Tunica-Biloxi Indian Tribe

During the public comment period, CPRA received multiple public comments. All public comments submitted during the public comment period were reviewed and considered by CPRA before preparing the final First Amended RESTORE Plan. No negative comments were received about the Calcasieu Salinity Control Measures project and therefore no substantive changes were made to the project or the State's final First Amended RESTORE Plan relative this project. The public comments received are summarized below:

Comment: Commentor requested that CPRA consider extending the CPRA-Parish Matching Opportunities Program to entities that are not receiving Direct Component funds under the RESTORE Act such as levee districts.

Comment: Commentor requested additional information about how CPRA defines consistency with the Coastal Master Plan for the CPRA-Parish Matching Opportunities Program.

Comment: Commentor requested that Section 106 consultation occur with Tribes for all federal undertakings that will be implemented under this plan.

Comment: Commentors expressed strong support for sound science decision making, public transparency and engagement as the plan is implemented and the State's commitment to identifying and finding solutions to any obstacles to implementation, including funding and funding timelines. Commentors also requested that the plan describe potential additional sources of funding for the Calcasieu Ship Channel Salinity Control Measures project and include a budget allocation or commit a percent of overall funding to be spent on overhead versus on the ground data collection and analysis for the Adaptive Management program.

Comment: Commentor expressed strong support for supporting research on the interconnectedness of human health and ecosystem health.

Comment: Commentor expressed strong support for restoration projects in the Mississippi River Gulf Outlet (MRGO) ecosystem and the greater New Orleans areas.

CPRA acknowledges and appreciates all public comments received and is committed to addressing the issues raised in these comments where possible. In cases where comments were either generally supportive or pertained to activities or recommendations that (i) are outside of the purview of the First Amended RESTORE Plan, (ii) are outside of the CPRA's direct authority, or (iii) in cases where specific projects were recommended for funding under this plan which are consistent with the Coastal Master Plan and for which CPRA has secured or is planning to secure alternative funding sources other than the RESTORE Direct Component or Spill Impact Component, CPRA has considered and appreciates those

comments but has not revised the plan based on that input at this time. In cases where public input requested additional or clarifying information, the plan has been updated to address these requests where possible.

After comments on each activity in the State's First Amended RESTORE Plan, as applicable, were taken into consideration, provided to the CPRA Board and the CPRA Board was provided with an explanation for how the public comment was addressed, the CPRA Board approved each activity included in the State's First Amended RESTORE Plan and approved that plan for submission to Treasury (and the RESTORE Council) on January 18, 2017, in accordance with 31 C.F.R. §34.303(b)(9).

3. How each activity included in the applicant's multiyear plan narrative meets all the requirements under the RESTORE Act, including a description of how each activity is eligible for funding based on the geographic location of each activity and how each activity qualifies for at least one of the eligible activities under the RESTORE Act.

Question 3 (Continued)

Under 31 C.F.R. §34.303(d)(2), each activity designed to protect or restore natural resources proposed for funding under the Direct Component must be based on best available science. Under 31 C.F.R. 34.2, "best available science" is defined as "science that maximizes the quality, objectivity, and integrity of information, including statistical information; uses peer reviewed and publicly available data; and clearly documents and communicates risks and uncertainties in the scientific basis for such projects." Louisiana's Coastal Master Plan is required by law to be updated every five years in order to take into account the best available science and the ever-changing conditions on the ground. (See The State of Louisiana's First Amended RESTORE Plan p. 9). The Coastal Master Plan, on which the First Amended RESTORE Plan is based, is guided by a mission which is comprehensive in scope and based on a broad range of objectives, principles, decision drivers and decision criteria. (Coastal Master Plan pp. 44-63). This mission represents the result of a broad-based collaboration among local, state and national stakeholders and uses cutting edge technical analysis to "think big and evaluate the needs of the entire coast". (*Id.* at 45). The Calcasieu Salinity Control Measures project is contained in the 2012 Coastal Master Plan as 004.HR.06 and the 2017 Annual Plan as CS-0065, and as such is a project that is based on the best available science.

