LOUISIANA
Office of
COMMUNITY
DEVELOPMENT

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

Allocations, Common Application, Waivers and Alternative Requirements for
Community Development Block Grant Mitigation Grantees
Further Additional Supplemental Appropriations for Disaster Relief Requirements Act, 2018
(Public Law 115-123)

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LOUISIANA
Office of
COMMUNITY
DEVELOPMENT

OFFICE OF COMMUNITY DEVELOPMENT
STATE OF LOUISIANA

MASTER ACTION PLAN FOR THE UTILIZATION OF COMMUNITY DEVELOPMENT BLOCK GRANT MITIGATION FUNDS (CDBG-MIT)

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John Bel Edwards, Governor
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LOUISIANA Office of COMMUNITY DEVELOPMENT

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I. CRITICAL DEFINITIONS

Action Plan or AP: After HUD publishes the Federal Register Notice for a congressional appropriation, the grantee (eligible government) must develop and submit an Action Plan describing the needs, strategies and projected uses of the CDBG-MIT funds. HUD must approve the Action Plan before funds are available.

CDBG-MIT: Community Development Block Grant-Mitigation assistance is the term for the HUD funding stream that is allocated to eligible disaster recovery entities via congressional appropriations. HUD provides flexible CDBG-MIT grants to cities, counties and states to assist areas impacted by recent disasters. Grantees are empowered to carry out strategic and high-impact activities to mitigate disaster risks and reduce future losses, while at the same time transform state and local planning[1].

Covered Project: As per FR-6109-N-02, includes infrastructure projects having a total project cost of $100 million or more, with at least $50 million of CDBG funds, regardless of source (CDBG–DR, CDBG–NDR, CDBG–MIT, or CDBG).

Federal Register or FR: The Federal Register is the official journal of the federal government of the United States that contains government agency rules, proposed rules and public notices. It is published daily, except on federal holidays. The final rules published in the Federal Register are ultimately reorganized by topic or subject matter and codified in the Code of Federal Regulations, which is updated annually.

Federal Register Notice or FRN: For each congressional appropriation, HUD publishes a Federal Register Notice that outlines the rules and regulations for the CDBG-MIT funding.

Federal Emergency Management Agency or FEMA: The Federal Emergency Management Agency is an agency of the United States Department of Homeland Security, initially created by Presidential Reorganization Plan No. 3 of 1978 and implemented by two Executive Orders on April 1, 1979. The agency's primary purpose is to coordinate the response to a disaster that has occurred in the United States and that overwhelms the resources of local and state authorities. The governor of the state where the disaster occurs must declare a state of emergency and formally request from the president that FEMA and the federal government respond to the disaster.

FEMA IA: Federal Emergency Management Agency Individual Assistance programs provide financial or direct assistance to support the recovery of disaster survivors who have uninsured or underinsured necessary expenses and serious needs. This may include assistance for temporary housing and housing repairs, critical disaster related expenses, and the replacement of essential personal property. This assistance is not intended to restore your damaged property to its pre-disaster condition. Through its IA programs, FEMA may also provide funding to the state or tribal government to support programs that address crisis counseling, disaster case management, disaster legal services and disaster unemployment assistance.

FEMA PA: The President can make Federal Emergency Management Agency Public Assistance available to local, state and tribal governments, and certain types of private nonprofit organizations to remove debris, provide emergency protective measures, and restore equipment, buildings and other infrastructure damaged by the disaster. This is done on a cost-sharing basis.

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[1] FR-6109-N-02. p3.

FEMA HMGP: The FEMA Hazard Mitigation Grant Program helps communities implement hazard mitigation measures following a Presidential Major Disaster Declaration in the areas of the state, tribe, or territory requested by the Governor or Tribal Executive. The key purpose of this grant program is to enact mitigation measures that reduce the risk of loss of life and property from future disasters. HMGP is authorized under Section 404 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act.

Floodplain: Any area of land within a watershed that is susceptible to inundation by floodwaters from any source.

Floodplain management: A decision-making process that aims to achieve the wise use of the nation's floodplains. It encompasses the choices made by owners of homes and businesses in the floodplain, decisions made by officials at all levels of government, plans made by land developers and contractors, and the judgment of the general public regarding future decisions to be made with regard to land use. 44CFR 59.1 defines flood plain management as "the operation of an overall program of corrective and preventive measures for reducing flood damage, including but not limited to emergency preparedness plans, flood control works and flood plain management regulations."

Louisiana Watershed Initiative or LWI: Gov. John Bel Edwards established the Council on Watershed Management, which serves as the coordinated, interagency structure at the state level for watershed-based flood risk reduction. In August 2018, the Council launched the LWI to serve as the programmatic arm under which all related efforts operate.

Major Disaster Declaration: The President can declare a Major Disaster Declaration for any natural event, including any hurricane, tornado, storm, high water, wind-driven water, tidal wave, tsunami, earthquake, volcanic eruption, landslide, mudslide, snowstorm, or drought, or, regardless of cause, fire, flood, or explosion, that the President believes has caused damage of such severity that it is beyond the combined capabilities of state and local governments to respond. A major disaster declaration provides a wide range of federal assistance programs for individuals and public infrastructure, including funds for both emergency and permanent work. Louisiana's major disaster declarations for the March and August 2016 flooding events are as follows:

- Severe Flooding (Disaster 4263) declared on March 13, 2016
- Severe Flooding (Disaster 4277) declared on August 14, 2016

Mitigation activities: Those activities that increase resilience to disasters and reduce or eliminate the long-term risk of loss of life, injury, damage to and loss of property, and suffering and hardship, by lessening the impact of future disasters.

Multi-hazard risk assessment: A hazard identification and risk assessment provides the factual basis for activities proposed in the strategy portion of a hazard mitigation plan. An effective risk assessment informs proposed actions by focusing attention and resources on the greatest risks. The four basic components of a risk assessment are (1) hazard identification, (2) profiling of hazard events, (3) inventory of assets and (4) estimation of potential human and economic losses based on the exposure and vulnerability of people, buildings and infrastructure.[2]

Precipitation: Precipitation is water released from clouds in the form of rain, freezing rain, sleet, snow or hail. Most precipitation falls as rain and is the primary aspect of the water cycle that delivers atmospheric water to the Earth. For example, water vapor evaporates from oceans, lakes, forests, fields, animals and plants then condenses and returns to Earth as precipitation, thus replenishing reservoirs,

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[2] United States Federal Emergency Management Agency. *Hazard Identification and Risk Assessment.* 2019. Accessed on September 5, 2019. https://www.fema.gov/hazard-identification-and-risk-assessment.

lakes, rivers, underground aquifers and other sources of water that provide moisture needed by plants and animals.[3]

Provisional watershed regions: The LWI has established provisional watershed regions throughout the state. These regions aggregate HUC8-level watersheds into eight watershed regions for LWI management purposes. See Figure 20 and **Attachment G** for more detail.

Repetitive Loss or RL Property: Any insurable building for which two or more claims of more than $1,000 were paid by the National Flood Insurance Program (NFIP) within any rolling ten-year period, since 1978. A RL property may or may not be currently insured by the NFIP.

Severe Repetitive Loss or SRL Property: A residential property that is covered under an NFIP flood insurance policy and (a) has at least four NFIP claim payments (including building and contents) over $5,000 each, and the cumulative amount of such claims payments exceeds $20,000; or (b) for which at least two separate claims payments (building payments only) have been made with the cumulative amount of the building portion of such claims exceeding the market value of the building. For both (a) and (b) above, at least two of the referenced claims must have occurred within any ten-year period, and must be greater than 10 days apart.

U.S. Department of Housing and Urban Development or HUD: The US Department of Housing and Urban Development was established in 1965 by the Department of Housing and Urban Development Act. HUD is the principal federal agency responsible for programs concerned with the nation's housing needs, fair housing opportunities, and improvement and development of the nation's communities. HUD provides the main source of funding for Louisiana's recovery from hurricanes Katrina, Rita, Gustav, Ike and Isaac; as well as the March and August flooding events. HUD is the agency that administers the Community Development Block Grant-Disaster Mitigation, or CDBG-MIT, funds available to Louisiana from a congressional appropriation. HUD's allocation of this appropriation provides funding for this solicitation and program.

Watershed: A watershed is a geographic area within the boundary of a drainage divide. The USGS defines a watershed as follows: "A watershed is an area of land that drains all the streams and rainfall to a common outlet such as the outflow of a reservoir, mouth of a bay, or any point along a stream channel. The word 'watershed' is sometimes used interchangeably with 'drainage basin' or 'catchment.' It is a land feature that can be identified by tracing a line along the highest elevations between two areas on a map, often a ridge. Large watersheds, like the Mississippi River basin contain thousands of smaller watersheds.[4]

Additional definitions are included in Appendix A, and Acronyms and Abbreviations are included in Appendix B.

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[3] United States Geological Survey. *Rain: A Water Resource, USGS General Interest Publication.* 2019. Accessed on August 11, 2019. https://www.usgs.gov/special-topic/water-science-school/science/precipitation-and-water-cycle.
[4] USGS. *Water Science Glossary of Terms.* 2019. Accessed on September 18, 2019. https://www.usgs.gov/special-topic/water-science-school/science/dictionary-water-terms?qt-science_center_objects=0#qt-science_center_objects.

II. EXECUTIVE SUMMARY

Beginning with Hurricane Katrina's landfall in August 2005, each of Louisiana's 64 parishes has been included in a federal major disaster declaration as a result of a named tropical event. Moreover, the Great Floods of 2016 – two rainfall events six months apart affected wide swaths of the state – causing severe flash and riverine floods. These floods led to major disaster declarations in 56 parishes. These events have left an indelible mark on Louisiana and have exposed new challenges within the state's approach to flood risk reduction.

Since Hurricanes Katrina and Rita, the state has adopted stricter building codes, newer flood maps in some areas, and has formed the Coastal Protection and Restoration Authority (CPRA), which relies on science and engineering to produce, implement, and regularly update the state's Coastal Master Plan. After Hurricane Isaac, with funds provided by HUD's National Disaster Resilience Competition, Louisiana created the Strategic Adaptations for Future Environments Program (LA SAFE) which became a model for engaging citizens in planning for the long-term resilience of their communities.

The Great Floods of 2016 exposed another challenge the state faces: the need to better manage riverine and flash flooding caused by extreme precipitation events. The state identified regional watershed-based flood risk management as a means to systematically address water management and avoid interventions that may unintentionally increase runoff or subsequent flooding on adjacent communities, upstream and downstream.

Soon after, the state began its investigation of this new approach. Per the Bipartisan Budget Act of 2018, Congress allocated $1,213,917,000 CDBG-MIT funds to the State of Louisiana for the specific purpose of mitigation activities as specified in Public Law 115-123 and FR-6109-N-02. The rules for expenditure of these funds require the submittal of an Action Plan or AP for approval by HUD. This AP provides a concise summary of the actions, activities, and resources necessary to address the State of Louisiana's priority mitigation needs and goals.

As the next step in Louisiana's response to its increasingly complex flood risk profile, the state completed its investigation of watershed management and Governor John Bel Edwards charged state agencies with coordinating statewide floodplain management efforts through a watershed-based approach, referred to as the Louisiana Watershed Initiative or LWI.

Building on the efforts and methodologies of both the Coastal Master Plan and LA SAFE, the LWI takes a statewide approach to watershed-based floodplain management to reduce flood risk vulnerabilities through pre-disaster mapping, modeling, and watershed management planning – backed by large-scale investments in projects and programs that directly mitigate risks.

The LWI combines the Coastal Master Plan's focus on data, science and engineering with the community engagement lessons learned through LA SAFE to work across all sectors of government. The state commits to working in partnership with local communities statewide toward an integrated, watershed-based approach to floodplain management that combines physical, biological, ecological, socioeconomic, and policy-based solutions emanating from a comprehensive scientific understanding of the state's hydrologic processes.

In administering this grant, the state and its various jurisdictions and political subdivisions will coordinate expenditures and activities through the LWI to improve statewide floodplain management

within watershed regions.

With regards to CDBG-MIT fund distribution, Public Law 115-123 limits fund expenditure to the most impacted and distressed or MID areas associated with the Great Floods of 2016. HUD has identified ten such areas and the state of Louisiana has identified 46 more. At least 50 percent, or $606,958,500 of the CDBG-MIT funds will be expended in or benefit HUD-identified MIDs or HUD MIDs. The remaining CDBG-MIT funds will be expended in or benefit LA-identified MID areas or LA MIDs, discussed in more detail in Section IV.

In accordance with the requirements of the Federal Register Notice or FRN (FR-6109-N-02), the state conducted a mitigation needs assessment detailed in Section V to inform projects and programs with a focus on addressing risks to indispensable services, identifying and analyzing all significant current and future disaster risks, and providing a substantive basis for the activities described within this AP. The assessment relies on stakeholder consultations, data, research, previous regional planning efforts, the current State Hazard Mitigation Plan, the state Emergency Operations Plan, and most recent available local hazard mitigation plans to inform, identify and prioritize urgent unmet mitigation needs.

Based on this assessment, the state finds that—whether by flash flooding, inland rivers, stormwater, or coastal storm surge—Louisiana is facing increased risk, in both magnitude and frequency, of flood events. This risk threatens our natural and built environment, and our way of life.[5] Specifically:

- Both HUD and LA MIDs share a collective risk profile that includes wind and flood hazards, which are compounded by the effects of subsidence and sea level rise. These trends are largely consistent within local hazard mitigation plans (HMPs) outside of HUD and LA MIDs, demonstrating that overall disaster risks correlate statewide and consistently reinforce that flooding remains a statewide risk that is difficult to predict.
- This difficulty is compounded when attempting to assemble future projections of risks because the state does not have the ability to accurately estimate the cost of long-term and repeated flood damage. As a result, future wind- and flood-related damages are largely underestimated.
- These risks will continue to escalate in a warming world, where the frequency and intensity of tropical cyclones and severe thunderstorms are anticipated to increase.
- Both state and local hazard mitigation plans consistently demonstrate that the entire state of Louisiana is at severe flood risk, and that the occurrence of future catastrophic flood events cannot be predicted solely by relying on the damage patterns of past events.
- To this effect, this AP and the LWI propose a proactive pre-disaster approach that accommodates—to a reasonable extent given the requirements of FRN-6109-N-02—the probability of future events occurring at any location in the state, while also specifically assessing risks to HUD and LA MID areas.

With regard to vulnerable populations[6], all of the HUD MIDs with available data have experienced a cumulative growth in their vulnerable population, most significantly within Tangipahoa (14 percent), Ascension (13 percent), Livingston (11 percent), and Washington (10 percent) parishes. The LA MIDs

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[5] State of Louisiana. Louisiana Watershed Coordinating Agencies. *Phase 1 Investigation: Louisiana Statewide Comprehensive Watershed Based Floodplain Management Program Development*. 2018. Accessed on September 18, 2019. https://watershed.la.gov/assets/docs/Phase-1-Full-Report-with-Appendices_compressed.pdf on 9/1/19. 11.

[6] "Vulnerable populations" in the Louisiana Hazard Mitigation Plan include those younger than 20, older than 64, population with disabilities, population living in poverty, and population living in manufactured housing.

with available data have experienced an average two percent cumulative growth in their vulnerable population, most significantly within Beauregard (15 percent), Vernon (15 percent) and Richland (11 percent) parishes. In fulfillment of the requirements of FR-6109-N-02, the state proposes mitigation programs and projects in Section VII that prioritize the protection of low-andmoderate-income (LMI) individuals and vulnerable populations. Each program will be reviewed to ensure that at least 50 percent of the funds, in aggregate, benefit LMI.

With regard to citizen participation, the state has updated its current citizen participation plan and acknowledges that this AP is substantially informed by previous planning, outreach, and engagement efforts of the LWI. The planning process required to facilitate completion of this AP is one of many opportunities for the public to provide input regarding the state's ongoing CDBG-MIT activities.

In order to address the unmet mitigation needs specified in this AP, the state will allocate the CDBG-MIT funds as described in **Table 1**. This program will be implemented through the state Division of Administration (DOA), Office of Community Development (OCD), and the LWI.

Table 1. CDBG-MIT Program Budget

Programs		
Local and Regional Watershed Projects and Programs	$570,666,243	47 %
State Projects and Programs	$327,757,590	27 %
Non-Federal Cost Share Assistance	$96,988,107	8 %
Watershed Monitoring, Mapping, and Modeling	$145,670,040	12 %
Administrative Costs	$48,556,680	4 %
Watershed Policy, Planning, and Local Capacity Assistance	$24,278,340	2 %
Total Allocation	**$ 1,213,917,000**	**100 %**

The state does not currently contemplate any individual projects that meet the definition of a Covered Project, which includes infrastructure projects having a total project cost of $100 million or more, with at least $50 million of CDBG funds. Should the state choose to use CDBG-MIT funds on a Covered Project, use of these funds will be outlined in a future Substantial Action Plan Amendment.

With regard to programming CDBG-MIT funds, the state will continue to address unmet mitigation needs through its investment in the LWI. The LWI is the platform for the state to develop, institutionalize, and implement best practices in watershed management, including not only structural flood mitigation projects, but also long-term policies, practices, and programs that can become national best practices for large-scale, comprehensive flood-risk management (see **Section VII** for more detail). As such, the state's CDBG-MIT grant objectives include:

- Collect accurate, timely, and consistent data and use it to develop high-quality hydrologic and hydraulic (H&H) modeling as part of a statewide effort to establish and standardize a baseline understanding of flood risks;
- Utilizing best available flood risk and H&H modeling data to inform a statewide public education and outreach campaign, specific to the history and challenges associated with flood risk and resilience in Louisiana;
- Conducting large-scale regional and statewide floodplain management planning activities, utilizing a watershed management approach that incentivizes using the natural and beneficial functions of the watershed and its floodplains and builds on previous successful planning practices including the Coastal Master Plan and LA SAFE;
- Facilitating regional coordination within watershed boundaries to incentivize improvements in

development decisions by anticipating upstream and downstream impacts within watersheds and at other spatial scales;

- Building capacity at statewide, regional, and local levels in support of a comprehensive approach to watershed management;
- Incentivizing statewide economic growth in the resilience economy by investing in research, development, and implementation of tools that respond to global demand for flood mitigation techniques and new technologies; and
- Ensuring that these approaches and the gains associated with them remain the flood risk reduction standards for the state long after the CDBG-MIT funds from this allocation are expended.

As outlined in this AP, the state aims to use this one-time CDBG-MIT grant to fundamentally change Louisiana's approach to statewide flood mitigation activities including shifting development patterns, enhancing the public's knowledge of flood risk, and incentivizing activities that use the natural and beneficial functions of the watershed and associated floodplains. This will result in reduced need for future flood recovery and mitigation resources. The state recognizes that the perpetual cycle of disaster and recovery is not a socially, economically, environmentally or fiscally sustainable model.

III. AUTHORITY AND PURPOSE

On February 9, 2018, the President signed Public Law 115-123 that included an appropriation to the U.S. Department of Housing and Urban Development of $28 billion. HUD allocated $1,213,917,000 from this allocation in CDBG-MIT funds to the State of Louisiana for mitigation activities.

Governor John Bel Edwards has designated the state Division of Administration (DOA), Office of Community Development (OCD), as the administering agency for these CDBG-MIT funds. DOA will report directly to the Governor.

To fulfill the requirements of this allocation, the state must submit an AP for CDBG-MIT activities that identifies unmet mitigation needs to HUD. Specifically, these activities must increase resilience to disasters and reduce or eliminate the long-term risk of loss of life, injury, damage to and loss of property, and suffering and hardship by lessening the impact of future disasters.

This AP provides a concise summary of the actions, activities, and resources that will be used to address the state of Louisiana's priority mitigation needs and goals. These activities, actions and resources are designed to help the state of Louisiana, local jurisdictions, and their partners assess current and future mitigation needs and multi-hazard risk conditions; make data-driven mitigation investments; provide increased transparency relative to the use of public funds; and ensure sustainable and effective investment of mitigation funds.

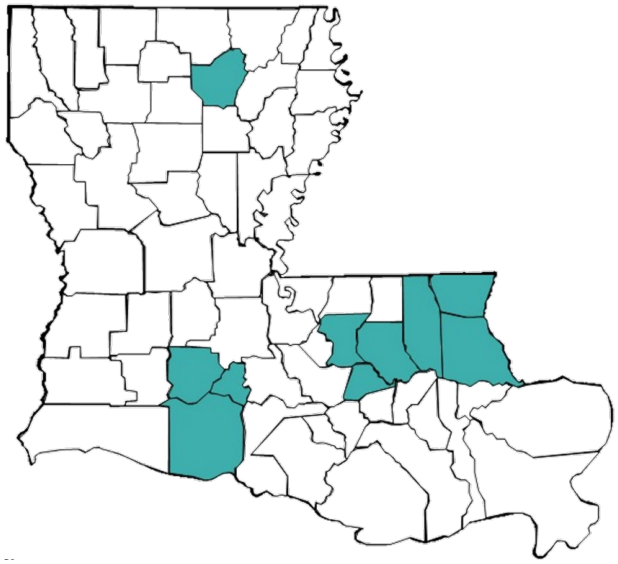
The process required to facilitate completion of this AP is one of many opportunities for the public to provide input regarding the state's ongoing CDBG-MIT projects and activities. This planning process is substantially informed by previous planning, outreach, and engagement efforts of the LWI and serves as the framework for a community-wide dialogue to identify mitigation and community development priorities that align and focus mitigation funding made available through the CDBG Program.

IV. FUND DISTRIBUTION

AREAS MOST IMPACTED AND DISTRESSED BY THE GREAT FLOODS OF 2016

Public Law 115-123 states that "prior to the obligation of funds a grantee shall submit a plan to the Secretary [of the Federal Housing and Urban Development Department] for approval detailing the proposed use of all funds…*in the most impacted and distressed areas*."

Figure 1. HUD-Identified MIDs or HUD MID



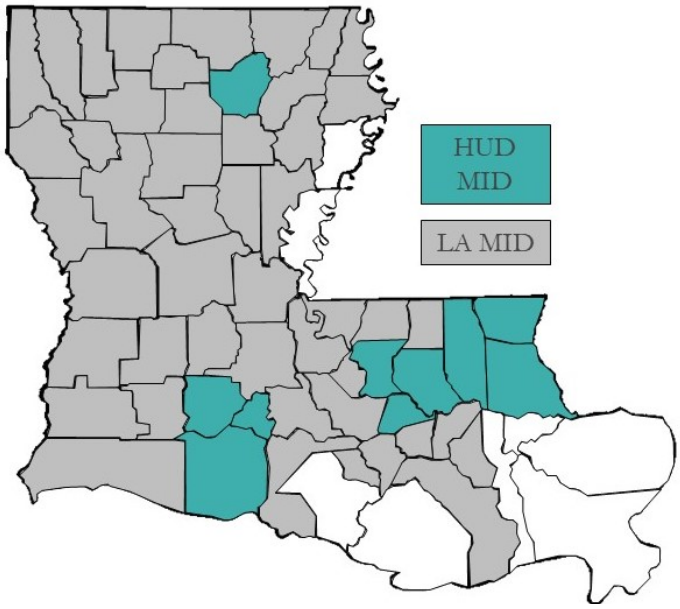
IV. A. HUD-IDENTIFIED MID AREAS OR HUD MIDS

Pursuant to FR-6109-N-02, HUD identified the following most impacted and distressed areas: East Baton Rouge, Livingston, Ascension, Tangipahoa, Ouachita, Lafayette, Vermilion, Acadia, Washington, and St. Tammany parishes **(Figure 1)**. As required by FR-6109-N-02, the state will spend at least 50 percent or $606,958,500 of the CDBG-MIT funds to benefit these HUD-identified MID areas or HUD MIDs.

IV. B. STATE-IDENTIFIED MID AREAS OR LA MIDS

FR-6109-N-02 states that "Grantees may determine where to use the remaining 50 percent of the CDBG–MIT grant (the grantee-identified MID areas), but that portion of the grant must be used for mitigation activities that address identified risks within those areas that the grantee determines are most impacted and distressed resulting from the major disasters identified by [DR-4263 and DR-4277]. The grantee-identified MID areas must be determined through the use of quantifiable and verifiable data." The state identifies the following 46 additional most impacted and distressed areas from the Great Floods of 2016, all of which received federal disaster declarations (for individual assistance or IA or for public assistance or PA) resulting from either the March or August 2016 floods:

Figure 2. MIDs Impacted by 2016 Floods

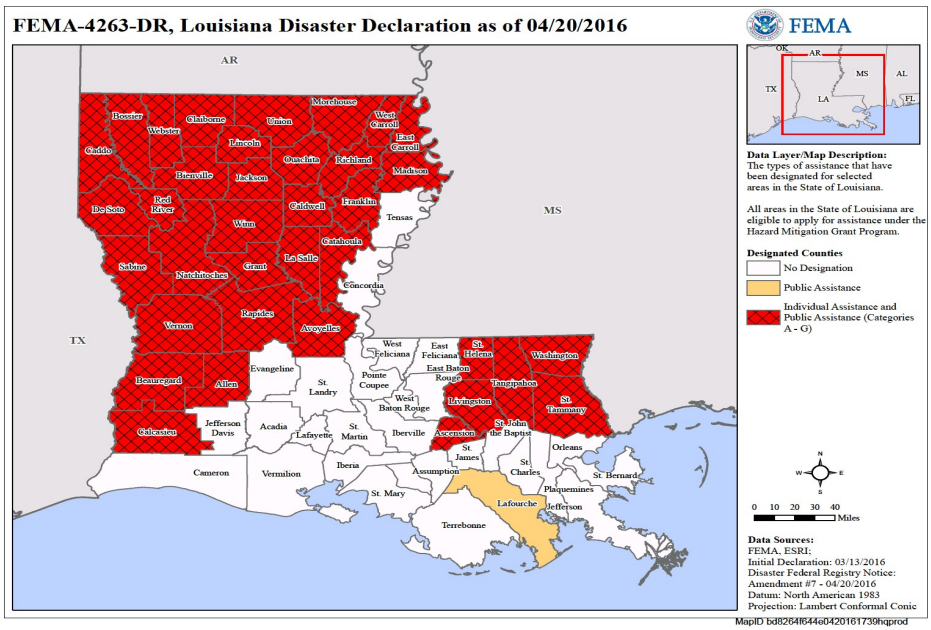


Allen, Assumption, Avoyelles, Beauregard, Bienville, Bossier, Caddo, Calcasieu, Caldwell, Cameron, Catahoula, Claiborne, De Soto, East Carroll, East Feliciana, Evangeline, Franklin, Grant, Iberia, Iberville, Jackson, Jefferson Davis, LaSalle, Lafourche, Lincoln, Madison, Morehouse, Natchitoches, Pointe Coupee, Rapides, Red River, Richland, Sabine, St. Charles, St. Helena, St. James, St. John the Baptist, St. Landry, St. Martin, Union, Vernon, Webster, West Baton Rouge, West Carroll, West Feliciana, and Winn. The remaining CDBG-MIT funds will be expended in or benefit these grantee-identified or LA-identified MID areas. These areas and their corresponding disaster events are described below and will be hereinafter referred to as LA MIDs. This does not affect the CDBG-MIT classification of HUD MIDs.

Disaster No. DR-4263 - *March Floods*

In March 2016 a storm system brought heavy thunderstorms from west to east across most of Louisiana. In addition to wind damage, record flooding occurred along the Bogue Falaya River in Covington and Bayou Dorcheat at Lake Bistineau. Governor Edwards declared a state of emergency for several parishes and sent the National Guard to help with search-and-rescue missions.

Figure 3. DR-4263 Declarations Overview



The state of Louisiana estimated that this storm caused damage to more than 21,684 residences, forced 13,000 evacuations and 2,780 rescues, damaged another 6,143 structures and caused numerous road closures. Road and bridge damage estimates totaled $20 million. Agricultural losses totaled approximately $15 million with long-term impacts to farmers estimated at $80 million. In addition, more than 40,000 citizens registered for FEMA IA.

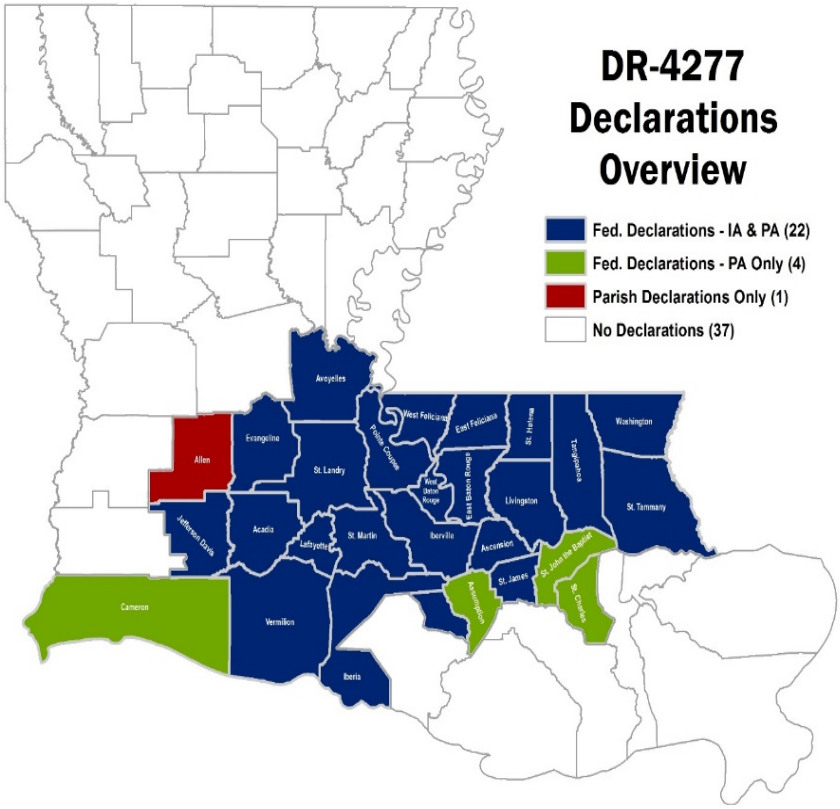
Thirty-seven Louisiana parishes were declared eligible for FEMA Assistance (IA and/or PA), (**Figure 3**): Allen, **Ascension,** Avoyelles, Beauregard, Bienville, Bossier, Caddo, Calcasieu, Caldwell, Catahoula, Claiborne, DeSoto, East Carroll, Franklin, Grant, Jackson, LaSalle, Lafourche, Lincoln, **Livingston,** Madison, Morehouse, Natchitoches, **Ouachita,** Rapides, Red River, Richland, Sabine, St. Helena, **St. Tammany, Tangipahoa,** Union, Vernon, **Washington**, Webster, West Carroll and Winn. Six of the 37 parishes (**bolded**) are HUD MIDs.

Ascension, Avoyelles, Livingston, St. Helena, St. Tammany, Tangipahoa and Washington—seven total—would flood again in August 2016.

Disaster No. 4277 – *August Floods*

In August 2016, a slow-moving storm impacted multiple South Louisiana parishes with sustained heavy rain. This event was recorded as having a 0.1% chance of happening in a given year, also known as a 1,000-year flood. Within two days more than 24 inches of rain was measured in some areas, causing extensive surface and river flooding. Both the Amite and Comite rivers overtopped, as well as numerous bayous, lakes and canals located within these drainage basins or watersheds. Governor Edwards declared a state of emergency for several parishes and sent the National Guard to help with search-and-rescue missions.

Figure 4. DR-4277 Declarations Overview



An estimated 8,000 people were evacuated to emergency shelter sites. The American Red Cross, the state and faith-based organizations operated these sites. A state-operated medical site was established to serve individuals with medical needs. Roughly 30,000 search and rescues were performed, with 11,000 citizens sheltered at the peak of the flood.

Damage to infrastructure, businesses and homes across the southern region of the state was extensive. Large sections of state roads remained under water for extended periods. An estimated 30 state roads washed out and 1,400 bridges required inspection. Along with more than 200 highways that closed during the event, sections of Interstates 10 and 12 closed for multiple days due to floodwaters. Some stretches of I-10 remained closed for nearly a week, significantly interrupting interstate commerce.

More than 91,628 homes were documented with damage. An estimated 31 percent of homes in the declared parishes were impacted by flooding, with only 11 percent of households in these areas carrying flood insurance.

Immediately following this flood event, the Louisiana Department of Economic Development (LED) partnered with Louisiana State University (LSU) to conduct an assessment of economic losses resulting from the floods. Key details include:

1. At the peak of the August event, 19,900 Louisiana businesses or roughly 20 percent of all Louisiana businesses were disrupted by the flooding event. FEMA referred approximately 22,000 businesses to

SBA for recovery assistance;
2. A disruption of 278,500 workers or 14 percent of the Louisiana workforce occurred at the peak of the flooding event;
3. An economic loss estimated at roughly $300 million in labor productivity and $836 million in terms of value added during the period immediately surrounding the flood;
4. Approximately 6,000 businesses experienced flooding; and
5. The LSU Agricultural Center estimated Louisiana agricultural losses of over $110 million.

Twenty-six Louisiana parishes were declared eligible for FEMA IA and/or PA (**Figures 4**): **Acadia**, **Ascension**, Assumption, Avoyelles, Cameron, **East** and West **Baton Rouge**, East Feliciana, Evangeline, Iberia, Iberville, Jefferson Davis, **Lafayette, Livingston,** Pointe Coupee, St. Charles, St. Helena, St. James, St. John the Baptist, St. Landry, St. Martin, **St. Tammany, Tangipahoa, Vermilion, Washington** and West Feliciana. Seven of these parishes previously flooded in March: Ascension, Avoyelles, Livingston, St. Helena, St. Tammany, Tangipahoa and Washington.

Combined, these disasters affected 56 of the state's 64 parishes, with 51 parishes declared eligible for FEMA IA and five parishes declared eligible for FEMA PA. HUD identified the 10 most impacted parishes from these two events as Acadia, Ascension, East Baton Rouge, Lafayette, Livingston, Ouachita, St. Tammany, Tangipahoa, Vermilion and Washington. The state contends that the remaining 46 parishes with federal disaster declarations were also most impacted and distressed, thus should be eligible to receive CDBG-MIT funds.

V. MITIGATION NEEDS ASSESSMENT

V. A. OUTLINE

The state consulted with the State Hazard Mitigation Officer (SHMO), local jurisdictions, the private sector, and other governmental agencies to provide a multi-hazard risk-based assessment for HUD and LA MIDs. This assessment informs and provides a substantive basis for projects and programs within this AP, with a focus on addressing and analyzing all significant current and future disaster risks.

To both ensure sufficient clarity of this AP and address current risks, future risks and unmet mitigation needs for the state, this Assessment:

1. Provides context surrounding the unique characteristics of Louisiana's landscape;
2. Discusses historic damage patterns statewide;
3. Utilizes the state and local Hazard Mitigation Plans (HMP) to inform the risk analysis;
4. Assesses hazards in accordance with local and regional plans, research and data;
5. Assesses current and future risk to critical service areas or community lifelines;
6. Assesses current and future risk to ecosystem integrity and watershed resilience; and
7. Addresses unmet mitigation needs in response to identified current and future risks.

All mitigation activities enabled by this AP will (1) increase resilience to disasters and reduce or eliminate the long-term risk of loss of life, injury, damage to and loss of property, and suffering and hardship, by lessening the impact of future disasters; (2) be CDBG-eligible activities under Title I of the Housing and Community Development Act of 1974 or HCDA or otherwise eligible pursuant to a waiver or alternative requirement; and (3) meet a national objective, including additional criteria for mitigation activities and Covered Projects.

V. B. LOUISIANA'S LANDSCAPE

Because Louisiana encompasses the confluence of the Pearl River, Sabine River, Red River, Gulf of Mexico and the Mississippi River, built environments face challenges unlike any place on earth, including a relentless process of upland sedimentation, coastal land loss,[7] subsidence and sea level rise. With highly sensitive, expansive soils and low ground elevations, the state's major coastal and riverine systems create a constant and ever changing flood risk further accentuated by a vast network of smaller, interconnected rivers, canals and lakes. Illustrated in **Figure 5**, Louisiana state-claimed water bodies include 900 named bayous, 100 named rivers and 242 named lakes[8].

Figure 5. State-Claimed Water Bodies

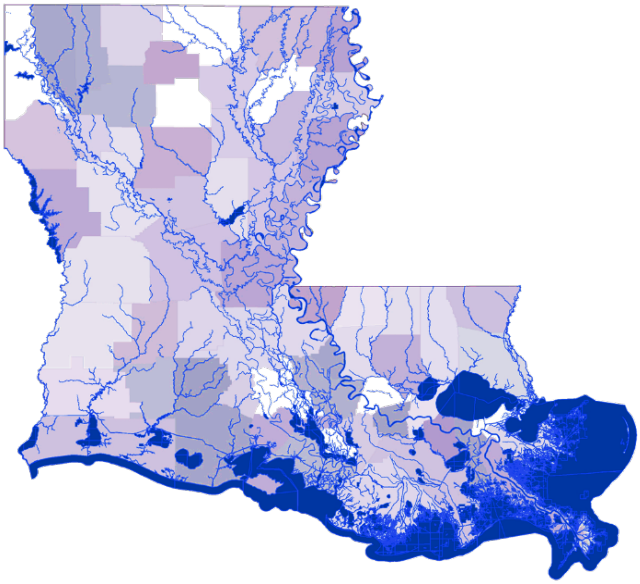


Figure 6. Elevation and Hydrography

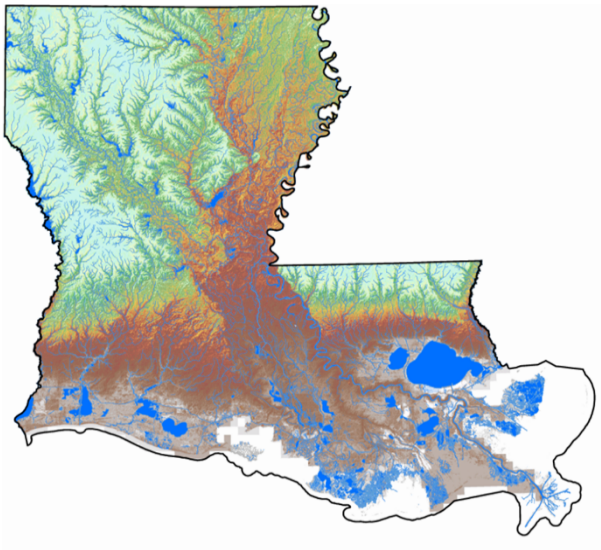
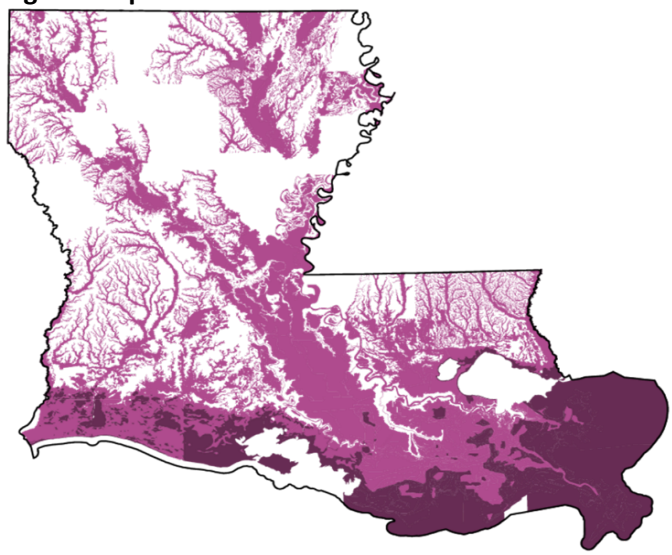


Figure 7. Special Flood Hazard Areas



Due to the state's flat topography (**Figure 6** indicates flatter areas in orange and red) and interconnected system of rivers, lakes, and streams (**Figure 5**); watersheds in Louisiana are tightly linked, and actions in one location impact the flood risk of neighboring communities.

