

DISASTER RECOVERY INITIATIVE
U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT

Allocations, Waivers and Alternative Requirements for Grantees Receiving Community Development Block Grant
Disaster Recovery Funds in Response to Disasters Occurring in 2011, 2012 and 2013
The Disaster Relief Appropriations Act, 2013 (Public Law 113-2)

LOUISIANA OFFICE OF COMMUNITY DEVELOPMENT/DISASTER RECOVERY UNIT

NATIONAL DISASTER RESILIENCE COMPETITION
PHASE I APPLICATION – DRAFT

Public Comment Period: March 6, 2015 – March 20, 2015

Bobby Jindal
Governor

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Lieutenant Governor

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Commissioner of Administration

Exhibit A: Executive Summary

Coastal Louisiana is a priceless commercial hub, a vital buoy of America's national security interests, and an irreplaceable cultural gumbo. In 1802, Thomas Jefferson realized the importance of the Port of New Orleans as a major conduit of U.S. commerce, and today the coast remains one of the nation's most valuable assets – but one threatened by unprecedented and accelerating coastal land loss. Louisiana's coastal marshes and wetlands serve critical roles in the health of the Gulf of Mexico and protection from devastating hurricanes. Every hour, the equivalent of a football field of wetlands becomes open water, and the protective qualities of those wetlands and marshes are weakened.

Louisiana is America's 3rd-largest producer of petroleum and 2nd-largest producer of natural gas. The state produces 25% of the nation's petrochemicals – valued at more than \$14 billion per year. Regarding national security interests, Louisiana ranks 1st in strategic petroleum reserves, gas transmission pipelines, ports and waterways, and ranks 2nd for petroleum refining and chemical products, 3rd for NASA's space station program, and 4th for oil/gas exploration and production, and ship fabrication. As one of the nation's primary energy hubs, Louisiana's coastal land loss significantly threatens extensive energy production and distribution infrastructure, and the risks are growing as the coast continues to recede.

Louisiana is critical to national and international trade with five major ports handling 20% of annual U.S. waterborne commerce. With 500 million tons of cargo passing through its deep-draft ports and navigational channels, Louisiana ranks 1st in the nation in total shipping tonnage. The nation's largest individual port by tonnage, The Port of South Louisiana, is headquartered in St. John the Baptist Parish. All are threatened by the effects of subsidence and land loss.

Louisiana's seafood industry produces 26% of all the seafood in America, ranking 1st in the annual harvest of oysters, shrimp, crabs, crawfish, red snapper, wild catfish, sea trout, and mullet. Louisiana's coastal wetlands provide a winter habitat for more than 5 million migratory birds and nesting habitat for local waterfowl, and are a critical natural fishery. Constant, rapid changes to the ecosystem threatens diverse habitats and lifecycles of birds and other wildlife, including species supporting commercial and recreational fisheries across the Gulf of Mexico.

Home to 40% of the nation's wetlands, an alarming 90% of all coastal wetland loss in the continental U.S. occurs in Louisiana. Louisiana is in the midst of a land loss crisis that has claimed nearly 1,900 square miles of land since the 1930s, greater than the areas of the state of Rhode Island and the District of Columbia combined. Without action, scientific analysis confirms the state could lose another 1,750 square miles by 2064 – moving the coastline 33 miles further inland.

Coastal barrier islands, marshes and swamps reduce incoming storm surge and inland flooding impacts. Therefore, ongoing and storm-attributed land loss will substantially increase community and infrastructure vulnerability. Flood protection systems become more vulnerable as surrounding land erodes. Appropriate and effective action is vital to prevent flood-damage losses from escalating from a present annual average of \$2.4 billion to over \$23 billion.

Also at stake is a way of life. More than two million call Louisiana's coastal zone home, many of whom depend on coastal resources for employment. Louisiana's coast is a working coast, but without significant action, this workforce will be disconnected from the resources and jobs upon which it relies, threatening the viability of both the region and the industries located within it.

In light of these challenges, Louisiana's Resilience Framework (LRF), a new tool introduced in this application, provides a mechanism to gather best available data within the

context of Hurricane Isaac, Louisiana's Qualifying Disaster, but also the state's many threats, and its past and present resilience-building initiatives. With the tool, social, economic, and environmental resilience need gaps can be identified, serving as an impetus for future measures achieving three ideals: restoring environments, preserving cultures, and protecting and revitalizing economies. Mindful of these ideals, the state's approach will target at-risk coastal zone communities for programs creating resilience through resettlement, resilience through retrofitting, and resilience through reconfiguration.

Exhibit B: Threshold Requirements

Eligible Applicant. The State of Louisiana; this is the only application it has submitted.

Eligible Parish. Each of the four target areas are located in parishes covered by Hurricane Isaac's Presidential major disaster declaration in 2012.

Most Impacted and Distressed/Unmet Recovery Need Target Areas.

Target Area #1: St. John the Baptist Parish

Most Impacted: This parish has been previously determined by HUD to be a "Most Impacted" location as a result of 2012's Hurricane Isaac and as listed in Appendix A of the NDRC NOFA. Therefore, it meets the Most Impacted characteristics listed in Appendix G.

Distressed: This parish has been previously determined by HUD to be a "Most Impacted" location as a result of Isaac and as listed in Appendix A of the NDRC NOFA. Therefore, it meets the Distressed characteristics listed in Appendix G.

Unmet Recovery Needs: The State of Louisiana allocated \$32,674,000 (50.8%) of its \$64,379,084 CDBG-DR award to the long-term recovery of the parish. Despite this commitment, substantial unmet needs remain, specifically in housing and permanent infrastructure.

There are currently 787 household applicants within the parish's \$11,549,820 Homeowner Rehabilitation Program, with outreach and intake ongoing. With average rehabilitation of \$47,972 per unit, this program can serve a maximum 241 households, leaving 546 unserved and a programmatic shortfall of approximately \$26,192,712. Similarly, an unfunded gap of \$5,419,712.79 exists for storm-damaged permanent infrastructure, as certified by Digital Engineering. Available CDBG-DR resources are inadequate, even if \$1,838,208 allocated to administrative/TBD were applied. Likewise, there are no other sources of funds currently available to address these needs.

Target Area #2: Plaquemines Parish

Most Impacted: This parish has been previously determined by HUD to be a “Most Impacted” location as a result of 2012’s Hurricane Isaac and as listed in Appendix A of the NDRC NOFA. Therefore, it meets the Most Impacted characteristics listed in Appendix G.

Distressed: This parish has been previously determined by HUD to be a “Most Impacted” location as a result of Isaac and as listed in Appendix A of the NDRC NOFA. Therefore, it meets the Distressed characteristics listed in Appendix G.

Unmet Recovery Needs: The State of Louisiana allocated \$16,953,000 (26.3%) of its \$64,379,084 CDBG-DR award to the long-term recovery of the parish. Despite this commitment, substantial unmet needs remain, specifically in environmental degradation, per a Coastal Protection and Restoration Authority (CPRA) certification.

The Barataria barrier island complex comprises several barrier islands separating the Gulf of Mexico from wetlands, communities and critical infrastructure north of the islands. As part of Louisiana's Comprehensive Master Plan for a Sustainable Coast (Coastal Master Plan (CMP)), a number of barrier islands in Barataria have been restored to mitigate ongoing degradation. Severe storm surge and associated storm overwash – generated by Hurricane Isaac – along and over the Cheniere Ronquille Barrier Island Restoration project site in Plaquemines Parish caused a loss of 301,000 cubic yards of construction material for the beach and dunes on the island. The estimated cost of restoration from this loss is \$2 million.

The Pass Chalard to Grand Bayou Pass Barrier Shoreline Restoration project created 226 acres of back-barrier marsh platform, maintained 171 acres of marsh habitat, vegetated 80% of the newly created platform, and optimized tidal linkage to the created marsh platform. The project was

completed in 2009, even after Hurricane Gustav (2008) caused added erosion to the area during construction. The project incurred more than \$21.9 million in damages from Hurricane Isaac.

The Pelican Island and Pass La Mer to Chalant Pass Restoration project also experienced damages caused by Hurricane Isaac. Pelican Island has been retreating at a rate of 10 feet per year since 1988. To mitigate the loss of barrier island land area and functionality, the project created barrier island habitat, enhanced storm-related surge and wave protection, and increased the volume of sand within the active barrier system. Isaac's storm surge resulted in estimated damage of \$1.4 million to engineered beach and dunes and sand fencing on Pelican Island.

As sea levels continue to rise and tropical cyclones continue to become more intense, the role of barrier islands as storm surge buffers will become increasingly important. A CPRA-cited study concluded with no barrier islands and significant wetland erosion and subsidence, surge would increase 1 to 3 feet. Looking forward 50 years, the communities of Buras and Venice and the surrounding area could face more than 20 feet of flooding from a 100-year storm surge flood event and more than \$2.8 billion in damages. From a similar future event, Port Sulphur could face more than 40 feet of flooding and more than \$2.5 billion in damages. This increase in threats from sea level rise and higher flood depths affects the communities who live and work in Plaquemines Parish and places homes, businesses, and industrial activities at a much higher future risk to storm surge and economic damages.

The approximately \$25.3 million in damages to barrier islands inflicted by Hurricane Isaac and described in this section represent an unmet need, as there are no federal, state, or local funds currently available to address these damages.

Target Area #3: Coastal Lafourche Parish

Most Impacted (Census Tracts 209, 210, 211, 212, 213): These tracts are all listed in Appendix C of the NDRC NOFA, respectively sustaining damage to more than 100 homes, and are therefore eligible as Most Impacted areas based on the housing characteristics listed in Appendix G.

Distressed (Census Tracts 209, 210, 212, 213): Census Tracts 209, 210, 212 and 213 are all listed in Appendix C of the NDRC NOFA, respectively sustaining damage to at least 10% of the homes located there, and are therefore eligible as Distressed areas based on the housing characteristics listed in Appendix G.

Distressed (Census Tract 211): Census Tract 211 is located within Lafourche Parish and includes the communities of Galliano, Larose and Cutoff, and is home to key launching points for the area's robust fishing industry. It is eligible as a Distressed area based on environmental degradation characteristics, as documented in CPRA's certification and based on characteristics listed in Appendix G, specifically damage to wetlands or barrier islands reducing protection from future disasters.

Tract 211 has a long-standing history of environmental distress. Specifically, this tract experienced over 89,000 acres of land loss measured from 1932 to 2010. One tangible result of this degradation is the estimated \$2.8 billion in asset loss that would occur in this tract in the event of a 100-year storm surge flood event today. Looking forward 50 years, that total grows to an estimated \$3.3 billion. Using the same 50-year vantage point, storm surge-based flood depths are expected to continue to increase from current depths of up to 11 feet to future flood depths of up to 25 feet in a 100-year storm event. Additionally, Tract 211 has suffered considerable losses from previous hurricanes, including Andrew (1992), Katrina (2005), Rita (2005) and Gustav (2008).