Additionally, the project will be carried out in the Gulf Coast Region as defined in 31 C.F.R. §34.2 because it is located in the Calcasieu Ship Channel, and is anticipated to influence hydraulic conditions within the Calcasieu-Mermentau basin, which is in the coastal zone defined under section 304 of the Coastal Zone Management Act of 1972 that border the Gulf of Mexico. (*See also* the map identified in response to Question 1 and in Appendix A to the State of Louisiana's First Amended RESTORE Plan).

5. How the activities included in the multiyear plan narrative were prioritized and list the criteria used to establish the priorities.

Question 5 (Continued)

More particularly, the CPRA developed a robust decision-making process to ensure that formulation of the 2012 Coastal Master Plan was based on the best science and technical information available, while

still incorporating an extensive public outreach campaign. This same process also informed the prioritization and selection of projects for funding under the Annual Plan and this RESTORE Plan specific to the RESTORE Act. More specifically, the process was guided by clearly-articulated objectives developed for the 2007 Master Plan and by planning principles developed to aid in meeting those objectives. The objectives were clearly defined to reflect key issues affecting communities in and around Louisiana's coast:

1. Reduce economic losses from storm surge flooding,
2. Promote a sustainable coastal ecosystem by harnessing the natural processes of the system,
3. Provide habitats suitable to support an array of commercial and recreational activities coast wide,
4. Sustain the unique cultural heritage of coastal Louisiana, and
5. Promote a viable working coast to support regionally and nationally important businesses and industries.

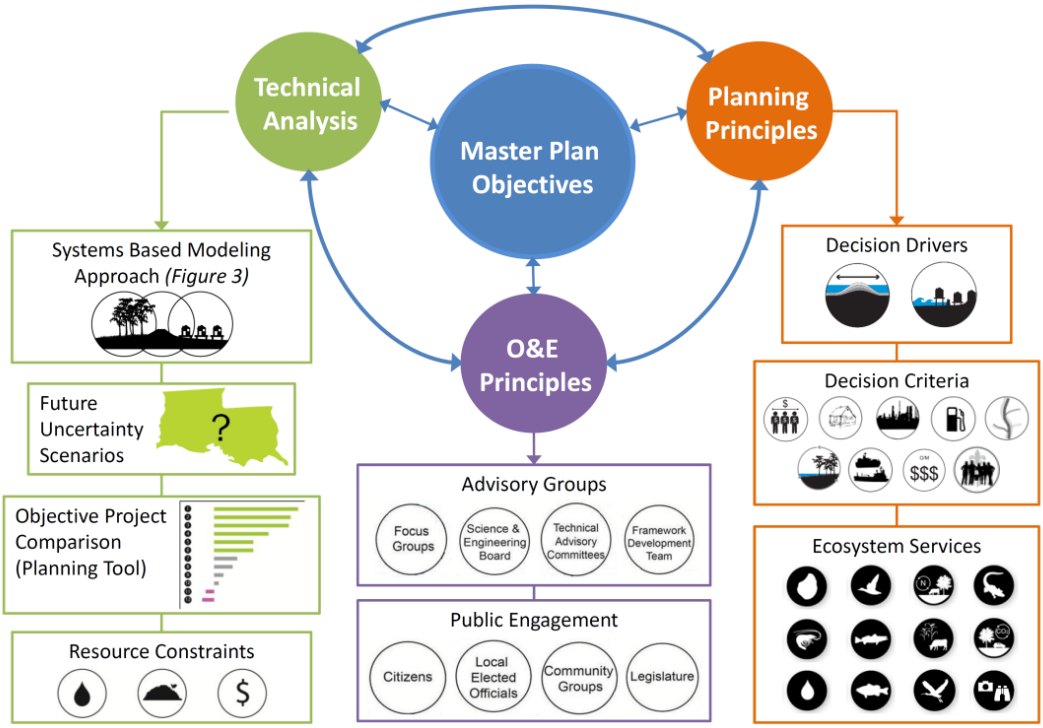


Figure 1. The decision-making process is a complex interaction of input and feedbacks between a technical analysis, outreach and engagement (O&E) and planning principles. The overall goal of the Master Plan is defined by the objectives. The systems-based modeling approach, future uncertainty scenarios, planning tool and resource constraints all contribute to the technical data needed for the decision-making process. The planning principles and formulation involve decision drivers, decision criteria and ecosystem services metrics, as described in the methods section, which help determine the [Coastal Master] Plan's ability to meet the objectives. The O&E strategy was designed to ensure public input and acceptance throughout the decision-making process and multiple groups were involved in defining and reviewing the technical analysis and plan formulation (Peyronnin et al. 2013).