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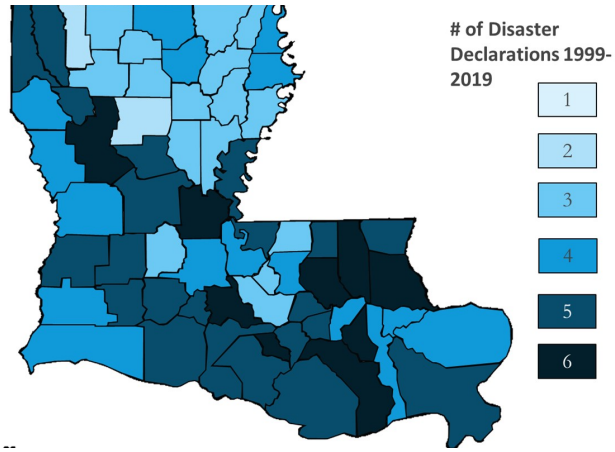
[7] State of Louisiana. Governor's Office of Homeland Security and Emergency Preparedness (GOHSEP). *Louisiana Watershed Resiliency Study*. 2017.

[8] State of Louisiana. State Lands Office Department of Natural Resources. "Strategic Online Natural Resources Information System (SONRIS) Geodatabase." Accessed on September 18, 2019. http://www.sonris.com/

Acknowledging the state's unique landscape and its' associated flood risk profile, FEMA (through the NFIP) has designated over 27,000 square miles—more than half of the state (nearly 52 percent)—within the Special Flood Hazard Area9 (Figure 7). As per the SHMP, Louisiana is subject to riverine, flash, ponding, backwater and urban flooding.

To maximize the impact of mitigation activities, avoid the unintentional shift of risk from one community to another, and to enhance watershed management statewide, the program described herein seeks to incentivize coordination across jurisdictional boundaries in order to make decisions that 'do no harm,' utilize natural and beneficial functions of the watershed, and provide regional benefits.

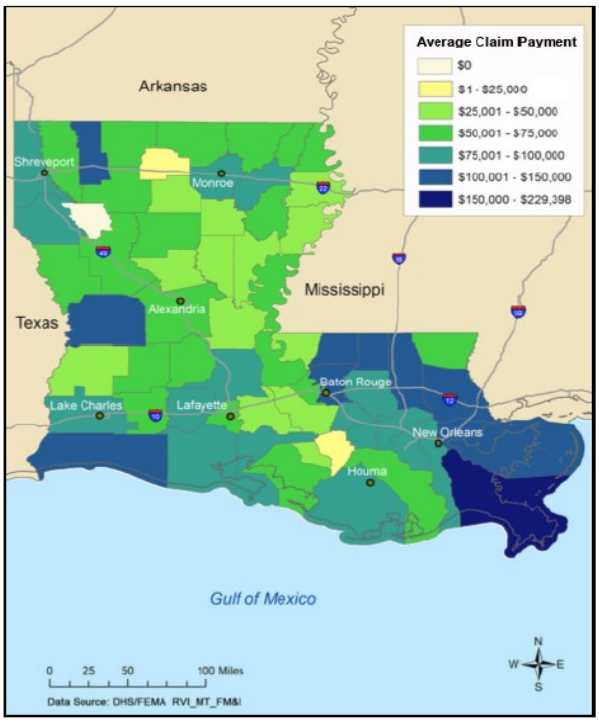
Figure 8. Number of Disaster Declarations 1999-2019



V. C. HISTORIC DAMAGE PATTERN

Over the past two decades, Louisiana has experienced 16 declared flood and hurricane related disasters or emergencies. Every parish in the state has been impacted by one or more of these events, necessitating the expenditure of over seven billion dollars in IA and over 16 billion dollars in PA (see **Figure 8**). This has resulted in devastating loss of life and hardship to Louisiana residents, forcing many to relocate, exhaust their financial assets and undermine the security of living in their homes or investing in their properties or businesses[10]. This cycle of devastation caused by floods and hurricanes indicates an urgent need for a change in our relationship with and understanding of water management in Louisiana. Such a change is needed at all levels, including leaders, citizens, residents, business owners, and others. It is clear that the pace of flood risk mitigation in Louisiana is not keeping pace with the needs of its citizens, as evidenced by the high number of repetitive loss properties (33,993 sites) and the number of homeowners struggling to pay flood insurance premiums while occupying structures not appropriately retrofitted or constructed to withstand the next flood event.

Figure 9. NFIP Average Claim Payments



[9] Ibid.

[10] JE Lamond, RD Joseph, and DG Proverbs. "An Exploration of Factors Affecting the Long Term Psychological Impact and Deterioration of Mental Health in Flooded Households." *Environmental Research*, July 2015; 140:325-34.

Repetitive and severe repetitive flood loss properties are particularly costly (**Figure 9**) with claims totaling over $2 billion in Louisiana since 1978. It is important to note that repetitive flood loss properties represent only 1.3 percent of all flood insurance policies, but historically account for nearly one-fourth of the claim payments[11]. Mitigating repetitive loss properties in Louisiana and preventing the future accrual of additional repetitive loss properties benefits not only the state of Louisiana, but the entire country, by contributing to the stability of the NFIP.

Beyond mitigating existing housing stock and structures, there is also a clear need for improvements to development patterns in order to prevent the need for repeated mitigation interventions in the future.

V. D. STATE AND LOCAL HAZARD MITIGATION PLANS, RESEARCH AND ANALYSIS

Louisiana's most recent state HMP was approved by FEMA on March 27, 2019 and highlights the state's commitment to "creating stronger, more resilient communities through hazard mitigation activities[12]." However, mitigation projects are not identified in state or local HMPs to address identified hazards. For this reason, site-specific mitigation projects are not included in this AP. This AP addresses rigorous methods to identify, evaluate and select proposed projects and activities (including the state's current understanding of the use of CDBG-MIT funds geographically by type at the lowest level practicable) in **Section VII**.

Unless otherwise provided, risks identified in this Section are identified in and informed by the SHMP with a special emphasis on Chapter 2, Hazard Identification and Statewide Risk Assessment[13].

Cost of Future Risks

To assess future risk, the SHMP utilizes a planning time horizon of 25 years and calculates potential impacts of natural hazards in the year 2043.

Table 2. (right) SHMP 2043 Projected Annual Losses as a Result of Natural Hazard Impacts

Projected Average Annual Loss in 2043	Building Average Annual Loss	Crop Average Annual Loss	Total Average Annual Loss
Wind	**$642,927,351**	-	**$642,927,351**
Flood	**$451,389,758**	-	**$451,389,758-1% ACE**
Expansive Soil	**$92,869,675**	-	**$92,869,675**
Drought	-	$52,795,132	$52,795,132
Extreme Cold	$36,978,826	$1,155,889	$38,134,715
Tornado	$31,725,662	$281,804	$32,007,466
Wildfire	$5,876,211	-	$5,876,211
Lightning	$2,917,407	$3,483	$2,920,890
Hail	$1,976,212	$110,057	$2,086,269
Dam Failure	$1,011,414	-	$1,011,414
Extreme Heat	-	$744,345	$744,345
Sinkhole	$342,071	-	$342,071

[11] GOHSEP. "Repetitive Loss Strategy" (Appendix to the 2019 State of Louisiana Hazard Mitigation Guide). Accessed on September 18, 2019. https://gohsep.la.gov/MITIGATE/HM-PLANNING/State-Hazard-Mitigation-Plan
[12] GOHSEP. *State of Louisiana Hazard Mitigation Guide*. 2019. https://gohsep.la.gov/MITIGATE/HM-PLANNING/State-Hazard-Mitigation-Plan.
[13] Ibid.

Illustrated in **Table 2**, 2043 annual wind-related losses are the highest projected average in the state, equal to $642,927,351. Flood-related losses are ranked as the second highest projected annual loss, equal to $451,389,758 should a 1 percent annual exceedance probability flood event (AEP) occur. Expansive soils are identified as the third most costly projected annual loss, equal to $92,869,675.

Despite the state's extensive efforts to mitigate flood risks following hurricanes Katrina, Rita, Gustav, Ike, Isaac, and the Great Floods of 2016, as well as through long-term efforts like the Coastal Master Plan, losses attributable to a 1 percent AEP flood event will account for more than one-third of all anticipated disaster losses in 2043[14]. Moreover, given the state's recent history of federally-declared disaster events attributable to a significant flood – many of which were measured to be well in excess of a 1 percent AEP event – this assessment contends the SHMP loss estimate of $451,389,758 significantly undervalues the state's long-term flood damage risk.

To this effect, data from the Louisiana Office of Risk Management show 8,593 state-owned properties with a total building and contents replacement value of approximately $13 billion. Projecting out to 2043, the SHMP anticipates $9,138,278 in losses to state assets in a 1 %AEP flood.

Future Risk to Vulnerable Jurisdictions

The SHMP also indicates the most vulnerable jurisdictions in year 2043 for each hazard examined and ranks jurisdictions from one to five with one identified as most vulnerable to risk. Of the 21 vulnerable jurisdictions identified, four parishes fell outside of the HUD and LA MIDs (illustrated in red in **Table 3**): Orleans, Terrebonne, St. Mary and Plaquemines. Conversely, two HUD MID parishes—St. Tammany and East Baton Rouge—rank in the top five for flood risk and overall disaster risk, reinforcing that flooding is currently a difficult risk to project statewide. It is notable that ***all*** of the costliest events (see **Table 2**) are projected to most likely occur in the state's coastal and transition zones, where 39 percent of the state's population resides and where it becomes increasingly difficult to predict the flow and absorption rate of floodwaters.

Table 3. SHMP 2043 Projected Vulnerable Jurisdictions

Identified Hazard	1	2	3	4	5
	<<<<<<<< *increasing vulnerability* <<<<<<<<				
Extreme Heat	Franklin	Richland	St. Landry	Tensas	Caddo
Drought	Vermilion	St. Landry	Franklin	Acadia	Richland
Wildfire	St. Tammany	Tangipahoa	Orleans	Livingston	East Baton Rouge
Extreme Cold	Ouachita	Caddo	St. Tammany	East Baton Rouge	Bossier
Wind	Orleans	Jefferson	St. Tammany	Lafayette	Terrebonne
Hail	Orleans	East Baton Rouge	Caddo	Bossier	St. Tammany
Lightning	Orleans	East Baton Rouge	Jefferson	St. Tammany	Lafayette
Tornado	Orleans	Lafayette	Jefferson	East Baton Rouge	Caddo
Flood	St. Tammany	Jefferson	Terrebonne	Orleans	East Baton Rouge
Dam Failure	Bossier	Rapides	Caddo	Natchitoches	Grant
Sinkhole	Calcasieu	St. Martin	Acadia	St. Mary	Plaquemines
Expansive Soil	Orleans	Jefferson	St. Tammany	East Baton Rouge	Lafayette
Total Losses	Orleans	Jefferson	St. Tammany	Terrebonne	East Baton Rouge

[14] Ibid.

These areas include Orleans, Jefferson, St. Tammany, Lafayette, Terrebonne, and East Baton Rouge parishes. This assessment contends that both state and local hazard mitigation plans consistently demonstrate that the entire state of Louisiana is at severe flood risk and flood-related risk, and that the occurrence of future catastrophic flood events cannot be predicted solely by relying on the damage patterns of past events. To this effect, this AP and subsequent efforts propose a proactive pre-disaster approach that accommodates—to a reasonable extent given the requirements of FRN-6109-N-02—the probability of future events occurring in any location in the state, while also specifically assessing risks to HUD and LA MID areas.

Local Hazard Mitigation Plans or HMPs

As part of the hazard identification and risk assessment process, the SHMP planning team reviewed all available parish hazard mitigation plans to identify hazards that were consistent with the State Hazard Mitigation Plan Committee's (SHMPC's) evaluation of the most serious natural hazard threats to the state. **Table 4** lists the hazards (or sub-hazards) profiled in HUD MIDs as part of the most recent SHMP plan update. Note: Lafayette and Ouachita HM were not available as part of the SHMP update, and have been profiled by the state after the publication of the SHMP for the purpose of inclusion in this plan.

Table 4. SHMPC Identification of Hazards within HUD MID HMPs

Parish	HAZARD																					
	Subsidence	Land Loss	Coastal Erosion	Drought	Earthquake	Flooding	Extreme Heat	Thunderstorms	Tornadoes	Tropical Cyclones	Wildfires	Winter Storms	Dam Failure	Levee Failure	Saltwater Intrusion	Sea Level Rise	Sinkholes	Storm Surge	Fog	Expansive Soil	Hail Storms	Hazardous Materials
Acadia				X		X		X	X	X		X										
Ascension	X					X		X	X	X		X		X								
East Baton Rouge	*	*		X	*	X		X	X	X	X	X	+	+								
Lafayette	*	*		X	*	X		X	X	X	X	X					X				X	
Livingston	X	X		X		X		X	X	X											X	
Ouachita				X	*	X	X	X	X	X	X	X	+	+							X	
St. Tammany		X		X	X	X		X	X	X	X		X	X					X			
Tangipahoa	X	X		X		X		X	X	X	X	X								X		
Vermilion		X				X			X	X							X					
Washington						X			X	X	X											

LEGEND

X - Hazard in a HUD-identified MID
X - Hazard in a HUD-identified MID (local HMP not profiled in SHMP)
* - Hazard Profiled but Discounted
\+ - Hazard Profiled but Plan Cited a Data Deficiency

All of the HUD MIDs assessed (eight out of 10) by the SHMP planning team identified flooding, tornadoes and tropical cyclones as hazards. Six of the eight available HMPs also identified thunderstorms as hazards. Lafayette's local HMP identifies flooding, thunderstorms, high wind, tornadoes and tropical cyclones as significant hazards within the parish, and notes that, "Lafayette

Parish has experienced significant flooding in its history and can expect more in the future. Many parts of the parish are located in the 100-year floodplain[15]." Lafayette Parish's HMP estimates total losses in its incorporated areas of $761,149,000 associated with a 1 percent AEP flood event[16].

Ouachita Parish's HMP similarly identifies flooding, thunderstorms, tornadoes and tropical cyclones as significant hazards within the parish and cites 83 significant flooding events between 1990 and 2015[17]. The HMP estimates total losses of $492,781,000 in Ouachita Parish and its incorporated areas in the event of a 1 percent AEP flood event[18].

This trend toward flood and wind related hazards emerges again within LA-identified MID HMPs (**Table 5**) assessed by the SHMP planning team: all identified flooding, tornadoes and tropical cyclones as hazards. Further, 40 of the available 44 LA MID HMPs also identified thunderstorms. These trends are largely consistent within local HMPs outside of HUD and LA MIDs (**Table 6**).

With the exception of Avoyelles Parish, the inclusion of Hazus Level 1 analyses is consistent across all local HMPs reviewed, meaning Level 1 flood, wind, and combined wind and flood model results are incorporated into this analysis. Thus, the risk assessments for these prevalent hazards are consistent among the parish and state plans. Note: Allen, Bienville, Calcasieu, East Feliciana, Lafourche, and Union Parish HMPs were not available as part of the SHMP update and have been profiled by the state after the publication of the SHMP for the purpose of inclusion in this plan. Avoyelles Parish had an expired HMP at the time of this AP drafting, but the state has included the information from the expired plan to Table 5.

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[15] Lafayette Parish, LA. *Parish Hazard Mitigation Plan.*2016. Accessed on September 18, 2019. http:// www.lafayettela.gov/PZD/Codes/SiteAssets /Files/ LafayetteParishHMPlanFINAL5-16-16.pd

[16] Ibid.

[17] Ouachita Parish, LA. *Parish Hazard Mitigation Plan.* 2016. Accessed on September 18, 2019. https://hmplans.sdmi.lsu.edu/api/Parishes/377

[18] Ibid.

Table 5. SHMPC Identification of Hazards within LA MID HMPs

Parish	HAZARD																					
	Subsidence	Land Loss	Coastal Erosion	Drought	Earthquake	Flooding	Extreme Heat	Thunderstorms	Tornadoes	Tropical Cyclones	Wildfires	Winter Storms	Dam Failure	Levee Failure	Saltwater Intrusion	Sea Level Rise	Sinkholes	Storm Surge	Fog	Expansive Soil	Hail Storms	Hazardous Materials
Allen						X		X	X	X	X	X									X	
Avoyelles**						X			X	X			X	X								X
Assumption						X		X	X	X		X					X					
Beauregard				X		X	X	X	X	X	X						X					
Bienville				X		X	X	X	X	X	X	X	X								X	
Bossier				X	*	X		X	X	X		X	+	+								
Caddo				X	*	X	X	X	X	X	X	X	+	+								
Calcasieu	X	X		X		X	X	X	X	X	X	X					X				X	
Caldwell				X	*	X		X	X	X	X	X	+	+								
Cameron		X		X		X	X	X	X	X	X						X					
Catahoula				X		X		X	X	X		X										
Claiborne				X	*	X	X	X	X	X	X	X	+	+								
De Soto				X	*	X	X	X	X	X	X	X	*	*								
East Carroll				X	*	X		X	X	X	X	X	*	X								
East Feliciana	*			X		X		X	X	X	X	X	+	+							X	
Evangeline				X		X		X	X	X		X	+				X					
Franklin				X		X	X	X	X	X		X	+	+			X					
Grant				X		X		X	X	X	X	X		X								
Iberia		X		X		X		X	X	X			X				X					
Iberville	*	*				X		X	X	X				+			X					
Jackson	*information not available*																					
Jefferson Davis				X		X		X	X	X	X	X		X								
LaSalle				X		X		X	X	X	X	X										
Lafourche	X	X				X			X	X							X					
Lincoln				X	*	X	X	X	X	X	X	X	+									
Madison						X		X	X	X		X		+			X					
Morehouse				X		X	X	X	X	X	X	X	+	+								
Natchitoches				X		X		X	X	X	X	X										
Pointe Coupee				X		X		X	X	X		X	+	+								
Rapides	*	*		X		X		X	X	X	X	X										
Red River				X	*	X	X	X	X	X	X	X	+	+						*		
Richland				X		X		X	X	X		X	+	+								
Sabine				X		X		X	X	X	X	X	+									
St. Charles		X	X							X		X		X	X							X
St. Helena						X		X	X	X												
St. James	X			X		X		X	X	X	X	X					X			X		
St. John the Baptist				X		X	*	X	X	X		X								X		
St. Landry	*	*		X		X		X	X	X	X	X										
St. Martin	X			X		X			X	X				X						X	X	
Union				X	*	X	X	X	X	X	X	X	+	+							X	
Vernon				X	*	X	X	X	X	X	X	X	+	+								
Webster				X	*	X	X	X	X	X	X	X	+	*			X					
West Baton Rouge	*	*		X	*	X	*	X	X	X	X	X					X					
West Carroll				X		X		X	X	X		X										

LEGEND

X - Hazard in a LA-identified MID

X - Hazard in a LA-identified MID (local HMP not profiled in SHMP)

* - Hazard Profiled but Discounted

** - Local HM Plan Expired

\+ - Hazard Profiled but Plan Cited a Data Deficiency

Table 6. SHMPC Identification of Hazards outside HUD and LA MID HMPs

Parish	HAZARD																					
	Subsidence	Land Loss	Coastal Erosion	Drought	Earthquake	Flooding	Extreme Heat	Thunderstorms	Tornadoes	Tropical Cyclones	Wildfires	Winter Storms	Dam Failure	Levee Failure	Saltwater Intrusion	Sea Level Rise	Sinkholes	Storm Surge	Fog	Expansive Soil	Hail Storms	Hazardous Materials
Concordia				X	*	X	X	X	X	X	X	X	+	+								
Jefferson	X		X	X	X	X			X	X	X	X						X			X	
Orleans	X		X	X		X	X		X	X		X	X	X				X				
Plaquemines	X					X			X	X				X	X	X	X					
St. Bernard	X					X		X	X	X					X		X					
St. Mary			X			X			X	X				X								
Tensas				X	*	X	X	X	X	X	X	X		X			X					
Terrebonne	X		X	X		X		X	X	X			X	X	X							

LEGEND
X - Hazard Profiled in an area outside a MID
X - Hazard Profiled
* - Hazard Profiled but Discounted
\+ - Hazard Profiled but Plan Cited a Data Deficiency

Existing Efforts, Studies and Plans

CONSIDERED RESOURCES

DOA OCD certifies that, in responding to this AP requirement and presenting the required information, the agency has reviewed and considered a number of sources including, but not limited to:

- FEMA Local Mitigation Planning Handbook: https://www.fema.gov/media-library-data/20130726-1910-25045-9160/fema_local_mitigation_handbook.pdf;
- DHS Office of Infrastructure Protection: https://www.dhs.gov/sites/default/files/publications/ip-fact-sheet-508.pdf;
- National Association of Counties, Improving Lifelines (2014): https://www.naco.org/sites/default/files/documents/NACo_ResilientCounties_Lifelines_Nov2014.pdf;
- The U.S. Forest Service's resources around wildland fire: https://www.fs.fed.us/managing-land/fire;
- The National Interagency Coordination Center (NICC) for coordinating the mobilization of resources for wildland fire: https://www.nifc.gov/nicc/;
- HUD's CPD Mapping tool: https://egis.hud.gov/cpdmaps/;
- The Louisiana Hazard Mitigation Plan; and
- All available parish Hazard Mitigation Plans within the State of Louisiana.

COASTAL MASTER PLAN AND LA SAFE

Louisiana's approach to flood risk reduction has been evolving since Hurricanes Katrina and Rita hit the state in 2005. The 2005 storms prompted stricter building codes, adoption of safer flood levels and the formation of the CPRA, which uses science and engineering to produce and update the Coastal Master

Plan. After Hurricane Isaac, using funding provided by HUD's National Disaster Resilience Competition, Louisiana launched the Strategic Adaptations for Future Environments Program, or LA SAFE, to engage citizens in the planning of the long-term resilience of their communities.

The Coastal Master Plan—a $50 billion, 50-year coastal restoration and flood risk reduction effort—is Louisiana's cornerstone response to coastal (storm-surge based) flooding and land loss. Even with its full implementation, however, the state will experience a net loss of land – and be faced with the increased coastal flood risk that comes from the loss of critical coastal wetlands – over the next 50 years. At least in some communities, conditions are likely to get worse before they get better. For some, relocation may be the only viable option.

While implementation of the Coastal Master Plan is critical to Louisiana's future, the state is highly flood prone even in areas north of the coastal zone, and its flood risks extend to all three types of flooding – coastal (surge and tidal), fluvial (riverine) and pluvial (intense rain causing surface flooding). While structural interventions like levees, pumps and floodgates are vital to reducing flood risks, adaptation to this new flood risk reality is also necessary. Adaptation includes structural risk reduction systems and ecological restoration efforts, but it must also include a large-scale rethinking of Louisiana's relationship with water.

To supplement the engineering projects laid out in the Coastal Master Plan, LA SAFE takes a holistic approach to flood risk of all types, as well as the myriad human, economic and environmental impacts both experienced following past floods, as well as those anticipated in the future. The LA SAFE program crowdsourced information and ideas to harness the experience and ingenuity of local citizens and develop aspirational – yet realistic – visions of tomorrow's communities across a six-parish region.

REGIONAL PLANNING EFFORTS

The state commends local and regional planning organizations for their accomplishments and regional watershed management efforts prior to the creation of this AP. Organizations and efforts such as those undertaken by the Acadiana Planning Commission, the Ouachita Strong flood resiliency strategy, and the sustained efforts of the Amite River Basin Commission are just a few examples of existing regional efforts that have inspired the creation of the Louisiana Watershed Initiative and the content of the subject Action Plan.

SCR 39 AND SR 172

In 2013, the Louisiana Legislature, via Senate Concurrent Resolution 39, or SCR 39, requested a comprehensive study and evaluation of Louisiana's levee districts and water resource boards, with the recognition that water resource management processes at the time took place in a fragmented jurisdictional framework, and that "water responds to geological, bathymetrical, and hydrological boundaries rather than political boundaries or subdivisions…"[19]. The resulting report in answer to this request indicated a range of capacity and financial resources across these jurisdictions and urged a watershed-based collaborative approach to addressing the challenges of watershed management

[19] Louisiana Legislature. Senate. *Senate Concurrent Resolution 39.* 2013 regular session.

presented by Louisiana's unique environment[20].

Similarly, Senate Resolution 172, or SR 172, adopted by the Louisiana Legislature in 2017, directed the study of certain construction and maintenance interventions to conveyance channels and development of recommendations for floodplain management plans [21]. The conclusions of the study supported using a watershed-based paradigm and considering the upstream and downstream impacts of a given intervention on neighboring jurisdictions. The report in response to SR 172 specifically supported the work of the LWI in developing watershed-based coalitions and regional watershed planning processes in order to enable true inter-jurisdictional coordination around watershed decision-making[22]. Both bills and their resulting reports indicate a broad awareness of a problem in Louisiana – namely the need for increased coordination among agencies and jurisdictions conducting watershed and floodplain management. The efforts of the LWI stem in part from these legislative initiatives and aim to enable the very coordination identified as a need in both reports.

FEMA WATERSHED RESILIENCY STUDY

The Great Floods of 2016 spurred a flurry of watershed planning activity in Louisiana, because these floods differed so significantly in scale and location from past precipitation and flood events. The Louisiana Watershed Resiliency Study was one such planning activity that attempted to place this disaster in context and derive future federal and local floodplain management interventions based on lessons learned from these events. As part of this study, FEMA detailed the ways that characteristics of and actions within a watershed impact stakeholders in the region and identified specific areas of repetitive loss and mitigation opportunities within the state, resulting in watershed-specific flood risk analyses. This study also noted the importance of cross-jurisdictional watershed-based collaboration, and FEMA and regional partners coordinated a number of events among impacted watersheds that enabled local leaders to begin to embark on collaborative efforts and coalition building[23]. FEMA also utilized a web application to enable robust local feedback on flood risk, impacts and interventions that allowed local leaders and staff to more fully understand their projects and challenges in the context of shared watersheds.

THE WATERSHED INITIATIVE: PHASE I INVESTIGATION

In response to the state's current floodplain management challenges, the Governor directed state agencies to coordinate their efforts to develop a new approach toward flood risk reduction throughout Louisiana based on watersheds as opposed to the political and jurisdictional boundaries. To stimulate this effort, he created the Council on Watershed Management, or Watershed Council, composed of the OCD, the CPRA, the Governor's Office of Homeland Security and Emergency Preparedness (GOHSEP), the Department of Transportation and Development (DOTD), and the Louisiana Department of Wildlife and Fisheries (LDWF). These agencies— through interviews and meetings with a broad swath of stakeholders, subject matter experts, other Louisiana state agencies, and other states and regions in the

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[20] State of Louisiana. Coastal Protection and Restoration Authority (CPRA) and Department of Transportation and Development (DOTD). *Senate Concurrent Resolution 39 response: Phase I Study – Exploring the Reorganization of Levee Districts and Other State-Created Entities with Flood Control Responsibilities.* 2014.
[21] Louisiana Legislature. Senate. *Senate Resolution 172*. 2017 regular session.
[22] DOTD. *Senate Resolution 172 Response.* 2019.
[23] GOHSEP. *Louisiana Watershed Resiliency Study.* 2017.

country—investigated a path forward summarized in a Phase I Investigation: Louisiana Statewide Comprehensive Watershed Based Floodplain Management Program Development.

The state identified two notable findings from this investigation: (1) floodplain issues are managed within political jurisdictions, often without the mechanisms to consider the effects on other jurisdictions or the watershed on the whole and (2) current development practices in many areas lead to drastically increased runoff. The state concluded from this investigation that effective floodplain management requires a paradigm shift from independent jurisdictional boundaries to management within watershed boundaries. If improved water and land management is not addressed, existing practices can lead to increased flood risk, both in magnitude and extent of flooding, on adjacent properties and downstream of new development. This will likely result in areas considered to have low flood risk in prior years finding themselves flooding frequently due to land use practices outside of their jurisdiction.

The LWI is aligning state agencies and programs to encourage the coordination and collaboration of local jurisdictions charged with floodplain risk management, to manage floodplain activities consistently and to a higher standard within their shared watershed. Furthermore, it is through a comprehensive watershed-based floodplain management program that the state and its various jurisdictions and political subdivisions will be enabled to coordinate at a watershed level and manage floodplains consistently using best practices.

V. E. GREATEST RISK: WIND AND FLOOD HAZARDS

The Louisiana GOHSEP Hazard Identification and Risk Assessment (2018 HIRA) ranks local flood as the highest risk to the state based on consideration of consequence, vulnerability, threat and risk factors. This threat is followed closely by severe thunderstorms, wide-area floods, tornados and hurricanes[24]. The fact that the five highest threats to Louisiana are flood or wind events indicates a high overall magnitude of flood and wind threats to the state. Based on the SHMP and local hazard mitigation plans, both HUD and LA MID areas share a collective greatest risk profile that includes wind and flood hazards, which are compounded by the effects of subsidence and sea level rise. This section addresses quantitative and qualitative descriptions of these hazards and their projected current and future risk to MID areas and the State of Louisiana.

Figure 10. Disaster Declarations since 2015 SHMP Update

Declaration Number	Description	Incident Period
DR-4345	Louisiana Tropical Storm Harvey	Aug. 28, 2017 / Sept. 10, 2017
DR-4300	Louisiana Severe Storms, Tornadoes and Straight-line Winds	February 7, 2017
DR-4277	Louisiana Severe Storms and Flooding	Aug. 11, 2016 / Aug. 31, 2016
DR-4263	Louisiana Severe Storms and Flooding	Mar. 8 2016 / April 8, 2016
DR-4228	Louisiana Severe Storms and Flooding	May 18, 2015 / June 20, 2015

Wind and flood hazards in Louisiana include tropical cyclones, high wind, hailstorms, lightning, tornadoes, flooding (coastal and riverine), dam failure and levee failure. There have been five major

[24] GOHSEP. *Hazard Identification and Risk Assessment (HIRA)*. 2018.

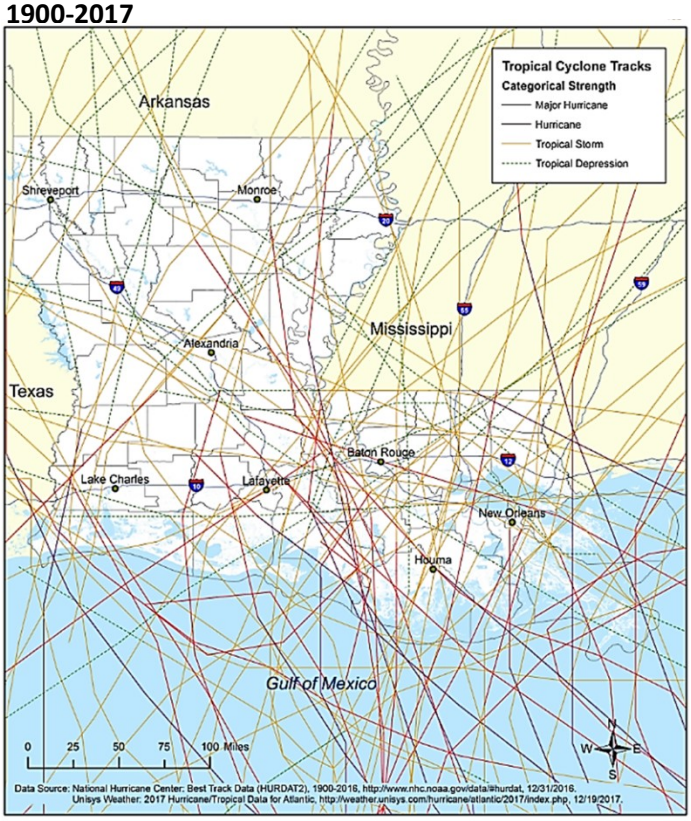
disaster declarations since the 2014 SHMP Update (see **Figure 10**) – all for wind and flood hazards.

Tropical Cyclones

Tropical cyclones are spinning, low-pressure storms that draw surface low-latitude air into their centers and attain strength, ranging from weak tropical waves to the most intense hurricanes. Often, these storms begin as clusters of oceanic thunderstorms off the western coast of Africa, moving westward in the trade wind flow. These thunderstorms acquire a rotational component when a small "buckle" forms in the east-to-west trade wind, caused by the Earth's spin. This west-moving, counterclockwise-spinning collection of storms—now called a tropical disturbance—may then gather strength as it draws humid air toward its low-pressure center, forming a tropical depression (defined when the circulation is completely developed but maximum sustained surface wind speed is 38 mph or less), then a tropical storm (when the maximum sustained surface wind speed ranges from 39 mph to 73 mph) and finally a hurricane (when the maximum sustained surface wind speeds exceed 73 mph). Major hurricanes are classified as Category 3 to 5 based on the Saffir-Simpson Hurricane Wind Scale.

Data from 1900 to 2017 (**Figure 11**) show that the entire state has been impacted by tropical cyclones, often significantly. As an example, Hurricane Katrina in 2005 remains the costliest tropical cyclone in U.S. history.

Figure 11. Tropical Cyclone Tracks across Louisiana 1900-2017



Future vulnerability to tropical cyclones has been a topic of intense scrutiny in the scholarly literature of the last decade. Warmer conditions, as predicted by future climate scenarios, are linked to stronger and more frequent storms. For example, warming would increase the geographic extent at which water temperatures are high enough to provide the energy required to support or enhance a tropical cyclone and/or lead to a longer period in the year when tropical cyclones may occur. Also, because the Earth's surface is anticipated to warm at a greater rate than the upper-level atmosphere, thermal turbulence and atmospheric instability would be enhanced, possibly leading to more evaporation from the surface. Atmospheric water vapor capacity would also increase under warmer conditions. Furthermore, a warming world could also be likely to cause a poleward retreat in the west-to-east-moving subtropical and polar front jet stream, both of which separate tropical air from much colder air. Because the jet streams shear the tops off of developing tropical cyclones, their migration poleward would provide a more favorable environment for growth of tropical systems, unimpeded by the shear that might weaken them or carry them eastward across the Atlantic Ocean, away from Louisiana. Research suggests that this risk is exacerbated by global temperature and tropical cyclone activity via feedbacks related to

ocean mixing and transport[25].

The most recent research on the topic generally seems to confirm the conclusions of previous studies, indicating additional dangers associated with the increased intensity of tropical cyclones under a warming global climate. For example, Moore et al. concurred with the previous conclusions, while also anticipating a decrease in the periodicity of the El Niño/Southern Oscillation, which is known to suppress Gulf-Caribbean-Atlantic tropical cyclone activity[26]. The resulting increased interannual variability could leave people uncertain of the trend of the hazard. Walsh et al. projected increases in tropical cyclone precipitation intensities in addition to the changes previously discussed. Such precipitation could increase even farther inland than today[27]. Sun et al. noted that the area of the tropical cyclone-induced high winds will increase under global warming scenarios[28]. And Appendini et al. warned that the wave activity associated with tropical cyclones will likely increase in the northern Gulf of Mexico under global warming scenarios[29]. The Fourth National Climate Assessment provides an ominous reminder that atmospheric scientists tend to be converging toward a conclusion on the matter:

> *"Both theory and numerical modeling simulations generally indicate an increase in tropical cyclone (TC) intensity in a warmer world, and the models generally show an increase in the number of very intense TCs. For Atlantic and eastern North Pacific hurricanes and western North Pacific typhoons, increases are projected in precipitation rates (high confidence) and intensity (medium confidence).[30]"*

Scholars have also estimated the future impacts resulting from increases in intensity and/or frequency of the most intense tropical cyclones. While emphasizing the inherent uncertainty and difficulty with projecting the future tropical cyclone hazard, Knutson et al. cautiously projected no major macro-scale changes in tropical cyclone genesis location, tracks, duration, or areas of impact, but cautioned that the future vulnerability to tropical-cyclone-induced storm surge-related flooding will increase due to sea level rise and coastal development[31]. Ranson et al. used ensemble models to project a 63 percent

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[25] R.L. Sriver. "Climate change: tropical cyclones in the mix." *Nature* 463, 7284 (2010): 1032–1033.
[26] T.R. Moore, H.D. Matthews, C. Simmons, and M. Leduc. "Quantifying changes in extreme weather events in response to warmer global temperatures." *Atmosphere-Ocean* 53 (2015): 412–425.
[27] K.J.E Walsh, J.L. McBride, P.J. Klotzbach, S. Balachandran, S.J. Camargo, G. Holland, T.R. Knutson, J.P. Kossin, T.-c. Lee, A. Sobel, and M. Sugi. "Tropical cyclones and climate change." *Wiley Interdisciplinary Reviews-Climate Change* 7 (2016): 65–89.
[28] Y. Sun, Z. Zhong, T. Li, L. Yi, Y.J. Hu, H.C. Wan, H.S. Chen, Q.F. Liao, C. Ma, and Q.H. Li. "Impact of ocean warming on tropical cyclone size and its destructiveness." *Scientific Reports* 7, Art. No. 8154 (2017).
[29] C.M. Appendini, A. Pedrozo-Acuña, R. Meza-Padilla, A. Torres-Freyermuth, R. Cerezo-Mota, J. López-González, and P. Ruiz-Salcines. "On the role of climate change on wind waves generated by tropical cyclones in the Gulf of Mexico." *Coastal Engineering Journal* 59,2 (2017): Art No. 1740001.
[30] J.P. Kossin, T. Hall, T. Knutson, K.E. Kunkel, R.J. Trapp, D.E. Waliser, and M.F. Wehner. "Extreme storms. In:" *Climate Science Special Report: Fourth National Climate Assessment, Volume I* [Wuebbles, D.J., D.W. Fahey, K.A. Hibbard, D.J. Dokken, B.C. Stewart, and T.K. Maycock (eds.)]. (Washington, DC: U.S. Global Change Research Program) pp. 257–276, doi: 10.7930/J07S7KXX.
[31] T.R. Knutson, J.L. McBride, J. Chan, K. Emanuel, G. Holland, C. Landsea, I. Held, J.P. Kossin, A.K. Srivastava, and M. Sugi. "Tropical cyclones and climate change." *Nature Geoscience* 3 (2010):157–163.