Unmet Recovery Needs: The following damages are unfunded environmental degradation needs, as documented in CPRA's certification and based on characteristics listed in Appendix G.

Port Fourchon serves as a critical connection between the nation and offshore drilling resources. As the southernmost port in the state, more than 1.5 million barrels of crude oil passes through pipelines at Port Fourchon per day. Isaac-attributed storm-surge inundation and coastal flooding, as well as ongoing land loss, threaten the viability of these resources and surrounding communities.

The Caminada Headland Beach and Dune Restoration project, part of the CMP and designed to mitigate ongoing degradation, created or enhanced 303 acres of beach and dune, reinforced nearly six miles of barrier headland habitat, and reduced the impacts of storm events on Port Fourchon and Highway 1, a vital hurricane evacuation route for Fourchon and Grand Isle. The restoration provides important habitat for nesting shorebirds as well as migratory birds as it is one of the first available stopover sites during migration. The headland is also critical habitat for the endangered piping plover. Isaac-attributed retreat at Belle Pass, on the western end of Caminada, averaged over 250 feet, and more than \$6.5 million in damages were recorded at Caminada. Repairs remain unfunded as there are currently no federal, state, or local funds currently available to address these damages.

Target Area #4: Coastal Terrebonne Parish

Most Impacted (Census Tracts 11, 13, 14): These tracts are listed in Appendix C of the NDRC NOFA, respectively sustaining damage to more than 100 homes, and are therefore eligible as Most Impacted areas based on the housing characteristics listed in Appendix G.

Most Impacted (Census Tract 12.02): Census Tract 12.02 includes the community of Chauvin. It is eligible as a Most Impacted area based on environmental degradation characteristics,

as documented in CPRA's certification and based on characteristics listed in Appendix G, specifically damage to wetlands or barrier islands reducing protection from future disasters.

Census Tract 12.02 experienced damage to wetlands and barrier islands from Hurricane Isaac, reducing protection from future hurricanes and placing local economies and households in surrounding areas at greater risk. Isaac's eye crossed Terrebonne Bay, exposing the surrounding areas in Terrebonne Parish to high winds, surge, and rainfall. Timbalier Island, for example, recorded winds upward of 80 mph. Additionally, Tract 12.02 experienced 2 feet of Isaac-attributed storm surge.

Damages to the Timbalier Island Dune/Marsh Restoration project, part of the CMP and designed to mitigate ongoing degradation, exceeded \$18 million attributable to Hurricane Isaac. The island experienced shoreline retreat of nearly 500 feet and widespread damage of new marsh in the island's interior. The damage to barrier islands and marsh further exacerbated degradation and land loss in the area, opening the communities in those regions up to increased storm surge and inundation from future hurricanes.

Chauvin is located within the barrier-island protection. With a population of 2,611 and 978 homes, many of its residents work in the oil and gas and seafood industries. As sea level continues to rise and barrier islands degrade, greater landward inundation of storm surge, increases in salinity, and persistent land loss will continue placing this community and many others in Terrebonne Parish at higher risk of catastrophic loss. Continued exposure to Gulf water increases the salinity of many freshwater and brackish water resources and are likely to result in shifts in the distribution and productivity of fish and shellfish in these areas. The role of barrier islands as storm surge buffers becomes increasingly important when considering sea level rise and the potential for increased tropical cyclone intensity.

Distressed (Census Tract 11, 13): These tracts are listed in Appendix C of the NDRC NOFA and sustained damage to at least 10% of the homes located there. These two tracts are therefore eligible as Distressed based on the characteristics listed in Appendix G.

Distressed (Census Tract 12.02): This tract is eligible as a Distressed area based on environmental degradation characteristics, as documented in CPRA's certification and based on characteristics listed in Appendix G, specifically damage to wetlands or barrier islands reducing protection from future disasters.

Tract 12.02 has a long history of environmental distress. Specifically, this tract experienced over 43,000 acres of land loss as measured from 1932 to 2010. One tangible result of this degradation is the estimated \$1.7 billion in asset loss that would occur in this tract in the event of a 100-year storm surge flood event today. Looking forward 50 years, that total grows to an estimated \$2.3 billion. Tract 12.02 has suffered considerable loss from previous hurricanes, including Andrew (1992), Katrina (2005), Rita (2005) and Gustav (2008). Hurricane Andrew brought a 10.2 feet storm surge to Tract 12.02 and reduced Raccoon Island's surface area by about 50%. Hurricane Katrina caused a 3.2 feet storm tide and additional degradation, and Hurricane Rita's 8.3 feet storm surge eroded up to 60% of the Isles Dernieres Barrier Islands Refuge. Hurricane Gustav was especially damaging for Tract 12.02, with storm tide levels within the city of Chauvin greater than 8.2 feet, and the average water level for the entire tract 6.74 feet above normal. Land loss and wetland fragmentation have contributed to shortened return periods for higher surge events. For example, the 10-year storm surge value for the period 1900 to 1970 was 4.75 feet, but for the period 1970 to 2012, the 10-year storm surge increased to 6.41 feet for the same area. Looking forward 50 years, flood depths from storm surge for tract 12.02 are expected

to continue to increase from current depths of up to 15 feet to future depths of up to 30 feet in a 100-year storm event.

Distressed (Census Tract 14): Census Tract 14 includes the communities of Theriot and Dulac. It is eligible as a Distressed area based on environmental degradation characteristics, as documented in CPRA's certification and based on characteristics listed in Appendix G, specifically damage to wetlands or barrier islands reducing protection from future disasters.

Tract 14 has a long-standing history of environmental distress with over 52,000 acres of land loss as measured from 1932 to 2010. One tangible result of this degradation is the estimated \$1.2 billion in asset loss that would occur in this tract in the event of a 100-year storm surge flood event today. Looking forward 50 years, that total grows to an estimated \$2.1 billion. Tract 14 has suffered considerable loss from previous hurricanes, including Andrew (1992), Katrina (2005), Rita (2005) and Gustav (2008). Over 50 years, storm surge based flood depths in Tract 14 are expected to continue to increase from current depths of up to 15 feet to future depths of up to 22 feet for a 100-year storm event, putting the communities of Theriot, Dulac and the outskirts of Houma at considerable risk.

Unmet Recovery Needs: The following damages are unfunded environmental degradation needs, as documented in CPRA's certification and based on characteristics listed in Appendix G.

Hurricane Isaac destroyed much of the progress made on restoring the Terrebonne Parish barrier islands. The storm surge washed away marsh and beach front, destroyed dunes and vegetation, and created inlets within the island system. Timbalier Island, in particular, experienced shoreline retreat of nearly 500 feet and widespread damage of new marsh in the island's interior. The damage to these barrier islands and marsh further exacerbated degradation and land loss in the area, exposing surrounding communities to increased storm surge and inundation risk from future

hurricanes. Specifically, damages to the Timbalier Island Dune/Marsh Restoration project, part of the state's CMP and designed to mitigate ongoing degradation, exceeded \$18 million. These damages remain unfunded as there are currently no federal, state, or local funds available to meet these recovery needs.

Eligible Activity. While there are no specific activities proposed in this Phase I submission, the state will cite relevant CDBG-eligibility regulations for each activity proposed in Phase II.

Resilience Incorporated. While there are no specific activities proposed in this Phase I submission, the ideas and concepts from which future activities will be developed, fully articulated in Exhibit E and through the LRF, clearly promote resilience. The state will define this incorporation for each activity proposed in Phase II. Moreover, the state has articulated its long-term commitment to resilience through Exhibit G of this application.

National Objective. While there are no specific activities proposed in this Phase I submission, any activity proposed in Phase II will meet low- and moderate income (LM), slum or blight (SB), or urgent community development need (UN) requirements.

Overall Benefit. Should the state receive a CDBG-NDR award, it commits to primarily benefit LMI populations, as required by applicable regulations.

Tie-Back. MID-URN characteristics listed in this Exhibit B clearly establish a tie to the state's Qualifying Disaster, Hurricane Isaac. Moreover, Exhibit D provides additional detail articulating how Isaac impacted and exacerbated existing adverse conditions not only within the four proposed target areas, but throughout Louisiana's coastal zone. As such, any activity proposed in Phase II will establish a direct tie-back to impacts from Hurricane Isaac, as required by applicable regulations.

Benefit-Cost Analysis. N/A in Phase I. This will be included in Phase II, as required.

Certifications. All required certifications have been submitted as Attachment C and as part of the NDRC application package.

General Section Administrative Thresholds. The applicant is not subject to civil rights matters rendering it ineligible for funding under Section III.C.2. of HUD's FY2014 NOFAs for Discretionary Programs, nor it is ineligible for federal funding under any other general section threshold.

Exhibit C: Capacity

General Management Capacity. Initially created as the state office to administer CDBG-DR awards following hurricanes Katrina and Rita, the Office of Community Development, Disaster Recovery Unit (OCD-DRU) today administers nearly \$14.5 billion in CDBG-DR awards in conjunction with recovery efforts following hurricanes Katrina, Rita, Gustav, Ike, and Isaac. It will be the lead agency responsible for CDBG-NDR activities should Louisiana receive an award. OCD-DRU currently has 85 full-time employees with an additional 21 staff on contract dedicated to CDBG-DR program management. Specifically, within its existing portfolio, OCD-DRU administers 23 individual housing programs worth approximately \$11.6 billion, 15 infrastructure programs worth approximately \$1.6 billion and 16 economic revitalization programs worth approximately \$477 million. While this represents substantial capacity and specific expertise, OCD-DRU has added staff as needed following past awards, and will do so as needed if it receives a CDBG-NDR award.

Upon award, OCD-DRU will administer and manage funds through the established and proven mechanisms already in place to serve as guidelines for compliance, planning and prioritization of projects and programs. As directed by Federal Register Vol. 78, No. 103, the state certified and submitted to HUD on July 1, 2013 that OCD-DRU has in place the following: 1) proficient financial controls and procurement processes; 2) adequate procedures to prevent any duplication of benefits; 3) processes to ensure timely expenditure of funds; 4) ability to maintain comprehensive website(s) regarding all disaster recovery activities assisted with CDBG-DR funds; and 5) adequate measures to detect and prevent waste, fraud, and abuse of funds. All of these systems and processes are currently in place, have been extensively tested, and are proven to be successful as evidenced by HUD's numerous positive reviews of them. The continued

implementation of these systems and processes will allow OCD-DRU to immediately launch and implement any major project upon award.

Any CDBG-NDR award requirements will be incorporated into OCD-DRU's *Disaster Recovery CDBG Grantee Administrative Manual*, which provides direction on compliance, state policy, and project implementation. This manual is distributed to all subrecipients, including units of local government (UGLGs). Additionally, OCD-DRU's outreach team routinely coordinates pre-monitoring and technical assistance visits to ensure compliance with all applicable local, state, and federal laws and regulations.