Evaluating Projects

The purpose for the 2012 Coastal Master Plan was to identify coastal protection and restoration projects that would improve the lives of coastal residents by creating a more resilient south Louisiana. Achieving

this goal required new tools that helped us better understand our coast and how projects could provide benefits. The coast is a complex system. We needed to better understand how it is changing today and the kinds of changes we can expect in the future. We also had hundreds of project ideas and different views about how to move forward, and needed a way to sort through our many options and find those that would work best for us.

To meet these needs, CPRA used a systems approach to coastal planning and a science-based decision making process that resulted in a plan that was both funding- and resource- constrained. These tools helped us understand the practical implications of different project options and how gains in one area might create losses in another. Based on the preferences we wanted to explore, our tools helped identify strategies for investing in coastal protection and restoration projects. This analysis improved our understanding of how projects were affected by: our budget and the river water and sediment that we have to work with. We also used the tools to consider possible future coastal conditions that could affect the way our projects operate, along with other factors such as construction time.

The Predictive Models

The 2012 Coastal Master Plan analyzed both protection and restoration measures, which influenced the models we selected and how they work. To estimate risk reduction outcomes, we used models that evaluated storm surge and the risk of expected annual damages. To estimate restoration outcomes, the models looked at how land changes throughout the coast—where land is building and where it is disappearing. These models examined how water moves through the coastal system as well as how salt and fresh water affect vegetation and habitats for key species and ecosystem services.

The integrated suite of Predictive Models developed for the Coastal Master Plan assessed how Louisiana's coastal landscape may change and how much damage communities may face from storm flooding over the next 50 years if we take no further action and for comparison then assessed how the coastal ecosystem and our level of risk could change if certain risk reduction and restoration projects are constructed. The models incorporated what we know about the way the coast works, and they made it easier to identify projects that best achieve our objectives.

Ecosystem services are benefits that the environment provides to people. In Louisiana, these range from providing the right habitats for oysters and shrimp to nature-based tourism. We could not detail the economic aspect of ecosystem services in our analysis. Instead, we focused on proxy characteristics of the coast, such as provision of habitat (i.e. habitat suitability indices) and other factors that can support ecosystem services.

The Predictive Models used in the Coastal Master Plan were organized into seven linked groups (Figure 2), involving the work of over 60 scientists and engineers. Each group worked on a different aspect of how the coastal system changes over time. Our effort was based on existing models where they were appropriate. New models were developed for vegetation, nitrogen uptake, barrier shorelines, flood risk, and to reflect potential for nature based tourism, fresh water availability, and support for agriculture/ aquaculture.

The models were designed to work together, following the precedent set by earlier state planning efforts, such as the Coastal Louisiana Ecosystem Assessment and Restoration ("CLEAR") work conducted for the Louisiana Coastal Area Study (Nuttle et al., 2004; USACE, 2004). We also found new ways to link the expanded set of models to more fully capture how the coast works as a system. The level of modeling in the 2012 Coastal Master Plan was a significant technical achievement in the systems approach, the linked nature of the models, and in the breadth of subjects evaluated.