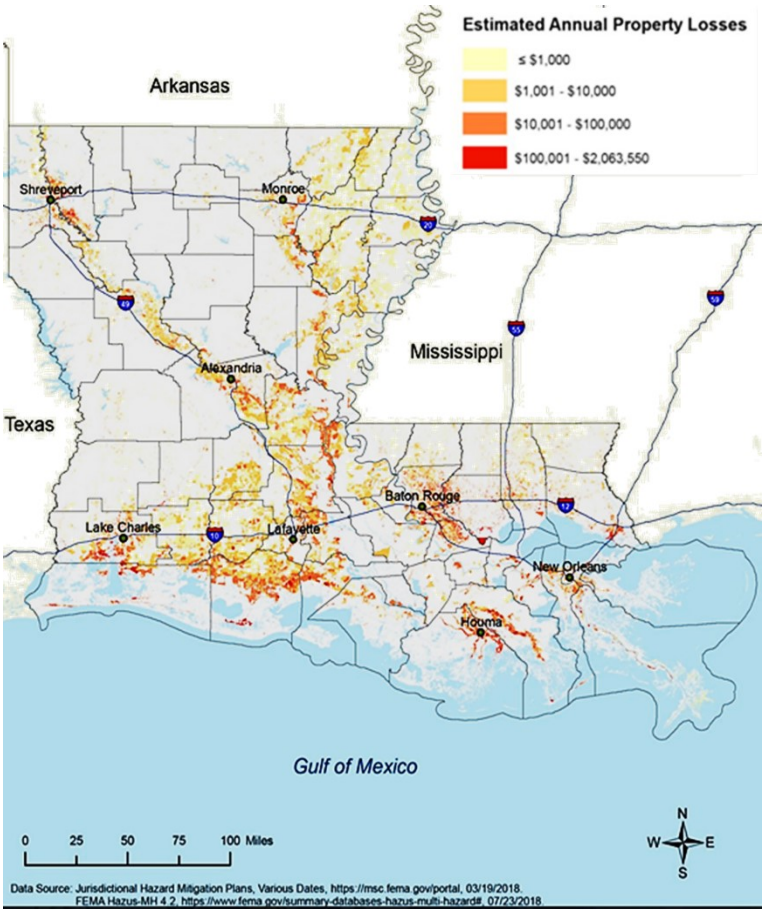
increase in tropical cyclone damage in the North Atlantic basin – the highest increase of any basin in the world[32].

Regardless of projections of the impact of global warming on regional tropical cyclone activity, Louisiana will always be in a geographic position where tropical cyclones are likely to occur. Any increased intensities in the future, even with decreased frequencies, are likely to exacerbate Louisiana's future vulnerability, given that intense storms have enormous potential to devastate the physical, urban, agricultural, economic, and sociocultural infrastructure of the state. The SHMP projects a 25 percent increase in the future vulnerability to tropical cyclones, with a near-certain expectation that Louisiana will experience another major tropical cyclone before mid-century.

Floods

A *flood* is the overflow of water onto land that is typically not inundated. Excess precipitation, produced from thunderstorms or hurricanes, is often the major initiating condition for flooding, and Louisiana can have high rainfall totals at any time of the day or year. The SHMP indicates five specific types of floods that are of main concern: riverine, flash, ponding, backwater and urban. The 1 percent AEP flood is used as the basis for regulatory standards, such as building codes and flood insurance requirements, and represents the baseline for the SHMP evaluation.

Figure 12. Losses Associated with 1 percent AEP Flood by Census



Over the period 1959 to 2005, Louisiana ranked 18th among the states in flood fatalities (excluding those related to Katrina), but third in flood-related injuries and in total flood casualties. Recent significant floods include the August 11-31, 2016 flood affecting southeast Louisiana (DR-4277), the March 8-April 8, 2016 flood affecting northern Louisiana (DR4263), and the May 18-June 20, 2015 flood along the Red River in northwest Louisiana (DR-4228).

[32] M. Ranson, C. Kousky, M. Ruth, L. Jantarasami, A. Crimmins, and L. Tarquinio. "Tropical and extratropical cyclone damages under climate change." *Climatic Change* 127 (2014): 227–241.

The *flood hazard area* is defined as the land area that has a 1 percent chance of flooding per year; however, this is not a complete picture of flood risk because flood inundation boundaries delineating other flood-related risks are not systematically defined. While no changes are projected for riverine flooding due to lack of data, the CPRA predicts increases in coastal flooding illustrated in **Figure 12**, which captures FEMA's estimates of losses associated with a 1 percent AEP flood by census block.

As noted in NCA4 (2017), projection of the flood hazard to 2050 is a complex multivariate problem, as human activities such as deforestation, urban and floodplain development, construction of dams, flood mitigation measures and changes in agricultural practices impact future flood statistics. In addition, Louisiana's geography superimposes a highly responsive local-to-regional-scale on similar changes upstream over a significant portion of the nation, and these changes are superimposed on climatic changes and eustatic sea level rise.

Despite the fact that these complications invite caution in the interpretation of results, it is safe to conclude that flood is likely to remain HUD and LA MID's and the entire state's costliest, most ubiquitous and most life-threatening hazard. This is because floods are the by-product of several other hazards profiled earlier in this report, including thunderstorms, tropical cyclones, coastal hazards, dam failure and levee failure. **Table 7** summarizes projected changes in vulnerability for floods and flood-related sub hazards, finding consistency with studies that project increases in precipitation rates and intensity over time.

Table 7. Estimated Change in Vulnerability to Future Hazards

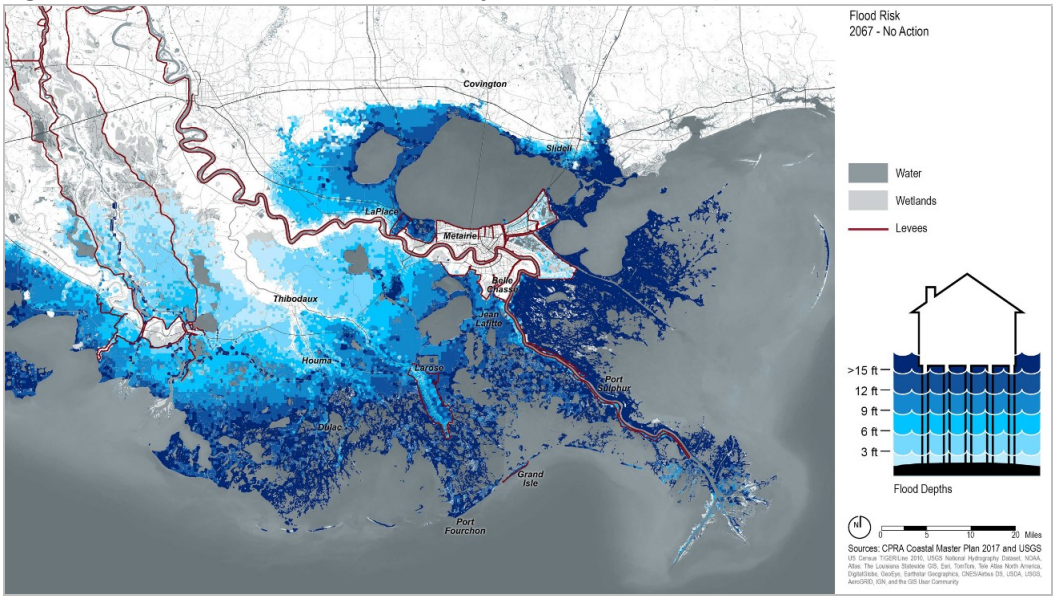
Hazard	Estimated Change in Future Vulnerability by 2050 (%)
Severe thunderstorms	10
Tropical cyclones	25
Coastal hazards	"High"
Dam failure	0
Levee failure	0

Sea Level Rise

Due to a variety of factors including eustatic sea level rise, subsidence and coastal land loss, Louisiana has one of the highest sea level rise rates in the world[33]. This steadily-increasing threat further exacerbates flood risk within the state, as it multiplies the potential impacts of any isolated flood event and contributes to an ever-worsening baseline state of flood risk exposure[34]. As sea level rise impacts the coastal areas of Louisiana, it also weakens the existing network of wetlands, barrier islands and brackish estuaries that provide critical storm protection and flood retention natural functions to more inland portions of the state. **Figure 13** below indicates potential flood risk as a result of sea level rise projected in 2067 if the state were to take no action.

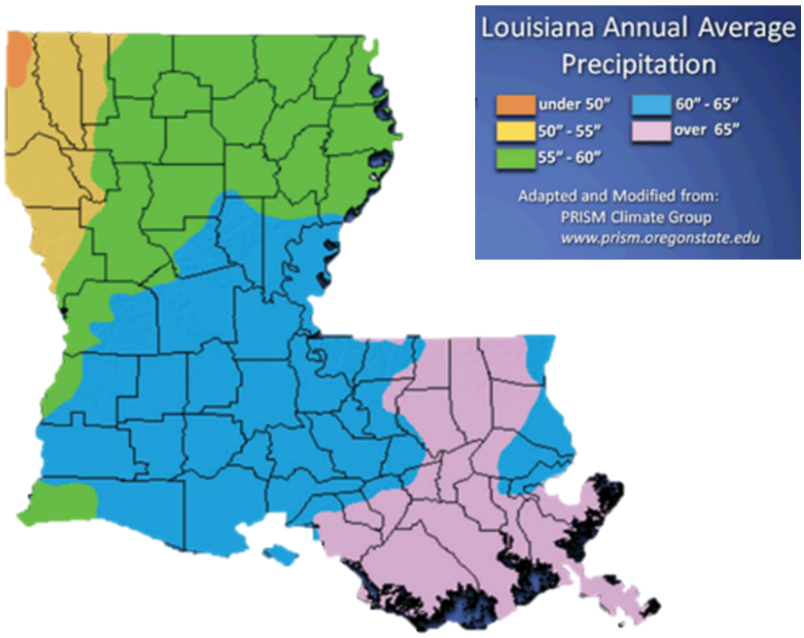
[33] LA GOHSEP, 2019. "Repetitive Loss Strategy" – Appendix to the 2019 State of Louisiana Hazard Mitigation Plan Update. https://gohsep.la.gov/MITIGATE/HM-PLANNING/State-Hazard-Mitigation-Plan
[34] LA GOHSEP, 2018. Hazard Identification and Risk Assessment.

Figure. 13[35] 2067 Coastal Flood Risk Projections (No Action)



Some of Louisiana's recent mitigation efforts (namely LA SAFE and actions of the CPRA) have identified inland migration and the restoration of coastal areas as methods to address the insidious threat of sea level rise; however, increasing sea level rise will continue to present a threat to Louisiana, especially as it exacerbates flood risk.

Figure 14. Louisiana Average Annual Rainfall Distribution



Extreme Precipitation

Extreme precipitation precedes flash flooding, which is a critical component of Louisiana's risk profile[36] and can occur with little warning, exhausting municipal resources and causing repeated property damage and business interruption. Louisiana experiences some of the highest rainfall rates in the country on an average statewide

[35] CPRA. Coastal Master Plan 2017 and USGS data featured in State of Louisiana. Office of Community Development, Disaster Recovery Unit. *Louisiana's Strategic Adaptation for Future Environments.* Accessed on September 18, 2019. https://www.doa.la.gov/OCDDRU/NDRC/LASAFE_Report_Final.pdf.
[36] GOHSEP. *State of Louisiana Hazard Mitigation Guide.* 2019. https://gohsep.la.gov/MITIGATE/HM-PLANNING/State-Hazard-Mitigation-Plan.

basis, with a high degree of spatial variability[37], with some areas in the state reaching as high as 70-inches of mean annual rainfall (**Figure 14**). Even in drought or La Niña conditions, Louisiana is often subject to high-water levels in its major riverine systems, due to flooding conditions upstream in the Midwest[38] that can pose an elevated threat when combined with extreme precipitation or wind events. Because of its flat landscape and interconnected waterways, the impact of a rainfall event in one part of the state can be greatly felt far beyond the boundaries of where the rain falls.

Although Louisiana has experienced a number of historic storms and rainfall events with high damage levels in the past two decades, these events are not outliers from a historical perspective, in fact such events may speak to existing trends in rainfall data and flood risk[39]. Since 1958, the amount of precipitation falling during heavy rainstorms has increased by 27 percent in the southeast, and the trend toward increasingly heavy and frequent rainstorms, including a significant increase in extreme precipitation events, is projected to continue with high confidence[40]. Moreover, the amount of rainfall in the Midwest is also likely to increase, which could worsen flooding in Louisiana, as most of the Midwest drains into the Mississippi River. Recent years have witnessed several extreme rainfall events, including the Great Floods of 2016. If added to the historical record, such storms could eventually change the rainfall frequency values currently used in infrastructure design[41] and thus redefine what qualifies as a 100 or 1000-year events, including implications to floodplain management and building regulations.

V. F. CRITICAL SERVICE AREAS OR COMMUNITY LIFELINES

Critical service areas or *community lifelines* refer to indispensable services that enable continuous operation of critical business and government functions in the wake of a disaster event, and are essential to human health and safety, or economic security. In order to best address unmet mitigation needs impacting emergency response and critical service areas, the state completed a quantitative analysis of significant potential impacts and risks of hazards affecting the following seven critical service areas listed below. In addition, note that these critical service areas are interdependent, and impacts in one service area are likely to result in cascading impacts across others.

1. Safety and security
2. Food, water, shelter, waste/sanitation
3. Health/medical
4. Energy (power and fuel)
5. Communications
6. Transportation
7. Hazardous material management

[37] Linda Benedict and John M. 'Jay' Grimes, III. "Precipitation Patterns Over the Bayou State." 11/30/2011. https://www.lsuagcenter.com/portals/communications/publications/agmag/archive/2011/fall/precipitation-patterns-over-the-bayou-state.

[38] R. Frankson, K. Kunkel, and S. Champion. *Louisiana State Climate Summary.* NOAA Technical Report NESDIS 149-LA, 4 (2017) https://statesummaries.ncics.org/la

[39] Cameron Wobus, Ethan Gutmann, Russell Jones, Matthew Rissing, Naoki Mizukami, Mark Lorie, Hardee Mahoney, Andrew W. Wood, David Mills, and Jeremy Martinich. "Climate Change Impacts on Flood Risk and Asset Damages within Mapped 100-Year Floodplains of the Contiguous United States." *Natural Hazards & Earth System Sciences*. Vol. 17, Issue 12 (2017): p. 2199-2211.

[40] United States Global Change Research Program. *Climate Science Special Report: Fourth National Climate Assessment, Volume I.* Washington, DC: U.S. Global Change Research Program (2017). "Chapter 7: Precipitation Change in the United States." Accessed on March 9, 2018. https://science2017.globalchange.gov/chapter/7/.

[41] H. Eldardiry, E. Habib, and Y. Zhang. "On the use of radar-based quantitative precipitation estimates for precipitation frequency analysis." *Journal of Hydrology*. 531 (2015): 441–453.

The state's current Emergency Operations Plan (EOP) indicates both natural and technological hazards anticipated to impact critical service areas, including anticipated severity. Among the natural hazards assessed in **Figure 15**, flood risk presents a monumental threat to critical service areas in the HUD and LA MIDs, as well as throughout the State of Louisiana. This threat is further complicated by the co-location of industry centers in flood-prone areas, the presence of vulnerable populations in flood-prone areas and the variability in flood severity factors (ex: operation levels of municipal drainage infrastructure, ground saturation, river levels, floodway impediments, etc.). The state's EOP lists coastal erosion, flood, hurricanes, severe storms and storm surge among its most serious and likely natural hazards impacting critical lifelines including safety and security, communications, provisions and shelter capability, transportation, public health and medical response, hazardous materials management and energy resources[42].

Figure 15. Natural Hazards and Estimated Severity

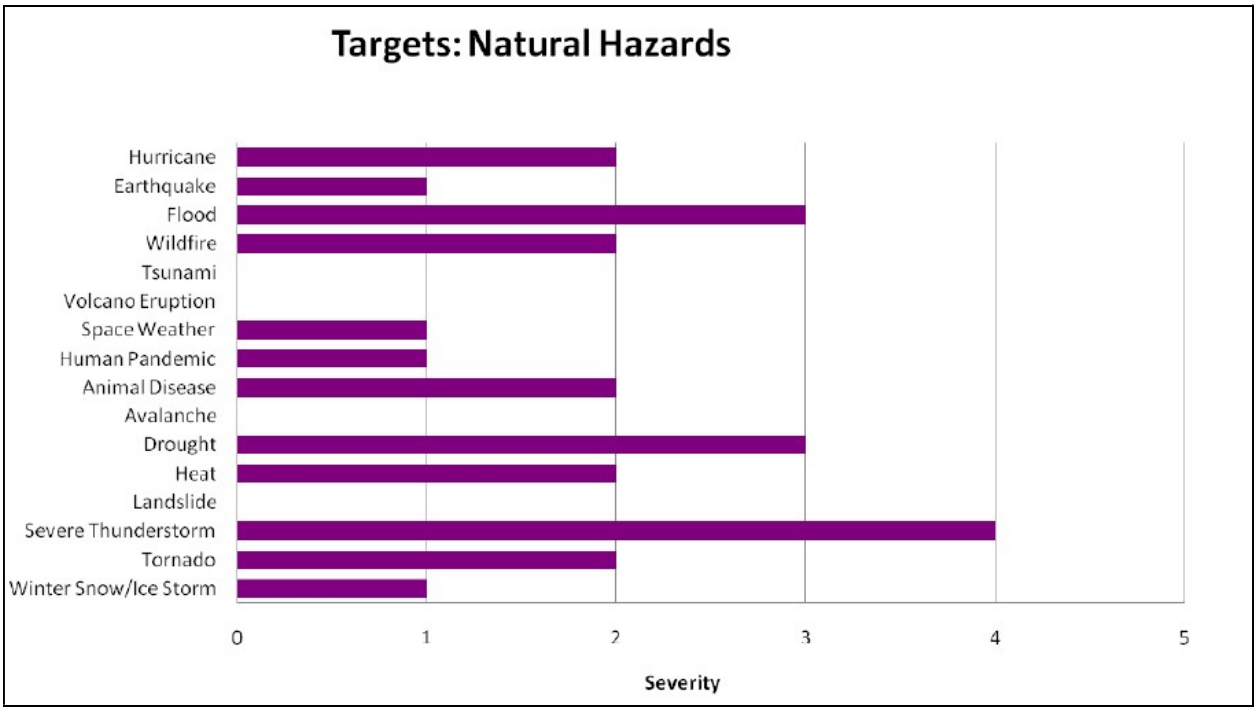
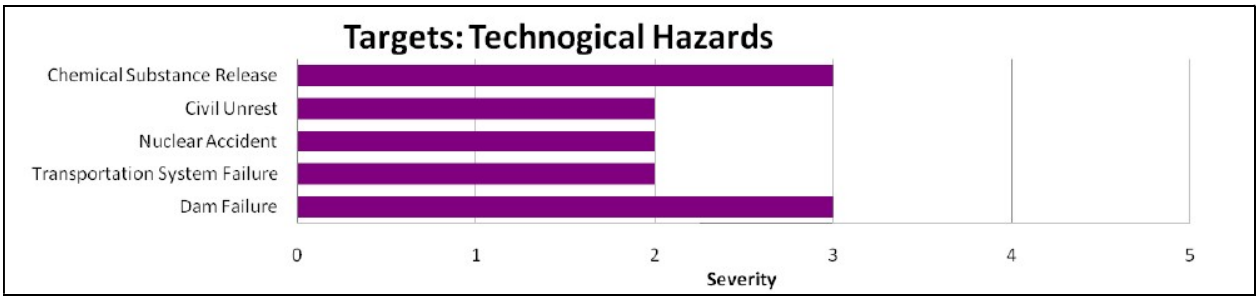


Figure 16 indicates technological hazards anticipated to impact these critical lifelines, including their anticipated severity. The EOP lists both dam and levee failure among its most serious and likely technological hazards impacting critical lifelines including safety and security, communications, provisions and shelter capability, transportation, public health and medical response, hazardous materials management, and energy resources[43].

[42] GOHSEP. *State of Louisiana Emergency Operations Plan.* 2014.
[43] Ibid.

Figure 16. Technological Hazards and Estimated Severity



Critical Service Area No. 1: Safety and Security

GOHSEP identifies flood events as a critical risk to the provision of on-scene safety, security, protection and law enforcement services. Even limited impact or short duration flood events can place enormous strain on the ability of the state and municipalities to maintain robust response to safety and security needs and can prevent emergency responders from attending to immediate needs due to road inaccessibility. For example, during the Great Floods of 2016 emergency responders rescued approximately 30,000 residents[44], however the surface transportation that Louisiana depends on is subject to flood inundation, taxing emergency responders' ability to provide critical safety and security services. Further, staffing needs for both state and local emergency response personnel increase before, during, and after a flood event[45], thus many jurisdictions[46] must implement curfews[47], road restrictions, and/or evacuation orders as a public safety measure to reduce traffic, protect lives and property, and allow emergency responders better access to the affected areas[48]. Implementation of mitigation programs throughout the state will stabilize safety and security and reduce the need for law enforcement, search and rescue, first responders and government services during and immediately after a disaster event.

Critical Service Area No. 2: Communications

As evidenced by Hurricane Katrina in 2005, lack of resilience in communication infrastructure can

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[44] Emily Shapiro. "Over 2,600 People in Shelters in Louisiana: The Latest on Flood Recover, By The Numbers." ABC News, August 23, 2016. https://abcnews.go.com/US/2600-people-shelters-louisiana-latest-flood-recovery-numbers/story?id=41590075

[45] National Alliance for Public Safety GIS (NAPSG) Foundation. "National Flood Preparedness Guideline." June 2017. https://www.napsgfoundation.org/wp-content/uploads/2015/10/National_Flood_Preparedness_Guideline_2017.pdf

[46] Orlando Flores, Jr. "For Hurricane Barry, here's a list of curfews implemented in Baton Rouge area." The Advocate, July 13, 2019. https://www.theadvocate.com/baton_rouge/news/weather_traffic/article_01376314-a5ab-11e9-b933-83406a787540.html

[47] Ashley White and Andrew Capps, Lafayette Daily Advertiser. "'It's Coming': Robideaux announces curfew as Tropical Storm Barry threatens flooding." The Daily Advertiser, July 13, 2019. https://www.theadvertiser.com/story/news/2019/07/13/parish-wide-curfew-issued-lafayette-includes-all-municipalities/1726130001/

[48] Kelsey Davis. "Residents, first responders hit with extreme flooding along Tangipahoa-St. Tammany Parish Line Friday." WDSU News, March 11, 2016. https://www.wdsu.com/article/residents-first-responders-hit-with-extreme-flooding-along-tangipahoa-st-tammany-parish-line-friday/3385266

present a substantial impediment to disaster response and recovery[49]. In recent years, many agencies and local jurisdictions have placed an emphasis on diversifying and hardening their communications infrastructure, and the state implemented a new interoperable communications network, however further build-out of this system is critical. This includes using multiple means of consistent communication and warning networks regarding flood risk and other hazards and is evidenced by the fact that 29 parishes in Louisiana are currently designated "Storm Ready Communities," i.e. they employ specific warning and emergency management techniques as endorsed by the National Weather Service's StormReady program[50]. As flood risk increases for the state, communication capacity will be challenged to maintain message penetration to citizens and to urge vigilance in response to diverse and multi-faceted flood events. Finally, as indicated in the Hazard Identification and Risk Assessment for Louisiana, no-warning events or events with short warning periods, such as tornadoes and flash flooding, present a unique communication challenge of warning residents for immediate response and present a threat to above-ground communication infrastructure and the energy supply necessary to operate such infrastructure[51].

Communicating and synthesizing the results of flood modeling and scenario-analyses presents a special challenge for state and local officials. Statistical probabilities and the magnitude of risk can be difficult concepts to convey to a wide audience[52], and parish or municipal leaders may draw different conclusions from environmental scenarios, leading to uncoordinated emergency response decision-making[53].

Critical Service Area No. 3: Food, Water, Shelter, and Waste Disposal/Sanitation

Flood events place significant strain on the state's ability to maintain supply chains of food, its provision of potable water, its ability to provide shelter to residents and to maintain sanitary conditions. Increased projected flood risk compounds this challenge and accrues significant yearly costs to provide for these aspects of critical services.

Hurricane Katrina is the starkest recent example of flood and wind damage to drinking water infrastructure in Louisiana, with a cost of $2.25 billion in damages to the potable water infrastructure

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[49] Louise K. Comfort and Thomas W. Haase. "Communication, Coherence, and Collective Action: The Impact of Hurricane Katrina on Communications Infrastructure." *Public Works Management & Policy*. Vol. 11, No. 1, July 2006 1-16. Sage Publications. https://www.cdm.pitt.edu/Portals/2/PDF/Publications/Communication_Coherence_and_Collective_Action-Katrina.pdf

[50] United States National Weather Service. "StormReady." Accessed on September 18, 2019. https://www.weather.gov/stormready/la-sr

[51] GOHSEP. *Hazard Identification and Risk Assessment (HIRA).* 2018.

[52] David P. Eisenman, Kristina M. Cordasco, Steve Asch, Joya F. Golden, and Deborah Glik. "Disaster Planning and Risk Communication With Vulnerable Communities: Lessons From Hurricane Katrina" *American Journal of Public Health.* 97, S109_S115 (2007). https://doi.org/10.2105/AJPH.2005.084335

[53] B. Merz, Thieken A., Gocht M. "Flood Risk Mapping At The Local Scale: Concepts and Challenges." In: Begum S., Stive M.J.F., Hall J.W. (eds) *Flood Risk Management in Europe. Advances in Natural and Technological Hazards Research*, vol 25. Dordrecht: Springer (2017).

due to standing water, wind impacts, and power outages in the impacted area[54]. Some estimates indicate that over 1,200 drinking water systems in the impacted states were damaged in Hurricane Katrina. Recovery from this event has taken decades, and even today Louisiana's water and wastewater infrastructure are threatened not only by storms and flood events[55], but also by coastal threats and threats to groundwater quality, including saltwater intrusion[56]. Resilient water and wastewater infrastructure systems are necessary to ensure that the state of Louisiana continues to thrive. Implementing water and wastewater infrastructure mitigation programs is a vital component of this AP.

The state's ability to provide shelter is similarly challenged in a flood or hurricane event, a challenge that is further exacerbated by social vulnerability and by events with shorter notice periods[57]. The 2016 floods resulted in a need for sheltering services for approximately 2,600 residents[58], many of whom were displaced from their homes, schools, and communities for many months prior to an extended recovery period. Looking forward, viable shelter remains a concern considering the high number of repetitive loss properties (i.e. 33,993) and the quantity of homeowners struggling to pay flood insurance premiums while occupying structures not appropriately mitigated to withstand the next flood event.

Aside from the immediate need to provide shelter to humans, flood events place a high demand on emergency and shelter services for pets. During the Great Floods of 2016, over 3,300 pets were rescued and placed high strains on animal services[59].

Critical Service Area No. 4: Transportation

Louisiana has experienced multiple events in recent history that impacted the transportation system, including the failure of evacuation routes. For example, in 2005, Hurricanes Katrina and Rita caused extensive structural damage to the I-10 Twin Span Bridge and wide-spread road inundation[60] that left some residents reliant on ferry boats or other means of transportation[61]. During the Great Floods of 2016, 30 state roads were washed out and 200 highways were forced to close[62].

Aside from the catastrophic transportation disruptions that Louisiana has experienced, the state has

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[54] "AWWA Estimates Katrina Damage at $2.25 Billion." *WaterWorld.* November 1, 2015. Accessed on 9/10/19. https://www.waterworld.com/municipal/drinking-water/infrastructure-funding/article/16190220/awwa-estimates-katrina-damage-at-225-billion

[55] Ben Chou. "Water and Wastewater Systems are Still At-Risk 10 Years After Katrina." Natural Resources Defense Council, August 27, 2015. Accessed on September 18, 2019. https://www.nrdc.org/experts/ben-chou/water-and-wastewater-systems-are-still-risk-10-years-after-katrina.

[56] GOHSEP. *Hazard Identification and Risk Assessment (HIRA).* 2018.

[57] Ibid.

[58] Emily Shapiro. "Over 2,600 People in Shelters in Louisiana: The Latest on Flood Recover, By The Numbers." ABC News. August 13, 2016. https://abcnews.go.com/US/2600-people-shelters-louisiana-latest-flood-recovery-numbers/story?id=41590075

[59] Ibid.

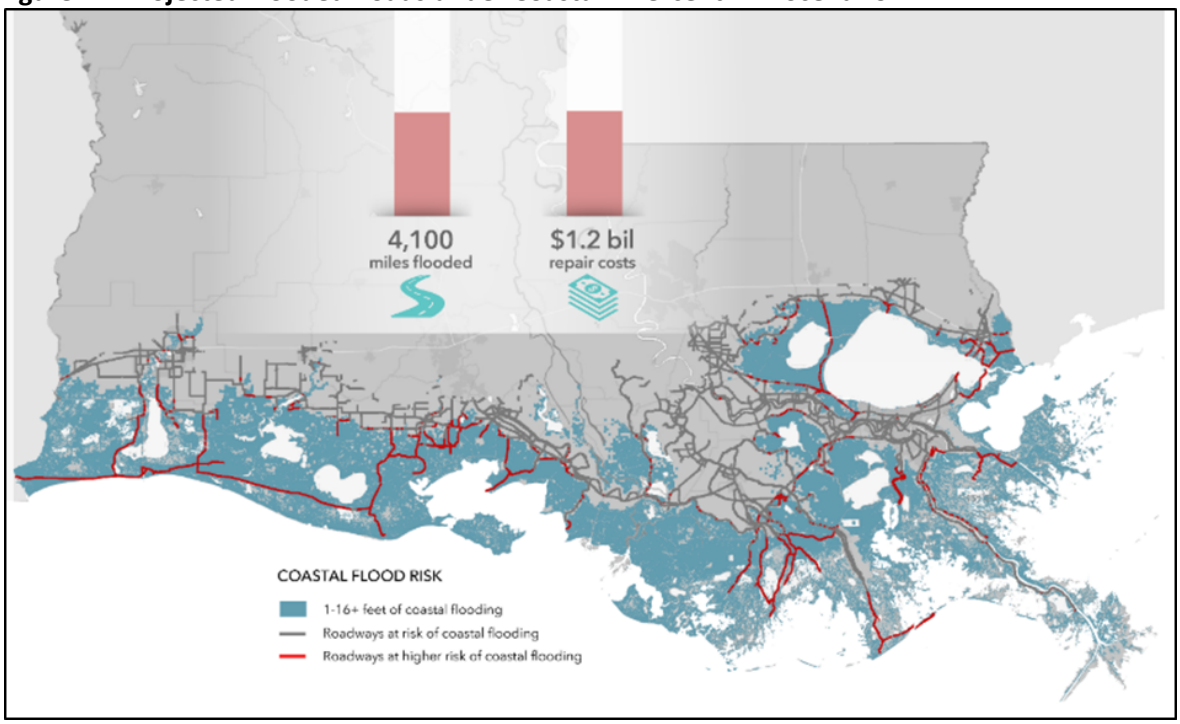
[60] United States Department of Transportation, Federal Highway Administration. "Louisiana's Recovery." *Public Roads Magazine.* https://www.fhwa.dot.gov/publications/publicroads/index.cfm

[61] CPRA. "Coastal Flood Risk and Resilience." Accessed on September 18, 2019. http://coastal.la.gov/wp-content/themes/cpra/storymaps/transportation/index.html

[62] John Utpon. "One Year After the Great Flood, Louisiana's most Vulerable Cope with the Losses." Grist. August 9, 2017. https://grist.org/article/one-year-after-the-great-flood-louisianas-most-vulnerable-cope-with-the-losses/

experienced a high frequency of flood events that have caused incremental or temporary damage to transportation systems. In an analysis of flood risk to roadways, the CPRA identified approximately 4,100 miles of road in coastal Louisiana that would be subject to damage from the 1 percent AEP, resulting in approximately $1.2 billion dollars of damage[63]. This risk was shown to increase to 150 percent in a 50-year future projection without substantial coastal and flood risk reduction interventions, leading to damage estimates of $2.5 - 3 billion for the 1 percent AEP event. This study, only representing a portion of the state, indicates the severe threat that flood events present to the state's transportation system. **Figure 17** indicates anticipated miles of flooded roads in the coastal area under the 1 percent AEP scenario.

Figure 17. Projected Flooded Roads under Coastal 1 Percent AEP Scenario



Critical Service Area No. 5: Health and Medical

Due to its history of catastrophic storm and flood events, Louisiana bears long-lasting impacts to its public health system. For example, the largest public hospital in the region was damaged and the number of primary care facilities was reduced following Hurricane Katrina – the region has yet to fully recover from these impacts[64][65].

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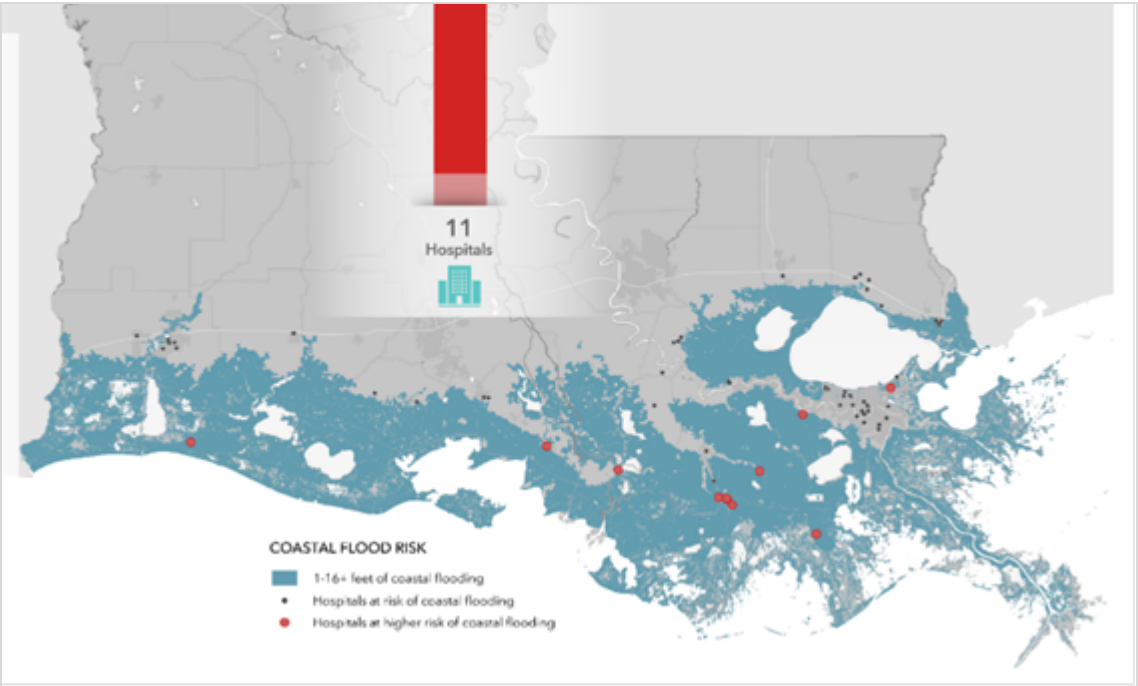
[63] CPRA. "Coastal Flood Risk and Resilience." Accessed on September 18, 2019. http://coastal.la.gov/wp-content/themes/cpra/storymaps/transportation/index.html.
[64] Ibid.
[65] The Henry J. Kaiser Family Foundation. *Policy Brief: Addressing the Health Care Impact of Hurricane Katrina*. August 31, 2005. https://www.kff.org/medicaid/issue-brief/addressing-the-health-care-impact-of-hurricane/.

Aside from the catastrophic impacts of large-scale flood events, an average of 91 Louisiana residents have died per year in flood-related events[66], and even nuisance or small-scale flood events have left patients without access to critical medications, supplies and treatment facilities[67]. An analysis by CPRA indicated that, over a 50-year future projection without substantial coastal and flood risk reduction interventions, 15 percent of hospitals in coastal Louisiana could be impacted by flooding in a 1 percent AEP event.

This analysis, constrained to the coastal area of the state, illustrates just a portion of the severe, regional impacts that health and medical services may experience during future floods if Louisiana's long-term risk is not addressed. **Figure 18** indicates medical hospitals at risk in a future flood and coastal land loss scenario within the coastal area.