OCD-DRU has and will continue to foster collaborative relationships with other federal, state and local government agencies, corporations, foundations, nonprofits, and other stakeholders as a means of utilizing all viable sources of funding, education, and skill-building. Such collaborative endeavors include planning initiatives such as the *Louisiana Resilience Assistance Program (LRAP)*, resiliency.lsu.edu, developed in conjunction with Louisiana State University's (LSU) Coastal Sustainability Studio, and *Louisiana Speaks Recovery Plan*. Additional collaborations include housing recovery programs in conjunction with the Louisiana Housing Corporation (LHC) and nonprofit and private-sector funders and developers, infrastructure programs in conjunction with UGLGs and the Governors' Office of Homeland Security and Emergency Preparedness (GOHSEP), and environmental restoration programs in conjunction with CPRA.

OCD-DRU has formalized existing relationships into a partnership of collaborators in completing and authoring this application, with OCD-DRU serving as the lead and coordinating entity. These collaborators include other state agencies, such as GOHSEP, LHC, CPRA, and the state's professional grant-writing unit, the Federal Funds Office (FFO). The partnership also

includes the four parish governments covered by the four target areas in this application: St. John the Baptist, Plaquemines, Terrebonne, and Lafourche parishes. Finally, the partnership includes several public and private organizations, including: LSU, the University of New Orleans Center for Hazards Assessment, Response & Technology (UNO-CHART), the Lowlander Center, Louisiana Sea Grant (LSG), the Center for Planning Excellence (CPEX), Greater New Orleans, Inc. (GNO, Inc.), Waggoner & Ball Architects, and GCR Inc.

Cross-Disciplinary Technical Capacity. One of these partners, CPRA, was established in 2007 after hurricanes Katrina and Rita as the single state entity with authority to chart a comprehensive coastal protection and restoration strategy toward a more sustainable Louisiana. CPRA developed the CMP, which is one of the nation's largest environmental planning efforts. The plan articulates Louisiana's current and future land loss crisis and the innovative strategies that can begin to rebuild the coast, enabling communities to adapt to a changing landscape. The CMP is a fluid document, designed to adapt over time based on the state's ongoing needs. First published in 2007, it was updated in 2012 and is legislatively-mandated to be updated every five years, reflecting best available data.

CPRA has also developed an interdisciplinary planning process that engages diverse groups of coastal zone stakeholders, focus groups, and national and international experts to bring expertise in coastal sciences, engineering, social sciences, risk assessment, and community planning to the process. The CMP is anchored by the Framework Development Team, a 32-member entity including representatives from federal, state, and local agencies, planners, non-governmental organizations, industry leaders, community representatives, and coastal researchers. Five additional Focus Groups discuss issues specific to landowners, communities, fisheries,

navigation, and oil and gas. The Science and Engineering Board consists of national and international subject experts to provide an objective, rigorous technical review of the CMP process.

Since 2007, CPRA has constructed multi-million dollar coastal restoration and hurricane protection projects, which have built or improved 250 miles of levees, restored 25,700 acres of coastal habitat, constructed 45 miles of barrier islands/berms, and secured approximately \$18 billion in funding. This includes more than 150 current projects in design or construction benefiting 20 coastal Louisiana parishes. Through each year's Annual Plan, CPRA sets forth expected revenues and expenditures for the next three fiscal years. The FY 2015 Annual Plan identifies more than \$1.7 billion in expenditures for coastal restoration and protection projects and programs over the next three years. Expenditures will be used across all phases of project implementation (e.g. planning, engineering and design, construction, and operations, maintenance and monitoring) as well as for ongoing programs and initiatives. As such, CPRA's engineering division has the capacity and experience to lead the design, construction, and oversight of coastal restoration and flood protection projects.

A third partner, GOHSEP, is the state agency responsible for leading and supporting in the preparation for, response to and recovery from all emergencies and disasters in the state. In the role of preparing and responding, GOHSEP coordinates extensively with state and local authorities preparing the State Emergency Operations plan, reviewing State Agency Emergency Support Function Plans, coordinating local government plans, and organizing and operating the State Emergency Operation Center during an emergency event. In support of recovery, GOHSEP acts as the state's grantee for all FEMA disaster recovery awards. Currently GOHSEP manages 10 open Presidentially-declared disasters and a portfolio of \$16.5 billion in grant funding for over 35,000 projects with approximately 1,700 subgrantees at the state, local government, and nonprofit

level. GOHSEP has an extensive network of personnel across the state that coordinates with local governmental leaders and the private sector for emergency operations and recovery initiatives.

GOHSEP is also responsible for the State Hazard Mitigation Plan (HM), which was updated in 2014. For its planning and response mission, GOHSEP has field personnel permanently stationed in nine regions across the state with the responsibility of constant communication and coordination with UGLGs and the private sector relative to planning and emergency response. With its recovery activities, GOHSEP maintains a cadre of State Applicant Liaisons who coordinate recovery efforts for the 10 Presidentially-declared disasters. GOHSEP is also responsible for the state's Threat and Hazard Identification and Risk Assessment plan. All require implementation of a community-based approach, requiring GOHSEP to coordinate with individuals, businesses, faith-based organizations, nonprofit groups, schools and academia, and all levels of government.

Within FEMA programs, a cost-benefit analysis (CBA) is necessary to support grant implementation at a project level. GOHSEP maintains seven full-time staff members conducting cost benefit and reasonableness analyses in support of Louisiana's recovery efforts. The staff includes 2 engineers, 3 architects, and 2 persons with construction management education, and the group averages more than 12 years of experience in their respective fields. In the Public Assistance program alone, the agency has conducted over 4,000 cost benefit/cost reasonableness reviews in the last 5 years. GOHSEP manages over 500 HM grant projects, each of which must be supported by a cost-benefit analysis approved by FEMA. Should the state proceed to Phase II, GOHSEP will lead in determining cost reasonableness of specific proposed activities.

LHC was created in 2011 when the Louisiana Legislature merged the Louisiana Housing Finance Authority with housing programs from other state agencies, including OCD-DRU. This

move centralized Louisiana's housing programs into one agency to streamline how the state addresses its housing needs. Following Hurricane Isaac, LHC has served as the chair for the Louisiana Disaster Housing Task Force, which has worked closely with St. John the Baptist Parish via the National Disaster Recovery Framework (NDRF) process to establish recovery priorities, develop solutions to address those priorities, and identify funding sources to implement the proposed projects and programs.

To achieve its mission, LHC partners with federal, state, and local governmental units, banks, lending institutions, and nonprofit and for-profit developers to create and maintain affordable housing for Louisiana's families, specifically in its capacity as the state's Housing Development Agency. As such, it is responsible for all aspects of compliance with large and complex federal tax credit housing programs. This involves multiple stakeholders meeting and drafting the state's Qualified Allocation Plan in compliance with the laws of Part 42 of the IRS code. One of LHC's successful programs – and an example of successful collaboration with OCD-DRU – was the Low Income Housing Tax Credit (LIHTC) Piggyback CDBG Program. This program combined \$615.4 million in CDBG-DR funds with LIHTCs and private financing sources to develop affordable rental housing.

Additionally, the LHC was selected to be the agency charged with the implementation of the Neighborhood Stabilization Program I. This involved the design of a \$30 million program intended to revitalize the most severely distressed census block groups in the state. LHC staff was directly involved in the design and construction or rehab of three Corporation-owned apartment buildings. All three of the projects were completed on time and have achieved better than 90% stabilized occupancy. LHC also has extensive experience awarding and administering multi-family programs. These programs include: LIHTC, HOME, Neighborhood Stabilization,

Louisiana Housing Trust Fund, Mortgage Finance Revenue Bonds, Risk Sharing, and Project Based Contract Administration.

The LHC created the state's Fair Housing Task Force, a diverse group of stakeholders who have an interest in housing development, as well as populations protected under the Fair Housing Act. The Task Force's mission is to promote and support the LHC's efforts to guarantee housing opportunities are afforded to residents without regard to race, color, national origin, religion, sex, familial status, or disability. Acting in an advisory capacity to the LHC, the Task Force aims to assure that statewide policies and practices related to fair housing are interwoven into the operations and activities of the LHC as well as the fabric of the community. Additionally, LHC has a designated staff attorney who serves as the Corporation's Fair Housing Coordinator. The Fair Housing Coordinator is responsible for the education of consumers, government agencies, and other housing stakeholders about federal and state fair housing laws and conducts presentations concerning these laws throughout the state to varied audiences.

UNO-CHART works to assist residents and local and state officials in reducing risk of climate hazards by empowering communities to utilize their own knowledge and available tools that can make living and working in coastal Louisiana a sustainable option. It engages community members on topics such as risk management, mitigation, resilience, flood insurance rate maps, repetitive flood loss, small business continuity, NFIP, and the Community Rating System (CRS).

Meanwhile, the Lowlander Center, a frequent collaborator with UNO-CHART, uses community participatory principles and methods to support lowland people and places through education, research, and advocacy. This work helps create solutions to living with an ever-changing coastline and land loss while visioning a future that builds capacity and resilience for place and people.

LSG, based at LSU, serves as a bridge between Louisiana's academic expertise and the needs of those who manage, conserve, enjoy and make their living on the coast. LSG's programs focus on the challenges to sustaining fisheries, deltaic ecosystems, and coastal communities. Through community-embedded coastal agents and university-based subject matter specialists, LSG provides information and resources to guide communities in important decision-making through site visits, individual consultations, participation in public and private forums, dissemination of science-based information, and direct accessibility to constituents seeking information about coastal issues. Areas of expertise include climate change visualization, coastal GIS applications, coastal resilience and sustainability, and policy and regulatory outreach.

CPEX is a nonprofit organization that coordinates urban, rural, and regional planning efforts in Louisiana. CPEX provides best-practice planning models, innovative policy ideas, and technical assistance to individual communities that wish to create and enact master plans dealing with transportation and infrastructure needs, environmental issues, and quality design for the built environment. CPEX has developed the *Louisiana Speaks Recovery Plan*, with OCD-DRU, and the *Best Practices Manual in Coastal Development and Coastal land use Toolkit*. This toolkit is a resource illustrating the latest available international, national, and local best practices in coastal development. The toolkit recommends relevant strategies at the community, site, and building scale to assist Louisiana's coastal communities.

Finally, Waggoner & Ball Architects and GNO, Inc. respectively offer design capacity and economic development expertise. Previously, these two organizations collaborated to create the *Greater New Orleans Urban Water Plan*, a pertinent example of both regional coordination and resilience-building education, planning, and design.

The collaborative partnership leading Louisiana's NDRC efforts includes state officials from agencies with missions relevant to the goals of the competition. The leadership of each respective agency, at the direction of the state's Division of Administration, and, ultimately, the Governor's Office, has made a firm commitment to fully engage in the state's efforts related to the NDRC for the duration of the project. As such, the risk of losing critical capacity is substantially limited. In the event that additional capacity is required, the collaborative partnership will utilize the full breadth of the state's resources in order to ensure there is no detrimental effect.