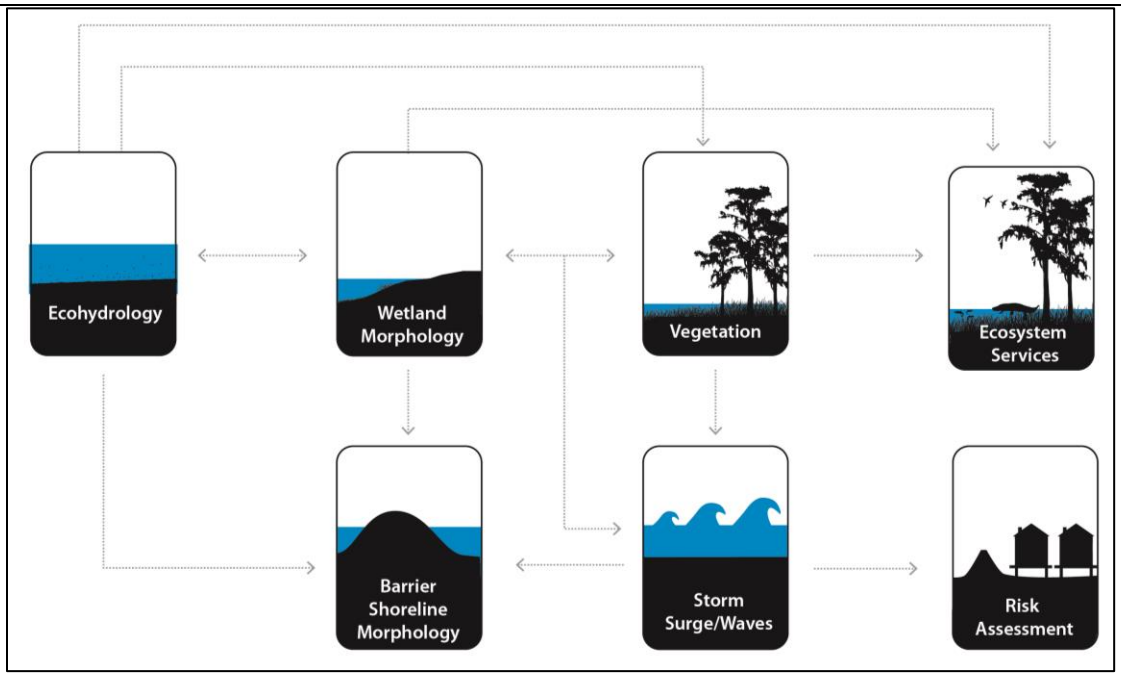


Figure 2. 2012 Master Plan predictive model groups (Meselhe et al. 2013, Couvillion et al. 2013, Visser et al. 2013, Nyman et al. 2013, Cobell et al. 2013, Johnson et al. 2013).

Future Environmental Scenarios

Many factors that will have a profound effect on the future of Louisiana's coast cannot be easily predicted or are outside of our control. These include factors such as subsidence and the levels of nutrients in the river, as well as the effects of climate change, such as sea level rise, changes in rainfall patterns, and storm frequency and intensity. Climate change was central to our analysis, given coastal Louisiana's vulnerability to increased flooding and the sensitivity of its habitats.

To account for these factors when developing the Coastal Master Plan, we worked with experts to develop two different sets of assumptions or scenarios. These scenarios reflect different ways future coastal conditions could affect our ability to achieve protection and build land:

- **Moderate scenario - assumed limited changes in the factors on the facing page over the next 50 years.**
- **Less optimistic scenario - assumed more dramatic changes in these factors over the next 50 years.**

The Planning Tool

The Planning Tool, in concert with the modeling effort, offered a way to examine projects. The model results, represented by terabytes of data, are the building blocks of the 2012 Coastal Master Plan. We needed a user friendly way to sort and view these results so that we could identify groups of projects to examine in greater detail. The Planning Tool is a decision support system that helps the state choose smart investments for the coast. The tool integrates information from the models with other information such as funding constraints, compares how different coastal restoration and risk reduction projects could be grouped, and allows us to systematically consider many variables (e.g., project costs, funding, landscape conditions, and stakeholder preferences). These science-based tools help us understand the practical implications of different project options. Based on the outcomes, our tools

suggested a strategy for investing in coastal flood risk reduction and restoration projects. As part of this strategy, the tools considered the constraints, such as the limited money, water, and sediment that we have to work with. The tools also considered possible future conditions that will affect the way our projects operate, along with other important factors such as construction time and how combinations of projects will work together. These results were translated so that citizens and state leaders could understand the projects' real world effects.

CPRA used predictive models and the Planning Tool to help us select 109 high-performing projects that could deliver measurable benefits to our communities and coastal ecosystem over the coming decades. One of the highest performers was the Calcasieu Salinity Control Measures project. The Planning Tool was designed to translate the models' scientific output and show the practical implications of different options. Decision making for the Coastal Master Plan followed directly from this analysis.

Calcasieu Ship Channel Salinity Control Measures