Figure 18. 50-Year Projected Flood Risk to Hospitals in the Coastal Area



Beyond the acute impacts of a singular event on the buildings and infrastructure needed to provide medical services, Louisiana residents are experiencing a mental health crisis linked to repeated traumatic events such as floods and hurricanes. The emotional toll on children in particular and the extended impact on normal routines, considering the Great Floods of 2016 hit just as the school year

[66] Office of Climate, Water, and Weather Services of the National Weather Service (NWS) and National Climactic Data Center, featured in CPRA. "Coastal Flood Risk and Resilience." Accessed on September 18, 2019. https://www.kff.org/medicaid/issue-brief/addressing-the-health-care-impact-of-hurricane/

[67] The Henry J. Kaiser Family Foundation. *Policy Brief: Addressing the Health Care Impact of Hurricane Katrina*. August 31, 2005. https://www.kff.org/medicaid/issue-brief/addressing-the-health-care-impact-of-hurricane/.

was starting, result in added trauma[68]. These repeated experiences threaten to weaken social resilience and place further demand on the health and medical network, especially with regard to mental health and housing security.

Critical Service Area No. 6: Hazardous Material (Management)

Louisiana faces a unique challenge with regards to hazardous materials management due to the co-location of industry within the "working coast" and in other flood-prone areas. Louisiana is home to 100 chemical plants and 17 oil refineries[69], and its coast features 88 percent of the country's offshore oil rigs. The state also hosts a vast network of multimodal transportation and an extensive pipeline network[70]. As evidenced by multiple instances of oil spills caused by Hurricane Katrina[71], the combination of natural flood hazards with technological hazards can result in long-term impacts to residents and property. Both hazardous materials management and flood hazards demand extensive emergency response operations, however the combination of these risks in the state leads to a unique need for vigilance regarding both threats. Implementing programs that will mitigate Louisiana's flood risk will reduce the dangers associated with impacts to facilities containing hazardous materials as well as the risk of exposure to hazardous debris, pollutants and contaminates associated with flooding.

Critical Service Area No. 7: Energy (Power and Fuel)

Floods and natural hazards present a special threat to Louisiana and, by extension, to the country's energy and fuel security. Louisiana contains a vast network of power generation and distribution infrastructure to serve its citizens. Louisiana also plays a critical role in national power generation and fuel security, due to its port exporting capabilities, its gas production and reserves, oil refinery infrastructure located in the state and the presence of storage sites that serve a critical function in the U.S. Strategic Petroleum Reserve[72]. For example, Louisiana is one of the top five natural gas-producing states. It accounts for 7 percent of U.S. total gas production and has about 8 percent of the nation's gas reserves. Similarly, Louisiana's 17 oil refineries account for nearly one-fifth of the nation's refining capacity and are capable of processing 3.3 million barrels of crude oil per day[73] thus, any significant impact on Louisiana's energy producing infrastructure could result in increased energy prices across the country.

V. G. ECOSYSTEM INTEGRITY AND WATERSHED RESILIENCE

Multiple state agencies and technical experts participating in the LWI have identified ecosystem integrity and the preservation of natural resources as critical dimensions of resilience that must be preserved and

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[68] The Associated Press. "Amid Louisiana Flood Disaster, Youngest Bear Mental Scars." CBC. August 20, 2016. https://www.cbc.ca/news/world/louisiana-flooding-aftermath-mental-health-1.3729322

[69] Susan Buchanan. "Chemical Plants are Flocking to LA." Louisiana Weekly. 2012. http://www.louisianaweekly.com/chemical-plants-are-flocking-to-la/

[70] Greater New Orleans Inc. "Industry Sectors – Energy/Petrochemicals/Plastics." 2019. https://gnoinc.org/industry-sectors/energypetrochemicalsplastics/

[71] Sue Sturgis. "The Katrina Oil Spill Disaster: A Harbinger for the Atlantic Coast?" Facing South. https://www.facingsouth.org/2015/08/the-katrina-oil-spill-disaster-a-harbinger-for-the.html

[72] United States Energy Information Administration. Louisiana State Profile and Energy Estimates. 2019 https://www.eia.gov/state/?sid=LA.

[73] Ibid.

enhanced by flood risk reduction projects. Such enhancements include the incorporation of nature-based solutions and natural flood management or green infrastructure in the selection and/or design of CDBG-MIT projects.

Resilient watersheds and healthy ecosystems, including forested and vegetated wetlands, have the ability to recover promptly from flooding events[74] and, in fact, experience beneficial inundation annually as part of the natural flood cycle. Such floodplains perform a vital function—water retention—during periods of heavy rainfall. Louisiana's vast network of natural ecosystems protects and enhances the state's resilience to floods and other natural hazards. The state relies on the robust functioning of forests, grasslands, wetlands, floodplains, and other natural areas to absorb and detain flood waters, enhance water quality, recharge aquifers, and buffer the impact of coastal storms and wind events. These ecosystems also support a vast array of commercially, culturally and recreationally important fish, wildlife and plant species that sustain many critical industries in Louisiana and provide critical ecological diversity. Unfortunately, there are many risks to the integrity of Louisiana's varied habitats and the ecosystem services and flood mitigation functions they provide. These risks include sedimentation, erosion, and subsidence, as well as aspects of development practices such as the addition of impervious surfaces to the floodplain, disruption of watershed connectivity or the alteration of natural hydrology.

Louisiana's wetlands are at specific risk of degradation and land loss. Saltwater intrusion and subsidence resulting from a complex multitude of man-made and natural sources are currently causing vast areas of coastal wetlands to convert to open water. Due to excessive inundation and higher salinities, large tracts of cypress swamp have been lost and the state's degraded coastal systems can no longer provide the attenuation of storm surge and tidal flooding they once did. Further, sea level rise and urbanization may limit the ability of coastal wetlands to migrate landward.

In addition to threats to coastal wetlands, extensive wetland areas outside of the coastal zone continue to face negative impacts. Direct impacts to palustrine and riverine wetlands often include filling or draining. The largescale loss of these wetlands may be felt locally with significant loss of floodwater storage, fish and wildlife populations and communities, water quality, and/or groundwater recharge[75].

In their natural state, Louisiana's streams provide a host of valuable functions, from connecting flood flows to undeveloped floodplains where floodwaters can be stored and absorbed, to physicochemical processes that regulate temperature, oxygen, nutrients and other water quality parameters. Some flood control interventions; however, may have impacts that can reduce the functions of streams and cause downstream flooding or damage to habitat[76]. The LWI has and will continue to collaborate with experts in the field of resource management to verify that projects funded through this grant maintain the appropriate flows and flow patterns required to sustain natural processes and minimize impacts to critical habitats, species composition and biodiversity. Further, the LWI will consider natural infrastructure during the CDBG-MIT project selection and program development process.

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[74] United States Department of Agriculture. "Resilient Landscapes." 2019. https://www.fs.fed.us/managing-land/fire/resilient-landscapes
[75] Written correspondence with LDWF representatives Matthew Weigel and Raynie Harlan, September 6, 2019.
[76] Ibid.

V. H. UNMET MITIGATION NEEDS

The impact of flood risk on critical service areas, ecosystem integrity and watershed resilience indicates gaps and opportunities for improvement to the overall resilience of Louisiana, specifically by addressing the following unmet mitigation needs. Programs that address the unmet mitigation needs below are detailed in **Section VII**.

Unmet Mitigation Need: Flood-Resilient Development Patterns

Current development patterns in Louisiana reflect a status-quo of drainage managed at the site or community level, but do not adequately consider the cumulative effect of increased impervious surfaces and fill on community- and region-level drainage capacity. In some instances, current development practices also fail to appropriately consider impacts to water quality or aquatic habitat possibly leading to unintended impacts to local economic development and ecological integrity. This results in steadily increasing flood risk to life and property across the Louisiana landscape, and directly results in a need for increased emergency response to flood disasters, as well as extensive recovery efforts following floods. Louisiana residents find themselves asking, "Why am I flooding now when I have never flooded before?", and—in some cases—development practices spanning the past decades are responsible. Improved planning and consideration of development patterns can help protect the integrity of investments in capital projects to reduce flood risks; it is important to leverage these investments to produce greater risk reduction. Development today should not require future correction or flood mitigation project investment that could have been avoided with proper planning.

Our current development patterns also rely on surface transportation that is subject to flood inundation in a severe flood event, potentially leaving residents stranded or in danger of rising water and taxing emergency responders' ability to provide critical safety and security services. This AP outlines multiple strategies to enable more resilient development patterns in the state, including:

1. The implementation of a *Regional Watershed Management strategy* including a framework for municipal governments to coordinate their watershed management policies, resulting in higher development standards implemented at the local level; and
2. The provision of *Technical Assistance and Capacity-Building Programs* to enhance municipal watershed management practices, including development review practices; and
3. *Critical Facilities and Infrastructure*: A program to implement infrastructure improvements and development designs that reduce flood impacts to critical facilities, such as hospitals, fire stations or critical infrastructure, including municipal drainage systems or roads used as evacuation routes; and
4. Buyout programs to enable residents in high-risk flood zones to relocate out of harm's way and the protection/restoration of lands which enhance resilience and provide flood risk reduction; and
5. *Flood-Ready Jobs*: A program to increase the number of building professionals with training in resilient building methods; and
6. *Resilience Gap Financing*: A program to incentivize the use of resilient building methods beyond these programs to increase the provision of affordable housing that is resilient to flood risk.

Unmet Mitigation Need: Watershed Data and Modeling

One of the most significant challenges we face in appropriately providing statewide flood risk reduction is a lack of high-quality up-to-date data and the ability to appropriately plan and prioritize activities

related to flood impacts based on potential future scenarios. HUD-MID and LA-MID parishes are subject to complex flood risk that is inter-linked with the topography and conditions of neighboring parishes. Because of the interconnected nature of these flood sources, investments in watershed monitoring, mapping, modeling and planning efforts in Louisiana benefit the HUD-MID areas. GOHSEP has identified a distinct need for predictive floodplain modeling and collaborative data use in their risk assessment for the state[77], and multiple agencies' processes would be greatly enhanced with this tool. The production of high-quality watershed data and modeling will enable enhancements to the provision of critical lifelines and long-term resilience that may include:

1. Enable strategic decision-making in flood or disaster preparation and response scenarios based on projected water elevation and inundation. Examples of this include using the H&H models to plan evacuation routes, evacuation or closure of hospitals and medical facilities, and estimate shelter needs based on a given flood scenario;
2. Enable the analysis and prioritization of structural and nonstructural flood control projects based on potential costs and benefits. While H&H models help define the potential changes in extents and depth of flooding associated with flood control projects, information on the built environment (e.g. building inventory, assessed values, utilities and facilities, etc.) are needed to quantify benefits and risks;
3. Illustrate the benefits of implementing policy changes to foster more resilient development;
4. Enable resilient infrastructure design;
5. Enable businesses and industrial facilities to implement flood-proofing or resilient site design;
6. Empower homeowners and residents to understand their flood risk profile under different weather and climate scenarios; and
7. Predict runoff and/or drainage impacts to avoid ecosystem disruption by flood control projects or other types of projects.

Unmet Mitigation Need: Cross-Jurisdictional Coordination

There is no regional water management framework in place with adequate resources to fully understand and solve mounting water risks statewide. In addition, local and regional leaders, as well as stakeholders, lack the support or resources necessary to participate in such a framework if it were to exist. As a result, Louisiana has historically managed flood risk through an isolated approach, often without the mechanisms in place to consider the effects of planning and projects on neighboring communities.

There is a clear need for further enhancements to cross-jurisdictional coordination. Such programs reduce risk to all hazards because they add institutional capacity to respond to- and mitigate for- a range of disaster scenarios. Enabling more comprehensive coordination among jurisdictions can boost critical measures of disaster resilience, such as the ability to provide food, water and sheltering provisions via enacting CEAs to assist in disaster response, better coordination for evacuation procedures, and more streamlined provision of supplies and/or equipment among neighboring jurisdictions.

More extensive collaboration among jurisdictions also enables more effective communication with citizens and residents regarding flood risk and how to prepare for hazards. Projects and programs that address regional watershed planning, regional mitigation activities, and incentivization of regional

[77] GOHSEP. *Louisiana Threat and Hazards Identification and Risk Assessment Database.* 2019.

collaboration are needed to facilitate much-needed cross-jurisdictional coordination.

Unmet Mitigation Need: Flood Control Projects

Maintaining current levels of flood risk in Louisiana is unsustainable and threatens the state's ability to provide critical services, preserve critical service areas and maintain long-term community and ecosystem viability and resilience. To this end, flood risk reduction projects are critical and must be implemented as quickly and effectively as possible. This grant award must serve as a catalyst to enable risk reduction and spur more resilient development and policies in the future via the allocation of funds toward regional- and state-flood control projects.

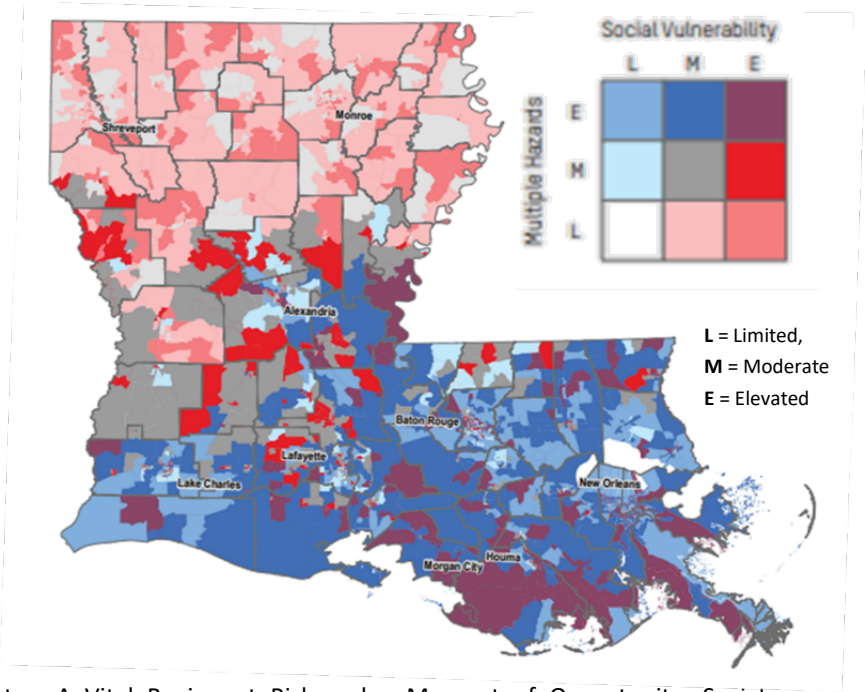
Flood risk reduction projects aim to reduce the frequency and extent of flood disaster events, which in turn reduces the need for emergency response provision of critical services, protects life and property, and provides safety and security to residents. Of the programs described in this AP, all are focused on substantive flood risk reduction. While some programs will reduce this risk through education, citizen engagement, and technical capacity within the workforce, the following programs will directly implement decreases in flood elevation levels based on predictive data and modeling of watershed characteristics:

1. Competitively awarded regional flood risk reduction projects; and
2. State-identified regional retention/detention, natural flood management and infrastructure projects.

VI. RISK DISTRIBUTION AMONG LMI OR OTHERWISE VULNERABLE COMMUNITIES AND PROTECTED CLASSES

It has long been recognized that flood-related risk often corresponds with a high level of social vulnerability, compounding the impact of flood events with the challenges of poverty for many victims. Louisiana features extensive social vulnerability across the state, as well as extreme exposure to flood, storm and coastal hazards (**Figure 19**[78] [79]). Further, many

Figure 19. Social vulnerability and hazard exposure



[78] Oxfam America Inc. "Coping with Disaster: A Vital Region at Risk and a Moment of Opportunity, Social Vulnerability and Climate Hazards in the Gulf Coast." 2012.
[79] Pina AA, Villalta IK, Ortiz CD, Gottschall AC, Costa NM, Weems CF. "Social support, discrimination, and coping as predictors of posttraumatic stress reactions in youth survivors of Hurricane Katrina." *Journal of Clinical Child and Adolescent Psychology*. 37,3 (2008):564-574.

Louisiana residents have experienced multiple flood events, and therefore have repeatedly been subjected to interruptions in work and have had to rebuild or relocate, which has long-term negative impacts on household wealth, mental health and community cohesion[80]. Moreover, as illustrated by the Social Vulnerability Index (SoVI) analysis in Figure 19, many of Louisiana's most disaster-prone – and historically impacted – geographies are co-located with pockets of vulnerable populations, including concentrations of poverty and populations of various racial and ethnic disparity.[81] For these reasons, the SHMP assessment of vulnerable populations is included herein to better inform mitigation programs and projects described in **Section VII**, which prioritize the protection of LMI individuals and vulnerable populations.

Vulnerable populations are quantified in the SHMP, as follows:

Age demographics: Population estimations for young (<20 years old) and aging (>64 years old) populations were calculated at the parish level of each Louisiana parish for the year of 2043. Annual American Community Survey (ACS) 5-year estimates of the Age and Sex File (S0101) from 2010 to 2016 were obtained from United States Census Bureau American Fact Finder for each parish. The file consists of yearly population estimates (P_{year}) for each parish from 2010 to 2016. These population estimates were used to calculate how the population changed in recent history until 2016 for each parish. The overall average rate (r) of vulnerable population change was calculated based off the six annual population changes determined for each parish (Equation 1).

Average population vulnerable population change from 2010 to 2016:

$$r = \left(\frac{(P_{11} - P_{10})}{P_{10}} + \frac{(P_{12} - P_{11})}{P_{11}} + \frac{(P_{13} - P_{12})}{P_{12}} + \frac{(P_{14} - P_{13})}{P_{13}} + \frac{(P_{15} - P_{14})}{P_{14}} + \frac{(P_{16} - P_{15})}{P_{15}} \right) / 6 \quad \text{(Equation 1)}$$

Positive rates of change indicate parishes that have experienced increases in vulnerable populations over the past six years. Negative rates of change indicate parishes that have experienced overall average decreases in vulnerable populations over the past six years. Using the same growth rate model, the following rates of change of vulnerable populations were evaluated.

Disability demographics: Annual ACS 5-year estimates of Disability Characteristics (S1810) data were obtained from United States Census Bureau American Fact Finder for each parish from 2012 to 2016.

Poverty demographics: Annual ACS 5-year estimates of Poverty Status in the Past 12 Months (B17001) data were obtained from United States Census Bureau American Fact Finder for each parish from 2012 to 2016.

Manufactured home estimates: Annual ACS 5-year estimates of Units in Structure (B25024) data were obtained from United States Census Bureau American Fact Finder for each parish from 2010 to 2016.

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[80] Carla Stanke, et al. "The effects of flooding on mental health: Outcomes and recommendations from a review of the literature" *PLoS* currents vol. 4 e4f9f1fa9c3cae. (2012): doi:10.1371/4f9f1fa9c3cae.

[81] The referenced SoVI analysis combines several different indicators, including economic standing, age extremes, rural and urban communities, special needs populations, certain at-risk occupations, housing quality, and racial and ethnic disparities.

Tables 8 and **9** provide parish level average annual growth rates for each of the identified vulnerable populations located within a HUD MID (**Table 8**) and LA MID (**Table 9**).

These values are summed by parish to provide an overarching indication of the direction of change for each parish across populations, where higher positive numbers indicate increased vulnerability, and higher negative numbers indicate decreased vulnerability. Rates closer to zero indicate less change from the current populations.

According to the SHMP, on average across the state, change in demographic vulnerability is modest in a positive or negative direction. By contrast, many parishes have significant increases in vulnerable populations. Statewide, all parishes have a positive growth rate for aging populations, defined as older than 64 years old. Beauregard, Vernon, Tangipahoa, Ascension, Plaquemines, and Terrebonne parishes have the highest sum of vulnerable population growth rates statewide, indicating a greater likelihood of future increase in demographic vulnerability.

As illustrated in **Table 8**, the HUD MID parishes with the highest LMI or vulnerable population growth rates are bolded and include Tangipahoa - disabilities (5 percent); Washington and Acadia - poverty (6 percent), Washington – living in manufactured housing (3 percent); and Ascension – older than 64 (6 percent). All 10 of the HUD MIDs have experienced a cumulative growth in their vulnerable population, most significantly within Tangipahoa (14 percent), Ascension (13 percent), Livingston (11 percent) and Washington (10 percent) parishes.

Table 8. HUD MID Vulnerable Populations Average Annual Growth Rates

Parish	Younger than 20	Older than 64	Population with disabilities	Population living in poverty	Population living in manufactured housing	Sum of vulnerable population growth rates
Tangipahoa	0%	4%	**5%**	2%	2%	**14%**
Ascension	2%	6%	2%	2%	2%	**13%**
Livingston	1%	5%	3%	2%	0%	**11%**
Washington	-1%	2%	0%	**6%**	**3%**	**10%**
Acadia	-1%	2%	0%	**6%**	1%	8%
Vermilion	0%	1%	3%	2%	1%	8%
Lafayette	0%	3%	1%	2%	1%	7%
St. Tammany	0%	**5%**	3%	-1%	-1%	7%
East Baton Rouge	-1%	3%	3%	1%	0%	6%
Ouachita	0%	2%	1%	2%	-1%	4%
Average	0%	3%	2%	2%	1%	9%

As illustrated in **Table 9** on the following page, the LA MID parishes with the highest LMI or vulnerable population growth rates are boxed, bolded and include Allen and Beauregard - disabilities (6 percent each); Vernon - poverty (11 percent), Red River (7 percent) – living in manufactured housing; and West Feliciana – older than 64 (6 percent). On average, the 46 LA MIDs have experienced a two percent cumulative growth in their vulnerable population, most significantly within Beauregard (15 percent),

Vernon (15 percent) and Richland (11 percent) parishes.

Table 9. LA MID Vulnerable Populations Average Annual Growth Rates

	Parish	Younger than 20	Older than 64	Population with disabilities	Population living in poverty	Population living in manufactured housing	Sum of vulnerable population growth rates
LA-Identified MIDs	Allen	-2%	1%	**6%**	3%	2%	10%
	Assumption	-2%	3%	0%	6%	0%	7%
	Avoyelles	-1%	1%	-6%	2%	1%	-3%
	Beauregard	0%	3%	**6%**	7%	0%	**15%**
	Bienville	-2%	0%	-4%	0%	4%	-2%
	Bossier	1%	3%	2%	2%	2%	10%
	Caddo	-1%	2%	1%	0%	-1%	1%
	Calcasieu	0%	2%	1%	1%	0%	5%
	Caldwell	-2%	2%	-5%	0%	1%	-3%
	Cameron	-2%	2%	-1%	2%	0%	1%
	Catahoula	-1%	2%	-10%	4%	4%	-2%
	Claiborne	-1%	1%	1%	0%	1%	3%
	DeSoto	-1%	3%	0%	2%	1%	6%
	East Carroll	-3%	0%	-3%	-5%	4%	-6%
	East Feliciana	-2%	4%	-5%	-4%	0%	-7%
	Evangeline	-1%	1%	5%	-5%	1%	2%
	Franklin	-1%	1%	-3%	0%	4%	1%
	Grant	-2%	3%	-3%	-2%	5%	2%
	Iberia	-1%	2%	2%	3%	2%	8%
	Iberville	-2%	3%	4%	-1%	2%	6%
	Jackson	-1%	2%	0%	8%	-2%	6%
	Jefferson Davis	-1%	1%	-2%	2%	1%	1%
	LaSalle	-1%	2%	0%	2%	5%	9%
	Lafourche	-1%	2%	2%	1%	1%	6%
	Lincoln	-1%	2%	0%	4%	2%	8%
	Madison	-2%	1%	-6%	0%	-1%	-8%
	Morehouse	-2%	1%	-3%	2%	0%	-2%
	Natchitoches	-1%	3%	0%	-1%	1%	1%
	Pointe Coupee	-1%	3%	2%	1%	1%	5%
	Rapides	0%	2%	-2%	3%	2%	5%
	Red River	-2%	1%	-3%	1%	**7%**	4%
	Richland	0%	1%	1%	5%	3%	**11%**
	Sabine	-1%	2%	-6%	2%	1%	-2%
	St. Charles	-1%	2%	-5%	2%	0%	-2%
	St. Helena	-3%	3%	1%	1%	1%	2%
	St. James	-2%	3%	2%	1%	0%	4%
	St. John the Baptist	-3%	3%	-1%	0%	1%	0%
	St. Landry	-1%	1%	-2%	4%	1%	3%
	St. Martin	-1%	3%	2%	2%	2%	8%
	Union	-1%	2%	-3%	-2%	4%	0%
	Vernon	0%	2%	1%	**11%**	1%	**15%**
	Webster	-1%	1%	-1%	-1%	1%	-1%
	West Baton Rouge	1%	3%	3%	1%	0%	8%
	West Carroll	-1%	1%	-5%	0%	1%	-4%
	West Feliciana	3%	**6%**	-5%	0%	2%	5%
	Winn	-2%	1%	-5%	0%	0%	-5%
	Average	-1%	2%	0%	1%	1%	2%

In connection with this analysis, the state further provides the following discussion of how the expenditure of CDBG-MIT funds may affect members of protected classes under fair housing and civil rights laws. Protected classes are based on the following attributes:

- Color or race
- Disability
- Familial status (i.e., having children under 18 in a household, including pregnant women)
- National origin
- Religion
- Sex

While the program areas included in this AP do not define eligilbity based on protected class status, the state – through its history of disaster-recovery work – has documented correlations between adverse impacts, household income levels, and certain protected classes. Therefore, in prioritizing both disaster risk mitigation and benefit to low- and moderate- income households, the state reasonably anticipates that program areas outlined in this AP will effectuate a significant positive impact on protected class populations.

Most recently, the state led long-term recovery efforts following the Great Floods of 2016. The tables below, based on 2016 flood recovery programs administered by the state, reflect both the disproportionate impact on LMI populations and additional protected class populations[82]. Statewide statistics in this section refer to 2017 American Community Survey (ACS) 5-year estimates.

Income

As of January 31, 2020, more than half of all homeowners requesting assistance following the Great Floods of 2016 were reported to be LMI households. By definition, as exactly half of any given population is both above and below the Area Median Income (AMI), this statistic illustrates disproportionate impact to LMI households.

	Requests	Percentage of Total
LMI	18,906	50.8%
Non-LMI	18,276	49.2%
Total	**37,182**	**100.0%**

Ethnicity

Moreover, recovery program statistics indicated a disproportionate impact to non-white populations compared to statewide averages.

Requests for Assistance

	Count	% of Total
White	21,105	56.8%
Non-White	16,077	43.2%
Total	**37,182**	**100.0%**

Statewide

	Count	% of Total
White	2,909,599	62.4%
Non-White	1,753,862	37.6%
Total	**4,663,461**	**100.0%**

[82] This data is based on self-reporting contained in requests for assistance, not on final determinations in awarding financial assistance.

Additionally, a more intensive breakdown of ethnic groups illustrated that disproportionately higher percentages of non-white populations requesting assistance were also more likely to be LMI households.

	Count	LMI	% LMI
American Indian/Alaska Native	50	30	60.0%
American Indian/Alaska Native and White	86	45	52.3%
American Indian/Alaska Native/Black-African American	58	44	75.9%
Asian	504	288	57.1%
Asian and White	50	25	50.0%
Black/African American	14,315	9,068	63.3%
Black/African American and White	269	188	69.9%
Native Hawaiian/Other Pacific Islander	35	19	54.3%
Other Multi-Racial	627	362	57.7%
White	21,105	8,786	41.6%
Unknown	83	61	73.5%
Total	**37,182**	**18,916**	**50.9%**

Disability

Recovery program statistics also indicated disproportionate impact to disabled populations compared to statewide totals.

Requests for Assistance

	Count	% of Total
Disability (Yes)	11,157	30.0%
Disability (No)	26,025	70.0%
Total	**37,182**	**100.0%**

Statewide

	Count	% of Total
Disability (Yes)	680,623	14.9%
Disability (No)	3,878,949	85.1%
Total	**4,559,572**	**100.0%**

Within the population requesting recovery assistance, program statistics further illustrate a high correlation between disabled and LMI household populations.

Applicants with Disability

	Count	% of Total
LMI	8,022	71.9%
Non-LMI	3,135	28.1%
Total	**11,157**	**100.0%**

Additionally, while not a disabled population, this same correlation is applicable to populations over 62 years of age.

Requests for Assistance

	Count	% of Total
Over 62 Years of Age	13,740	37.0%
Not Over 62 Years of Age	23,442	63.0%
Total	**37,182**	**100.0%**

Statewide

	Count	% of Total
Over 62 Years of Age	816,536	17.5%
Not Over 62 Years of Age	3,846,925	82.5%
Total	**4,663,461**	**100.0%**

Sex (Female Head of Household)

Per 2010 Census data (ACS does not collect information on female heads of household), 31.5 percent of Louisiana's households had a female head of household (544,539 of 1,728,360). However, as illustrated by recovery program statistics, female-headed households requested assistance at a rate far exceeding the statewide average.

Requests for Assistance

	Count	% of Total
Female Head of Household	20,873	56.1%
Male Head of Household	16,182	43.5%
Declined to Answer	127	0.3%
Total	**37,182**	**100.0%**

Moreover, female-headed households were disproportionately likely to be LMI.

	Count	LMI	% LMI
Female Head of Household	20,873	12,206	58.5%
Male Head of Household	16,182	6,639	41.0%
Declined to Answer	127	71	55.9%
Total	**37,182**	**18,916**	**50.9%**

In summation, the state draws the following conclusions regarding disproportionate impact of protected class populations as evidenced in its recovery efforts following the Great Floods of 2016:

- LMI populations were disproportionately impacted by the 2016 events;
- Non-white populations were disproportionately impacted, and those non-white populations were disproportionately likely to also be LMI;
- Disabled populations were disproportionately impacted, and impacted disabled populations were disproportionately likely to also be LMI;
- Senior populations (over 62 years of age) were disproportionately impacted;
  Female-headed households were disproportionately impacted, and those female-headed household populations were disproportionately likely to also be LMI.

Based on this analysis and set of conclusions, the state reasonably anticipates that the program areas outlined in this Action Plan – as they are specifically intended to mitigate the types of flood risks experienced in the Great Floods of 2016 – will have significant risk reduction impacts in greater proportion to protected class populations than to the general population.

VII. APPROACHES TO ADDRESS MITIGATION NEEDS

VII. A. CONNECTION BETWEEN MITIGATION NEEDS AND ALLOCATION OF FUNDS

The Great Floods of 2016 indicate that Louisiana needs to evolve in how it considers its flood risks. The two events in 2016 caused an estimated $10 billion in damages and impacted more than 145,000 homes — many of which were not located within a SFHA. Moreover, the events themselves resulted from a historic rainfall event, putting a spotlight on riverine and flash flood risk in a state that had previously directed most of its attention toward tropical, surge flood risks.

As indicated in this AP's Mitigation Needs Assessment, incremental municipal and parish-level flood control interventions are insufficient, and sometimes counterproductive, in addressing Louisiana's myriad flood risks. A watershed approach to floodplain management recognizes that policies and actions anywhere in a watershed can have impacts throughout the watershed. Increasing the amount of impermeable surface in the upper parts of a watershed can increase flooding throughout the watershed. Immediate economic needs must be balanced with long-term resilience strategies in order to attain an acceptable level of flood risk that does not subject citizens to the cycle of repeated disaster and recovery. Watershed management is most effective when done at the systems scale, and the implementation of regional flood control projects can provide benefits to a large geographic area while leveraging funds from multiple sources to accomplish immediate and sustainable mitigation goals. A statewide approach to data, modeling, planning, project investment, and development is the only way that the residents and leaders of Louisiana can make truly informed decisions about how to best manage flood risk in the state.

Although the HUD and LA MIDs do not represent all of the parishes in the state, watersheds cross political boundaries. In many cases, areas designated as MID are within watersheds extending far beyond MID boundaries. Similarly, much of the 2016 flooding that occurred inside the designated MID areas was directly related to precipitation and flooding that occurred outside the MID areas. Therefore, in order to adequately mitigate flood risk within MID areas, potential projects enumerated in this AP may be located outside of a MID while providing regional mitigation benefits to an area including those designated as MID. Therefore, planning, modeling, evaluation, and mitigation must occur in a holistic manner that addresses the entire state and recognizes the interconnected nature of watersheds.

Predictive watershed modeling may also indicate that future extreme flood risk does not align with the impacted areas from the Great Floods of 2016, indicating a demand for proactive mitigation investments outside of MID areas designed to address the next potential disaster. Finally, post-disaster migration patterns and development demands may shift population concentrations to previously undeveloped areas of the state, thereby increasing potential devastation if a future event impacts these newly developed areas. A statewide approach to watershed management will allow the state to balance the needs of all residents and to allocate funds most effectively considering development patterns and flood risk levels.

VII. B. ALLOCATION OF FUNDS

The state allocates resources towards two programmatic arms (1) the LWI and (2) Non-Federal Cost Share Assistance. Associated program areas and costs are described in **Table 10**.

Table 10. CDBG-MIT Program Budget

Programs	Allocation	Percent of Grant
Local and Regional Watershed Projects and Programs	$570,666,243	47 %
State Projects and Programs	$327,757,590	27 %
Non-Federal Cost Share Assistance	$96,988,107	8 %
Watershed Monitoring, Mapping, and Modeling	$145,670,040	12 %
Administrative Costs	$48,556,680	4 %
Watershed Policy, Planning, and Local Capacity Assistance	$24,278,340	2 %
Total Allocation	**$ 1,213,917,000**	**100 %**

It is important to note that FR-6109-N-02 defines a "covered project" as an infrastructure project having a total project cost of $100 million or more, with at least $50 million of CDBG funds (regardless of source (CDBG–DR, CDBG–NDR, CDBG–MIT, or CDBG)). The state does not currently contemplate any individual projects that meet the definition of a Covered Project. Should the state choose to use CDBG-MIT funds on a Covered Project, use of these funds will be outlined in a future Substantial Action Plan Amendment.

VII. C. THE LOUISIANA WATERSHED INITIATIVE

The LWI is the state's most recent effort to shift toward a more sustainable, proactive, and holistic approach in how it considers its complicated relationship with water. The Coastal Master Plan has led the way in developing a science-based approach to consider coastal surge flood risk. More recently, LA SAFE used the Coastal Master Plan's forward-thinking, 50-year approach to flood risk, while also integrating FEMA Flood Insurance Rate Map (FIRM) data to visualize flood risk holistically and to work directly with coastal communities to envision future land uses and development patterns based on expected risks. The LWI builds on the progress made within both programs, taking a statewide approach to watershed-based floodplain management that will reduce flood risk vulnerabilities through pre-disaster mapping, modeling, and watershed management planning – backed by large-scale implementation of projects and programs that directly mitigate identified risks.

The LWI's approach relies on a multi-faceted process (1) develop a data-driven understanding of how water naturally moves throughout the state, and how that natural movement of water correlates with the state's riverine, flash flood, and surge risks; (2) use best available science as an educational and coalition-building tool leading to the development of watershed management plans locally, regionally, and statewide, redefining how Louisiana uses flood risk data to inform development decisions through both capital investments as well as new policy and programmatic initiatives; and (3) provide incentives and resources promoting shared responsibility amongst local, regional, and state-level decision-makers through direct investment in projects, policies, and programs informed by the LWI's approach to watershed management.

The LWI science-based approach is rooted in the production of statewide dynamic watershed models that will form the foundation of watershed management plans and strategies. The LWI also focuses on collaborative decision-making in order to enable local leaders within a watershed to most effectively manage flood risk beyond the limits of political jurisdictions. As evidenced by the Great Floods of 2016, water knows no boundaries, and decisions made in one jurisdiction inevitably impact other jurisdictions within a shared watershed.

The projects and programs enumerated in this AP and implemented through the LWI will serve as a catalyst to enable Louisiana's communities to mobilize a massive strategic effort to reduce flood risk and advance long term resilience. Efforts of the LWI will continue beyond the expenditure of these funds and represent a multi-agency and multi-jurisdictional collective endeavor to align efforts toward flood control and improve development patterns to avoid future flood losses while maintaining valuable natural functions.

The LWI's approach is consistent with best practices in regional floodplain management and the EPA's Watershed Approach Framework to reduce flood risk. It promotes strategies and practices that make wise use of our watersheds' natural features that provide flood water storage in the landscape, regulate the flow of water and provide other ecological services critical to Louisiana's long-term resilience and way of life. Further, the LWI's approach will prioritize collaboration between technical experts and decision-makers representing different facets of state and local government and utilize a diverse array of subject matter experts to most effectively leverage efforts. Finally, the LWI has employed a unified management structure operating through a Council on Watershed Management charged with goal setting and developing measurable criteria to examine program impacts, as well as oversight of the effort. This approach enables consistent execution throughout all of the LWI's efforts.

The Council on Watershed Management (Council)

In May 2018, Governor John Bel Edwards issued Executive Order JBE 18-16, which directed the Secretaries and Executive Directors of the OCD, DOTD, CPRA, GOHSEP, and LDWF to operate in collaboration as the Council on Watershed Management. The Council's goals include:

1. Promoting a unified effort, built on a solid foundation of scientific and engineering principles, to address flooding issues across the state;
2. Identifying and working with or seeking input from additional local, state and federal agencies and other stakeholders including not-for-profit research institutions, university research institutions, state agencies, federal agencies, drainage or levee boards and other local districts, and private sector experts to develop, implement and evaluate the necessary components of a Louisiana Watershed-based Floodplain Management Program;
3. Expanding, developing and using in-state skill, knowledge, technology and talent to develop and implement the program, promoting Louisiana resources through collaboration, communication, and cooperation among governmental, non-governmental, for-profit, non-profit and university entities;
4. Increasing state and local resilience to flooding by working to reduce the incidence of flooding, reduce damages from flooding, improve response to flooding, and reduce the amount of time needed to recover from flooding;
5. Promoting actions, including legislative, administrative, and regulatory, where appropriate, to enhance watershed and floodplain management in Louisiana;
6. Identifying, prioritizing, acquiring and establishing funding mechanisms to enhance the Louisiana Watershed-based Floodplain Management Program;
7. Facilitating watershed-based floodplain management by working to create watershed-bounded entities across the state; and
8. Developing an approach to watershed-based floodplain management that is recognized as a model for others nationally and internationally.

Regional Steering Committees and Coalitions

Commensurate with the LWI's outreach, engagement and planning goals, regional (parish and local) stakeholders are working to establish Regional Steering Committees that will function as citizen advisory committees, will hold a minimum of three meetings per year that are open to the public, and will provide input in the development and implementation of longer-term regional watershed governance structures (i.e. coalitions), watershed management plans, and the implementation of projects, programs, and policies emanating from those planning efforts.