Community Engagement Capacity. OCD-DRU has an internal outreach team specifically charged with engaging local governments and populations. Should Louisiana receive a CDBG-NDR award, each parish will have an assigned outreach representative to troubleshoot issues, coordinate meetings with OCD-DRU personnel, track project implementation schedules, review records retention requirements and assist with other implementation and compliance issues as they may be identified. Additional outreach efforts currently underway include personnel meetings with local elected and appointed officials, regional coordination meetings, including with Orleans, Jefferson, and St. Tammany parishes in their NDRC application process, and sending mass communication messages, E-Blasts, via its online grant implementation system for tracking plans and specifications, environmental reviews, expenditures, and milestone completion within each activity.

This continuous outreach approach has helped identify the needs and priorities of Isaac-impacted communities and will inform activities proposed in Phase II. Meetings between OCD-DRU's executive staff and parish officials have been held on an ongoing basis to discuss regulations, resources, planning coordination, proposal development, and local issues and impediments. In their Isaac-recovery efforts, parishes have also been provided technical assistance

by OCD-DRU and through HUD's technical assistance contract with Enterprise Community Partners. Finally, and in an example germane to NDRC initiatives, Louisiana was selected as the first site for implementation of the NDRF. Through that initiative, OCD-DRU and GOHSEP have supported this effort by providing staff and guidance for St. John the Baptist Parish and Plaquemines Parish's recovery efforts, including case management efforts as the local Citizens Advisory Committees (CACs) conducted community meetings and open houses to develop recovery strategies following Hurricane Isaac. Specifically, OCD-DRU embedded two employees to work with each parish on NDRF activities and plan development.

CPRA's community engagement process created a platform for discussion among a range of divergent voices over the two-year development process for the 2012 update of the CMP. Coastal zone stakeholders and citizens learned about and participated in the master planning process through a variety of small group gatherings, web offerings, direct communication with local and state government, and monthly public meetings. The 2012 CMP's unanimous passage by the Louisiana Legislature evidences its broad public support, where individuals from across the state rallied behind the plan's forward thinking and scientifically-based recommendations. CPRA continues ongoing public engagement in new ways to better share information on flood risk and restoration and protection projects, directly informing the risks, vulnerabilities, and needs outlined in this application. The latest example of this commitment is CPRA's development of an interactive Flood Risk and Resilience Viewer that illustrates current and future flood risk.

Additionally, OCD-DRU is a member of GOHSEP's Hazard Mitigation Advisory Council, which was appointed to provide input into the update and revision of the state's Hazard Mitigation Plan. This provides a direct conduit for the exchange of data, information and updates with Isaac-

impacted communities and facilitates targeted actions that more directly reflect resiliency, sustainability and mitigation criteria in their Parish Hazard Mitigation Plans.

As an example of OCD-DRU's experience in harmonizing the contributions of diverse stakeholders in a consultative process, the organization, with the assistance of CPEX, led the *Louisiana Speaks Recovery Plan* process after hurricanes Katrina and Rita. More than 27,000 citizens, a historical first in the U.S., participated in developing the plan. The 94-page document, available in hardcopy and disc, resulted in two subsequent publications: *Louisiana Speaks: Planning Toolkit* and *Louisiana Speaks: Pattern Book*. These resources were widely distributed to planners, government entities, local nonprofits, associations, and citizens, and provided an outline for parishes to follow in the Long Term Community Recovery Program (LTCR). LTCR, a \$699 million OCD-DRU-run program, supports implementation of local governments' long-term recovery plans in Katrina- and Rita-impacted communities.

Regional/Multi-Governmental Capacity. Since 2005, Louisiana has experienced extreme adverse effects from five separate named hurricanes leading to presidentially-declared disasters: Katrina, Rita, Gustav, Ike and Isaac. Additionally, the Deepwater Horizon Oil Spill of 2010 peppered the state's coastline with toxic materials while depressing multiple gulf-dependent economic sectors responsible for losses affecting all of Louisiana, predominantly in its coastal zone. In response to these events, billions in long-term recovery dollars have flowed into Louisiana. As a matter of both prudence and necessity, the State of Louisiana and three individual NDRC-applicant entities – Jefferson Parish, Orleans Parish, and St. Tammany Parish – have established a long track record of collaboration to coordinate recovery efforts in benefit of local populations within a regional context. As an example, each parish is currently a subgrantee to the state in its ongoing CDBG-DR initiatives. OCD-DRU's Comprehensive Resiliency Pilot

Program, established in 2010 with funding from hurricanes Gustav and Ike, funds comprehensive plans and zoning ordinances for parishes and municipalities across the state. It funds nonstructural resilience-building efforts such as planning for land use and the creation of forward-thinking zoning ordinances. It has funded the *Greater New Orleans Water Plan*, a Model Watershed Community Plan in Lafayette, the *Southwest Louisiana Housing Strategy*, a plan for developing a carbon market, and development of the CPRA nonstructural program for the 2017 CMP. Concurrently, the program-funded LRAP provides a resource hub for communities interested in best practices in resilience-building planning efforts and techniques.

Through this experience, the state has learned through trial-and-error the value of holistic, regional approaches to address its various threats and build resilience, and how local solutions, created in a vacuum, can lend themselves to adverse consequences. These risks and vulnerabilities – subsidence, land loss, and rising sea levels – often involve the displacement or diversion of water. Therefore, created in isolation, one community’s flooding solution may become its neighbor’s vulnerability. Moreover, as the state knows a higher proportion of its most vulnerable populations reside in its most vulnerable coastal zone communities, it has added incentive to take a regional approach to create resilience-building activities that are value-added – not zero-sum – solutions.

In recognition of the capacity and expertise available within its partnership, the state intends to utilize this collaboration in carrying out any proposed activity coming to fruition as a result of the NDRC. Such a multi-agency collaboration will allow OCD-DRU to pivot off its existing CDBG-DR and disaster recovery program expertise to oversee and develop new initiatives in league with organizations with more specific and native expertise. The state recognizes the value of such a multi-entity, collaborative structure specifically charged with facilitating resilience-building efforts and is exploring opportunities to codify this structure on a more permanent basis.

Exhibit D: Need

Threshold Summary. In Exhibit B, the State of Louisiana has proposed four target areas for NDRC funding consideration: all of St. John the Baptist and Plaquemines parishes and portions of coastal Terrebonne (Census Tracts 11, 12.02, 13, and 14) and Lafourche (Census Tracts 209, 210, 211, 212, 213) parishes. In St. John the Baptist, unmet housing and permanent infrastructure needs have been presented, while unmet environmental needs have been presented in Plaquemines Parish and coastal Terrebonne and Lafourche parishes.

Response to Questions. Louisiana is in the midst of a coastal land loss crisis that has claimed nearly 1,900 square miles of land since the 1930s. The primary causes of land loss are sediment starvation due to levees and dams, sea level rise, subsidence, saltwater intrusion, and hurricanes. When these causes are combined with the impacts of Hurricane Isaac (2012), and other significant coastal impacts including hurricanes Katrina (2005), Rita (2005), Gustav (2008), Ike (2008), and Tropical Storm Lee (2011), and the Deepwater Horizon Oil Spill (2010), environmental degradation of coastal wetlands in and around southeast Louisiana continues to deteriorate systems that shield vulnerable communities and wetlands. Given the importance of so many of south Louisiana's assets – waterways, wetlands, natural resources and unique culture – the effects of additional land loss and the increased risk of flooding will be catastrophic. Barrier islands, marshes, and swamps throughout the coast reduce incoming storm surge, helping reduce flood impacts. Without action, CPRA estimates damages from storm surge flooding will increase from an average of \$2.4 billion annually in 2010 to an average of approximately \$23.4 billion annually in 2060. In short, our eroding coastline has intensified the effects of past hurricanes, most recently Isaac, and will intensify the effects of future storms. In return, stronger storms, undeterred by a disappearing coast, further accelerate the rate of land loss in our most vulnerable coastal areas.

This cycle of land loss and storm intensification threatens Louisiana as a whole, and specifically the target areas defined in this application.

A core aspect of CPRA's business is gathering and analyzing best available data to project future risk in coastal Louisiana as part of its master plan updating process every five years. The agency has a number of modeling tools, including the Coastal Louisiana Risk Assessment (CLARA) model. CLARA is used to evaluate potential coastal flooding damage, represented as physical property damage. CLARA is based on the principles of quantitative risk analysis and aggregates flood damage results from a wide range of potential storm events to calculate the chance of flooding or damage at any given level. CLARA uses this information to generate annual exceedance probabilities (AEPs), which refer to flood depth or damage levels that have a specified probability of occurring or being exceeded in a given year.

To consider flood damage at different levels of severity and likelihood, CLARA estimates 2%, 1%, and 0.2% AEP values for flood depths at each point across coastal Louisiana; these are commonly referred to as 50-, 100-, and 500-year flood depths. The model also estimates damage values in each census block, based on the corresponding flood depth exceedances, the types and values of assets within that block, and the time required to reconstruct or repair the ensuing property damage. CLARA also produces estimates of expected annual damage (EAD), or the average damage from storm-surge-based flooding in a given year. This system has been employed across the state's four NDRC target areas to assess and monitor risk over a 50-year period.

Each of the state's four target areas are at considerable risk for future storm events and other effects of land loss and subsidence. Per CPRA, St. John the Baptist Parish lost more than 4,300 acres from 1932 to 2010, with current anticipated flood depths from a 100-year storm expected to be as high as 13 feet (Hurricane Isaac flood depths were recorded at more than 7.7

feet). Looking forward 50 years, those anticipated 100-year maximum flood depths would rise to 18 feet, with anticipated damages increasing from \$5.6 billion currently to \$16 billion. In Plaquemines Parish, more than 275,000 acres were lost from 1932 to 2010, with current anticipated flood depths from a 100-year storm expected to be as high as 17 feet (Hurricane Isaac flood depths were recorded at more than 14.2 feet). Looking forward 50 years, those anticipated 100-year maximum flood depths would rise to 25 feet, with anticipated damages increasing from \$3.8 billion to \$15 billion. In Lafourche Parish, more than 138,800 acres were lost from 1932 to 2010, with current anticipated flood depths from a 100-year storm expected to be as high as 12 feet (Hurricane Isaac flood depths were recorded at more than 4.9 feet). In 50 years, those anticipated 100-year maximum flood depths would rise to 30 feet, with anticipated damages increasing from \$7.5 billion currently to \$9.5 billion. Finally, in Terrebonne Parish, more than 192,700 acres were lost from 1932 to 2010, with current anticipated flood depths from a 100-year storm expected to be as high as 15 feet (flood depths from Hurricane Isaac were recorded at over 2 feet). In 50 years, those anticipated 100-year maximum flood depths would rise to 34 feet, with anticipated damages increasing from \$7.0 billion currently to \$10.8 billion.

Louisiana's barrier islands and coastal wetlands are especially vulnerable. Extreme meteorological events, like hurricanes, have caused more than half of all area changes on barrier islands in the Northern Gulf of Mexico from 1972 to 2014, and their impacts on coastal environments have only grown as hurricanes have become more intense. A succession of storms since 2005 caused more than \$100 billion in damages across the Louisiana coast and resulted in unprecedented land loss.

The 2007 Intergovernmental Panel Report on Climate Change (IPCC) shows the global sea-level rise rate to be 1.7 to 1.8 millimeters per year for the past century globally. But local

NOAA measurements show relative sea level is rising almost 10 millimeters per year in Louisiana partially because the land is also subsiding. These impacts present a chicken-and-egg quandary for Louisiana. Relative sea level rise is increased by land loss and subsidence. These effects reduce Louisiana's ability to naturally reduce storm surge and other related threats, even removing natural barriers with capacity to cut storm intensity prior to and upon landfall. In return, higher intensity storms cause further coastal degradation, perpetuating the damaging cycle.

Impacts from projected damages are likely to be exacerbated by rates of insurance coverage in vulnerable areas. After Hurricane Isaac, of 55,510 owner-occupied households with demonstrated damages, 25,068 (45%) had no hazard insurance and 35,491 (64%) had no flood insurance. Of the affected LMI population, which itself constituted 39,345 (71%) of all households with damage – a majority, 21,442 (54%) had no hazard insurance, 28,889 (73%) had no flood insurance and 19,952 (51%) had neither hazard nor flood insurance. While it is unknown what proportion of this population had received prior federal assistance and is subject to the “one bite rule,” given the volume of recent disasters to impact common areas, it is likely the impact of this rule is significant. Per a GOHSEP analysis, the impact of the rule exceeds Louisiana's current disaster declaration threshold (\$6.3 million) by approximately 66 times. In other words, the state may be exposed to \$420 million in losses in a future Katrina-like event. Moreover, with changes in NFIP passed in 2012 (Biggert-Waters Reform Act – BW-12) and again in 2014 (Grimm-Waters Reform Act), it is unknown how, or if, future insurance rates will increase, leaving a significant vulnerable region and population in flux.

Louisiana's threats, vulnerabilities and unmet needs are part of a common ecosystem. Any strategy or concept proposed through this NDRC process must address both the symptoms – as defined through documented unmet needs – and also the disease of our state's ever-changing and

ever-more-vulnerable landscape. Coastal wetlands and barrier islands, such as those unmet needs described in Plaquemines Parish, Lafourche Parish and Terrebonne Parish, provide critical protection against hurricane storm surge, reducing inundation by as much as 40%. Since 1963, engineers have estimated that for each 2.7 miles of marsh, storm surge is reduced by 1 foot. However, more recent studies estimate that every 1.3 miles of marsh reduce storm surge by 1 foot. Models consistently show that restored barrier islands significantly reduce storm surge height and inundation extent. Restoring the barrier islands and marsh habitats that protect vulnerable communities ensures a higher level of protection from rising seas and future storms.

Further inland, storm threats present a different set of challenges, as presented in Exhibit B through unmet housing and infrastructure needs in St. John the Baptist Parish. In this parish, unmet needs coalesce around a common theme: access. Specifically, the parish has a lack of a diverse, affordable housing stock, which is evident through widespread demand for existing CDBG-DR housing programs and also through large renter population outflows experienced immediately after Hurricane Isaac's landfall. In describing the parish's unmet infrastructure needs, access manifests itself in another way. The parish's utilities department was forced to shut off water service to LaPlace to avoid system contamination due to its flood- and wind-damaged water well system located 10 miles away in Ruddock. Residents had no drinking water for four days because water towers were isolated to provide adequate fire protection to residents, and high water levels along U.S. Hwy. 51 prevented utility crews from reaching and repairing the wells. Additionally, the Belle Pointe and Woodland wastewater treatment plants and numerous lift stations were flooded and left without power, resulting in system backups and sanitary sewer overflows, which prevented residents from utilizing the wastewater system for many days following passage of the storm. In addition to crippling the system, these overflows are a human

health and environmental hazard, as raw sewage can enter homes, businesses, and local waterways when they occur during flooding events. The parish's drainage system is inadequate along the Vicknair Canal to properly drain north to Lake Pontchartrain, contributing to flooding in LaPlace. Hurricane Isaac exacerbated the inadequacies of this drainage system, causing flood waters to remain in areas for several days before receding.

St. John the Baptist Parish serves as a key transportation linchpin where Interstates 10 and 55 meet. This intersection is a crucial access corridor both for daily commerce – according to the Louisiana Department of Transportation and Development in 2011, I-10 at LaPlace had an average daily traffic count of 56,319 vehicles, while I-55 had an average daily traffic count of 15,950 – as well as to evacuate larger population centers and to move resources into affected areas following disaster events. Hurricane Isaac's high winds and 8.4-foot storm surge in Lake Pontchartrain and Lake Maurepas swamped all I-10 and I-55 exits with 6 feet of water, rendering them impassable. Exits 206 (Belle Terre) and 209 (U.S. Hwy. 51) were inundated and did not re-open for several days. U.S. Hwy. 641 leading to I-10 at Airline Hwy. was also closed, as was Airline Hwy. at the St. John/St. Charles parish line. With all major routes closed, the most important evacuation routes were effectively eliminated. Not only did this make it impossible for many residents to leave, floodwaters remained for several days, impeding rescue and recovery efforts.

Statewide, Hurricane Isaac illustrated how the affected area's risks and vulnerabilities disproportionately affect LMI households. Approximately 70% of the Isaac-affected owner-occupied population was classified LMI. Concurrently, 55% of total recorded housing damages were attributed to LMI households. Among FEMA Individual Assistance (IA) applicants identified as renters, 86% were classified as LMI. Of the 1,070 rental households with "Major" or "Destroyed" damage levels, 83% were classified as LMI.

In St. John the Baptist Parish, specifically, high concentrations of LMI owner-occupied households reported damage across the parish, with more than 55% of FEMA IA owner applicants identified as LMI. Of this total, 855 flooded LMI households reported having no flood insurance coverage and 706 LMI wind-damaged households reported having no hazard insurance coverage. Similar impacts were documented in Plaquemines Parish. In total, LMI households accounted for more than 61% of all owner-occupied households with damage and approximately 48% of the value of all owner-occupied damages. Of this total, 164 flooded LMI households reported having no flood insurance coverage and 752 LMI wind-damaged households reported having no hazard coverage.

LMI populations have suffered disproportionate impacts from the numerous storm events of the past decade, and they are further perpetuated by those areas rendered most vulnerable by ongoing environmental degradation impacts. Conditions described in Plaquemines Parish serve as a representative model for many of Louisiana's vulnerable areas. Belle Chasse is the parish's largest population center, with more than half of the parish's total population residing there. This is an important factor to note in discussion of the parish, as Belle Chasse is located within the federal levee protection system. While Plaquemines' total population declined from 26,757 to 23,042 between the 2000 and 2010 Census counts, Belle Chasse's population grew from 9,848 to 12,679 within the same period. In short, Plaquemines' population has retreated north, where it may be better-suited to withstand major weather events. Because of that shift, Belle Chasse's demographic profile undoubtedly skews parish-wide statistics. Belle Chasse's median household income of more than \$66,700 significantly exceeds the median household income of the parish. To illustrate the contrast between Belle Chasse and the rest of the parish, Port Sulphur, Plaquemines' next most populated CDP, has a median household income of just more than

\$27,400. Furthermore, between the 2000 Census and 2010 Census, Plaquemines Parish experienced a substantial increase in median household income, from more than \$38,100 to more than \$54,700. This would indicate higher income households have concentrated behind levee protection, leaving behind populations with less capacity to respond to future events and fewer options to relocate to less vulnerable areas.

The state, as well as the respective jurisdictions represented by the target areas presented in this application, have a long-standing commitment to activities designed to bolster resilience. In our coastal areas, CPRA has coordinated hurricane protection, coastal restoration, and infrastructure comprehensive planning and project implementation efforts in Terrebonne, Lafourche and Plaquemines parishes – and across the entire coastal zone – since 2007. Currently, CPRA has numerous ongoing construction projects in Plaquemines, Lafourche, and Terrebonne Parishes.

In St. John the Baptist Parish, their Comprehensive Resilience Plan identifies several inhibitors to the parish’s resilience. To address these issues, the parish plan includes two key components of long-range planning. First, the Land Use Element includes the parish’s Future Land Use Map (FLUM). The FLUM is key because it identifies the physical layout of land use in the parish, as well as how these uses relate to potential hazards of the 100-year floodplain. The FLUM is the main policy description of the physical location of development and forms the basis for development of zoning and subdivision regulations. Second, as the parish’s FLUM identifies appropriate areas for physical development, those development decisions are also guided by the plan’s overall vision, developed from citizen input on parish values.

In some cases, St. John the Baptist’s Comprehensive Resilience Plan articulates unmet needs described in this application. For example, the plan identifies “vulnerabilities to water supply

and water quality” as a key component in its risk assessment. Likewise, the parish’s water system was damaged in Hurricane Isaac and represents an unfunded gap. In this case, simply identifying a funding source is the key to implementing a solution.

Still, even if all of the identified plans and mechanisms articulated in this application were fully funded, additional gaps remain. The CMP, for example, is “not able to prevent all the predicted land loss... in the 50 year planning period, the master plan will change the trajectory of land loss, providing a positive net land change into the future.” In other words, under a best case scenario projecting future resilience-building initiatives, more must be done to rethink the viability and sustainability of Louisiana’s most vulnerable communities.

The LRF offers a methodological remedy to alleviate such gaps. In our state’s unpredictable environment, multiple strategies across many disciplines are essential to holistically build resilience in Louisiana’s coastal zone communities. The CMP’s environmental restoration activities are unquestionably significant in the synthesis of a solution, but they cannot be implemented in a vacuum. Without complementary interventions identifying remaining gaps and interventions bolstering communal social, economic, and environmental resilience, our coastal zone communities can never realistically enjoy long-term sustainability.

Exhibit E: Soundness of Approach

Consultation. To develop this application, OCD-DRU has worked in close consultation with each of the four parishes covered by its target areas, as evidenced by incorporating the parishes themselves as NDRC partners. Additionally, each collaborative partner has been specifically engaged for both expertise on the most pertinent issues related to risk and resilience, and their ongoing engagements with communities most at-risk, specifically following Hurricane Isaac. UNO-CHART has engaged coastal zone communities, including within St. John the Baptist, Terrebonne, Lafourche, and Plaquemines parishes, and collaborates with a diverse array of stakeholders ranging from elected officials and faith-based organizations to local seafood harvesters. It conducts outreach via workshops, symposia, and webinars, along with direct collaborations with local officials, residents, and community groups. Likewise, the Lowlander Center maintains ongoing engagement with communities in Isaac-impacted parishes, including NDRC target areas in Terrebonne, Lafourche, and Plaquemines parishes. Within these parishes, Lowlander works directly with nonprofits, such as the Barataria-Terrebonne National Estuary Program, faith based organizations, local schools, seafood harvesters, tribal communities, community development organizations, and small business enterprises. They have also exchanged information and ideas with local and national environmental groups as well as governmental agencies, and are part of a national network of Native American tribes specifically dealing with climate adaptation issues.