Regional involvement, consistent approaches to mitigation activities, and collaboration are the driving principles of the LWI. To that end, the LWI will include technical assistance to municipal and regional entities, watershed mapping and modeling, the formulation of regional watershed management plans, and the organization of regional coalitions driven by regional steering committees (in the near-term) and formal management boards or coalitions long-term. The goal of the regional component of the LWI is to enhance the ability of regions to collaborate to consistently (and collectively) raise development standards and mitigate unforeseen negative impacts of potential flood control interventions to neighboring regions. Further, the formation of regional steering committees and coalitions will provide a more sustainable institutional basis to improve flood resilience in an ongoing effort that will outlast specific event-related funding allocations.

The establishment of these regional steering committees benefits from a robust outreach process, wherein the Council solicited the consultation of local governments in impacted areas in order to guide the composition of the steering committees. Consulted local stakeholders and consulted experts' feedback emphasized the importance of membership on these committees that includes a mix of watershed professionals (engineers, floodplain managers, soil and conservation board members, etc.). This input also contended that steering committees must include community representatives, including citizen participants with backgrounds in diverse fields such as nonprofits, business, or social services or with strong ties to social institutions within the region. Finally, guidance on the establishment of these steering committees specifies that the makeup of the committees should reflect the demographic diversity and a spectrum of interests within the region.

Timeline

The state's efforts towards a coordinated approach to flood risk management is summarized below:

1. In 2014, the Louisiana Legislature embarked on an investigation into the alignment of flood protection authorities within watershed boundaries[83]. This initiated a legislative dialogue regarding the need for comprehensive floodplain management, which has been emphasized by legislators[84] [85];
2. The Great Floods of 2016 further emphasized an urgent need for watershed-based collaboration. Shortly following this event, the State of Louisiana initiated a number of coordinating efforts among state agencies and regional stakeholders to address this need;
3. In 2017, the state began to undertake initial watershed modeling efforts and initiated a Phase I – Investigation to determine a process to develop a statewide watershed-based floodplain

[83] Louisiana Legislature. Senate. *Senate Concurrent Resolution 39.* 2013 regular session.
[84] Louisiana Legislature. Senate. *Senate Resolution 172*. 2017 regular session
[85] Louisiana Legislature. House of Representatives. *Louisiana House Bill 614*. 2018 regular session.

management program. Additional information on the LWI's Phase I Report can be found at https://watershed.la.gov/resources;

4. In May of 2018, Governor Edwards signed Executive Order JBE 18-16, which created the Louisiana Council on Watershed Management. Following this, the Council initiated Phase II – Implementation of the LWI and engaged with technical experts to inform such efforts.
5. In late 2018 and early 2019, the Council conducted a series of outreach and engagement events, including a "Statewide Listening Tour," a "Best Practices Interstate Summit," and attendance at numerous speaking engagements;
6. In August 2019, as a result of extensive outreach and engagement efforts, the Council recognized statewide provisional watershed regions to enable successful implementation and coordination of LWI program activities (**Figure 20**). More information on watershed region boundaries and how they were determined can be found online at watershed.la.gov and **Appendix E** of this AP.
7. The state agencies will continue implementing a statewide outreach and engagement strategy to inform policy and program development not only for the funding within this AP, but for programs and projects across the state implemented by participating LWI agencies.

Figure 20. LWI Provisional Watershed Regions

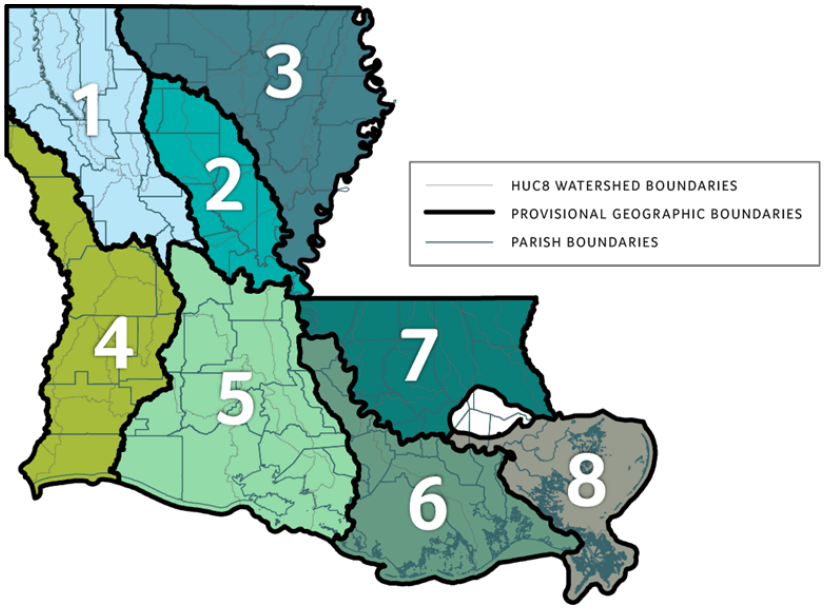

Figure 21. LWI Timeline

VII. D. LWI PROGRAM AREAS

The respective LWI program areas under this CDBG-MIT grant include:

1. Local and Regional Watershed Projects and Programs;
2. State Projects and Programs;
3. Watershed Monitoring, Mapping and Modeling; and
4. Watershed Policy, Planning and Local Capacity Assistance.

Program Area No. 1: Local and Regional Watershed Projects and Programs

Program Area	Allocation	Percent of Grant
Local and Regional Watershed Projects and Programs	$570,666,243	47 percent

Eligible Activities:	All eligible activities defined in HCDA 105(a) 1-25 and any applicable waivers or alternative requirements
National Objectives:	LMI and Urgent Need Mitigation

SUMMARY & USE OF FUNDS

As local, regional and state governments and organizations work through the LWI toward regional, watershed-based coordination and as the LWI develops datasets and modeling tools to inform watershed management policy and project mitigation activities (see Program Areas 3 and 4 in this Section for more detail), the LWI will provide funding and assistance to local and regional organizations to implement identified projects and programs with demonstrable and quantifiable mitigation outcomes. These projects and programs may include, but are not limited to, direct physical improvements to the watershed, ecological and waterway restoration projects, code enforcement activities, floodplain/floodway easements, and strategic land acquisitions and other projects that demonstrably enhance the storage and ecosystem capacity of the land and water systems within the state's respective watersheds.

The program will primarily provide funding on a regional (watershed) basis for local governments or legally authorized regional governments to apply on a regional competitive, statewide competitive, and/or regional allocation-based grant for planning, acquisition, infrastructure, code enforcement, public services, buyouts and housing activities related to resettlement, economic development and/or other public facilities projects that increase resilience to floods on a watershed level. Local governments and regional entities will be responsible for identifying and prioritizing the programs and projects to submit for funding opportunities that result in demonstrable flood mitigation, and watershed management entities will take part in regional project selection to further facilitate inter-jurisdictional coordination. Some examples of programs or projects may include, but are not limited to:

1. Restoration, enhancement and/or preservation of floodplains, wetlands and other natural infrastructure, flood mitigation of critical facilities and infrastructure, nonstructural mitigation, stormwater management, and other innovative/replicable flood control activities;
2. Services for clearing title defects for low-to-moderate program participants who are otherwise eligible and willing but cannot participate due to title defects and the services are reasonably calculated to result in a clear title at an expense that is not cost prohibitive;
3. Elevation, buyout or acquisition of floodplain easements in strategically located flood

abatement areas or existing developments located in repetitive loss areas;
4. Voluntary relocation projects enabling residents to move out of high flood risk areas;
5. Major capital projects that improve resilience to flooding, provide regional stormwater detention, or other flood protection measures;
6. Capacity building toward implementation of resilient development standards and floodplain management regulations;
7. Housing developments using sound, resilient construction practices to mitigate long-term flood risk;
8. Training and certification in resilient building methods;
9. Training and apprenticeship programs to educate elementary, secondary, and post-secondary students in watershed data collection, modeling, and resilient best practices; and
10. Any other relevant projects and programs developed through the LWI's watershed modeling, statewide planning, and regional planning efforts.

The state will require projects funded through this program to include long-term operation and maintenance plans, and that such plans address the collection and application of sufficient revenues for anticipated operation and maintenance costs in the outyears. To this end, the LWI places emphasis on the adoption of regional watershed governance structures, which further secures a grantees' ability to provide consistent long-term operation, maintenance, and management of mitigation projects. For activities that use Urgent Need Mitigation as their national objective, the state will require sub-grantees to demonstrate how their projects will result in a measurable and verifiable reduction in the risk of loss of life and property.

GEOGRAPHIC ELIGIBILITY

Watershed regions including any LA or HUD MID as defined in this AP.

ELIGIBLE APPLICANTS

This program is designed for implementation through units of local government and/or local and regional coalitions. However, specific program elements may require different methods of distribution via subrecipient and other agreements between units of local government and/or local and regional coalitions and other entities carrying out program elements.
Therefore, the following entities may be eligible for a grant award as part of this program:

1. State of Louisiana government agencies;
2. Units of local or regional government;
3. Institutions of higher education;
4. Private non-profit organizations;
5. Private land owners (for buyout and/or nonstructural mitigation activities); and/or
6. Other entities serving as subrecipients to the state.

METHOD OF DISTRIBUTION

This program is to be implemented in three distinct "rounds". Round 1 provides an initial allocation of $100 million for resilience projects and programs within a watershed area. Round 1 funds are designed to implement ready, low-risk programs and projects known not to negatively impact flood risk or the natural and beneficial function of the floodplain either up or downstream, and that consider flood risks through a watershed-based approach and to incentivize units of local government to organize collectively as regional coalitions. Round 1 has a single intake process but two opportunities for

selection of awards: via statewide selection (up to $60 million) and via regional selection (up to $40 million total with up to $5 million per watershed region). Round 1 funding will be allocated toward mitigation activities including but not limited to public infrastructure and improvements, elevations, voluntary buyouts and housing activities related to resettlement, economic development and/or other public facilities projects. Projects selected for Round 1 funding are anticipated to require minimal continued maintenance and provide risk reduction at the community or regional scale. The criteria for project selection in Round 1 (as well as other program documents) can be found online for the consideration of potential applications in anticipating of CDBG-MIT funding.

Rounds 2 and 3 of the Local and Regional Program are designed to be implemented after units of local government have formed coalitions and have completed regional planning activities. Round 2 will make strategic investments on a competitive or noncompetitive basis to implement programs and projects described in regional watershed strategies and are demonstrated to have maximal beneficial impacts to watersheds and watershed regions, with a specific emphasis placed on flood-risk reduction activities as evidenced by watershed models as they are available. Rounds 2 and 3 will enable project enhancements based on watershed model output and will be informed by the development of a statewide watershed plan and regional watershed management plans or strategies, as well as information made available through the *Watershed Modeling, Mapping and Monitoring Program*. Round 3 will award the remaining program funding on a competitive basis to implement flood-risk reduction projects justified by fully completed watershed models and will incentivize the adoption of resilient policies on a regional basis. These three rounds are described in **Table 11**.

Scoring criteria for the selection of projects will include points specifically for programs that benefit low- and moderate- income populations.

Table 11. Local and Regional Watershed Projects and Programs Funding Rounds

Round	Approx. Launch Date	Funding Level
1	Upon Receipt of Grant	Up to $100,000,000
2	Approximately 2022	Up to $200,000,000
3	2024 or Later	Up to $270,666,243

Awards for Rounds 1, 2, and 3 are designed to encourage regional discussion and prioritization of projects, allow full consideration of a broad array of impactful mitigation activities, and ultimately to focus the detailed level of project formulation only to the most qualified projects that have the highest likelihood of success. The two-tiered selection process in Round 1 allows for a statewide competition for all eligible projects and a successive watershed regional prioritization process within each region.

Projects and programs will be awarded through one or more competitive notices of funding availability or NOFAs for regional competitive, statewide competitive and/or regional allocation-based grant opportunities. Selection criteria and procedures will be outlined within the program's policies and procedures. Criteria may include, but are not limited to, flood risk reduction effectiveness as evidenced by watershed models or other H&H analysis, cross-jurisdictional collaboration, demonstration of best flood-risk mitigation practices, cost effectiveness, number of households benefitted (showing anticipated 1 percent AEP impact decreased), use of green and blue-green infrastructure technologies and techniques, use of passive and/or low-maintenance interventions, use of the natural and beneficial functions of a watershed, benefit to critical services and infrastructure, and benefits to vulnerable

populations, including LMI populations. Relative importance or weighting of specific criteria will be noted in each program Notice of Funding Availability (NOFA).

Awards from Rounds II and III will benefit from the outputs of the *Watershed Monitoring, Mapping and Modeling* program, specifically that of predictive watershed modeling tools and enhanced data collection capabilities. Awards made through this program must also be consistent with statewide and regional watershed management plans developed through the *Watershed Policy, Planning and Local Capacity Assistance* initiative and will benefit from technical assistance and capacity building opportunities within this program area.

MAXIMUM AWARD AMOUNTS

Round 1 of this program has a maximum award amount of $10 million per project (subject to requested exceptions). Specific criteria for Rounds 2 and 3 regarding maximum awards – including exceptions – will be incorporated in the program's policies and procedures. For direct beneficiary programs being funded through these grants, the maximum award is $250,000. For buyouts and housing incentive programs, the maximum is inclusive of both the buyout and incentive award. Exceptions to the maximum amount for buyouts and housing incentives can be granted by the state if:

1. The particular program policies allow for an increase above the maximum;
2. A full appraisal in a format allowed by the state's policies and procedures establishes that the maximum amount is insufficient to allow for both the housing incentive and the fair market value of the property; and
3. The purchase of the property is necessary for completing the mission of the program.

The state will also make exceptions to the maximum award amounts when necessary to comply with federal accessibility standards or to reasonably accommodate a person with disabilities. The state will adopt policies and procedures governing the calculation of the housing incentives, the establishment of the fair market value of the property, and the process for deciding exceptions to the maximum amount. The policies and procedures will be published on the state's website.

Program Area No. 2: State Projects and Programs

Program Area	Allocation	Percent of Grant
State Projects and Programs	$327,757,590	27 percent

Eligible Activities:	All eligible activities defined in HCDA 105(a) 1-25 and any applicable waivers or alternative requirements
National Objectives:	LMI and Urgent Need Mitigation

SUMMARY & USE OF FUNDS

Following the Great Floods of 2016, the state identified numerous projects and/or programs that are necessary for immediate implementation of a more comprehensive flood mitigation strategy. In these cases, the state – through the LWI – will award projects, as selected through a non-competitive process for immediate implementation. These projects and programs must align with the LWI's approach to comprehensive statewide and regional watershed management focused on four dimensions: (1) evidence-backed flood control projects, (2) innovative floodplain management, (3) public education and

(4) changing development patterns. . For activities that use Urgent Need Mitigation as their national objective, the state will demonstrate how projects will result in a measurable and verifiable reduction in the risk of loss of life and property. The seven general program and/or project types are discussed and presented in more detail below:

Program Area	Allocation	Percent of State Identified Projects and Programs Funding
Regional Retention/Detention and Natural Flood Management, Large-Area Buyouts and Traditional Nonstructural Mitigation, Resilient Affordable Housing, Remote Lands Purchase and Critical Facilities and Infrastructure Projects	$312,757,590	95 percent
Flood-Ready Jobs and Resilience Gap Financing Programs	$15,000,000	5 percent

1. **Regional Retention/Detention Projects and Natural Flood Management**
   Increasingly, Louisiana experiences high-intensity rainfall events leading to localized flash and riverine flooding. In response, the state will use predictive watershed modeling to identify areas with maximum potential to detain and retain water capacity, as well as to identify strategically located, critical sites that provide beneficial natural functions and are in need of restoration or preservation. These projects may include the creation or restoration of wetland functions, the improvement or enhancement of components of the states' water conveyance infrastructure, and/or the preservation of certain areas. In selecting regional retention/detention or natural flood management projects, the state will emphasize best practices in flood control and techniques with a documented history of effectiveness. In many instances, the installation of a regional retention/detention or natural flood management project or the preservation of a critical area or habitat can also serve a public education purpose, allowing the public to observe how retention, detention, and/or wetland areas function to reduce flood impacts.

2. **Large-Area Buyouts and Traditional Nonstructural Mitigation**
   The state will conduct large-area buyouts (on the block or neighborhood scale) for families within repetitive loss areas, areas subject to moderate or high flood risk and/or within FEMA designated floodways. Such buyout programs will include provisions for community-oriented assistance to homeowners in order to facilitate a successful transition to a location of lower flood risk outside of SFHAs. Where feasible, relocations will be outside of 0.2 percent AEP flood event areas or mitigated to the 0.2 percent AEP flood standard. Property acquired through program buyouts will be restored to natural floodplain conditions and may be further enhanced through the use of blue and green infrastructure. In order to preserve communities that, for reasons of geography or natural resource dependence, cannot relocate to <0.2 percent AEP flood event areas and maintain important social and cultural standards, the state may also administer residential elevations or other traditional nonstructural flood risk mitigation activities. The state will administer residential elevations justified by cost-benefit and cost reasonable analyses relative to other mitigation measures and the results of watershed modeling. Housing programs will be administered in a manner that prioritizes the review of applications of low- and moderate- income household.

This program will further prioritize project funding that benefits low- and moderate- income residents and use predictive watershed modeling to produce measurable reductions in residents' exposure to flood risk.

Program Component: Equitable Mitigation Services
The state proposes a program component to augment standard eligibility or benefit cost analysis methodologies considerations for nonstructural mitigation programs funded through this allocation to remove barriers to entry and participation by low- to moderate- income applicants. Unclear land titles can operate as an obstacle to homeowners seeking to participate in mitigation programs. To address this need, services for clearing title defects will be provided for low-to-moderate program participants who are otherwise eligible and willing but cannot participate due to title defects and the services are reasonably calculated to result in a clear title at an expense that is not cost prohibitive.

3. **Resilient Affordable Housing Program**
Many Louisiana parishes face a vulnerability crisis, wherein low- and very low-income residents are located in detached housing or public housing units subject to significant flood risk. These residents may also be at increased risk during a flood event due to limited options and means to enable their evacuation and recovery. This program would allocate funding to Public Housing Authorities or allocate funding in combination with other leveraged funding sources to developers in eligible areas to construct new housing units that are constructed to withstand the 500-year (0.2 percent AEP) flood event or are in areas outside of the 500-year floodplain (0.2 percent AEP risk), thereby enabling affordable housing supply to meet the demands of the low- and very low-income residents in the area subject to significant flood risk. This program will prioritize project funding that benefits LMI residents and reduces the need for the provision of critical services in emergency response and recovery operations. The Resilient Affordable Housing Program will include an element of permanent supportive housing to assist at risk individuals who are in need of supportive services to allow them to attain independent living.

4. **Remote Lands Purchase Program**
Many parishes and municipalities have "paper subdivisions" or land that was subdivided or platted with the intent to develop a residential subdivision, but such development has not occurred to-date and is unlikely to occur in the future. In many instances, these sites are owned separately by many owners that further prevents future development of the land. Similarly, many parishes contain sites that lack direct access to an improved street, municipal water infrastructure and/or a municipal sewer system and would be prohibitively expensive to improve (identified herein as "remote lands"). Both "paper subdivisions" and "remote lands" pose a challenge to municipal government and their owners, as they are difficult to maintain and incur limited property tax income. Further, these lots may feature clouded titles or may be transferred without the future owner having full understanding of their limited potential for development.

The state will offer technical assistance to parishes in order to identify and purchase "paper subdivisions" and "remote lands" that serve as retention areas or are at substantial flood risk. The state will collaborate with the parishes to produce clear titles of such sites and arrange a voluntary acquisition of the land, transferring its ownership to the parish. An optional aspect of this program would be to fund minimal improvements to such sites in order to enhance the sites' natural retention functions and to install green infrastructure or natural riparian vegetative features in order to enable cost-effective long-term maintenance.

5. **Critical Facilities and Infrastructure Program**
   Critical facilities such as hospitals, nursing homes or assisted living facilities, fire stations, police stations, emergency shelters, evacuation routes and infrastructure providing water, sanitation, and power services must be able to withstand higher-magnitude events beyond 1 percent AEP floods. Critical facilities which either serve a low- and moderate income area or that primarily benefit low- and moderate- income households will be included in meeting the low- and moderate- income expenditure requirement. Many existing critical facilities serving Louisiana residents are currently at significant flood risk, thereby inhibiting emergency management procedures and delaying service continuity following a flood event. Using models created through the LWI, the state will analyze the impacts of potential sustained rainfall and multi-day tropical cyclone events and use such predictive data to (1) update state and local emergency response plans and (2) construct, retrofit and mitigate critical facilities to a minimum standard accounting for 0.2 percent AEP floods, thereby enabling continued functionality of infrastructure providing critical services under a range of scenarios. Projects funded under this program may present opportunities to reduce the potential for future flood damage through retrofits that conserve, restore or enhance their systems and/or that incorporate natural systems and proven flood mitigation techniques into developed areas to manage stormwater on-site. This program will utilize evidence-based techniques, watershed modeling and green infrastructure concepts to improve flood resilience at each site. Further, where practicable, these projects will provide a public education function as they illustrate best practices in stormwater and floodplain management techniques.

6. **Flood-Ready Jobs**
   There is an opportunity within Louisiana to enhance the skill set of various professional disciplines to enable more resilient building practices. Training and certification programs in pier/piling foundation installation, home elevation, V-zone or coastal construction methods, green infrastructure design/installation/maintenance, riparian conservation, retention pond construction methods, dry-floodproofing methods would enable developers, building/site designers, contractors or builders to offer a larger portfolio of resilient construction techniques. Training and certification programs in flood risk analysis, GIS, and land use issues could also enhance the technical expertise of real-estate, surveying/mapping, and engineering professionals. Further, few primary and secondary schools offer a curriculum that prepares students to enter resilience-based careers or that equips students and residents with the skills necessary to navigate the real estate market in a flood-prone region. The cultivation of these resilient skills among the workforce in Louisiana is critical to enabling more resilient development patterns and reducing risk to future homeowners.

   Through this initiative, the LWI will create a workforce education program to provide training, licensing, business-incubation, business loans, and apprenticeship programs to developer, construction, real-estate, surveying/mapping and engineering professionals in order to produce the next generation of resilience professionals. This program will also provide tuition for higher education in resilience programs and funding for the development of curricula in primary and secondary schools, as well as citizen education programs, on resilience and water-management topics. This program aims to shift development patterns in Louisiana toward a more resilient standard by training professionals to use resilient methods and to use data to assist homebuyers and land owners in making better decisions with respect to resilience.

   Flood-Ready Jobs will include certain programs which are specifically to benefit individuals from

low- and moderate- income households.

7. **Resilience Gap Financing**
   Many land development professionals cite increased cost as an impediment to constructing buildings and developments using flood-resilient methods and—when implemented—often pass these costs onto future homeowners, which reduces affordability of existing and future resilient housing stock. As a result of this consideration, housing stock currently constructed in Louisiana is generally not constructed to mitigate for future flood risk or is priced too high for LMI populations. This is an urgent challenge, as new structures developed without flood-resilient methods may put residents at risk in the future and may incur substantial flood damage costs if development practices within the state are not substantially improved. Similarly, higher costs associated with resilient housing stock may perpetuate social inequity, wherein LMI populations must choose to live where it is affordable, which is often within housing not resilient to flood risk and located in a SFHA.

   Through this initiative, the LWI will launch a resilience gap financing program providing grants and loans to developers committed to building affordable, resilient housing in the amount equivalent to the gap between typical construction methods and resilient construction methods (such as those utilizing freeboard, elevation, green infrastructure, permeable pavement, open-pier foundation styles, zero fill, and/or mitigation to the 0.2 percent AEP flood standard) and thereby enable the construction of affordable single- and multi-family housing stock within the state using flood-resilient methods.

   Low- and moderate- income households will benefit from this program through increased subsidies to the developers who in turn provide increased affordability.

GEOGRAPHIC ELIGIBILITY

Any watershed region containing a LA or HUD MID as defined in this AP.

ELIGIBLE APPLICANTS

This program is designed for implementation through various state agencies. However, specific program elements may require different methods of distribution via subrecipient and other agreements between state agencies and other entities carrying out program elements. Therefore, the following entities may be eligible for a grant award as part of this program:

1. State of Louisiana government agencies;
2. Units of local or regional government;
3. Institutions of higher education;
4. Private non-profit organizations;
5. Private land owners (for buyout and/or nonstructural mitigation activities); and/or
6. Other entities serving as subrecipients to the state.

METHOD OF DISTRIBUTION

Projects will be selected based on criteria and procedures will be outlined within the program's policies and procedures. Criteria may include, but is not limited to, demonstration of best flood-risk mitigation practices, use of green and blue-green infrastructure technologies and techniques, impacts positively benefitting the natural functions of a watershed, and benefits to vulnerable populations, including low- and moderate-income populations.

MAXIMUM AWARD AMOUNTS

For direct beneficiary programs being funded through these grants, the maximum award is $250,000. For buyouts and housing incentive programs, the maximum is inclusive of both the buyout and incentive award. Exceptions to the maximum amount for buyouts and housing incentives can be granted by the state if:

1. The particular program policies allow for an increase above the maximum;
2. A full appraisal in a format allowed by the state's policies and procedures establishes that the maximum amount is insufficient to allow for both the housing incentive and the fair market value of the property; and
3. The purchase of the property is necessary for completing the mission of the program.

The state will also make exceptions to the maximum award amounts when necessary to comply with federal accessibility standards or to reasonably accommodate a person with disabilities. The state will adopt policies and procedures governing the calculation of the housing incentives, the establishment of the fair market value of the property, and the process for deciding exceptions to the maximum amount. The policies and procedures will be published on the state's website.

Program Area No. 3: Watershed Monitoring, Mapping and Modeling

Program Area	Allocation	Percent of Grant
Watershed Monitoring, Mapping and Modeling	$145,670,040	12 percent

Eligible Activities:	HCDA Section 105(a)1-2, 8-9, 11, 12, 21
National Objectives:	LMI, Urgent Need Mitigation, and/or N/A (Planning)

SUMMARY & USE OF FUNDS

This program addresses the unmet mitigation need for watershed data and modeling, and will enable long-term flood resilience, more targeted flood control project selection and regional coordination along watershed boundaries. This program can also be anticipated to reduce the need for disaster response and enhance such response efforts when deployed, aid in the provision of critical lifelines and enable a demonstrable reduction in flood risk within HUD-MID and LA-MID parishes, in the following ways:

1. Enable strategic decision-making in flood or disaster preparation and response scenarios based on projected water elevation and inundation. Examples of this include using the H&H models to plan evacuation routes, evacuation or closure of hospitals and medical facilities, and estimate shelter needs based on a given flood scenario;
2. Enable the analysis and prioritization of structural and nonstructural flood control projects based on potential costs and benefits. While H&H models help define the potential changes in extents and depth of flooding associated with flood control projects, information on the built environment (e.g. building inventory, assessed values, impacted utilities and facilities, etc.) are needed to quantify benefits and risks;
3. Illustrate the benefits of implementing policy changes to foster more resilient development;
4. Enable resilient infrastructure design;
5. Enable businesses and industrial facilities to implement flood-proofing or resilient site design;
6. Enable local leaders within a given watershed to work from the same set of hydrologic

assumptions, thereby enabling consensus;
7. Empower homeowners and residents to understand their flood risk profile under different weather and climate scenarios; and
8. Predict runoff and/or drainage impacts to avoid ecosystem disruption by flood control projects or other types of projects.

Through the LWI, the state is committed to working with local, state, and federal agencies and stakeholders to develop and implement a statewide, watershed-based approach to floodplain management that builds on existing or planned local, state, and federal capital investment in data collection and modeling. At the heart of this approach is informed decision-making that requires best available scientific data. Consequently, it is imperative for there to be detailed, accurate, dynamic, upgradable, accessible and consistent mapping and modeling that allows the state, regional and local governments and private industry to make smart immediate, intermediate, and long-term decisions related to development, investment in structural and nonstructural infrastructure, land-use decisions, and other public and private mechanisms for investment.

Under this program, funding will be provided to state, regional and/or local entities for those activities associated with the acquisition and/or monitoring of data necessary for obtaining a comprehensive set of hydraulic and hydrologic models for all watersheds that fall within Louisiana, to include those watersheds whose borders extend into the neighboring states. As described within this AP's risk assessment, Louisiana's watersheds are integrally connected, irrespective of political boundaries. In order for these models to work as useful tools for decision-making and project design and in order to ensure projects implemented in one jurisdiction do not have adverse effects elsewhere, it is critical to develop a consistent set of statewide models. Examples of such activities include, but may not be limited to:

1. Acquisition, installation and/or monitoring of river gauges in those currently under-monitored and unmonitored areas, as well as the time and effort related to the operation, monitoring, collection and review of data from the gauges;
2. Activities necessary for obtaining updated LIDAR, conducting surveys of waterway crossings and/or other data collection activities necessary for the development of useful mapping and modeling;
3. Acquisition of easements and/or rights of way may be required in order to establish and monitor the data points;
4. Development of hydraulic and hydrologic modeling across the state and potentially in neighboring states, to include modeling in those parishes and/or counties where activities have a direct impact on flood risk in one or more of the LA or HUD MIDs for the purpose of this AP;
5. Website and public data portal development, launch and interim maintenance until transitioned to final agency(ies) responsible for maintaining dataset(s);
6. Modernization and/or collection of parish or municipal data for use in modeling or flood risk reduction data purposes, such as property assessment data, structure survey data, or land survey/title data;
7. Wetlands, natural functions, and habitat mapping, including tracking wetland and habitat loss; and
8. In conjunction with the development of the models, provision of technical assistance and training to various technical levels of end user.

As the state works with local, state and federal partners to carry out the activities described above, the

state may identify other data and/or information gaps necessary for the generation of watershed-based plans, modeling and/or mapping. For activities that use Urgent Need Mitigation as their national objective, the state will require sub-grantees to demonstrate how their projects will result in a measurable and verifiable reduction in the risk of loss of life and property.

GEOGRAPHIC ELIGIBILITY

Watersheds and watershed regions as defined in this AP.

METHOD OF DISTRIBUTION

Through the LWI, the state will conduct a coordinated review and recommendation process, working with a variety of stakeholder groups, including federal, state, regional, and local governments, non-governmental organizations and academic institutions and their applied sciences professionals to identify entities best positioned to carry out assigned tasks, as well as entities with the expertise and capacity to retain and maintain datasets and findings developed through this program.

Subrecipients for these funds will be selected based on their technical expertise and the considerations of the watershed region(s) they serve, based on a framework wherein parish and municipal leaders and regional stakeholders participate in the collective management of a watershed region. Specific criteria and their relative importance will be noted in the program NOFA.

Professional services to complete different pieces of data aggregation, review and/or modeling will be competitively procured by the state or its subrecipients, with whom the state will enter into Cooperative Endeavor Agreements (CEAs). Subrecipient agreements and budgets will be determined through a combination of project scoping, competitive procurement processes, and demonstrations of actual costs to ensure cost reasonableness requirements are met.

MAXIMUM AWARD AMOUNTS

No person, household or business will be eligible to receive direct benefits through this program.

Program Area No. 4: Watershed Policy, Planning and Local Capacity Assistance

Program Area	Allocation	Percent of Grant
Watershed Policy, Planning and Local Capacity Assistance	$24,278,340	2 percent

Eligible Activities:	HCDA Section 105(a) 8-9, 12, 21 Administration Costs, defined at 24 CFR 570.205 and 570.206 and any applicable waivers or alternative requirements
National Objectives:	LMI, Urgent Need Mitigation, and N/A (Planning and Administration)

SUMMARY & USE OF FUNDS

While different levels of capacity and integration exist in various agencies and regions of the state, these entities are not currently coordinated on a regional watershed basis and their activities and authorities are often circumscribed within the boundaries of a single parish or municipality. State and local

agencies, communities, and stakeholders must collaborate, organize, and make decisions on a watershed basis in order to plan for and manage water and flood events effectively.

Through this program, the state will partner with federal, state, local agencies and experts, as well as private industry, to complete an assessment of state, regional, and local programs, as well as to offer technical assistance, educational and capacity building support services to state agencies, local governments, non-profit organizations, planning and development organizations, chambers of commerce, and other public-serving agencies and organizations in order to encourage the alignment of effort across watersheds to promote the LWI's approach to watershed management. This technical assistance will also facilitate the establishment of coalitions among parishes and municipal governments – based on watersheds – to implement regional policies and projects funded through other programs within this grant. For activities that use Urgent Need Mitigation as their national objective, the state will require sub-grantees to demonstrate how their projects will result in a measurable and verifiable reduction in the risk of loss of life and property.

Many existing state, regional and local organizations have limited experience or capacity related to watershed-specific issues, such as floodplain policy development and implementation, or related to analyzing impacts of floodplain policies on local and regional economies, natural and built environments, and wildlife and fisheries. Under this program, the LWI will coordinate extensive public engagement, training, and research, and ultimately, will develop informed and collaborative policies and planning tools. This program area includes three specific elements: technical assistance, development of statewide and regional watershed management plans, and administration. Each element is briefly described below.

TECHNICAL ASSISTANCE: FLOOD INSURANCE AFFORDABILITY AND POLICY IMPLEMENTATION

Rising flood insurance costs threaten the cohesiveness of many Louisiana communities as residents are "priced out" of their homes where flood insurance coverage is required as a condition of their mortgage. On a broader scale, rising NFIP premiums pose a threat to local economies and real-estate markets, as properties gradually lose their resale value as flood risks become more pronounced. Participation in the Community Rating System (CRS), including the implementation of higher regulatory floodplain standards, is an effective tool to mitigate the impact of rising flood insurance costs. However, many flood-prone communities do not participate in CRS due to the significant administrative capacity required to manage the program.

To lessen this financial burden on residents or buy down the cost of flood risk, this program will leverage land use planning and/or hazard mitigation planning activities to support the adoption and implementation of modernized building codes and policies at local, regional, and state scales. These activities mitigate the cost of current and future flood risk by accumulating discounts on existing flood insurance policies for CRS participating communities, while also lessening the impacts of future disasters on new construction built in accordance with higher standards.

Building on prior state efforts to identify potential opportunities to increase parish and municipalities' participation in the CRS program, this initiative will fund technical assistance to parishes and municipalities for staffing, training, and inspection/enforcement activities to most effectively administer local participation in NFIP and fully participate in the CRS program. This program will also provide funding and assistance to design, track, and implement CRS strategies on a regional basis (examples of

this would be regional open-space mapping, digitizing of elevation and compliance records, and public outreach). Finally, this program will provide assistance to parishes or municipalities who do not currently participate in CRS to incentivize participation.

TECHNICAL ASSISTANCE: LOCAL ADMINISTRATOR ASSISTANCE

This program element will enhance situational awareness and develop skills necessary for units of local government to create and implement regional watershed management plans and decision-making processes. The LWI will engage state agencies and units of local government, and other stakeholder groups as needed, to assess current policies and practices and to incorporate watershed-based decision-making into existing programs and practices, to identify redundancies and conflicting policies and practices, and to develop strategies for maximizing resources.

In order to achieve this, the LWI will coordinate research and data collection necessary for understanding the impacts of current policies, as well as potential impacts from proposed policies and practices on local, state, and national economies, built and natural environments, society and culture, and other critical environmental, social, political and/or economic factors. This may include but is not limited to training activities specific to implementation of best watershed management practices, assistance with implementation of mitigation strategies (including those eligible for credit within the CRS program, program evaluation, and ongoing monitoring of projects and programs.

TECHNICAL ASSISTANCE: RISK AWARENESS AND EDUCATION

This program element will enable outreach and education to residents, homeowner, and local stakeholders outside of local governments and administrators. The state has identified a need to prepare students to enter resilience or watershed management-related occupations. Similarly, the state has received voluminous feedback from homeowners and residents indicating a desire for increased access to resources on flood risk in order to empower their decisions about their assets and actions.

This program will feature outreach and engagement to residents and students of all education levels to enhance public understanding of flood risk and resilience concepts, with the intent to nurture the next generation of resilience professionals and foster long-term support for sound development practices and consumer decisions. This program will also support the creation and dissemination of user-friendly tools and resources to help residents identify and understand flood risk at critical decision-points such as 1) prior to embarking on a real estate transfer, 2) prior to undertaking major home renovations, 3) prior to hurricane season. This program will seek to provide a basic level of “flood risk literacy” to a broad swath of residents.

DEVELOPMENT OF STATEWIDE & REGIONAL WATERSHED MANAGEMENT PLANS

Drawing on lessons learned from past planning and implementation processes, including the Coastal Master Plan and LA SAFE, the LWI will lead the development of statewide and regional watershed management plans or strategies. This effort will emphasize the incorporation of a variety of perspectives from all levels of people, industry, and communities impacted by plans or policies related to watershed management practices. These perspectives will be incorporated into statewide and regional products that can be used and implemented by units of local government and practitioners in coordination with the implementation of hazard mitigation, floodplain management and emergency response.

GEOGRAPHIC ELIGIBILITY

Watersheds and watershed regions as defined in this AP.

ELIGIBLE RECIPIENTS

The following entities may be eligible for a grant award as part of this program:

1. State of Louisiana government agencies;
2. Units of local or regional government;
3. Institutions of higher education;
4. Private non-profit organizations; and/or
5. Other entities serving as subrecipients to the state.

METHOD OF DISTRIBUTION

Application procedures and maximum awards for technical assistance and planning activities will be further detailed in program policies and procedures.

Subrecipients for these funds will be selected based on the considerations of the watershed region(s) they serve, based on a framework wherein parish and municipal leaders and regional stakeholders participate in the collective management of a watershed region. Specific criteria and their relative importance will be noted in the program NOFA.

Professional services to complete technical assistance and planning activities on behalf of the LWI will be competitively procured by the state or its subrecipients, with whom the state will enter into CEAs. Subrecipient agreements and vendor budgets will be determined through a combination of project scoping, competitive procurement processes, and demonstrations of actual costs to ensure cost reasonableness requirements are met.

MAXIMUM AWARD AMOUNTS

No person, household or business will receive direct benefits through this program.