Following Hurricane Isaac, LSG developed the *Homeowners' Handbook to Prepare for National Hazards* providing information to individual homeowners regarding threats and measures to improve their family and home's resilience. Fifteen thousand handbooks have been distributed to homeowners throughout the state. LSG is working with UNO-CHART in an ongoing research

program focused on the integration of traditional ecological knowledge (TEK) of local coastal stakeholders with science-based geospatial datasets to inform restoration decision-making and hazard mitigation planning. Through this multi-disciplinary knowledge integration effort referred to as ‘SCI-TEK’ the researchers work closely with a diverse set of local stakeholders, including vulnerable populations such as the Pointe-au-Chien tribe of Terrebonne Parish and an Atakapa-Ishak community in Plaquemines Parish.

Additionally, CPEX recently worked with UNO-CHART and others to develop the report *View from the Coast – Local Perspectives and Policy Recommendations on Flood Risk Reduction in South Louisiana*. The report summarizes interviews and poll results of coastal Louisiana stakeholders and residents on flood-risk measures. It combines local perspectives with actionable recommendations to enhance existing programs designed to encourage resilient living. The report will be released in 2015.

These partners are vital to the state’s success, in the NDRC, in its long-term recovery efforts following Hurricane Isaac, and as the state addresses its long-term and ongoing threats. Each partner possess institutional knowledge and local connections cultivated over a long period. This knowledge includes first-hand experience witnessing how risks and vulnerabilities adversely affect local communities within the four target areas and beyond, and provides some insight on best practices to mitigate these effects. This knowledge has significantly informed this application, and should it be invited to participate in Phase II, the state will rely heavily on its partners to facilitate further consultations in designing specific activities to propose.

The stakeholders are multivariate. Locally, those citizens and businesses residing and working within the four target areas are primary stakeholders. However, the areas defined by this application are all of vital strategic importance to both the state and the nation. St. John the Baptist

Parish, for example, is an important transportation corridor where I-10 and I-55 converge. When I-10 is inaccessible, as it was following Hurricane Isaac, larger population centers in Jefferson and Orleans parishes are cut off from vital resources, and a critical evacuation corridor. In another example, Louisiana's coastline is of strategic national security importance, due to its port system and natural resources, specifically related to seafood and oil and gas industries. Without vibrant, resilient coastal communities, the potential economic and cultural impacts are uncountable.

Within the state's four target areas, OCD-DRU has strong relationships at the parish level and maintains regular contact with grant administrators, planners, floodplain administrators, housing and economic development directors, and elected parish leadership. After Hurricane Isaac, GOHSEP and OCD-DRU engaged in long-term recovery planning exercises with St. John the Baptist and Plaquemines parishes using FEMA's NDRF. Since the release of the NDRC NOFA, OCD-DRU has met with St. John the Baptist and Plaquemines parishes to discuss unmet needs and long-term goals, while LSG, UNO-CHART, CPEX, and the Lowlander Center continued their respective work throughout the four target areas. OCD-DRU has also presented the NDRC at parish police-jury meetings in Lafourche, Terrebonne and St. John the Baptist parishes. As a result, the direction of this proposal is heavily shaped by needs and long-term goals of the parishes. These common themes are reflected in this application, and Louisiana's approach – centered on housing, infrastructure and environmental initiatives – are reflections of these needs and goals.

To date, the state's collaborative partnership has conducted approximately 40 separate acts of consultation and citizen participation – roughly 10 performed by state agencies and another 30 by NDRC partners within the four target areas. In addition to the work the state has done with its qualifying parishes, numerous consultation and citizen participation efforts have been conducted with disaster affected UGLGs, native tribes, regional organizations, and other stakeholders

involved with this application. From these consultation efforts, educational materials of many formats have been distributed and are detailed within Attachment D.

These stakeholder consultations reveal a common theme: the cumulative impacts of hurricanes Katrina, Rita, Gustav, Ike, and Isaac, along with the Deepwater Horizon Oil Spill on coastal zone parishes are profound. Add on the chronic stress of land loss and sea-level rise and it becomes nearly impossible to separate the impact of one from the other. Should the state participate in Phase II, the state will refine specific project ideas around the various stakeholder-derived themes presented in this application. This holistic collaboration of partners and stakeholders will ensure a systematic approach to program and project design, maximizing co-benefits, and preventing cascading negative impacts on neighboring jurisdictions.

Ideas and Concepts. In response to these consultations, Louisiana's approach is to enhance its adaptive capacity, reflecting its rapidly changing landscape, in such a way that its large knowledge base can be captured and utilized to create solutions tailored to specific at-risk communities. Cognizant that its challenges are far more robust than can be addressed through the NDRC, the LRF and this approach have been crafted to yield model projects and programs that are scalable and transferrable, reflective of the various scales, typologies, and levels of risk faced by communities not only along Louisiana's coastline, but throughout the state.

The LRF is a planning tool utilizing a four-step process to tailor programmatic approaches to resilience-building activities. In *Step 1: Data Gathering*, a community collects and analyzes applicable quantitative and qualitative information to comprehensively assess future risk and identify need gaps outside of current planned initiatives. This includes utilization of science-based modeling tools, such as CLARA, to analyze environmental risks and vulnerabilities – along with demographic and economic data – over a 50-year period. This information is combined and

integrated with qualitative information gathered through outreach and community-level engagements to create a risk analysis. In *Step 2: Approach*, this combined risk analysis is used to collaborate with a community to develop an approach to adaptation. Based on consultations to date, such adaptations fall within three typologies: resilience through resettlement, retrofitting, or reconfiguration.

Resilience through resettlement is an approach envisioning at-risk communities currently in environmentally unsafe conditions, such as Isle de Jean Charles in coastal Terrebonne Parish. These communities have been ravaged by multiple events, and are subject to long-standing environmental stressors, such as land loss, subsidence, and sea-level rise contributing to the severity of disaster events. Specifically, these are communities within Special Flood Hazard Areas, outside of planned future structural protection systems, and those that cannot reasonably absorb future projected insurance costs, or the cost of projected losses of a 100-year flood event occurring within the next 50 years. Notably, Native American populations are prevalent in such vulnerable areas. Coastal Louisiana is home to the Isle de Jean Charles Band of Biloxi-Chitimacha Choctaw, the Pointe-Au-Chien Indian Tribe, the Grand Caillou-Dulac Band of the Biloxi-Chitimacha Choctaw, the Bayou Lafourche Band of the Biloxi-Chitimacha, and the Avoyel-Taensa Tribe/Nation. Such communities may be party to proposed voluntary resettlement programs in Phase II.

Resilience through retrofitting is an approach applied to coastal communities for which quantitative modeling techniques related to land loss, sea-level rise and subsidence indicates a viable path forward to sustainably remain in place over 50 years, but with significant increasing vulnerabilities and risks during that time period. These are areas within Special Flood Hazard Areas, but those that may lie behind future planned structural protection systems. While the

situation for these communities is less dire, they still face significant risk, but can expect greater longevity in place as long as they implement adaptation strategies enabling them to endure future events. Resilience through retrofitting entails developing and implementing a town-scale approach to remain in place.

Resilience through reconfiguration refers to redevelopment of macro-level patterns interconnecting housing development with vital infrastructure. Larger in scale, these communities may face threats directly relating to their own long-term resilience, but they also have a direct impact on the resilience and vitality of neighboring areas – or even a region – due to their strategic locations. St. John the Baptist Parish is a good example of such a place as it includes major transportation arteries directly affecting the flow of goods, services, and people to a larger region.

In *Step 3: Concept Strategy & Design*, communities begin development of holistic, resilience-building strategies promoting three key ideals: restoring environments, preserving cultures, and protecting and revitalizing economies. This step uses a community participatory approach to planning to frame goals and outcomes – and ideas and concepts to achieve them. At its conclusion, Step 3 yields a community-vetted path forward outlining science- and outreach-driven knowledge gathered in Step 1, a Step 2 approach influenced by a community’s risk assessment, and a viable strategy to restore environments, preserve cultures, and protect and revitalize economies over a 50-year period.

To conclude, the LRF’s *Step 4: Project/Program Development*, uses the resilience-building plan created in Step 3 to develop and design specific activities to execute the strategy. For resettling communities, this may emphasize site selection based on communal needs. For retrofitting communities, this may emphasize adaptations to housing, infrastructure, jobs, education, food access, and transportation that utilize the latest in planning and design expertise along with low-

tech historical strategies. Activities may additionally make room for water through the use of green infrastructure such as rain gardens, bio swales, and retention ponds.

Reconfiguring communities envision approaches connecting workforce housing initiatives – designed to diversify a community’s housing stock and enhance its economic viability – with infrastructure and access-oriented projects. For example, in St. John the Baptist Parish, this would take into account its position as a vital transportation corridor with demonstrated vulnerability following Hurricane Isaac. Additionally, addressing the known vulnerability of the parish’s potable water supply provides a co-benefit opportunity to intertwine housing diversity, built infrastructure and access to water with a reimagined form of transit-oriented-development centered on the convergence of I-10 and I-55. Such an approach is advantageous as it maximizes opportunities to facilitate economic growth and diversity, while fostering creation of cultural waypoints shaping the identity of a community for generations to come.

To select activities, risk assessments will be used to identify and prioritize critical recovery needs, and those needs will be analyzed based on consequence and likelihood of asset failure. Level of service standards for infrastructure assets will be refined and for each asset, the level of service that was not met as a result of Hurricane Isaac will be identified. Assets will be assigned numerical rankings, which will measure the environmental, traffic, health, and economic impacts, and impacts from damaged homes and displacement. Using the rankings, needs will be categorized into various priority groups, driving the program and project selection process.

Projects will also be designed to include building and bridging social networks as a part of the process and outcome. A community-based participatory approach goes beyond engagement and brings all stakeholders into the process as collaborators. Collaborators include target populations, public officials, interested citizens, public agencies, universities, and others. The

recovery process builds on the strengths, knowledge, and resources shared amongst the group to develop a plan best suited to the needs of all collaborators. Using stakeholders as collaborators when planning a project provides the opportunity for innovation, ensures a greater likelihood that needs of all stakeholders will be met, encourages a sense of investment in the resulting strategy, and creates relationships among sectors of the population that may not have had previous contact.