VII. E. ADMINISTRATIVE COSTS

Program Area	Allocation	Percent of Grant
Administrative Costs	$48,556,680	4 percent

Eligible Activities:	HCDA Section 105(a) 8, 12, 21 Administration Costs, defined at 24 CFR 570.205 and 570.206 and any applicable waivers or alternative requirements
National Objectives:	LMI, Urgent Need Mitigation, and N/A (Planning and Administration)

SUMMARY & USE OF FUNDS

Costs necessary for the general administration of the LWI, to include but not be limited to the state's and subrecipients' time administering programs, compliance and monitoring of the state's subrecipients, vendors and other recipients of funding and other costs specified as eligible administrative expenses in 24 CFR 570.206.

GEOGRAPHIC ELIGIBILITY

Watersheds and watershed regions including a LA or HUD MIDs as defined in this AP.

ELIGIBLE RECIPIENTS

The following entities may be eligible for a grant award as part of this program:

1. State of Louisiana government agencies;
2. Units of local or regional government;
3. Institutions of higher education;
4. Private non-profit organizations; and/or
5. Other entities serving as subrecipients to the state.

METHOD OF DISTRIBUTION

The aggregated assistance for administration expenses for the state and all subrecipients will not exceed 4 percent of the total grant allocation.

Professional services to complete administrative duties on behalf of the LWI will be competitively procured by the state or its subrecipients, with whom the state will enter into CEAs. Subrecipient agreements and budgets will be determined through a combination of project scoping, competitive procurement processes, and demonstrations of actual costs to ensure cost reasonableness requirements are met.

MAXIMUM AWARD AMOUNTS

No person, household or business will receive direct benefits through this program.

VII. F. NON-FEDERAL COST SHARE ASSISTANCE

Program Area	Allocation	Percent of Grant
Non-Federal Cost Share Assistance	$96,988,107	8 percent

Eligible Activities:	HCDA 105(a) 9
National Objectives:	LMI, Urgent Need Mitigation, and N/A (Planning)

SUMMARY & USE OF FUNDS

Communities across the state have worked with state and federal agencies to identify projects that will increase their resilience to flooding. Many of these projects are funded with federal programs requiring a local or state match. The state understands this match requirement can pose an insurmountable barrier for local governments as they undertake mitigation projects. The state will support local communities by providing non-federal cost share assistance for eligible programs including, but not limited to:

1. FEMA's Hazard Mitigation Grant Program (25 percent non-federal cost share);
2. FEMA's Nondisaster Hazard Mitigation Assistance (HMA) Programs, Flood Mitigation Assistance (FMA) and PreDisaster Mitigation (PDM);
3. USDA's National Resources Conservation Service (NRCS) grant programs; and/or
4. Any other federal programs requiring a non-federal cost share, as applicable.

For activities that use Urgent Need Mitigation as their national objective, the state will require sub-

grantees to demonstrate how their projects will result in a measurable and verifiable reduction in the risk of loss of life and property.

The Hazard Mitigation Grant Program (HMGP) is critical to increasing resilience to flooding in both rebuilding and protecting housing stock and vital infrastructure. These grant funds are calculated at 15 percent of the total FEMA IA and PA allocations attributable to DR-4263 and DR-4277. The state's obligation for both DR-4263 and DR-4277 has been established as not less than 25 percent of eligible project costs. Therefore, the state's match requirements are:

	HM Award	***Cost Share***
DR-4263 (March 2016)	$28,992,576	$9,664,192
DR-4277 (August 2016)	$261,971,744	$87,323,915
Total	**$290,964,320**	**$96,988,107**

GEOGRAPHIC ELIGIBILITY

Any of the 56 federally declared parishes as a result of the Great Floods of 2016 and previously rendered eligible for CDBG-DR assistance under Public Law 114-223.

ELIGIBLE RECIPIENTS

The following entities may be eligible for a grant award as part of this program:

1. State of Louisiana government agencies;
2. Units of local or regional government;
3. Institutions of higher education;
4. Private non-profit organizations;
5. Private land owners (for buyout and/or nonstructural mitigation activities); and/or
6. Other entities serving as subrecipients to the state.

METHOD OF DISTRIBUTION

Funds will be provided as payment to state agencies, eligible organizations, local governments and/or other local entities for activities approved within programs requiring a non-federal cost share, including reimbursement of eligible activities. If the state is unable to fund all match requirements, then the state will develop a prioritization or proration methodology for disbursing funds to state agencies, local governments and local nonprofit organizations.

MAXIMUM AWARD AMOUNTS

The maximum award will not exceed the match amount for each project funded through this program. The state will make exceptions to the maximum award amounts when necessary to comply with federal accessibility standards or to reasonably accommodate a person with disabilities.

VII. G. LEVERAGING FUNDS

To maximize the impact of CDBG-MIT funds, and as part of a continuous effort to prevent duplication of benefits, there will be an ongoing commitment to identify and leverage other federal and non-federal funding sources. Further, the state will utilize existing relationships and strive to create new partnerships with other federal, state, regional and local agencies, private corporations, foundations, nonprofits and other stakeholders to leverage all viable sources of funding.

Specifically, as part of the LWI, the state is working toward aligning all state agency programs to implement, enforce and incentivize improved watershed management practices. This is a multi-year, potentially multi-generational process that will require systemic changes and an alignment of complex federal and state funding sources, subject to a variety of goals, deliverables and beneficiaries, as well as different regulations, programmatic rules and practices.

Most immediately, the state agencies operating within the LWI are leveraging the following resources and/or are working to align the following programs efforts:

1. HMGP and mitigation funding via collaboration between GOHSEP and OCD;
2. Updates to statewide LiDAR data as part of statewide modeling efforts made possible through contributions from DOTD and CPRA;
3. Staff support time to the LWI from FEMA, NOAA, USACE, DEQ, DNR, LDWF, DOTD and other state and/or federal agencies;
4. Information, planning work and processes established through LA SAFE;
5. Information, planning work and processes established through the CPRA Coastal Master Plan;
6. Watershed model data combined with habitat and wetland data to identify and prioritize projects and interventions that improve watershed health and function along multiple dimensions, such as water quality, habitat and ecological functions and wetland preservation and quality made available through partnerships with USGS, DEQ, LDWF and nonprofits;
7. Existing legislative and statewide water code development made available through partnerships with local universities; and
8. Existing best practices in the coastal resilience industry made available through collaboration and alignment with a multitude of nonprofit, academic, and governmental entities.

DOTD and LiDAR

The programs described in this AP benefit from LiDAR data provided by DOTD in conjunction with other state and federal agencies. This resource, costing an estimated $9.8 million between 2017 and 2020, will constitute the initial series of high quality elevation and land cover data for the LWI's modeling effort. Further, the LiDAR data collected by DOTD is supplemented by LiDAR collected by CPRA, the Natural Resources Conservation Service (NRCS) and the U.S. Geological Survey (USGS), further leveraging funds and resources across state and federal agencies to most effectively produce the data needed for watershed modeling.

Coastal Modeling Efforts

In order to develop the Coastal Master Plan, CPRA initiated a landscape modeling and surge and risk modeling process for the state's coastal zone. This effort utilized $14.3 million of funding from surplus, trust fund and community development funding to implement a 2012 and 2017 modeling effort. The approach used in the 2017 Coastal Master Plan builds on that developed for the 2012 Coastal Master Plan[86]. Such modeling efforts addressed landscape and ecosystem characteristics including topography,

[86] N. Peyronnin, M. Green, C. Richards Parsons, A. Owens, D. Reed, D. Groves, J. Chamberlain, K Rhinehart, and K. Belhadjali, "Louisiana's 2012 Coastal Master Plan: overview of a science based and publicly-informed decision making process." *Journal of Coastal Research*, Special Issue, No. 67. (2013): pp. 1–15.

bathymetry and vegetation cover, as well as the location of structural protection components, used in ADCIRC and SWAN models to produce water levels associated with storm surges and waves. The water level information is then passed to the Coastal Louisiana Risk Assessment (CLARA) model, which calculates expected flood depths and economic damage, and will be used in watershed modeling within coastal areas. The LWI will leverage this effort, output, and experience in both the building of H&H models and designing its modeling program.

VIII. COORDINATION AND ALIGNMENT

The state has historically experienced flooding, coastal erosion, subsidence and wetland erosion with a significant portion of the southern half of the state only slightly above sea level, and the constant threat of tropical storms and hurricanes. Since the flooding and damage associated with Hurricanes Katrina and Rita in 2005, followed by Hurricanes Gustav and Ike in 2008, Hurricane Isaac in 2012, and the Great Floods of 2016, the state has been proactive in undertaking measures that address resilience and sustainability, as well as educating the public to minimize risk for communities and individuals. Louisiana articulated its vision for a recovery that is "Safer, Stronger and Smarter" translated into the following actions:

1. Oversight for ensuring impacted parishes developed Long Term Recovery Plans as required under FEMA's ESF-14 in 2006;
2. State adoption of the National Building Code Standards in 2006; and
3. Proactively ensuring parish adoption of the Advisory Base Flood Elevations (ABFEs) with concurrent adjustments in permits issued for new construction and height or elevation requirements issued after the respective adoptions.

CONSISTENCY WITH PREVIOUS PLANNING EFFORTS AND ALIGNMENT OF PROGRAMS

As members of the Council, OCD, GOHSEP, CPRA, DOTD, LDWF will work through the LWI to ensure its coordination and alignment with the following programs and activities:

Louisiana Speaks – a major regional initiative for all of south Louisiana reflecting visions and strategies for resilience and sustainable growth practices (May 2007). More than 27,000 citizens, a historical first in the United States, participated in developing this plan. The 94-page document in hardcopy and disc and two subsequent publications: "Louisiana Speaks: Planning Toolkit" and "Louisiana Speaks: Pattern Book" were widely distributed to planners, government entities, local nonprofits and associations and citizens;

The Comprehensive Resiliency Pilot Program – implemented in 2010 from funding made available through Hurricanes Gustav and Ike, this is a proactive program to develop and facilitate local planning that incorporates sustainability and resilience into land use plans, zoning and floodplain management.

Z. Cobell, H. Zhao, H.J. Roberts, F.R. Clark, and S. Zou. "Surge and Wave Modeling for the Louisiana 2012 Coastal Master Plan." *Journal of Coastal Research*: Special Issue 67 – Louisiana's 2012 Coastal Master Plan Technical Analysis (2013): pp. 88-108.
D.R. Johnson, J.R. Fischbach, and D.S. Ortiz. "Estimating Surge-Based Flood Risk with the Coastal Louisiana Risk Assessment Model." *Journal of Coastal Research*, (Special Issue 67 -Louisiana's 2012 Coastal Master Plan Technical Analysis). (2013): 109-126. doi: 10.2112/SI_67_8

Program funds were made available to local governments and non-profit entities in parishes impacted by Hurricanes Gustav and Ike through a competitive application process. Twenty-nine communities were awarded grants through the competitive program;

2017 Coastal Master Plan – includes specific projects within coastal parishes designed for protection of the coast and communities. CPRA collaborates extensively with a wide range of other federal, state and local agencies and has developed an interdisciplinary planning process that engages diverse groups of coastal stakeholders, focus groups, and national and international experts in order to capture the wide range of perspectives and expertise necessary in developing a holistic coastal planning effort for the 2017 CMP;

Louisiana's Strategic Adaptations for Future Environments (LA SAFE) – provides a holistic approach to flood risk of all types as well as the myriad of human, economic, and environmental impacts experienced following past floods and those anticipated in the future. To develop aspirational—yet realistic—visions of tomorrow's communities, LA SAFE led grassroots efforts across six-parishes to gather information and ideas while harnessing the experience and ingenuity of local citizens. It includes a planning process of more than 70 outreach and engagement events, more than $41 million in project investments designed by residents and stakeholders, and seven strategy documents highlighting takeaways and recommended actions;

State Hazard Mitigation Plan (Revised in 2019) – in its effort to maintain and update the SHMP, GOHSEP strives to continue to improve Louisiana's preparation for, response to and recovery from the next emergency. Focused on emergency response capabilities, the protection of life, property and the environment; the plan assesses the state's capabilities to execute and sustain safe and timely recovery from emergencies and disasters. All of GOHSEP's existing programs support these goals and are essential to the state's efforts to protect its citizens and to create a resilient infrastructure. The SHMP is updated every five years (aligned with as local HMP updates) and is used by the state to remain eligible for FEMA Hazard Mitigation Assistance (HMA) and PA funding.

In response to the Great Floods of 2016, the **Long-Term Recovery Subcommittee (LTRS)** was created as a subcommittee under the Unified Command Group (UCG) in August 2018 as part of the authority of the *Louisiana Homeland Security and Emergency Assistance and Disaster Act (Louisiana Disaster Act) – Louisiana Revised Statute 29:725.6(v).* The UCG is the state's strategic decision-making body for emergency and disaster response and is comprised of members appointed by the Governor.

The subcommittee is dedicated to long-term recovery and sustainability and will be a key mechanism in implementing the SHMP. The subcommittee is aligned with the ESF 14 State of Louisiana Disaster Recovery Framework and FEMA's National Disaster Recovery Framework. During EOC activation, the LTRS is convened alongside the UCG to access recovery needs following a disaster, activate Recovery Support Functions (RSF)'s for complex recovery issues and develop post-disaster recovery strategies.

The subcommittee, as appointed by the Governor, is co-chaired by GOHSEP and OCD and includes key state agencies and local emergency management subject matter experts listed below:

- The director of GOHSEP (or designee);
- The executive director of OCD (or designee);
- The commissioner of the Louisiana Department of Agriculture and Forestry (or designee);
- The secretary of the LDWF (or designee);
- The lieutenant governor (or designee);

- The secretary of the Louisiana Department of Children and Family Services (or designee);
- The secretary of the Louisiana Department of Health (or designee);
- The state superintendent of the Louisiana Department of Education (or designee);
- The secretary of the DOTD (or designee);
- The executive director of the Louisiana Housing Corporation (or designee);
- The secretary of LED (or designee);
- The chairman of the CPRA (or designee); and
- The chairman of the regional parish office of emergency preparedness parish director's subcommittee.

The subcommittee works to improve regulatory items set by state and federal legislation, recommend codified changes that will enhance recovery efforts, and effectively prepare for recovery. Developing a resilient Louisiana means that planning and policy must be measured against all hazards and throughout the entire emergency management cycle. The LWI will work in tandem with and inform the LTRS and will be a key component of the long term, all hazards resilience efforts of the LTRS.

The Dredge Fill Program (Habitat Section) - administered by LDWF, this program licenses those who remove sediment from below the mean low water level of a state designated water bottom and transport said sediment to other locations. Commercial uses include the sale of sand from various waterbodies, predominantly the Mississippi River, Red River, Atchafalaya River and Calcasieu River. Other commercial uses include cleaning dock and barge areas that silt in over time, and backfilling of commercial bulkheads. Residential uses include land reclamation for residential properties along rivers through the back filling of bulkheads and other forms of erosion control. Beneficial uses include marsh creation, which includes the activity of removing sediment and transporting it to areas where marshes have eroded in order to build them back up, often in an attempt to restore coastal areas.

Waterbody Management Plan series – a continually updated series of reports documenting reservoir, lake and river histories, as well as management issues and future concerns for all waterbodies managed or monitored by LDWF. These reports include facts important to the work of the LWI about reservoir pool stage, watershed to detention area ratios, control structure and spillway design, and water level drawdown descriptions to avoid loss of natural resources and property. The plan series also assesses (1) biological data (recreational and commercial fisheries, fish communities, and invasive species issues and control), (2) observations of biological responses to management strategies, (3) any agency (Commission, Police Jury, etc.) that exercises authority over waterbodies, and (3) shoreline development trends that may be impacted by changes in lake and/or river water levels. Of particular importance to the Louisiana Watershed Initiative are details provided regarding historic flooding, hydrologic changes, and specific water or habitat management strategies that have been implemented on the waterbodies across the state.

Louisiana State Wildlife Action Plan (SWAP) - The federal State and Tribal Wildlife Grants (SWG) Program, one of only a handful of federal programs that specifically targets recovery of both game and nongame species of wildlife and their associated habitats, was established in 2001. To remain eligible for this Program, states are required to submit wildlife action plans, revised every ten years. The most recent revision of the Louisiana's State Wildlife Action Plan was published in 2015 and identifies 345 Species of Greatest Conservation Need (SGCN), a list that includes more than 222 species of imperiled vertebrates (i.e. fishes, amphibians, reptiles, birds and mammals) and more than 100 species of imperiled invertebrates (e.g., freshwater mussels, crawfish, spiders, stoneflies, dragonflies, butterflies and more). Research and monitoring needs, as well as recommended conservation actions such as

habitat protections and management, are listed for each SGCN or guild. The SWG Program allows for implementation of proactive conservation measures to help preclude the federal listing of rare species as threatened or endangered, thereby preventing additional, costly, burdensome regulations. In addition, proactive conservation actions are significantly more successful for species' recovery when implemented prior to the need for federal listing.

The Louisiana Wildlife Action Plan also identifies several Conservation Opportunity Areas (COA) statewide. The areas were selected based on a suite of factors including presence of at-risk species and habitats, projected urbanization, connectivity to existing conservation lands, inclusion of scenic streams and more. Establishment of these COAs, as well as successful, holistic implementation of the Louisiana Wildlife Action Plan, will provide benefits to all of Louisiana's wildlife species – which includes 64 mussel species, 35 crawfish species, 140 species of reptiles and amphibians, 70 mammal species, 450+ bird species, and hundreds of inland and marine fishes – and to all of our citizens.

Engineering with Nature - The U.S. Army Corps of Engineers (USACE) Engineering With Nature (EWN) Initiaive enables more sustainable delivery of economic, social and environmental benefits associated with water resources infrastructure. EWN is the intentional alignment of natural and engineering processes to efficiently and sustainably deliver economic, environmental and social benefits through collaborative processes. EWN is a crosscutting program of activities resulting from collaborations among multiple civil works research, development and technology programs.

Louisiana Scenic Rivers System - In 1970, the state legislature created the Louisiana Natural and Scenic Rivers System for the purpose of preserving, protecting, developing, reclaiming, and enhancing the wilderness qualities, scenic beauties, and ecological regimes of certain free-flowing Louisiana streams. Today, there are approximately 3000 miles of state designated natural and scenic rivers within this system. Scenic river permits are required for all activities that may detrimentally impact the ecological integrity, scenic beauty or wilderness qualities of those rivers. Similarly, certain activities are prohibited on designated natural and scenic rivers due to their detrimental ecological impacts on the streams.

Finally, the state's template for the development of proposals to use CDBG-MIT funds will incorporate the following considerations:

- Local ABFEs and Flood Insurance Rate Maps (FIRMs);
- Coordination with administration of LDWF programs;
- Assessments of local land use plans, zoning and floodplain management ordinances permit requirements;
- Consistency with Watershed Management Models and Plans developed through the LWI; and
- Enhanced regional coordination.

IX. CITIZEN PARTICIPATION

The state updated its Citizen Participation Plan (Plan) for disaster recovery activities associated with Public Laws 114-223 and 1115-123, and in compliance with CDBG-MIT regulations and all applicable waivers as noted in FR-6109-N-02. The state intends to use the updated Plan, which includes citizen participation requirements both for the state and units of local government and other entities that may implement activities under this grant. The state's amended Plan specific to the CDBG-MIT funds is included as **Appendix C** of this document.

The state has a strong commitment to substantive engagement of the public and stakeholders in mitigation effots in order to better to inform decision-making, to improve transparency and overall acceptance of approaches, and to foster long-term support and accountability for the proposed programs and projects. Steps in multi-level coordination were launched over the last few years and have led to a strategic approach to facilitate statewide regional participation in confronting the highest priority hazard risks facing the state and this proposed plan for the CDBG-MIT funding.

Citizens across large geographic areas of Louisiana became increasingly aware of the need for more robust mitigation efforts after the Great Floods of 2016 impacted more than 145,000 homes causing more than $10 billion of damage. While the state continues to assess it overall risks to multiple hazards through its Hazard Mitigation planning steering committee led by the state's Hazard Mitigation Officer, the priority of future flood risk mitigation continues to rise to the forefront. Due to its unique topography, the impacts of all types of flooding, including riverine, flash flooding, and coastal flooding, are continually changing, causing areas of the state to experience flooding that have never experienced it before. The interconnectivity of communities along watersheds, not restricted by political boundaries challenged the state in its need for a new and urgent response to the imposing flood risks.

As a result, the state created the Louisiana Watershed Initiative to launch a collaborative approach, understanding that the status quo of a siloed approach to managing projects, plans and policies was no longer an option. In line with HUD's development of the details of the innovative grant funding to focus on resilience and mitigation, Louisiana lauched its proactive engagement of federal and state government agencies, local parish and city governments, research and non-profit organizations, universities, community organizations, citizen groups and the public to understand the breadth of the challenges, improve understanding across stakeholders, and encourage continued participation as the state seeks to identify solutions and investments.

The following sections provide a detailed explanation of how the state has met the Citizen Participation Requirements as noted in the FRN for the CDBG-MIT funds. It also describes how the state has gone even further through leveraging the momentum of the great coordination initiated by Governor John Bel Edwards and the five state agencies who form the Louisiana Watershed Council to engage on a watershed-based approach to flood risk.

IX. A. CITIZEN PARTICIPATION REQUIREMENTS

The state confirms that citizens and other stakeholders were given an opportunity for reasonable and timely access to information and a period for submitting comments relating to this CDBG-MIT AP. Publication of the draft AP, public comment and substantial amendment criteria is located on the OCD's website.

The state is committed to providing meaningful access to the AP and programs detailed within to all its citizens. These efforts include special consideration for those with limited English proficiency (LEP) and persons with disabilities. The AP is translated into Spanish to reach the LEP populations within grant-eligible areas. Citizens with disabilities or those who need technical assistance have been informed to contact the OCD office for assistance through several avenues made available:

- Telephone, voice 225-219-9600 or LA Relay Service 711;
- Email at ocd@la.gov; or
- Mail to:

Office of Community Development
Post Office Box 94095
Baton Rouge, LA, 70804-9095

OCD's website (http://www.doa.la.gov/Pages/OCD/Index.aspx) contains direct links to the AP, meeting notifications, press releases, meeting presentations, meeting agendas, and other related information. In line with the Citizen Participation Plan, all amendments, Quarterly Performance Reports (QPRs), progress reports, procurement policies and procedures, executed contracts paid with CDBG-MIT funds, and services or goods open for procurement will be accessed on the website and updated monthly. The OCD website homepage contains clear and direct navigation to the disaster mitigation funding and to the associated LWI website at https://watershed.la.gov/.

As noted, through a comprehensive, regional planning and public engagement process the state has been in ongoing communications with local government leaders, regional organizations, residents, building professionals, data and environmental scientists, universities, state legislators and other stakeholders in communities impacted from the Great Floods of 2016 as part of LWI ongoing efforts. This extensive outreach has helped identify the needs and priorities of impacted and eligible communities and informs the programs set forth in this AP. This public engagement process is described in detail in the section IX.C.

IX. B. REQUIRED PUBLIC HEARINGS

In line with the requirements noted in the FRN for grantees receiving greater than $1 billion in CDBG-MIT, the state held four public hearings in different locations across the HUD MIDs to provide reasonable opportunity, geographic balance and maximum accessibility for citizen comment and on-going citizen access to the use of grant funds.

Two of the public hearings were held prior to the publication of the AP (posted October 16, 2019), engaging public comments on the overall strategy and design of the CDBG-MIT funds. Two of the hearings allowed more direct response to the draft AP that was posted on the OCD website in English and Spanish, widely publicized through press releases and available in paper copy, as requested. The 45-day public comment period was emphasized at the public hearings.

The public hearings and dates are noted below. All were well-attended and provided ample time for substantive feedback from the public participants representing a diverse group of stakeholders, members of the academic community, nonprofit and issue-related groups and watershed professionals. All public comments were recorded in writing and noted with response in the comments section of the AP (see Section IX. E for details).

The hearings were held in facilities accessible to persons with disabilities with accommodation to ensure full participation opportunities. The hearings were also streamed live for citizens to participate remotely. The recorded sessions and presentation materials are also available on-line.

Public Hearing No. 1: Lafayette

Date: Thurs., Sept. 19, 2019
Time: 1:00 p.m. – 3:00 p.m.
Location: Lafayette Parish Council Chambers

705 West University Avenue
Lafayette, Louisiana 70506
Attendance: Two elected officials, and approximately 74 stakeholders and/or residents

Public Hearing No. 2: East Baton Rouge

Date: Wed., Sept. 25, 2019
Time: 1:30 p.m. – 3:30 p.m.
Location: Louisiana State Capitol, House Committee Room 5
900 North 3rd Street
East Baton Rouge, Louisiana 70802
Attendance: 16 elected officials and approximately 85 stakeholders and/or residents

Public Hearing No. 3: Ouachita

Date: Thurs., Oct. 24, 2019
Time: 1:30 p.m. – 3:00 p.m.
Location: Ouachita Parish Emergency Operation Center
Fire Department Training Center
1000 New Natchitoches Rd
West Monroe, LA 71292
Attendance: 17 elected officials and approximately 70 stakeholders and/or residents

Public Hearing No. 4: St. Tammany

Date: Tues., Oct. 29, 2019
Time: 6:00 p.m. – 8:00 p.m.
Location: St. Tammany Parish Council Chambers
21490 Koop Drive
Mandeville, LA 70471
Attendance: Five elected offiicals and approximately 32 stakeholders and/or residents

IX. C. PUBLIC ENGAGEMENT AND STAKEHOLDER CONSULTATIONS

Affected Units of Local Government

HUD AND LA MIDs

The state has undergone a robust and ongoing dialogue across the state , including a specific focus on consulting with stakeholders in the ten HUD MIDs, comprised of East Baton Rouge, Livingston, Ascension, Tangipahoa, Ouachita, Washington, Acadia, Vermilion, St. Tammany and Lafayette parishes. The specific outreach and engagement meetings that were within or including the HUD MIDS are **bolded** for easy identification in the following sections. Given the statewide initiative and proposed additional state-identified MIDs, the public engagement was expansive and incorporated additional parts of that state. The other parishes engaged in public input on the flood risk mitigation plan noted in the listed meetings either represent an LA MID or likely have impact on a HUD or LA MID from upstream or downstream connectivity. The consultations include input on proposed programs and initiatives that assisted with informing programs contained in the AP.

State Agencies

COUNCIL ON WATERSHED MANAGEMENT MEETINGS

The Louisiana Council on Watershed Management is comprised of five state agencies: Office of Community Development (OCD), Coastal Protection and Restoration Authority (CPRA), Governor's Office of Homeland Security and Emergency Preparedness (GOHSEP), Department of Transportation and Development (DOTD) and Department of Wildlife and Fisheries. The Council has focused considerable efforts on engagement strategies to enable the establishment of broad and transparent inputs into state program and policy development, as well as ensuring consistency of watershed management and mitigation approaches across agencies.

The cooperating state agencies that form the Council hold bi-monthly meetings to review information on the progress of the watershed initiatives and to make recommendations on issues and next steps. These meetings are open to the public and have been well attended by a diverse group of stakeholders. Following are the meetings that were held and contributed to the content formulation of the CDBG-MIT AP.

Council on Watershed Management Meeting Dates and Locations:

- Nov. 21, 2019 – **Baton Rouge,** LA
- Sept. 25, 2019 — **Baton Rouge**, LA
- Aug. 8, 2019 – **Baton Rouge**, LA
- May 30, 2019 – **Baton Rouge**, LA
- March 28, 2019 – **Baton Rouge**, LA
- Jan. 30, 2019 – **Baton Rouge**, LA
- Nov. 8, 2018 – **Baton Rouge**, LA
- Sept. 25, 2018 – Monroe, **Ouachita,** LA

State Hazard Mitigation Officer

The State Hazard Mitigation Officer (HMO) is housed in the Governor's Office of Homeland Security and Emergency Preparedness (GOHSEP), which is the agency with the lead responsibility for the development of the FEMA Hazard Mitigation Plan (HMP). GOHSEP has played a critical role in coordination with OCD and other government agencies in the overall risk assessment analysis and establishing priorities. GOHSEP leadership is a key member of the Council on Watershed Management as advisory to the overall initiative. Additionally, the HMO serves on several of the working groups and Technical Advisory Groups that make up the LWI.

OCD also served as a participant of the Hazard Mitigation planning steering committee that convened six meetings in gathering analysis and input to finalize the HMP that was submitted to FEMA in March 2019. This coordination ensured consistent and constant consultation between agencies to increase alignment of priorities and support collaborative actions.

Affected Units of Local Government

PARISH LEADERSHIP MEETINGS

The state, through the LWI and agency leaders, held a series of meetings in spring and summer 2019 to provide parish and municipal leaders, including CDBG entitlement areas, with an update on the efforts

proposed for flood mitigation and the overall objectives of the LWI, as well as to gain feedback on issues such as potential methods to most effectively enable regional coordination and input, including direct feedback on proposed watershed region boundaries and CDBG-MIT programs. These meetings were targeted to parish presidents, mayors, and their relevant technical staff including drainage department staff, building officials, land use and development administrators and floodplain managers. These meetings were instrumental in the development of this AP and in the Watershed Council's recognition of provisional watershed regions in August 2019, as they successfully enabled LWI staff to receive both verbal and written (via surveys) input from local leadership statewide. All ten of the HUD MIDs are represented in the following meeting list.

Parish Leadership Meeting Dates, Attendees and Locations:

- July 8, 2019 – New Orleans, LA; Attendees from Orleans, Jefferson, St. Bernard and Plaquemines parishes
- June 27, 2019 – St. James, LA; Attendees from Assumption, Lafourche, St. Charles, St. James, St. John the Baptist, St. Mary and Terrebonne parishes
- June 24, 2019 – New Iberia, LA; Attendees from Iberia, St. Martin and St. Mary parishes
- June 24, 2019 – West Baton Rouge, LA; Attendees from Pointe Coupee and West Baton Rouge parishes
- June 18, 2019 – Marksville, LA; Attendees from Avoyelles parish and Tunica Biloxi Tribe
- June 18, 2019 – Vidalia, LA; Attendees from Concordia parish
- June 13, 2019 – Natchitoches, LA; Attendees from DeSoto, Natchitoches, Red River and Sabine parishes
- June 13, 2019 – Arcadia, LA; Attendees from Bienville, Claiborne, Lincoln and Webster parishes
- June 11, 2019 – Winnfield, LA; Attendees from Grant, Jackson, LaSalle and Winn parishes
- May 29, 2019 – Amite, LA; Attendees from St. Helena, **Tangipahoa** and **Washington parishes**
- May 20, 2019 – Abbeville, LA; Attendees from Cameron and **Vermilion parishes**
- May 16, 2019 – Mandeville, LA; Attendees from **St. Tammany parish**
- May 10, 2019 – Houma, LA; Attendees from St. John the Baptist, St. James, St. Charles, Assumption, St. Mary, and Terrebonne parishes
- May 9, 2019 – Denham Springs, LA; Attendees from **Livingston parish**
- May 9, 2019 – Baton Rouge, LA; Attendees from **East Baton Rouge parish**
- May 8, 2019 – Monroe, LA; Attendees from **Ouachita parish**
- May 6, 2019 – Clinton, LA; Attendees from East Feliciana and West Feliciana parishes
- May 3, 2019 – Ville Platte, LA; Attendees from Allen and Evangeline parishes
- May 2, 2019 – Lafayette, LA; Attendees from **Lafayette parish**
- May 1, 2019 – Alexandria, LA; Attendees from Rapides and St. Landry parishes
- April 30, 2019 – Jennings, LA; Attendees from Jefferson Davis and **Acadia parishes**
- April 29, 2019 – Plaquemine, LA; Attendees from Iberville parish
- April 29, 2019 – Lake Charles, LA; Attendees from Calcasieu parish
- April 18, 2019 – Ruston, LA; Attendees from Lincoln and Claiborne parishes
- April 17, 2019 – Monroe, LA; Attendees from Morehouse, West Carroll, East Carroll, Franklin, Madison, Tensas, Union and West Carroll parishes
- April 16, 2019 – Livingston, LA; Attendees from **Livingston parish**
- April 11, 2019 – Gonzales, LA; Attendees from **Ascension parish**
- April 10, 2019 – Ruston, LA; Attendees from Lincoln and Union parishes
- April 9, 2019 – Columbia, LA; Attendees from Caldwell and Catahoula parishes
- April 9, 2019 – Monroe, LA; Attendees from **Ouachita** and Richland parishes

- April 9, 2019 – St. Joseph, LA; Attendees from Tensas parish
- April 9, 2019 – Winnsboro, LA; Attendees from Franklin and Madison parishes
- April 8, 2019 – Bastrop, LA; Attendees from Morehouse, West Carroll and East Carroll parishes
- April 8, 2019 – Rayville, LA; Attendees from **Ouachita** and Richland parishes

Indian Tribes

The state held specific consultations with the Indian tribes that are represented in the identified impacted areas of the state. Additionally, many of the tribe representatives participated in the AP Public Hearings and meetings held in their region. Below are the dates and times of the meetings. The agenda and minutes of these meetings are maintained as official record and as documentation of the consultative process. During consultation with Indian Tribes, stakeholders expressed emphasis on 1) economic importance of reservations and their accompanying businesses (specifically the Coushatta Casino and Resort), 2) concern for the long-term stewardship of the watershed/floodplain. Tribal stakeholders also emphasized the need to harden existing critical facilities and sites used during emergency response procedures. The "Critical Facilities and Infrastructure Program" identified in this AP was further refined based on the feedback from Tribal stakeholders.

Stakeholder Conference Call
10 a.m. – 11:30 a.m. on Thurs., Sept. 12, 2019
Chitimacha, Coushatta, and Tunica-Biloxi Federal Tribes; Allen Parish representatives present

Native American Commission Meeting
9:30 a.m. – 3:00 p.m. on Mon. Sept. 16, 2018
Louisiana Band of Choctaw Tribe Council, United Houma Nation Tribe Council, Isle de Jean Charles Band of BCCM Council, Pointe au Chien Tribe Council, Natchitoches Tribe of Louisiana Council, Clifton Choctaw Tribe Council, Grand Caillou/Dulac Band of BCCM Council, Choctaw-Apache Tribe Council, Adai Caddo Tribe Council, Bayou Lafourche Band of BCCM Council, Four Winds Cherokee Tribe Council present

In addition to the meetings referenced above, the Office of Community Development solicited input from the following tribes through the AP drafting phase and public comment period:

- Alabama - Coushatta Tribe of Texas
- Alabama – Quassarte Tribal Town
- Apache Tribe of Oklahoma
- Caddo Nation of Oklahoma
- Chitimacha Tribe of Louisiana
- Choctaw Nation of Oklahoma
- Coushatta Tribe of Louisiana
- Jena Band of Choctaw Indians
- Mississippi Band of Choctaw Indians
- Muscogee (Creek) Nation
- Osage Nation
- Quapaw Tribe of Indians
- Seminole Tribe of Florida
- Tunica-Biloxi Indian Tribe

Public Housing Authorities

The state organized a consultation conference call with affected public housing authorities to discuss the flood mitigation priorities and the use of CDBG-MIT funds. Information on the conference call is listed below.

Stakeholder Conference Call
1 p.m. – 2:30 p.m. on Thurs., Sept. 12, 2019
Representatives from all public housing authorities in the state were invited. Representatives of the Housing Authority of South Landry, Ouachita Parish Police Jury, Housing Authority of St. John the Baptist Parish, and City of Ville Platte Housing Authority were present.

Stakeholders Within and In the Surrounding Geographic Area

STATEWIDE LISTENING TOUR

The state through the LWI held a series of statewide one-day conferences focused on gathering input from local and regional stakeholders, with a focus on collecting input to inform early efforts of flood risk mitigation efforts. This "statewide listening tour" included more than 30 individual sessions held in eight distinct regions of the state and more than 550 attendees, representing diverse stakeholders such as local engineers, planners, floodplain administrators, public works staff, emergency responders, code enforcement staff, elected officials and more. Each session was structured to inform how statewide investments in modeling flood risk would be most effectively directed, while gathering input (via meeting discussions and a written survey) about local considerations related to building smarter, more effective solutions for flood risk reduction in Louisiana.

Statewide Listening Tour Dates, Topics and Locations:

- November 15, 2018 – **Baton Rouge**, LA; Topic: Modeling approach - Amite River basin model case study
- November 14, 2018 – **Tangipahoa,** LA; Topic: Conveyance and hydraulic structures
- November 7, 2018 – Lake Charles, LA; Topic: Modeling approaches - Transition zones
- October 23, 2018 – Houma, LA; Topic: Ecological and biological responses
- October 18, 2018 – Shreveport, LA; Topic: River and rain gauges
- October 17, 2018 – Alexandria, LA; Topic: Water quality data, salinity, dissolved oxygen, point source discharges/OSDS
- October 16, 2018 – **Ouachita,** LA; Topic: Historical flood data
- October 8, 2018 – **Lafayette,** LA; Topic: National Hydrography Dataset, Watershed Boundary Dataset, LiDAR

NGOs, Private Sector and Other States and Countries

SUMMITS AND WORKSHOPS

The state through the LWI hosted a series of events aimed to foster shared learning and best practices from other states and countries. These events included:

- February 19, 2019 – "Building the Foundation: Sharing Lessons Learned & Collaborating on Challenges Specific to Louisiana," a summit in **Lafayette**, LA featuring watershed experts from Colorado, Minnesota, and Texas, as well as local watershed experts sharing their best practices in watershed governance and coordination.

- May 24, 2019 – "International Best Practices Workshop," a workshop in **East Baton Rouge**, LA featuring Henk Ovink, Special Envoy for International Water Affairs for the Kingdom of the Netherlands and a nationally acclaimed risk reduction and watershed expert.
- June 12, 2019 – "Inaugural Interstate Summit," a summit in Bossier City, LA focused on collaboration among state and regional counterparts in Louisiana, Texas, Arkansas and Mississippi to identify shared water management challenges that cross state lines.

PROFESSIONAL EVENTS AND CONFERENCES

Additionally, the state LWI staff and other agency leaders have presented information on the state's initiative related to coordinating regional flood mitigation at a number of professional events and conferences in order to most effectively engage with stakeholders in a range of disciplines. These events include, but are not limited to:

- May 23-24, 2019 – Thibodeaux, LA; Meeting of the Louisiana Chapter of the American Fisheries Society
- May 22, 2019 – Pittsburgh, PA; World Environmental & Water Resources Congress
- May 21, 2019 – Cleveland, OH; 2019 Association of State Floodplain Managers Annual Conference
- May 15, 2019 – Lake Charles, LA; Louisiana Governor's Office of Homeland Security and Emergency Preparedness Director's Conference
- May 2, 2019 – **Baton Rouge**, LA; Association of Levee Boards of Louisiana Workshop
- April 24, 2019 – **Baton Rouge**, LA; The Nature Conservancy Conference
- April 22, 2019 – New Orleans, LA; 2019 National Hurricane Conference
- April 15-16, 2019 – **Baton Rouge**, LA; Louisiana Water Resources Research Institute 13th Annual Water Conference
- April 3, 2019 – Kenner, LA; Louisiana Floodplain Managers Association Annual Conference
- March 20, 2019 – New Orleans, LA; Land Trust for Louisiana Annual Meeting
- March 19, 2019 – **Lafayette,** LA; Annual Louisiana Remote Sensing & GIS Workshop
- March 7, 2019 – Breaux Bridge, LA; Joint **Lafayette** & St. Martin Soil & Water Conservation District Meeting
- March 7, 2019 – Alexandria, LA; Louisiana Rural Water Association Source Water Protection Program Planning Workshop
- February 21, 2019 – Shreveport, LA; Red River Valley Director's Conference
- February 14, 2019 – Lake Charles, LA; Police Jury Association of Louisiana Convention
- February 13, 2019 – New Orleans, LA; New Orleans Regional Leadership Institute Meeting
- January 14, 2019 – **Baton Rouge**, LA; American Council of Engineering Companies Luncheon

IX. D. CITIZEN COMPLAINTS

The state has established procedures for responding to citizens' complaints regarding activities carried out utilizing these CDBG-MIT funds. The state also requires subrecipients to have procedures in place for responding and tracking citizens' complaints regarding such activities. The Citizen Participation Plan located in **Appendix C** provides more detail. Citizens will be provided with an appropriate address, telephone number and times when they may submit such complaints. The state and subrecipients will provide a written response to each complaint within 15 days of receiving a complaint, as practicable.

IX. E. RECEIPT OF COMMENTS

This AP was posted for public comment on October 16, 2019. The AP was posted online in English and

Spanish. Public notices were published in eight newspapers including *The Advocate*, the state's journal of record and a press release was distributed. Public comments have been recorded at the two public hearings held prior to the beginning of the AP's 45-day public comment period, as well as at two public hearing held during the public comment period.

IX. F. AMENDMENTS TO THE ACTION PLAN

Substantial Amendments

Substantial amendments are defined as meeting any one of the following criteria:

- The addition of a CDBG-MIT Covered Project;
- A change in program benefit or eligibility criteria;
- The addition or deletion of an activity; and/or
- The allocation or reallocation of funds greater than $25 million dollars or a change constituting more than 25 percent of a program's budget.

Only those amendments that meet the definition of a substantial amendment are subject to the citizen participation process, including the provision of a 30-day public comment period.

Nonsubstantial Amendments

Any amendment to the AP not meeting the criteria for Substantial Amendments (above) will be treated as a Nonsubstantial Amendment. Regarding these amendments, HUD will be notified at least five business days before the amendment becomes effective. Moreover, these amendments will be numbered sequentially, posted on OCD's website and incorporated into this AP.

IX. G. CITIZEN ADVISORY COMMITTEES/GROUPS

In line with the requirements of the CDBG-MIT funds in the FRN, following HUD approval of the AP, the state shall form a citizen advisory group that shall meet in an open forum not less than twice annually to solicit and respond to public comment and to provide input regarding the state's mitigation activities and to serve as an on-going public forum to continuously inform the state's mitigation programs. This group will enhance transparency in implementation of the CDBG-MIT funds.

The state has been in ongoing communications with local government leaders, regional organizations, citizens, building professionals, data and environmental scientists, universities, state legislators and other stakeholders that have an interest in the HUD MID areas through the LWI.

X. ADDITIONAL REQUIREMENTS AND CONSIDERATIONS

X. A. CERTIFICATION OF CONTROLS, PROCESSES AND PROCEDURES

As directed, the State of Louisiana, Division of Administration makes the following certifications and submits to HUD in this Action Plan on **December 23, 2019** that OCD has in place the following(*in accordance with the certification listed in 84 FR 45869)*:

1. A residential anti-displacement and relocation assistance plan in effect and is following in connection with any activity assisted with funding under the CDBG funding.
2. Compliance with restrictions on lobbying required by 24 CFR part 87, as well as disclosure forms, if

required.

3. Authorization by the State and local law (as applicable) and possession of the legal authority to carry out the programs for CDBG-MIT funding, in accordance with HUD regulations and the associated FRN and that activities administered with the funds under this FRN are consistent with the subject Action Plan.
4. Confirmation that it will comply with the acquisition and relocation requirements of the URA, as amended, and the implementing regulations at 49 CFR part 24, except where waivers or alternative requirements are provided in the CDBG-MIT FRN.
5. Confirmation that it will comply with Section 3 of the Housing and Urban Development Act of 1968 (12 U.S.C. 1701u), and implementing regulations at 24 CFR part 135.
6. Confirmation that it is following a detailed citizen participation plan that satisfies the requirements of 24 CFR 91.105 or 91.115, as applicable (except as provided for in notices providing waivers and alternative requirements for this grant). And that requirements are passed to each local government and/or subrecipients receiving assistance to follow a detailed citizen participation plan that satisfies the requirements of 24 CFR 570.486, as applicable and in line with federal regulations (except as provided for in waivers and alternative requirements).
7. Certification of consultation with affected local governments in parishes designated in covered major disaster declarations in the non-entitlement, entitlement, and tribal areas of the state in determining the uses of funds, including method of distribution of funding, or activities carried out directly by the state.
8. Certification that is complying with the following criteria:
    a. Funds will be used solely for necessary expenses related to disaster relief, long-term mitigation, restoration of infrastructure and housing, and economic revitalization in the most impacted and distressed areas for which the President declared a major disaster in 2015, 2016, or 2017 pursuant to the Robert T. Stafford Disaster Relief and emergency Assistance Act of 1974 (42 U.S.C. 5121 et seq.).
    b. With respect to activities expected to be assisted with CDBG-MIT funds, the Action Plan has been developed so as to give the maximum feasible priority to activities that will benefit low- and moderate-income families.
    c. The aggregate use of CDBG-MIT funds shall principally benefit low- and moderate-income families in a manner that ensures that at least 50 percent of the grant amount is expended for activities that benefit such persons.
    d. The grantee will not attempt to recover any capital costs of public improvements assisted with CDBG-MIT grant funds, by assessing any amount against properties owned and occupied by persons of low- and moderate-income, including any fee charged or assessment made as a condition of obtaining access to such public improvements, unless: (a) disaster mitigation grant funds are used to pay the proportion of such fee or assessment that relates to the capital costs of such public improvements that are financed from revenue sources other than under this title; or (b) for purposes of assessing any amount against properties owned and occupied by persons of moderate income, the grantee certifies to the Secretary that it lacks sufficient CDBG funds (in any form) to comply with the requirements of clause (a).
9. Certification that it will conduct and carry out the grant in conformity with title VI of the Civil Rights Act of 1964 (42 U.S.C. 2000d) and the Fair Housing Act (42 U.S.C. 3601–3619) and implementing regulations, and that it will affirmatively further fair housing.
10. Certification that it has adopted and is enforcing the following policies. In addition, since it is receiving a direct award, provides certification it will require UGLGs (or subrecipients) that receive grant funds to certify that they have adopted and are enforcing:

a. A policy prohibiting the use of excessive force by law enforcement agencies within its jurisdiction against any individuals engaged in nonviolent civil rights demonstrations; and
b. A policy of enforcing applicable state and local laws against physically barring entrance to or exit from a facility or location that is the subject of such nonviolent civil rights demonstrations within its jurisdiction.

11. Certification that it (and any subrecipient or administering entity) currently has or will develop and maintain the capacity to carry out disaster mitigation activities in a timely manner and that the grantee has reviewed the requirements of this notice. The grantee certifies to the accuracy of its Public Law 115-56 Financial Management and Grant Compliance certification checklist, or other recent certification submission, if approved by HUD, and related supporting documentation referenced at A.1.a under Section VI and its Implementation Plan and Capacity Assessment and related submission to HUD referenced at A.1.b under Section VI.
12. Certification that it considered the following resources in the preparation of its Action Plan, as appropriate: FEMA Local Mitigation Planning Handbook: https:// www.fema.gov/media-library-data/ 20130726-1910-25045-9160/fema_local_ mitigation_handbook.pdf; DHS Office of Infrastructure Protection: https:// www.dhs.gov/sites/default/files/ publications/ip-fact-sheet-508.pdf; National Association of Counties, Improving Lifelines (2014): https:// www.naco.org/sites/default/files/ documents/NACo_ResilientCounties_ Lifelines_Nov2014.pdf; the National Interagency Coordination Center (NICC) for coordinating the mobilization of resources for wildland fire: https:// www.nifc.gov/nicc/); the U.S. Forest Service's resources around wildland fire (https://www.fs.fed.us/managing-land/ fire); and HUD's CPD Mapping tool: https://egis.hud.gov/cpdmaps/.
13. Confirmation that it will not use grant funds for any activity in an area identified as flood prone for land use or hazard mitigation planning purposes by the State, local, or tribal government or delineated as a special flood hazard area (or 100-year floodplain) in FEMA's most recent flood advisory maps, unless it also ensures that the action is designed or modified to minimize harm to or within the floodplain, in accordance with Executive Order 11988 and 24 CFR part 55. The relevant data source for this provision is the State, local and tribal government land use regulations and hazard mitigation plan and the latest issued FEMA data or guidance, which includes advisory data (such as Advisory Base Flood Elevations) or preliminary and final Flood Insurance Rate Maps.
14. Certification that its activities concerning lead-based paint will comply with the requirements of 24 CFR part 35, subparts A, B, J, K, and R.
15. Certification that it will comply with environmental requirements at 24 CFR Part 58.
16. Certification that it will comply with applicable laws.
17. Certification that it will ensure that its actual and projected expenditures of funds is accurately reported in DRGR QPR.

Additionally, in line with requirements related to receiving HUD CDBG-DR funding and consistent with CDBG-MIT, OCD certifies and confirms that it has in place:

- Proficient financial controls and procurement processes/standards;
- Adequate procedures to prevent any duplication of benefits and methods to monitor compliance;
- Processes to ensure timely expenditure of funds;
- Ability to maintain comprehensive website(s) regarding all disaster recovery activities assisted with CDBG-MIT funds; and
- Adequate measures and procedures to detect and prevent waste, fraud and abuse of funds and method to monitor compliance.

X. B. IMPLEMENTATION PLAN AND CAPACITY ASSESSMENT

As directed, the state submitted to HUD in conjunction with this AP its Implementation Plan. The Implementation Plan outlines the following:

- Procedures to collect timely information on application status;
- A capacity assessment;
- Staffing plan;
- Procedures ensuring internal and interagency coordination;
- Procedures to provide technical assistance; and
- Accountability procedures.

X. C. PROJECTION OF EXPENDITURES AND OUTCOMES

As directed, the state submitted to HUD in conjunction with this AP a projection of expenditures and anticipated outcomes, broken down on a quarterly basis. These projections include measures, which will be monitored and updated, to ensure compliance with the following:

- Requirement to expend at least 50 percent of funds to the benefit of low- and moderate-income persons;
- Requirement to expend at least 50 percent of funds to the benefit of HUD MIDs; and
- Requirement to expend 50 percent of CDBG-MIT funds within six years of HUD's execution of the grant agreement and 100 percent of CDBG-MIT funds within 12 years of HUD's execution of the grant agreement.

X. D. PROGRAM INCOME

In order to maintain flood-mitigation projects in the years following project completion, the state plans to do a comprehensive analysis of existing resources to establish "rain day" funds and borrowing authority to support the life and functionality of projects. The state is eager to explore innovative financial mechanisms to sustain long-term operation and maintenance that can serve as replicable best practices for other states and jurisdictions. As part of the LWI mission, state agencies are collaborating to streamline floodplain management activities to holistically mitigate future flood risk and to reduce the need for future DR funds.

The state understands that when implementing certain activities with CDBG-MIT funds, there is potential for generating program income. When implementing activities that could generate program income, the state will develop and adopt program income policies and procedures for the specific program. The state does not anticipate program income from the administration of the projects and programs in this AP, however any program income generated by CDBG-MIT funds under this grant will be returned to OCD, unless otherwise specified in program policies and procedures.

Program income may be retained by local government subgrantees for the repair, operation, and maintenance of publicly owned and operated projects with CDBG-MIT funds, provided that (1) the agency that owns and operates the project has entered into a written agreement with the grantee that commits the agency to providing not less than 50 percent of funds necessary for the annual repair, operating and maintenance costs of the project; and (2) the grantee adopts policies and procedures to provide for the grantee's regular, on-site inspection of the project in order to ensure its proper repair, operation and maintenance. As a state grantee, OCD retains the right to request a waiver from HUD at a later date for the use of program income for this purpose.

X. E. PLANS TO MINIMIZE DISPLACEMENT AND ENSURE ACCESSIBILITY

The state will minimize displacement of persons or entities as a result of the implementation of CDBG-MIT projects by ensuring that all programs are administered in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act (URA) of 1970, as amended (49 CFR Part 24) and Section 104(d) of the Housing and Community Development Act of 1974 and the implementing regulations at 24 CFR Part 570.496(a), subject to any waivers or alternative requirements provided by HUD. While nonstructural mitigation (e.g. elevations, buyout and/or acquisition) programs may be necessary to achieve flood risk mitigation goals and may cause displacement, the majority of the programs detailed in this AP will be implemented with the goal of minimizing displacement of families from their homes, whether rental or owned. Moreover, in the event displacement does occur, OCD will take into consideration the functional needs of the displaced persons in accordance with guidance outlined in Chapter 3 of HUD's Relocation Handbook.

X. F. PROTECTION OF PEOPLE AND PROPERTY AND CONSTRUCTION METHODS

The state intends to promote high quality, durable, sustainable, mold resistant and energy efficient construction methods for all activities funded with CDBG-MIT resources as applicable. All newly constructed buildings must meet all locally adopted building codes, standards and ordinances. In the absence of locally adopted and enforced building codes, the requirements of the Louisiana State Uniform Building Code will apply.

As applicable, the state will—at a minimum—adhere to the advanced elevation requirements established in section V.B. l.D. of the FRN, subtitled "Elevation standards for new construction, repair of substantial damage, or substantial improvement." To this effect, future property damage will be minimized by requiring that any rebuilding be done according to the best available science for that area with respect to base flood elevations.

As applicable and within its policies and procedures on a program-by-program basis, the state or its subgrantees will document decisions to elevate structures. This documentation will address how projects will be evaluated and how elevation costs will be reasonably determined relative to other alternatives or strategies, such as the demolition of substantially-damaged structures with reconstruction of an elevated structure on the same site, property buyouts or infrastructure improvements to reduce the risk of loss of life and property.

X. G. NATURAL OR GREEN INFRASTRUCTURE STANDARDS

The state recognizes that natural or green infrastructure methods provide drainage functions to reduce stormwater runoff while offering low-cost and attractive site design options. All commercial or institutional construction or retrofitting funded through programs within this AP must utilize one of the following green infrastructure strategies to reduce runoff, retain water and improve water quality on the subject site:

- Retaining or planting native vegetation;
- Removing existing impervious surface area or utilizing pervious pavement;
- Installing bioswales or other retention areas;

- Collecting rainwater for non-potable uses; or
- Installing green roofs.

X. H. GREEN BUILDING STANDARDS

All new construction of residential buildings or replacement and/or reconstruction of substantially damaged buildings must incorporate Green Building Standards and rehabilitation of non-substantially damaged residential buildings must follow guidelines in the HUD CPD Green Building Retrofit Checklist. Any construction subject to the Green Building Standards must meet an industry-recognized standard and achieve certification under at least one of the following programs:

- ENERGYSTAR;
- Enterprise Green Communities;
- LEED;
- ICC-700 National Building Standard;
- EPA Indoor AirPlus; or
- Any other equivalent comprehensive green building program deemed acceptable to HUD and approved by OCD.

For construction projects completed, under construction or under contract prior to the date that assistance is approved for the project, adherence to the applicable standards to the extent feasible is encouraged, but not required.

All state-administered programs may use a third party inspection service to ensure that Green Building Standards are met using standardized checklists developed from the above listed programs.

X. I. OPERATION AND MAINTENANCE PLANS

FRN-6109-N-02 allows for flexibility in the use of program income to address on-going operations and maintenance of mitigation projects. Such eligible uses include repair, operation, and maintenance of publicly owned projects financed with CDBG–MIT funds. The state will request an appropriate waiver in order to avail itself of this flexibility for itself and subgrantees as appropriate. The LWI's mission includes the identification and allocation of sustainable funding sources to maintain sound flood risk management practices, programs, and projects across the state, and acknowledges that existing sources can be stretched and leveraged more efficiently if put toward a common goal. Through its implementation of CDBG-MIT programs, the LWI will plan for the long-term operation and maintenance of infrastructure and public facilities funded with CDBG-MIT funds.

The LWI Phase I investigation revealed multiple findings relevant to funding for flood risk reduction related activities. It is clear that long-term funding needs exist and will be more thoroughly defined through the development of watershed-based plans and regional coordination activities supported by this grant, but it is also clear that cooperating agencies, local governments, and regional entities do currently and will continue to have significant impact with the dollars available to them. The impact of these dollars could be increased, possibly significantly, through alignment of objectives, reduced duplication, and collective action where possible.

Because site-specific mitigation projects are not included in this AP and are addressed as an anticipatory activity in **Section VI**, and in furtherance of the LWI's mission and in accordance with federal requirements, the state will address the following requirements within its policies and procedures on a program-by-program basis, including specific benchmarks instituted to ensure operations and

maintenance requirements are met:

1. State or local resources must be identified for the operation and maintenance costs of projects assisted with CDBG-MIT funds;
2. If operations and maintenance plans are reliant on any proposed changes to existing taxation policies or tax collection practices, those changes and relevant milestones must be expressly addressed; and
3. Any public infrastructure or facilities funded with CDBG-MIT resources must illustrate their ability to account for long-term operation and maintenance needs beyond an initial investment of CDBG-MIT funds.

X. J. COST VERIFICATION PROCEDURES

All construction activities that utilize CDBG-MIT funds must be reasonable and consistent with market costs at the time and place of construction. To comply with this requirement, the state will utilize and document independent cost estimates (ICEs) within each of its programs. Specific parameters regarding ICE requirements will be outlined within policies and procedures on a program-by-program basis. More detailed cost verification requirements for Covered Projects will be provided by the state in accordance with Section V.A.2.H. of the FRN, as applicable.

APPENDIX A: ADDITIONAL DEFINITIONS

Action plan amendment: As the grantee continues to finalize its long-term mitigation goals, or as mitigation needs change, the grantee must submit an action plan amendment to HUD that updates its needs assessment, modifies or creates new activities and/or re-programs funds, as necessary. There are two types of action plan amendments: substantial and non-substantial. See **Section IX. F**. of this AP for more detail.

Basin: The drainage area of the designated body of water and its tributaries.[87]

CDBG-DR: Community Development Block Grant-Disaster Recovery assistance is the term for the HUD funding stream that is allocated to eligible disaster recovery entities via congressional appropriations. HUD provides flexible CDBG-DR grants to cities, counties and states to help them recover from presidentially declared disasters, especially in low-income areas. This funding provides crucial seed money to begin the recovery process and rebuild in disaster-affected areas. Since CDBG-DR assistance funds a broad range of recovery activities, such as housing, infrastructure and economic development, HUD can help communities and neighborhoods that may not otherwise recover because of limited resources.

CFR: The Code of Federal Regulations is the annual collection of general and permanent rules and regulations (sometimes called administrative law) that were published in the Federal Register by executive departments and agencies of the federal government. The CFR is divided into 50 titles that represent broad areas subject to federal regulation.

Coastal area: The Louisiana coastal zone and contiguous areas subject to storm or tidal surge and the area comprising the Louisiana Coastal Ecosystem as defined in Section 7001 of P.L. 110-114 Coastal Flooding.[88]

Coastal Louisiana Risk Assessment or CLARA: A flood modeling tool developed by the CPRA. CLARA is used to evaluate potential coastal flooding damage due to storm surge, represented as physical property damage, aggregating flood damage results from a wide range of potential storm events to calculate the chance of flooding or damage at any given level.[89]

Coastal Master Plan: The currently applicable version of the Louisiana Comprehensive Master Plan for a Sustainable Coast, developed by CPRA and approved by the Louisiana Legislature in accordance with R.S. 49:214.5.3.[90]

Data collection: Gathering, extracting, or measuring scattered and widespread data that are used to support hydrologic and hydraulic analysis and flood risk assessment.

Data management: Effective management of observational and analytical data related to flood risk assessment and risk mitigation.

Decision-making support: The capacity to understand the potential short- and long-term as well as the

[87] La. Admin. Code 33: IX.107
[88] La. R.S. 49:214.2(4).
[89] LA SAFE Program Guidelines Operational Version 1 p.49
[90] La Admin. Code 43:XXXI.107

upstream and downstream effects of development, maintenance, and project activities on flood risk, equitable benefit, and the natural and beneficial functions of the environment anywhere within a watershed.

Developers: Private individuals and entities, including profit making and nonprofit organizations, typically formed for the purpose of undertaking projects involving the development of rental or homebuyer housing developments.[91]

Drainage basin: A drainage basin is an area or region of land that catches precipitation and funnels it into creeks, streams, rivers and smaller bodies of water until the water drains into an ocean, gulf or sea. Drainage basins come in all shapes and sizes with some covering a few acres while others are thousands of square miles across. Artificial boundaries, such as county/parish, state and international borders do not affect drainage basins. Watershed is another term for drainage basin.[92]

Drainage divide: A drainage divide is the division between adjacent drainage basins. Just as a creek or stream drains into a larger river, a drainage basin is nearly always part of a larger drainage basin.[93]

Financial and grant management capabilities: Tools and capabilities to manage funds, contracts, and grants associated with floodplain management and watershed-based initiatives.

Flash flooding: Flash flooding occurs when a locally intense precipitation inundates an area in a short amount of time, resulting in local streamflow and drainage capacity being overwhelmed.[94]

Flood: An overflow of water onto lands that are used or usable by man and not normally covered by water. Floods have two essential characteristics: The inundation of land is temporary; and the land is adjacent to and inundated by overflow from a river, stream, lake, or ocean. [95]

Flood mapping: Geographic flood hazard information that support decision-making and provides stakeholders with high-resolution flood risk data, including flood elevation and risk assessment.

Flood risk assessment: Estimations of flood losses and damages at a given depth of flooding, which are calculated at the structure level or aggregated at the census block level. Risk assessment will require cross reference with the latest predictions concerning the future change of climatic and physical conditions (e.g. predictions of sea level rise, land loss rates) as well as anthropogenic conditions (e.g. predicted land use and development patterns) over the coming decades.

Green Infrastructure: Green infrastructure is the interconnected systems of natural areas and open spaces that are protected and managed for the ecological benefits they provide to people and environment. With green infrastructure, green space is considered a form of infrastructure in the same fashion as roads, water lines and sewers. It includes large metropolitan parks, neighborhood parks, riparian buffers, linear parks and greenways, trees and forests, farms, residential landscapes and urban gardens. It uses stormwater storage areas, water conveyance areas and other natural flooded areas as part of the community infrastructure for stormwater management and flood damage reduction, as well

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[91] LA SAFE Program Guidelines Operational Version 1 p.49

[92] U.S. Department of the Interior, U.S. Geological Survey. General United States HUC Information adapted from Seaber, P.R., Kapinos, F.P., and Knapp, G.L., 1987, Hydrologic Unit Maps: U.S. Geological Survey Water-Supply Paper 2294, 63 p. Retrieved on 8/11/19 from: https://water.usgs.gov/GIS/huc.html.

[93] Ibid.

[94] State of Louisiana Hazard Mitigation Plan p.2-28

[95] USGS Water Science Glossary of Terms.

as for parks, trails and other recreation areas.[96]

Hazus: A nationally applicable standardized methodology developed and freely distributed by FEMA that contains models for estimating potential losses from earthquakes, floods, hurricanes and tsunamis.

Hydraulics: Hydraulics refers to the science of the flow of water in a channel or man-made conveyance structure.[97]

Hydrologic unit code: Hydrologic unit codes, or HUCs, identify all the drainage basins in the United States in a nested arrangement, ranging from the largest (regions) to the smallest (cataloging units).[98] According to the U.S. Geological Survey, "The United States is divided and sub-divided into successively smaller hydrologic units, which are classified into four levels: regions, sub-regions, accounting units and cataloging units. Each hydrologic unit is identified by a unique hydrologic unit code (HUC) consisting of two to eight digits based on the four levels of classification in the hydrologic unit system[99]."

Hydrology: Hydrology is the science of the occurrence, distribution, movement and properties of the waters of the Earth and their relationship to the environment during each phase of the hydrologic cycle. The water cycle, or hydrologic cycle, purifies water by a continuous process of evaporation and transpiration from the Earth's surface, including the oceans, to the atmosphere, and back to the land and oceans. Hydrologists are interested in the physical, chemical and biological processes involving water as it travels through the atmosphere, over and beneath the Earth's surface, and through growing plants.[100]

Hydrologic and hydraulic modeling: Hydrologic and hydraulic (G&H) modeling refers to the combination of hydrology and hydraulics to provide a simulation of rainfall and runoff patterns to anticipate the movement of water[101] and flood risk within a watershed.[102]

Natural floodplain functions: The functions associated with the natural or relatively undisturbed floodplain that moderate flooding, maintain water quality, recharge groundwater, reduce erosion, redistribute sand and sediment, and provide fish and wildlife habitat.[103]

Nonstructural mitigation measures: Nonstructural measures offer a flood mitigation alternative to structural measures by accommodating floodwaters and either removing structures from harm's way or reducing risk to existing buildings and infrastructure[104]. Examples of nonstructural mitigation measures

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[96] NAI How-to Guide for Infrastructure. p. 19

[97] County of Marin Department of Public Works. *Resources: Projects*. Retrieved on 8/12/19 from: www.marinwatersheds.org.

[98] U.S. Department of the Interior, U.S. Geological Survey. General United States HUC Information adapted from Seaber, P.R., Kapinos, F.P., and Knapp, G.L., 1987, Hydrologic Unit Maps: U.S. Geological Survey Water-Supply Paper 2294, 63 p. Retrieved on 8/11/19 from: https://water.usgs.gov/GIS/huc.html.

[99] United States Geological Survey, 2019. "Hydrologic Unit Maps." https://water.usgs.gov/GIS/huc.html accessed on 18 July, 2019.

[100] USGS. *Hydrology: The Study of Water and Water Problems A Challenge for Today and Tomorrow*, a publication of the Universities Council on Water Resources. Retrieved on 8/11/19 from: www.usgs.gov.

[101] FEMA. Hydrologic and Hydraulic (H&H) Study Quick Guide. Retrieved on 8/12/19 from www.sog.unc.edu

[102] County of Marin Department of Public Works. *Resources: Projects*. Retrieved on 8/12/19 from: www.marinwatersheds.org.

[103] NAI How-to Guide for Infrastructure. p.6

[104] Sam Martin, CPRA via written communication on 9/10/19.

include home elevations or acquisitions or "buy-outs."

Resilience: The ability to anticipate, prepare for, and adapt to changing conditions and withstand, respond to, and recover rapidly from disruptions. Such disruptions may include, for example, a flooding event, a precipitous economic change, effects of long-term environmental degradation, short-term or intermittent failure or under-performance of infrastructure such as the electrical grid. Resilience describes an area's capacity to prepare for, withstand, and recover from unpredictable shocks - minimizing impacts on people, infrastructure, environments, and economies. In practice, resilience provides a framework for guiding planning, investment, and actions in order to reduce vulnerabilities.[105]

Riverine flooding: Riverine flooding occurs along a river or smaller stream. It is the result of runoff from heavy rainfall or intensive snow or ice melt. The speed that riverine flood levels rise and fall depends not only on the amount of rainfall, but even more on the capacity of the river itself and the shape and land cover of its drainage basin. The smaller the river, the faster water levels rise and fall.[106]

Project planning technical capabilities: Technical resources required and used to enact appropriate planning processes.

Structural protection: Structural Protection projects reduce flood risk by acting as physical barriers against storm surge. These systems can include earthen levees, floodwalls, floodgates, and pumping stations.[107]

Subsidence: A dropping of the land surface as a result of groundwater being pumped. Cracks and fissures can appear in the land. Subsidence is virtually an irreversible process.[108]

V-Zone: Areas along coasts subject to inundation by the 1-percent-annual-chance flood event with additional hazards associated with storm-induced waves. Because detailed hydraulic analyses have not been performed, no Base Flood Elevations (BFEs) or flood depths are shown. Mandatory flood insurance purchase requirements and floodplain management standards apply[109].

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[105] LA SAFE Program Guidelines Operational Version 1. p.51
[106] State of Louisiana Hazard Mitigation Plan. p.2-27
[107] Coastal Master Plan. p.67
[108] USGS Water Science Glossary of Terms
[109] FEMA, 2019. "Zone V." https://www.fema.gov/zone-v

APPENDIX B: COMMON ACRONYMS

ABFE Advisory Base Flood Elevation
AP Action Plan
BCA Benefit Cost Analysis
BFE Base Flood Elevation
CEA Cooperative Endeavor Agreement
CRS Community Rating System
CDBG Community Development Block Grant
CFR Code of Federal Regulations
CPRA Coastal Protection and Restoration Authority
DEQ Department of Environmental Quality
DFIRM Digital Flood Insurance Rate Map
DOA Division of Administration
DOTD Department of Transportation and Development
DR Disaster Recovery
DRU Disaster Recovery Unit
EDA Economic Development Administration
FEMA Federal Emergency Management Agency
FIRM Flood Insurance Rate Maps
FRRP Flood Risk Resilience Program
GIS Geographic Information System
GOHSEP Governor's Office of Homeland Security and Emergency Preparedness
H&H Hydraulics and Hydrology
HMGP Hazard Mitigation Grant Program
HMP Hazard Mitigation Plan
HU Hydrologic Unit
HUC Hydrologic Unit Code
HUD U.S. Department of Housing and Urban Development
LaDOTD Louisiana Department of Transportation & Development
LED Louisiana Economic Development
LiDAR Light Detection and Ranging
LDEQ Louisiana Department of Environmental Quality
LDWF Louisiana Department of Wildlife and Fisheries
LRAP Louisiana Resiliency Assistance Program
LSU Louisiana State University
LSUCC Louisiana State Uniform Construction Code
LSUCCC Louisiana State Uniform Construction Code Council
NFIP National Flood Insurance Program
NOFA Notice of Funding Availability
NRDC National Disaster Resilience Competition
OCD Office of Community Development
OCD - DRU Office of Community Development - Disaster Recovery Unit
PA Public Assistance
PAS Planning Assistance to States
PDM Pre-Disaster Mitigation Program
RFP Request for Proposal
RL Repetitive Loss
RS Revised Statute
SBA Small Business Administration
SCR Senate Concurrent Resolution
SFHA Special Flood Hazard Area
SHMO State Hazard Mitigation Officer
SHMP State Hazard Mitigation Plan
SLR Sea Level Rise
SR Senate Resolution
SRL Severe Repetitive Loss
USACE U.S. Army Corps of Engineers
USC United States Code
USDA U.S. Department of Agriculture
USEPA U.S. Environmental Protection Agency
USFWS U.S. Fish and Wildlife Service
USGCRP U.S. Global Change Research Program
USGS U.S. Geological Survey

APPENDIX C: CITIZEN PARTICIPATION PLAN

STATE OF LOUISIANA
CITIZEN PARTICIPATION PLAN
DISASTER RECOVERY UNIT – CDBG MITIGATION FUNDS

The State of Louisiana Office of Community Development (OCD), in anticipation of the receipt of Community Development Block Grant (CDBG) Mitigation Funds (MIT) and in compliance with the requirements of U. S. Department of Housing and Urban Development (HUD) "Allocations, Common Application, Waivers, and Alternative Requirements for Community Development Block Grant Mitigation Grantees" Notice, has established the following policies and procedures for citizen participation (referred to as the Citizen Participation Plan) and will abide by this plan.

The Citizen Participation Plan will be distributed at public hearings being held in the HUD-identified most impacted and distressed (MID) areas and is available on OCD's website. The Citizen Participation Plan will be made accessible to persons with disabilities upon request by telephone or written request to the following address:

Office of Community Development - Disaster Recovery Unit
Post Office Box 94095
Baton Rouge, Louisiana 70804-9095
Telephone (voice) – 225-219-9600
Telephone (fax) – 225-219-9605
LA Relay Service – 711
Email – ocd@la.gov

Required Consultations

In accordance with the published HUD Federal Notice, the state will consult with the following:

- Local governments within Acadia, Ascension, East Baton Rouge, Lafayette, Livingston, Ouachita, St. Tammany, Tangipahoa, Vermilion and Washington parishes.
- Indian Tribes with interest in HUD-identified MID areas.
- Public housing authorities in HUD-identified MID areas.

Encouragement of Citizen and Stakeholder Participation

In order to facilitate affected citizen and stakeholder participation, the state will use various methods of notification of public hearings and availability of program documents for review through various methods such as electronic mailings, press releases, statements by public officials, media advertisements, public service announcements, and/or contacts with neighborhood organizations. The state will publicize all pertinent information for all public hearings a minimum of seven calendar days prior to the public hearing. The state will specifically encourage persons of low- and moderate-income to participate in the public hearings and to comment.

To assess the needs of and ensure meaningful access to participation by non-English speaking persons, the state maintains a Language Access Plan (LAP) that provides for appropriate action to be taken to

ensure meaningful communication when a need is identified. The LAP is available on the state website and is updated on an annual basis to ensure continued responsiveness to community needs. As Spanish is the most prominent language among non-English speaking persons in the state at 1.69 percent of the total population, all published citizen participation advertisements will include a statement in Spanish indicating that materials are available in Spanish upon request.

See the section below entitled "Public Hearings" for a summary of efforts that will be taken to broaden public participation and/or outreach to minorities and non-English speaking persons, as well as persons with disabilities.

Public Hearings

As required in the published HUD Federal Notice, the state will conduct four public hearings held in various locations throughout the HUD MID areas. At least two of the public hearings will be held prior to the publication of the state's MIT Action Plan or AP on the state's website. The hearings will be held in different locations within the MID areas in locations that ensure geographic balance and maximum accessibility. All public hearings will be held at a time and location convenient to potential and actual beneficiaries in a building that is accessible to persons with physical disabilities. Accommodations for non-English speaking persons and persons with other disabilities will be provided as necessary with a minimum notification of five working days to ensure a proper response for those needs. If the state is notified that a significant number of non-English speaking persons plan to attend a public hearing, the state will make every effort to have an interpreter available at the hearing. The state will record the public hearings and make the recording available on the state's website. Also, the state will livestream the public hearings on the state's Louisiana Watershed Initiative or LWI Facebook page.

Development of the CDBG Mitigation Funds Action Plan (AP)

Prior to the publication of the AP, at least two of the four required public hearings will be conducted. At these public hearings, the state will make the following available to the affected citizens, local governments, Indian tribes, and public housing authorities:

- The amount of assistance expected to be received for mitigation activities.
- Information regarding potential CDBG-MIT programs.
- Information regarding eligibility of applicants for potential CDBG-MIT programs.
- Anticipated timeline for submission of AP to HUD.
- Plans to minimize displacement and assist any persons displaced.
- State's CDBG Mitigation Citizen Participation Plan

The state will consider any comments or views received in writing or expressed orally at all public hearings conducted.

The state will publish the proposed AP on the state's website and make copies available upon request. The state will accept comments for a minimum of 45 days after the publication of AP for public review. Comments may be submitted in writing through mail or electronically through mail, fax or email. For more information, refer to the beginning section of this plan.

The state will conduct the remaining two public hearings in the HUD MID area as required. These two public hearings will be held during the 45 day comment period. A summary of all comments and responses will be included in the AP submission to HUD for review. The approved AP will be placed on the state's website.

Amendments to the Action Plan

The state will amend the AP under the following circumstances:

- A change in the allocation priorities or a change in the method of distribution of funds is needed.
- To carry out an activity using funds from any program covered by the AP (including program income) not previously described in the AP.
- To change the purpose, scope, location, eligibility or beneficiaries of a program or activity.
- The addition of a CDBG-MIT Covered Project.
- A change of more than 25 percent of the allocation of funds in any one program category or activity.

Only those amendments that meet the definition of a substantial amendment are subject to public notification procedures. Substantial amendments are defined as those that change the distribution of funds by eliminating or adding a program category or activity, excluding a previously defined geographical area, or involving a change of more than 25 percent of the allocation of funds in any one program category or activity.

The state will publish the proposed substantial amendment on the state's website and make copies available upon request. The state will accept comments for a minimum of 30 days after the publication of the substantial amendment for public review. Comments may be submitted in writing through mail or electronically through mail, fax, or email. For more information, refer to the beginning section of this plan.

A summary of all comments and responses will be included in the substantial amendment submission to HUD for review.

Availability to the Public

The state's AP, substantial amendments, policies and procedures, citizen participation plan and quarterly performance reports will be available to the public, including the availability of materials in a form accessible to persons with disabilities, on the state's website and upon request. All quarterly performance reports will be posted on the state's website within three days of submission to HUD for review. If HUD requires revisions to any documents for approval, revised documents will be posted on the state's website as well. This will include detailed information about the activities/programs included in the AP, a list of all executed contracts that are funded with CDBG-MIT funds and the status of services/goods currently being procured.

When the state seeks to competitively award CDBG-MIT funds, eligibility requirements for such funding, all criteria to be used in selection of applications for funding (including the relative importance

of each criterion) and the time frame for consideration of applications will be posted on the state's website.

The state will provide applicants timely information regarding the status of their application for assistance through multiple means of communication, such as the state's website, phone calls, letters, etc.