The LRF allows the state to position approaches and strategies with past, present and planned future actions. These include the CMP and the Comprehensive Resiliency Pilot Program, through which St. John the Baptist Parish created its Resiliency Plan. Notably, three of the proposed target areas participate in the NFIP Community rating system. Those that participate in the rating system also take part in a CRS user group facilitated by UNO-CHART called Flood Loss Outreach and Awareness Taskforce (FLOAT). Terrebonne (Class 6), Lafourche (Class 10), and St John the Baptist parishes (Class 8) all participate, and these resources will be utilized in the LRF's execution.

Exhibit F: Leverage

Outcomes. Louisiana has a long history of initiatives specifically designed to address long-term resilience. A few referenced initiatives include the state’s CMP, the *Greater New Orleans Urban Water Plan*, the Comprehensive Resiliency Pilot Program, CDBG-DR programs and initiatives – specifically coastal restoration and levee projects, and those initiatives spearheaded and funded by the state’s NDRC partners. While the LRF provides a central strategy and an organizational structure by which future activities will be conceived, it is heavily reliant on work already completed. Specifically, the CMP represents the single best data source the state has to measure risks and vulnerabilities facing coastal communities. The CMP itself attempts to model projected risk, through CLARA and other scientifically-based mechanisms, on a 50-year horizon. Through this application, the state asserts its belief that such a time frame is the most prudent term from which to plan for resilience, and so all of the ideas, concepts, and approaches herein should be viewed within that 50-year time horizon.

In taking a 50-year view, the state also acknowledges the fluid situation in which it finds itself. As adaptations to the built and natural environment are undertaken, and as unforeseen events – like hurricanes, oil spills, and other natural and man-made disasters – take place in the future to alter those built and natural environments, assessments and reassessments will be required to ensure models depicting risk and vulnerability remain reflective of both existing conditions and best available science. Currently, the CMP updates every five years, reflective of changing conditions and data. Through this application, the state commits to piggyback on this existing process as an integrated component of the LRF.

Therefore, the state is proposing initiatives that, by definition, are scalable. For resettled communities, a large-scale, up-front investment will be required to physically relocate the

community, mindful of preserving its culture and enhancing the relocated community's economic opportunities, as the LRF requires. In this case, the goal is to leave behind a socially, environmentally, and economically sustainable community requiring little or no future public investment. For retrofitted communities, the state's strategy will require phased investments to inform and plan, with investments to mitigate vulnerabilities and risks as identified over 50 years. These investments may be in the form of multi-phased infrastructure construction projects, which contribute to the preservation of cultures, restoration of environment, or enhancement of economic interests on a large scale, or individual investments, like targeted residential elevations, achieving the same goals on an individual scale.

Projects targeted to retrofitted communities, some of which may come from the CMP itself, are large-scale, multi-phase diversions or other major installations specifically designed to reverse coastal land loss, subsidence and sea-level rise, or mitigate adverse conditions, combined with smaller-scale initiatives at the community level, and are geared toward both individual mitigations and social resilience-building activities. Specific projects will be selected through the LRF as those exhibiting the most advantageous cost-to-benefit ratio weighing a project's potential to directly impact cultures, environments, and economies. Special emphasis will be placed on those projects specifically providing benefits to communities for which additional investments are already proposed through the CMP, or another resilience-building program, to compound return on investment.

Approaches in reconfigured communities will specifically address issues of housing stock, connectivity, and access. In St. John the Baptist Parish, vulnerabilities around access to a sustainable potable water source and safe transportation corridors have already been identified. In the other three coastal target areas, reconfiguration may manifest itself as physical access to vital

outposts either currently cut off from resources as a result of ongoing environmental distress or acute environmental degradation with attributable impacts from Hurricane Isaac, or those projected to be physically cut off over a 50-year period. Alternatively, this category may include those projects specifically designed to connect immovable industries to populations and resources from which they are currently disconnected or are projected to be disconnected over 50 years. Finally, as water represents both a significant risk and a vital resource, projects within this category may promote transportation access to Louisiana's coastal waterways or enhance community access to the water for cultural and economic benefit. By nature, these are mostly large-scale, multi-phased investments and will attempt to target areas in which additional investments are proposed, to compound the return on investment.

The LRF itself is constructed to ensure co-benefits for any project selected through it. For example, a resilience through resettlement activity may involve removing a community from an area that is not realistically viable to a safer location either in close proximity to an existing economic corridor (e.g. the hub of an immovable industry), or to a location prime for future economic growth. This may be an area with planned future economic development, or it may include locations conducive to traditional farming or fishery activity. In this example, a resettlement activity would achieve the trifold benefit of the resettlement itself, the creation of jobs to ensure the economic sustainability of the resettled community, and the ability to educate and share such a model through existing national networks. In another example, a project may be proposed emphasizing restoration of the natural environment, mitigating risks for communities practicing resilience through retrofitting while also creating new public waterway access or promoting those fishing and wildlife activities that are key cultural and economic staples for Louisiana's residents. As a final example, projects addressing access specifically may both

reimagine a community's available source of potable water while also creating the types of public waterway access points conducive to fishing and wildlife activities.

The state's LRF-driven approach is intended to create social, environmental, and economic sustainability in vulnerable coastal zone communities. In resilience through resettlement, the objective is to relocate a community from an area that is neither environmentally nor economically sustainable to one that can be sustainable in both respects through the measured 50-year modeling period. Specifically, the goal in the design of such an activity is to select a resettlement location that is environmentally sustainable over the 50-year arc. Additionally, in tying in the economic considerations in the example above, resilience through resettlement entails moving at-risk communities – which chronically experience cascading negative effects of such risk, including high unemployment – and connecting them with alternative locations already experiencing economic vitality. In this way, resilience through resettlement is designed to create and promote sustainable communities that not only can be resilient to natural disasters, like hurricanes and other storm events, but also resilient to national, statewide, or local economic downturns and recessions. In a resilience through retrofitting example, a similar set of principles and projected outcomes would apply. This may entail fortification and mitigation techniques specifically targeted to corridors of current and future-projected strategic economic importance, including those containing or of vital importance to immovable industries. Additionally, such techniques and initiatives must and will target blighted commercial and residential structures currently putting adjacent and nearby structures at increased risk during storm events.

In defining outcomes related to the three types of activities discussed above, Louisiana intends to propose short-term and long-term metrics similar to those commonly captured under current CDBG-DR awards and recorded in the Disaster Recovery Grant Reporting System. For

housing progress, these metrics may include, but are not limited to: LMI households served, households resettled, units created, units elevated/mitigated, units rehabilitated, buyouts completed, sites procured, education outreach events held, and resettlement plans completed. For environmental progress, these metrics may include, but are not limited to: acres created, structures protected, barriers restored, and estuaries preserved. For infrastructure progress, these metrics may include, but are not limited to: transportation hubs created, miles of roadway created, elevated, and mitigated, potable water systems constructed, and number of households served (by constructed water systems).

Longer-term benchmarks may be monitored over a 50-year modeling horizon. For example, a 10-year monitoring period may include such metrics as: structures on RL/SRL lists, mitigation funds disbursed, CDBG-DR (or equivalent) funds disbursed, population gained/lost, and number of businesses operating. In monitoring these metrics over a 10-year term (and five times over 50 years), the state would look for an inverse relationship between RL/SRL, mitigation, and CDBG-DR metrics (ideally declining over time), and population and businesses (ideally increasing over time) within its respective target areas.

Leverage. OCD-DRU has specifically sought partners with expertise in and resources devoted to the state's ongoing commitment to resilience, who will be well-positioned to assume key roles in implementation and maintenance of future activities. Additionally, the state has sought out, consulted with, and secured partnership commitments from each of the four parish governments covered by the target areas presented in this application. Not only has each parish informed this application and its assessments articulating need and ideas to alleviate it, each jurisdiction may be best positioned to implement and maintain particular projects, as identified in Phase II.

As outlined in Exhibit D, insurance coverage rates and costs are a major concern, and any activity mitigating risk – and insurance costs – comes with considerable potential benefit. Highlighting this concern and potential benefit, CPRA commissioned a December 2013 study of the impact of the NFIP on insurance premiums in our state’s most vulnerable areas in which representatives of the insurance industry were consulted to determine how rate quotes will change upon implementation of BW-12. The study contemplated the law’s effect on rates in Belle Chasse, a municipality in Plaquemines Parish, and one of the state’s NDRC target areas. The specific property selected for the study is within the 100-year floodplain, as is 94% of the parish. It did not flood during Hurricane Katrina or Hurricane Isaac, and the property was located within the New Orleans District Hurricane and Storm Damage Risk Reduction System. In short, the particular property targeted in the study is arguably at significantly less risk than most properties in the state’s four target areas.

The results of the study were startling. The property, assessed at 6 feet below the base flood elevation (or -6 BFE), is expected to see a rate increase from \$633 per annum to a \$17,723 actuarial rate per annum, an increase of nearly 2,700%. As illustrated in study, even properties located in areas without changes in floodplain designations should anticipate seeing their insurance costs increase (in most cases more than double) with the introduction of actuarial rates. Despite partial relief provided by 2014’s passage of the Grimm-Waters Act, any progression to actuarial rates will come with profound and dire financial impacts for residents and businesses in coastal Louisiana.

The ideas and concepts presented in this application are expected to have a specific and direct effect on both risk and insurance premium rates of those communities targeted for activities associated with the NDRC. The LRF incorporates scientifically-sound quantitative risk assessment data supplied through CPRA, and the state proposes using the LRF as a mechanism to strategically

target communities for future activities. For example, in assessing a coastal community and making a determination whether it is an appropriate candidate for resilience through resettlement, resilience through retrofitting, or resilience through reconfiguration, a science-based risk assessment – utilizing CLARA and other modeling techniques at the state’s disposal – will be utilized as a component to assess risk and vulnerability. Insurance premium rates are correlated to such a risk assessment, and prohibitively expensive premiums may be a determining factor for intervention.

While projects specifically designed to restore the natural environment would reduce physical risk, and insurance premiums in the process, this is but one piece of a holistic approach in creating resilient communities. In addressing issues related to those communities bolstering their ability to adapt to their environments, and not retreat from them, it may be advantageous to reimagine how to insure such communities. Communal insurance strategies may be more cost-effective, while eliminating risk on the part of the federal government holding NFIP policies in vulnerable regions.

The approaches articulated in this application lend themselves to countless opportunities to leverage co-benefits toward their financing, a key metric of creating self-sustaining communities. For example, the state’s approach to resilience through resettlement specifically ties such activities to economic development. The new tract of land targeted for resettlement is exposed to significantly less risk and vulnerability than the community’s current location, and such conditions lend themselves to higher property values and higher tax revenues, which can then be reinvested locally in resilience-building activities. Resettled communities may experience increased direct economic opportunity, either through the land itself via revenue-generating agricultural activities, or through their proximity to a hub of immovable industries. While initial

investments would be required from outside sources, upkeep and maintenance may be funded through these and other value additions.

Revenue-generating opportunities associated with environmental or infrastructure projects may enhance current economic opportunity, while also creating new opportunities. These may include additional fishing-industry opportunities, or improved waterway access providing revenue-generating recreational opportunities. Alternatively, a new or enhanced transportation artery may create opportunities for new economic development corridors, and may utilize tax-increment financing or other revenue-generating financial model to sustain itself.

Louisiana's commitment to resilience expands across a wide scope. The CMP covers projects and initiatives stretching across the state's coastline and significantly inland. The *Greater New Orleans Urban Water Plan* covers three of the state's most populous parishes – Orleans, Jefferson and St. Bernard. The Comprehensive Resiliency Pilot Program is creating 44 different resilience-specific plans and ordinances across the state. Additionally, in the past several years, the state has exponentially increased its financial commitment to the coast. Some of these dollars provided the state's match for repairs and revisions to the Greater New Orleans area levees, leveraging over \$14 billion in federal funds for a vital hurricane protection system. In addition, the federal Coastal Impact Assistance Program is providing approximately \$496 million to Louisiana to mitigate impacts from Outer Continental Shelf oil and gas production.

The risks and vulnerabilities described in this application are germane not only to the four proposed target areas, but also to a wide swath of southern and coastal Louisiana. Looking into the future, the risks and vulnerabilities Louisiana faces will become more prevalent in other areas across the nation. Coastal land loss, subsidence, sea-level rise and tropical storm frequency are all of growing concern to all of our nation's coastal states.

Through its long-standing commitment to resilience, Louisiana has a head-start in developing resilient solutions that may be scalable and transferrable. The LRF and the specific approaches outlined in this application are experimental, in that they attempt to envision models to be first applied within the target area “laboratory,” but then expanded throughout Louisiana – and beyond – in areas with similar risks and vulnerabilities. In this sense, the programs and initiatives proposed here should be viewed as pilots. Louisiana has a unique opportunity to prove resilient concepts and develop model solutions before the risks and vulnerabilities our state currently faces become more apparent and profound in other locales. With proper development, such solutions would be priceless, both for Louisiana and the country as a whole.

Committed Leverage Resources. The Office of Community Development (OCD) has committed \$250,000 toward a future CDBG-NDR award, as documented in Attachment B.

Exhibit G: Long-Term Commitment

CDBG-DR Commitments. Through its \$64,379,084 allocation of CDBG-DR funds specifically intended to address effects of the area's Qualifying Disaster, Hurricane Isaac, the state has committed to numerous ongoing actions to enhance the resilience of both the target areas and a larger regional area impacted by the event. Additionally, through CDBG-DR awards made following hurricanes Gustav and Ike, the state has committed to further ongoing resilience-building activities. These actions are broken down and outlined below.

St. John the Baptist Parish: For the purposes of this section, two actions are highlighted, the parish's \$11,549,820 Homeowner Rehabilitation Program and its \$2,500,000 Housing Elevation Program. Specifically, the parish's Homeowner Rehabilitation Program will restore a housing stock negatively impacted by the qualifying disaster. In cases where a damage assessment indicates needed repairs in excess of 50% of the structure's market value, properties will be subject to elevation to the applicable base flood elevation (BFE), as is required by regulation for funds disbursed through Public Law 113-2. The program is therefore designed to enhance community resilience by both mitigating the need for assistance in future flood events and by enhancing property values of rehabilitated properties while protecting the value of adjacent, non-damaged properties. Based on an anticipated cost of \$47,972 per unit, this program is projected to serve 241 households.

The parish's Housing Elevation Program, created in response to post-Isaac public demand, is a stand-alone voluntary elevation program for those homes located in flood-prone areas, and specifically those areas inundated by flood waters as a result of Hurricane Isaac. For properties participating in the program, elevations will be to 1 foot above the applicable FEMA-determined base flood elevation. Based on an average \$85 per sq. ft. elevation cost and average 1,500 sq. ft.

home, this program will be able to serve a maximum of 20 homes. These activities are projected to be completed by the September 30, 2019 expenditure deadline.

Plaquemines Parish: This parish has two relevant CDBG-DR programs underway designed to resiliently recover from Hurricane Isaac. The parish's \$12,828,400 Housing Assistance Program is intended to provide the same benefits as St. John the Baptist's rehabilitation program. Based on an anticipated cost of \$45,428 per unit, this program will be able to serve a maximum of 282 households. Additionally, the parish has set aside \$4,124,600 as a cost share for Hazard Mitigation Grant Program initiatives, including residential elevations and other structural mitigations. Based on an average \$85 per sq. ft. elevation cost and average 1,500 sq. ft. home, the parish's HMGP Cost Share program will be able to serve a maximum of 129 homes. These activities are projected to be completed by the September 30, 2019 expenditure deadline.

Comprehensive Resiliency Pilot Program: In addition to the above, the state has completed numerous local/regional plans and initiatives through its Comprehensive Resiliency Pilot Program. The program is intended to provide comprehensive nonstructural recovery to some of our most at-risk communities. Nonstructural recovery is defined as the creation of legislation, policies, knowledge, and public commitment necessary to avert disaster. This program is designed to fund communities to develop plans that will increase resilience by enabling them to anticipate, withstand and recover from extreme events. The program has funded innovative comprehensive plans, zoning ordinances, and water plans throughout the state. Additionally, through this initiative the Louisiana State University - Coastal Sustainability Studio has compiled the resiliency plans and has developed a suite of best practices disseminated to communities statewide via website and workshop/webinar series. This program's activities – creating 44 different resilience-specific plans and ordinances across the state – are projected to be completed by the end of 2016.

Louisiana Sea Grant Resilience Program. In December 2014, LSG gave awards to five proposals specifically selected for their ability to enhance regional resilience. At the conclusion of this process, the state will use the products created through this program to inform both specific initiatives that may be proposed through the NDRC, but also the LRF, and the long-standing resilience-oriented initiatives it has engaged in over the past decade. All projects are designed to last two years, and are projected to be completed by the end of 2016.

The proposals are: *Preparing Local Governments to be Financially Resilient to Natural Disasters* (\$149,603), *A Framework to Connect Climate Adaptation Alternatives to Coastal Louisiana Communities* (\$80,000), *Building Community Resilience to a Changing Louisiana Coastline through Restoration of Key Ecosystem Components* (\$47,780), *Comprehensive and Integrated Louisiana Water Code Project* (\$40,000), and *A Synthesis of Resilience Measurement Methods of Indices* (\$49,940).

Coastal Master Plan. Since 2007, the state has substantially increased its financial commitment to the coast. Overall, the state has built or improved approximately 250 miles of levees, constructed 45 miles of barrier islands and berms, benefited over 25,700 acres of coastal habitat, identified and used dozens of different federal, state, local, and private funding sources, and moved over 150 projects into design and construction. In 2015, CPRA is continuing to build on this momentum and will begin or continue construction on 59 projects, including 19 protection projects, 38 restoration projects, and 2 infrastructure projects, representing \$70 million in planning activities, \$56 million in engineering and design activities, \$477 million in construction activities, \$26.3 million in operation, maintenance, and monitoring activities, and \$42.1 million in ongoing programs and initiatives.

CPRA implements protection, restoration, and infrastructure projects through multiple programs in cooperation with federal agencies and other entities, each of which entails different federal processes and funding requirements. Three of these federal programs, the Coastal Wetlands Planning, Protection and Restoration Act, the Coastal Impact Assistance Program, and CDBG program, require coordination with a federal sponsor and efficient expenditure of federal funds. Since 2007, through these three programs, CPRA has completed 40 projects, representing a total investment of \$679 million. Furthermore, through these three programs, CPRA currently has 13 projects in construction, totaling an investment of \$299 million. CPRA has documented history and expertise in expending federal dollars and moving projects into construction through the use of these critical federal programs.

Projects currently in construction within target areas in Plaquemines, Lafourche, and Terrebonne parishes include Lake Hermitage Marsh Creation, Mississippi River Long Distance Sediment Pipeline, Caminada Headland Beach and Dune Restoration, and Grand Liard Marsh and Ridge Restoration. Most recently, construction has been completed on the West Belle Passe Barrier Headland Restoration project (rebuilding a large portion of the beach, dune, and back barrier marsh that once existed in Terrebonne Parish at a \$37 million total cost), the Fringe Marsh Creation project (reestablishing critical areas of fragile marsh in Plaquemines Parish at a \$8.7 million total cost), and the Shell Island East Barrier Island/Headland Restoration project (restoration of the barrier island to reduce wave energies and reestablish productive habitat to the Bastian Bay area of Plaquemines Parish at a \$47 million total cost). Collectively, projects underway in Plaquemines Parish since the Qualifying Disaster are projected to create an additional 73,399 acres of land. In Terrebonne Parish, an additional 7,640 acres are projected to be created by projects currently underway. In Lafourche Parish, an additional 7,943 acres are projected to be created by currently

underway. All of the referenced projects currently under construction are expected to be completed by June 30, 2017.

Schedule Responses

The National Disaster Resilience Competition is a year-long competition structured in two phases: the framing phase (Phase I) and the implementation phase (Phase II).

- Phase I applications are due to HUD by March 27, 2015;
- HUD anticipates notifying applicants if they have been accepted to Phase II in June 2015;
- If invited by HUD to participate, the applicant will have approximately 120 days to respond;
- HUD anticipates announcing awards 60 days after the Phase II deadline;
- HUD must obligate all funds by September 30, 2017;
- Funds must be expended within 24 months of obligation; all funds must be expended by September 30, 2019.

Opportunity for Public Comment

The formal public comment period for this application begins March 6, 2015 and runs through March 20, 2015.

Citizens and organizations can comment on this application via:

- http://www.doa.louisiana.gov/cdbg/DR/Isaac/IC_Resilience_Competition.htm;
- Emailing them to ocd@la.gov;
- Mailing them to Disaster Recovery Unit, P.O. Box 94095, 70804-9095, Attn: Janice Lovett; or
- Faxing them to the attention of Janice Lovett at (225) 219-9605.

The application will be translated into Vietnamese and Spanish to reach the limited English proficiency citizens in the impacted areas. Citizens with disabilities or those who need other technical assistance can contact the OCD-DRU office for assistance via the methods listed above.

Substantial Amendment Criteria

Changes in the application constituting a substantial amendment requiring HUD approval are those changes to the application resulting in a change of more than five points in the score for capacity or soundness of approach or that will change the most impacted and distressed target areas. Also, the following modifications will constitute a substantial amendment requiring HUD prior approval: a change in program benefit, beneficiaries, or eligibility criteria; the allocation or re-allocation of more than \$1 million; or the addition or deletion of an activity. Subsequent to award, a grantee may substantially amend the application if it follows the same citizen participation requirements utilized through the application process, and HUD agrees in writing that the amended application would still score in the fundable range for the competition. Prior to preparation and submission of any amendment, the grantee is encouraged to work with its HUD representative to ensure the proposed change is consistent with NDRC rules, and all applicable regulations and federal law.