Citizen Advisory Groups

Following HUD approval of the AP, the state shall form a citizen advisory group that shall meet in an open forum not less than twice annually to solicit and respond to public comment and input regarding the state's mitigation activities and to serve as an on-going public forum to continuously inform the state's mitigation programs.

The state has been in ongoing communications with local government leaders, regional organizations, citizens, building professionals, data and environmental scientists, universities, state legislators and other stakeholders that have an interest in the HUD MID areas through the LWI.

Access to Records

The state will provide citizens, public agencies and other interested parties with reasonable and timely access to information and records relating to the state's AP and assistance provided under the implementation of the AP.

Complaints

The state shall respond to complaints from citizens related to the AP, amendments and quarterly performance reports. Written complaints must be directed to the OCD at the mailing or email address listed in this plan. Please send complaints to the attention of the OCD Executive Director. The state will provide a timely, substantive written response to the complainant within 15 working days of the receipt of the complaint, where practicable.

Citizen Participation Requirements for Local Governments Participating in the State's CDBG Mitigation Funds Program

Guidelines for recipients of CDBG-MIT funds can be found in the OCD-DRU CDBG-DR Grantee Administrative Manual, which is available on the state's website.

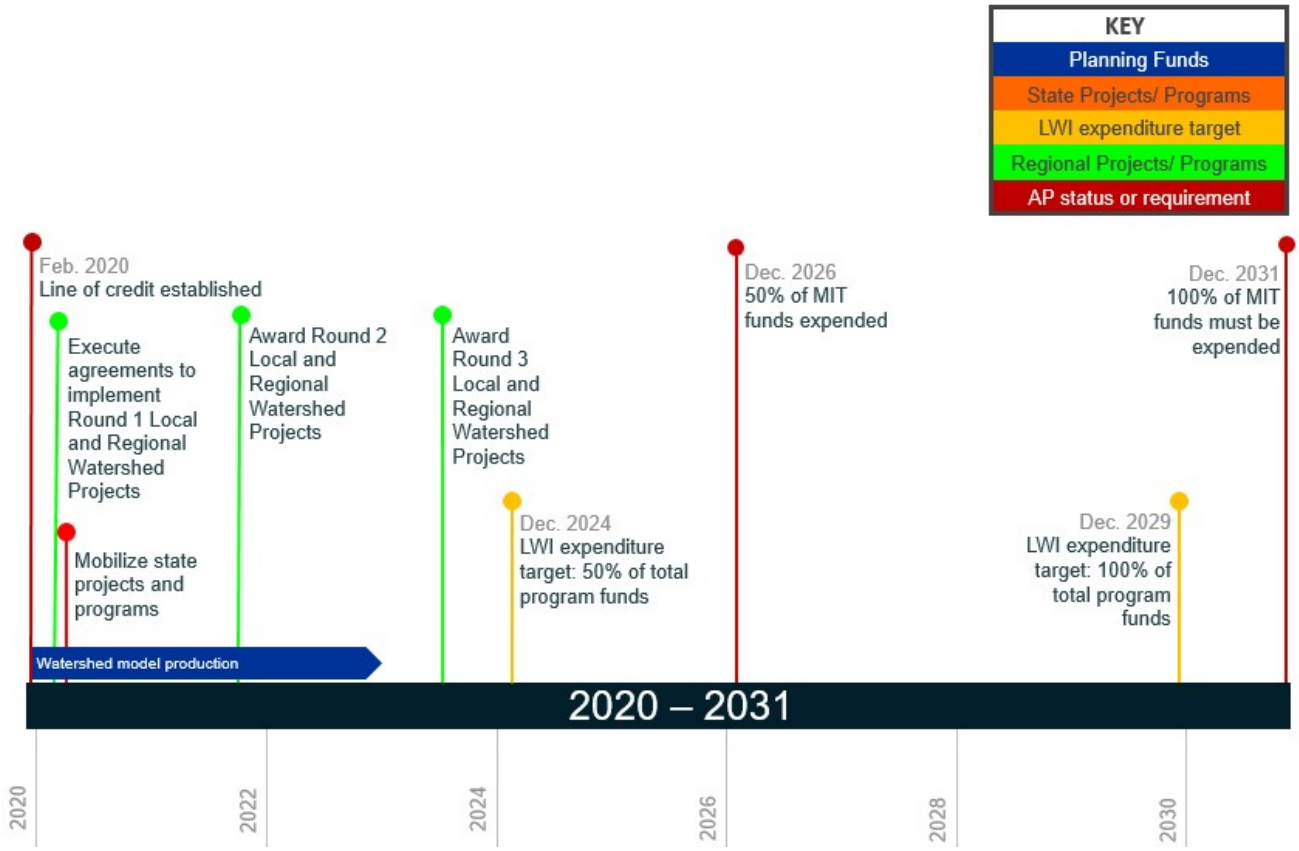
APPENDIX D: PROJECTION OF EXPENDITURES AND OUTCOMES ("SPENDING PLAN")

The state anticipates spending funds outlined in this AP through a transparent, efficient and time-sensitive process. To this end, in order to guarantee the timely expenditure of the subject funding, and with the goal of expending 50 percent of CDGB-MIT funds by program year five and 100 percent of program funds by year 10, OCD will observe the following status targets by program year five with respect to program mobilization (please see **Figure 22**. below for illustration):

- **Target:** Significant expenditure (approximately $138,670,040) of watershed modeling funds;
- **Target:** Full expenditure (approximately $24,278,340) of watershed policy, planning and local capacity assistance funds;
- **Target:** Expenditure of over $200,000,000 of Local and Regional Watershed Projects and Programs funds, including full expenditure of Round I funding and substantial expenditure of Round II funding; and
- **Target:** Expenditure of over $200,000,000 of State Projects and Programs funds.

A significant proportion of the projects described herein will be prioritized and selected based on the output of watershed models, which will not be fully operational until approximately mid-program (program year four or five). Therefore, some projects will necessitate a delayed selection and implementation schedule in order to most fully benefit from the provision of watershed models.

Figure 22. Louisiana Watershed Initiative CDBG-MIT Expenditure Timeline



The programs delineated in this AP aim to:

1. Objectively quantify flood risk;
2. Mitigate the immediate-term exposure of residents and critical assets to flood hazards;
3. Enable the construction of flood resilient communities and developments within the state; and
4. Implement planning and policy interventions to reduce long-term flood risk exposure through a variety of project, program, and planning activities.

To these ends, the state aims to achieve the following program outcome goals:

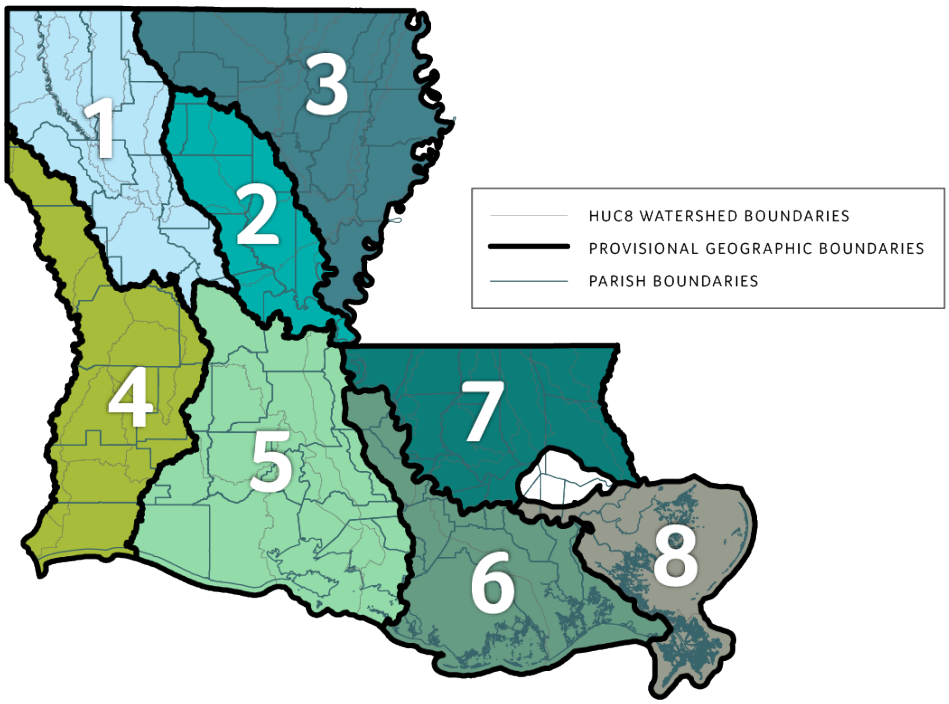
- **Goal:** Maximize (by square acre) the amount of area reserved or enhanced to function as regional water retention and/or detention sites.
- **Goal:** Reduce to the highest degree practicable the anticipated damage or losses to structures subject to flood risk.
- **Goal:** Maximize the number of mitigated (via buyout or elevation) residential structures.
- **Goal:** Maximize the number of critical facilities, sites or infrastructure components mitigated to the 500-year (0.2 percent AEP) flood standard.
- **Goal:** Maximize the number of affordable housing units that are mitigated to or above the 500-year (0.2 percent AEP) standard or are constructed outside of the 500-year floodplain.
- **Goal:** Maximize the number of participants who have received training and/or certifications in green building design and flood-resilient design and construction practices.
- **Goal:** Maximize the number of new developments constructed in a method consistent with the mitigation standards set forth in the resilience gap financing program.

APPENDIX E: LWI PROVISIONAL WATERSHED REGIONS

Council on Watershed Management

Accepted Aug. 8, 2019

Louisiana Watershed Initiative state agencies, assembled in response to Gov. John Bel Edwards' executive order, recognize the depicted delineation of provisional watershed regions to enable successful implementation and coordination of Louisiana Watershed Initiative program activities. These provisional watershed regions will immediately provide the following:



- A **'point of beginning'** to address the geographic scale and boundary for watershed-based planning, modeling and management in Louisiana;
- A **framework for regional and local stakeholder input** (regional steering committees) to determine more fixed, long-term watershed regional boundaries and organizational structures (coalitions) throughout 2020;
- **Regional and local support and resources** for short- and long-term watershed management in the form of the LWI Regional Capacity Building Grant Program; and
- Watershed boundaries to **facilitate distribution of program funds.**

Further, regional steering committees will review existing research and provide meaningful input into the provisional geographic scale and boundaries, as well as associated decision-making processes. The LWI will design a **living watershed boundary** that can be amended through the coordinated support of both regional and state watershed entities. These boundaries will acknowledge the changing environment each is designed to manage and may be amended to reflect changing risk profiles clarified by the LWI modeling effort and resulting from project impacts, climate change, land development standards and more.

LOUISIANA Office of COMMUNITY DEVELOPMENT

PUBLIC COMMENTS

STATE OF LA CDBG-MIT ACTION PLAN SUBMITTAL

December 23, 2019

Thank you to all parties submitting comments, questions and input on the state Action Plan for CDBG-MIT funding. The attention and diligence of all stakeholders participating in this process has greatly enhanced the Plan. To increase clarity regarding public comments on the Plan and the state's response, the state has grouped related comments into the below categories and responded accordingly. Similarly, where stakeholders submitted reference material or documents, the state has referenced and attached these documents herein for the public's awareness.

I. Action Plan Programs
II. Administration and Timeline
III. Most Impacted and Distressed (MID) Areas
IV. Modeling
V. Regional Watershed Management and Governance
VI. Provisional Watershed Region No. 7
VII. Development Patterns
VIII. Collaboration
IX. Watershed Projects Grant Program: Local and Regional – Round 1
X. Location-Specific Projects
XI. General Questions

I. ACTION PLAN PROGRAMS

*Note: The following comments address the "**Non-Federal Cost share Assistance**" program in the subject Action Plan, and are grouped and answered collectively below.*

1. **PUBLIC COMMENT:** *Will there be a local match allotment through HUD funding for GOHSEP projects in Acadiana?*

2. **PUBLIC COMMENT:** *Will there be an opportunity to match projects from the HMGP?*

3. **PUBLIC COMMENT:** *Will the state provide a local match for HMGP projects?*

4. **PUBLIC COMMENT:** *East Baton Rouge Parish thanks Governor Edwards, his Administration and the Louisiana Office of Community Development for its support of the future resilience of Louisiana. EBR Parish is in full support of a regional, data-driven and coordinated approach to improving existing flood protection measures. We commit to being a partner and leader in those efforts, in conjunction with the Louisiana Watershed Initiative. Additionally, the critical assistance provided under the proposed Non-Federal Cost Share Assistance program included within this Action Plan provides local government with much-needed financial support to enact additional resilience measures, ultimately benefitting the resilience of our citizens and our region. EBR Parish commends the involved agencies for their work in developing the watershed approach. We fully support this Action Plan, and request every appropriate consideration from HUD for its evaluation and approval.*

   RESPONSE: The subject Action Plan includes a "Non-Federal Cost Share Assistance" Program that allocates $96,988,107 to provide non-federal cost share assistance for eligible programs. These programs include: FEMA's Hazard Mitigation Grant Program (25 percent non-federal cost share), FEMA's Nondisaster Hazard Mitigation Assistance (HMA) Programs, Flood Mitigation Assistance

(FMA) and PreDisaster Mitigation (PDM), USDA's National Resources Conservation Service (NRCS) grant programs; and/or any other federal programs requiring a non-federal cost share, as applicable.

*Note: The following comments address the "**Large-Area Buyouts and Traditional Nonstructural Mitigation**" program in the subject Action Plan (within Program Area 2: State Projects and Programs), and are grouped and answered collectively below.*

5. **PUBLIC COMMENT:** *Buyout Program: 1. Good in rural Areas 2. Not good in developed areas due to buyout and vacant land in subdivision. What's happens with the long-term maintenance of adjacent lots that got bought out in urbanized areas? Who's going to maintain them?*

6. **PUBLIC COMMENT:** *Is there a home buyout program to help get homeowners out of flood-zones?*

7. **PUBLIC COMMENT:** *We need funding to conduct a building inventory to determine which building structures should be elevated. Will funding be allocated for this work?*

   RESPONSE: The "Large-Area Buyouts and Traditional Nonstructural Mitigation Program" in the Action Plan (within Program Area 2: State Projects and Programs) is intended to facilitate the implementation of buyout and other non-structural mitigation projects (including the elevation of structures, subject to HUD compliance and OCD approval) to assist homeowners in reducing their exposure to flood risk. Similarly, non-structural mitigation projects, including buyouts may be eligible for funding thorough the Watershed Projects Grant Program, subject to each programs' guidelines and OCD approval. Maintenance provisions should be considered and addressed in project proposals to enable sustainable long-term function of these sites.

*Note: The following comments address the **"Flood-Ready Jobs"** program in the subject Action Plan (within Program Area 2: State Projects and Programs), and are grouped and answered collectively below.*

8. **PUBLIC COMMENT:** *Will there be any resources allocated to train the next generation? I would love to hear more information about the training and apprenticeship programs to educate elementary and secondary students in watershed data collection, modeling, and resilient best practices.*

   RESPONSE: The proposed Action Plan includes a "Flood-Ready Jobs Program" (within Program Area 2: State Projects and Programs) that is intended to prepare the next generation of watershed professionals and train the current workforce to use watershed models, construct mitigation projects, and implement flood-resilient development in order to maximize the long-term impact of the $1.2 billion opportunity presented by the CDBG-MIT funds.

*Note: The following comments **generally address program areas** within the Action Plan.*

9. **PUBLIC COMMENT:** *I hope you are doing well and send congratulations on completing the Master Action Plan. It's a well put together document, is comprehensive and is well referenced.*
   This comment letter on the Action Plan for the Louisiana Watershed Initiative is based on some of the things that Healthy Gulf has been emphasizing in our recent analysis of Army Corps Wetland fill permits. We have presented research in a talk we call "Floodplain Resilience in the Lake Pontchartrain Basin" which uses the last five years (2014-2018) of Clean Water Act 404 wetland fill permit applications from the Army Corps' publicly available databases. We looked at the parishes that ring Lake Pontchartrain and identified areas where the wetland fill permit applications have been concentrated.
   While reading through the LWI Action Plan I noticed that some of the Parishes with the greatest flood risk, the greatest identified need for flood planning, large numbers of vulnerable citizens with repetitive losses are the ones we analyzed in our work. Tangipahoa was ranked high by LWI's Plan, as were Livingston and Ascension.
   In our analysis and presentations:

We focused on the need for Parishes and the state to track wetland fill permits in areas where development has already placed much fill in the floodplain, and to take measures to avoid losing any further capacity for those floodplains to retain water. Flood risk management planning must follow the moving target of wetland loss, and;

We made the observation that the wetland mitigation done to compensate for these wetland losses is often of little utility in managing stormwater. Wetland mitigation banks are far from the wetlands being filled and mitigation itself focuses on habitats, but not necessarily on doing anything to replace the water storage that disappears when clay fill and slab on grade construction methods are used, and;

We emphasized that within CPRA's non-structural project area in St. Tammany Parish, wetland fill permit applications are being granted every year at an increasing rate after 2017 and that the identified cost to the state to do flood-proofing, elevations and buyouts keeps increasing as the floodplain is altered by more wetland filling. The identified project cost of $1.61 billion which has neither been prioritized nor has any real funds appropriated to it will keep climbing as the floodplain is filled in and wetland functions are diminished, and;

We also pointed out that in some places in the Coastal Zone of St. Tammany Parish, LDNR Coastal Use Permits are requiring that new construction conforms to FEMA elevation standards and that pier construction is being mandated in some places by the state, and;

We identified thousands of acres containing inactive gravel mines upstream of heavily populated areas in the watersheds of the Bogue Chitto, Tangipahoa, Amite and Comite Rivers as places where some wetland function could be restored.

These points that we make above seem to conform to particular examples of possible projects in Program Area No. 1 from page 52 of the Action Plan:

1. Watershed restoration and preservation…stormwater management and other innovative/replicable flood control activities;
4. Major capital projects that improve resilience to flooding, provide regional stormwater detention or other flood protection measures;
5. Capacity building toward implementation of resilient development standards and floodplain management regulations; and
6. Housing development using sound, resilient construction practices to mitigate long term flood risk.

Within the examples given for Program Area 2: State Projects and Programs, some of the themes we raised in our Floodplain Resilience analysis and mapping also resonate with the project types set forth on pages 55-57.

1. Regional Detention Retention Projects that would… detain and retain water capacity.
"These projects may include the creation or restoration of wetland functions."

This example opens the door for dealing with improving wetland functions on thousands of acres of inactive gravel and sand mines and the improvement of the stability of streams and stream systems that have suffered for 50-80 years due to mines being captured by streams during high water and the attendant loads of sand and sediment gained by the streams.

2. Large- Area buyouts and traditional non-structural mitigation.

This example ties in with the non-structural projects and attendant costs that CPRA has already identified in its 2017 Coastal Master Plan. These costs are changing and increasing as the floodplains lose water storage capacity, and need to be updated to reflect the true expense to the state in addressing flood risk through non-structural projects.

4. Remote Lands Purchase Program.

This example seems to acknowledge the need to leave some high flood risk areas completely out of development. Not creating new subdivisions and businesses in problem floodplains is the best way to avoid the necessity to fix flooding problems later.

5. Resilience Gap Financing.

This example will help developers to build the right way if they must build in floodplains where adding more traditional clay fill and slab foundations will only accelerate an already expensive and difficult stormwater management problem. Incentivizing elevations on piers may be the only way to get developers to build in new ways that will allow their home and business buyers and everyone else to live more safely with water.

I did not see an example program in Program Areas 1 through 4 that identified the need to track wetland losses in areas of high flood risk and high development activity, such as some of the Northshore Parishes, or the need to then work with city, Parish or State level managers to either halt it, or deal with it with sensible policies. The need to visualize the "shrinking of the sponge" i.e., the capacity for remaining wetlands to function as well as they can to store water in areas having rapid growth, is clear and apparent, but this challenge needs to be defined if it is to be solved.

Healthy Gulf could not find analysis by the Corps or the state that approached it by presenting even the most basic year to year summary statistics on this problem. So, we did. We believe this to be a looming problem in areas like those along the I-12 Corridor between St. Tammany and E. Baton Rouge Parishes. Some agency at some level needs to be keeping up with it and considering it in management decisions. If this wetland loss problem could be described and enumerated in an appropriate place within Program Areas 1-4, we feel that the Action Plan would be strengthened by doing so.

I would be happy to give our Floodplain Resilience powerpoint presentation to Alex Carter, you or any of the staff members who might be interested in seeing this problem the way we see it.
Here is a link to an article about our efforts so far:
https://www.healthygulf.org/blog/protecting-the-sponge-community-meetings-on-floodplain-resilience-in-the-pontchartrain-basin
Thank you for allowing us to comment on the Action Plan.

RESPONSE: The Action Plan notes that wetland loss is a mitigation challenge facing the state (see section titled "Ecosystem Integrity and Watershed Resilience" in the Action Plan). Wetland preservation and the preservation of natural retention or detention areas is a critical component of successful watershed management and, as per this input, the state has amended the Action Plan to further ensure these concerns are appropriately addressed (see section titled "Watershed Monitoring, Mapping, and Modeling").

10. **PUBLIC COMMENT:** *The plan refers to the Coastal Master Plan and the LA SAFE plans numerous times, it appears that other plans that were completed by the USACE, other federal agencies, Parishes or local government plans have not been considered or reviewed and the plan states they want to build upon those efforts. In reviewing a few of the LA SAFE plans there were some resilient projects and some recommendations for future resiliency planning and efforts in building but they also had recommendations that stormwater management plans for internal drainage would need to be done. The breakdown of the funds discuss modeling and competitive projects but with so little money remaining for planning that would be divided across the state, it appears after the money is spent we will have modeling but no overall state water management plan and work will still be based upon a competitive basis. So unlike the Coastal Masterplan where coastal project are prioritized and the plan is followed and the State is making an impact by implementing the plan, this plan by nature could spend $1.2B with projects so isolated that its cumulative effects become minor. With the state allocating such a large amount for state projects without the state having large riverine or inland flood risk related projects identified, to keep up with the spending plan, it makes the funding vulnerable to be spent on largely coastal projects the state has spent money to identify as those projects more closely meet the objectives, constraints and requirements.*

RESPONSE: The Action Plan anticipates the development of statewide and regional Watershed Management Plans (see "Development of Statewide & Regional Watershed Management Plans" within the Program Area 4: Watershed Policy, Planning, and Local Capacity Assistance) as part of administering CDBG-MIT funding and enhancing long-term mitigation impact from these funds. This plan should result in the identification and implementation of projects throughout eligible areas of the state that address riverine and inland flood risk in addition to coastal flood risk.

11. **PUBLIC COMMENT:** *I am providing this public comment on behalf of the International Code Council. Thank you for accepting Public Comments addressing the Louisiana Watershed Initiative's Draft Master Action Plan for the Utilization of Community Development Block Grant Mitigation Funds (CDBGMIT) being made available by the U.S. Department of Housing and Urban Development (Draft Plan). I am a citizen of Louisiana and I represent the International Code Council (ICC) as a state and local government liaison to Louisiana. The International Code Council (ICC) is a non-governmental, nonprofit organization, driven by the engagement of 65,000 members, dedicated to helping communities and the building industry provide safe, resilient, and sustainable construction through the development and use of model codes (I-Codes) and standards used in design, construction, and compliance processes. All 50 states, federal agencies, and many global markets choose the I-Codes to set the standards for regulating construction and major renovations, plumbing and sanitation, fire prevention, and energy conservation in the built environment. Six of the I-Codes are adopted statutorily and are mandatory for enforcement by every Louisiana local government. The Code Council strongly supports the Draft Plan's commitment to use funding to support community adoption of modern building codes (Program Area 4) and enforcement of codes (Program Area 1 & 4). Research has shown that mitigation through current code adoption and following proper code enforcement procedures are a key component to resiliency in the built environment. The National Institute of Building Sciences (NIBS) Mitigation Saves report found that for every dollar invested, the 2018 IBC and IRC provide $11 in mitigation benefits against flood, hurricane, and earthquake risk. These codes provide $6 for every $1 invested in flood mitigation benefits, specifically. - The 2019 Mitigation Assessment Team report following Hurricane Harvey found that National Flood Insurance Program (NFIP) regulations reduced average claim payments by almost half and following modern code*

flood mitigation requirements reduced the average claim payments by an additional 90%.
Code enforcement is equally important. FEMA quantified the cost of Dade County's inadequate code enforcement as a quarter of the $16 billion in insured losses from Hurricane Andrew.1 Researchers found similar results about 15 years later: that implementing building codes at the local level by ensuring codes are properly administered and enforced provides an additional loss reduction value on the order of 15 to 25 percent.2 The Draft Plan includes under Program Area 1, projects and programs that include "code enforcement activities." The section continues with "training and certification in resilient building methods" as an example of LWI projects and programs. The Code Council recommends clarifying that training of staff for all related code enforcement activities and certification of staff on these activities are eligible uses. The Code Council also urges that this Program Area clarify that recruitment of code administrative staff
1 Burby, R., Hurricane Katrina and the paradoxes of government disaster policy: Bringing about wise governmental decisions for hazardous areas (2006) citing FEMA Building Performance Assessment Team, Preliminary Report in Response to Hurricane Andrew, Dade County,
Florida (1992). 2 Czajkowski, J. et. al., Demonstrating the Intensive Benefit to the Local Implementation of a Statewide Building Code (2017). (inspectors, plans examiners, building officials and permit technicians) is permitted along with building department accreditation, which helps departments evaluate their competence to meet nationally recognized standards and implement best practices for public safety. Within Program Area 4, the Code Council recommends the Draft Plan clarify that that code adoption costs could include staff time needed to review updates, travel reimbursement for committees evaluating updates, and necessary materials detailing the newly adopted requirements. Thank you for the opportunity for the International Code Council to submit our public comments and we stand by as a resource in your efforts implement the Louisiana Watershed Initiative's Master Action Plan for the Utilization of Community Development Block Grant Mitigation Funds.

RESPONSE: OCD will issue guidance on specific eligible activities and reimbursable expenses as each program within this Action Plan is mobilized.

Note: The following comments generally address ***recommendations regarding equity, economic opportunity, the role of nonprofits, and title clearing;*** *and are grouped and answered collectively below.*

12. **PUBLIC COMMENT:** *HousingNOLA is a 10-year partnership between the community leaders, and dozens of public, private, and nonprofit organizations working to solve New Orleans' affordable housing crisis. The data indicates the need for 33,600 additional affordable units in the city by 2025 and the data clearly shows that wages have not come close to mirroring the dramatic rise in housing costs. For the 10 years immediately after the Hurricane, passionate citizens worked with non-profit, community-based organizations to rebuild their homes and regenerate their city in a more equitable fashion.*
To accomplish this vision, one of the areas HousingNOLA uses to benchmark its progress towards its goals in the housing and community development sector is how fair housing policies are being promoted and enforced throughout New Orleans. HousingNOLA suggests that the Office of Community Development include the following recommendations to the CDBG-MIT Action Plan for Watershed Initiative Funding Allocation: 1) specific requirements to prevent disparate impacts from watershed projects, 2) requiring all construction contracts hire from a pool of newly trained workers from the CDBG-MIT funding allocation, 3) funding for a state administered program which provides legal aid for title clearing, 4) allocate funding to nonprofits in order to grow local capacity for resident leaders and community groups.
Recovery after Hurricane Katrina proved to be unequal in the city of New Orleans as well as reinforce a pattern of historical discrimination. HousingNOLA suggests a requirement that can be used to prevent and address disparate impacts and the reinforcement of historical discriminatory patterns. By creating models to analyze the potential socio-economic impacts prior to the implementation of watershed projects, not only can we work towards mitigating future harm from flooding events to our most at-risk citizens, often times low-income families, we can also account for areas that are often experiencing underinvestment or disinvestment. Activities conducted as part of the CDBG-MIT allocation will provide local workers with development and employment opportunities from a set aside pool of resources. The aforementioned development training should include a requirement that for all construction contracts hire from the newly trained local workers.
New Orleans a historical city with homes that are often passed down from one generation to the next. However, these homes are sometimes passed down informally or without legal process. By providing a front end state funded and administered program to help residents attain clear title, we will allow low income families, who wouldn't necessarily have access to the civil legal aid, the tools they need to get access disaster recovery funds.

To continue with equitable investments in our communities, the action plan HousingNOLA recommends sets aside 1% of the total CDBG DR funds in the award for pass through funding to local nonprofit organizations. This investment will build up local capacity for disaster mitigation, recovery, and other measures to address the impacts of severe flooding. No one knows our unique communities better than our community members and leaders. They are trusted voices and resources in their community, but government-based decision-making conversations have largely overlooked, or disregarded, their knowledge and expertise. Local leadership will engage a broader resident base to participate in decision-making processes and expand their traditional ecological knowledge and experience-based expertise with the complex, and often technical, landscape of challenges and opportunities related to flood mitigation. Increasing the capacity of nonprofit organizations will have beneficial effects on not only the city of New Orleans but the state as a whole. It is critical to recognize the expertise and gaps of the organizations doing this work locally to create flexible pathways for success with resources that commend their knowledge and support their needs.

13. **PUBLIC COMMENT:** *HousingLOUISIANA appreciates the opportunity to comment on the Action Plan for the Utilization of Community Development Block Grant Mitigation Funds. We work on an annual Statewide Listening Tour with partners in nine of the Regional Housing Planning Areas across the state to collect policy priorities prior to the Legislative Session. HousingLOUISIANA asks the Office of Community Development to add our following suggestions to the Action Plan; require comprehensive analyses to model and predict disparate impacts, provide front end title clearing programs by the State, and expand the capacity of regional and watershed based nonprofits statewide. HousingLOUISIANA finds it necessary that any CDBG-MIT funding allocation addresses the challenges of disparate impacts by acknowledging engrained inequities and developing policies that are designed to address historic issues. Watershed management will create social and economic impacts, however if properly predicted, these impacts can work to address the historic and existing patterns of discrimination. All watershed and project analyses should include analysis of such disparate impacts and all projects should be designed with specific mandates that work to prevent discrimination and undo any discriminatory patterns.*
To help lower income families gain access to disaster recovery funds, there has to be a State administered and funded program meant to help residents with the process of title clearing. Low income families that are heirs to generational property, that has been passed down informally, lack the ability to access disaster recovery funding. By implementing a State program with the purpose of title clearing, we can make disaster recovery processes more equitable.
Louisiana has been victim to many disasters, and many more to come. Funding to support increased capacity for community-based organizations involvement in the Louisiana Watershed Initiative would be critical to supporting the long-term impacts of this work and to mitigating the effects of future disasters. HousingLOUISIANA recommends 1% of the total CDBG-DR funds in this award should be set aside for pass through funding to local nonprofit organizations to build up local capacity for disaster mitigation, recovery, and other measures to address the impacts of severe flooding. Community based organization leaders are varied across regions and local nuances require distinct action from them. Many of these (Docket R-31106)
June 14, 2019 leaders have navigated large portions of their community through multiple disasters; people in their tribe or their geographical area depend on them and their community-based organization to help navigate through the issues of today and tomorrow. They are trusted voices and resources in their community, but government-based decision-making conversations have largely overlooked, or disregarded, their knowledge and expertise. By investing in community-based organization leadership, Louisiana can invest in a pool of untapped knowledge and experience in some of the most vulnerable communities. This investment will ensure they gain a seat at the table in decision-making processes concerning their own futures and, in turn, serve residents most affected by watershed-based flooding challenges. Investments that grow the local capacity of resident leaders and community groups is necessary to ensure that communities can participate in conversations around watershed planning as well as nonstructural investments and adaptation strategies, design and implementation of projects, programs and policies that directly address the needs of residents most affected by land loss, extreme rainfall, and increased flooding. That capacity must continue to grow across the state for outcomes of equity and resilience to be successful and organizations must communicate to support strengths, differences, and collaboration for related activities to catalyze skillsets and resources where there are overlaps.

14. **PUBLIC COMMENT:** *The Greater New Orleans Housing Alliance (GNOHA) is a collaborative of non-profit housing builders and community development corporations working to rebuild the housing stock available in the city of New Orleans after Hurricane Katrina devastated the city's infrastructure. Since its creation in 2007, GNOHA has sought to create change in the Greater New Orleans community through public policy, advocacy, and public education. The alliance advocates for the preservation and production of affordable housing for people within the Greater New Orleans metropolitan region and places a special emphasis on the needs of the most vulnerable in society – seniors, people with disabilities, veterans, low wage workers, and low-income families.*

Funding allocation that addresses the challenges of disparate impacts to marginalized communities by acknowledging historic inequalities are essential to preventing the duplication of uneven and discriminatory recovery processes as implemented in the GNO region during wake of Hurricane Katrina. To ensure the prevention of disparate impact during recovery processes, GNOHA suggests requiring a comprehensive analysis to model and predict the various disparate impacts that could be induced by the suite of policy recommendations produced within the watershed initiative. Unequal recovery from Hurricane Katrina and historical neglect have led to disinvestment and lack of protective services in various parts of the region. It is imperative that watershed management projects work in the best interest of our most at risk citizens to undo historic and existing patterns of social and economic discrimination. To this point GNOHA recommends, all watershed and project analyses include an analysis of disparate impacts across GNO communities, and all projects should be designed around specific mandates to avoid further discrimination, helping to repair existing discriminatory patterns. After the historic flooding events of Hurricane Katrina the city of New Orleans learned civil legal aid is an essential and overlooked solution to helping survivors recover. Generational property, or property that is passed down from one family member to the next, is common in New Orleans. However, being unable to present a clear title prevents those who received Page 2 CDBG Action Plan for Watershed Initiative Funding Allocation (FR-6109-N-02) November 27, 2019 their property informally, without legal process, from the necessary funds for recovery. This is why GNOHA finds it necessary that funding and processes for title clearing are a part of a front-end program administered and funded by the state. Community-based partners are critical to developing strategies and recommendations of more equitable and inclusive outcomes that enable a broader resident base to participate in the decision making process by bringing in local knowledge and expertise to solve complex and technical challenges. By investing in community-based organizations, we have a chance to ensure some of the most vulnerable communities in the GNO region are able to participate in decision-making processes that will ultimately affect their future. GNOHA recommends that 1% of the total CDBG DR funds included in this award are set aside for pass through funding to local nonprofit organizations to build up local capacity for disaster mitigation, recovery, and other measures to address the impacts of severe flooding. This investment will provide public knowledge of how Louisiana's environmental challenges relate to our socio-economic challenges. Investing in nonprofit community leaders provides an opportunity to share resources, experience and knowledge in ways that can grow a comprehensive network of individuals and organizations who recognize this challenge in their work and are prepared to be champions for this challenge. The aforementioned results are all critical in developing equitable solutions that are representative of community needs in Louisiana.

RESPONSE: The goal of mitigation is to reduce damage potential where possible, which includes those areas where low to moderate income individuals are subject to flood risk. The subject Action Plan outlines programs such as "Technical Assistance: Risk Awareness and Education" (within Program Area 4: Watershed Policy, Planning and Local Capacity Assistance), "Large-Area Buyouts and Traditional Nonstructural Mitigation," and "Resilient Affordable Housing Program," and "Flood-Ready Jobs" (within program Area 2: State Projects and Programs), that can aid in addressing this issue. FR-6109-N-02, requires that at least 50% of the CDBG-MIT funding benefit low to moderate income individuals. Title clearance is a critical component of flood resilience, as highlighted by this input, and the subject Action Plan includes references to programs providing assistance with title clearance where necessary to participate in the programs within the Action Plan. Note: Orleans Parish did not receive a federal disaster declaration from either the March or August 2016 floods, and therefore is not listed as a HUD-MID or LA-MID in the Action Plan.

II. ADMINISTRATION AND TIMELINE

Note: The following comments address the ***administration and timeline for the expenditure of CDBG-MIT funding****, and are grouped and answered collectively below.*

15. **PUBLIC COMMENT:** *I would like to know who will be giving the funds out (will it be the parish or will it be directly from the state). Will non-profits be able to use these funds to help with flooding on projects they are doing?*

16. **PUBLIC COMMENT:** *How do we make sure the money is spent correctly?*

17. **PUBLIC COMMENT:** *What's the timeline for actual dollars being spent on projects? It sounds like 5 years plus, which is not an immediate resolution to our current problems.*

18. **PUBLIC COMMENT:** *How long before the initiative is actually put into action. Many neighborhood flood during large or heavy rains, will this money be used to enhance existing flood mitigation projects? Will there be teams to actually look at Flood Pronged areas?*

19. **PUBLIC COMMENT:** *What does HUD define as a project when it comes to new construction? Will HUD have detailed instructions of what a project will consist of?*

20. **PUBLIC COMMENT:** *The Restore the Mississippi River Delta is a coalition of environmental groups working to rebuild coastal Louisiana's nationally significant landscape to protect and sustain its people, wildlife, and economy. The member organizations include the Environmental Defense Fund, the National Wildlife Federation, National Audubon Society, the Coalition to Restore Coastal Louisiana, and the Lake Pontchartrain Basin Foundation. Funding for the Louisiana Watershed Initiative (LWI) represents a once-in-a-generation opportunity for the state to change the piecemeal approach of handling water management according to political boundaries that it has practiced throughout its history. Instead, this effort will allow the state to dramatically reorganize its water management along drainage systems formed by naturally existing watersheds. If planned and executed properly, the state will have the opportunity to put sustainable, coordinated policies and interventions into practice. We applaud the deliberate and transparent way the Louisiana Office of Community Development (OCD) has conducted this effort thus far. In fact, OCD's diligence and organization has put our state well ahead of our neighboring states. The concerns of the coalition revolve around four issues, which are not explicitly addressed in the action plan: watershed boundaries, coordination with the Coastal Master Plan, governance and outreach to stakeholders. Region based multi-million dollar modeling contracts are being awarded while the watershed boundaries are still 'provisional' and haven't been established. We urge OCD to make this a priority and make the maps and boundaries definitive to instill faith in stakeholders and the public for the effort. Louisiana's Comprehensive Master Plan for a Sustainable Coast or the Coastal Master Plan (CMP) is an adaptive, science-based plan for the $50 -billion- dollar effort to restore and protect the Louisiana coastal region. The plan has been updated three times since its first iteration in 2007 and is being implemented under the direction of the Coastal Protection and Restoration Authority (CPRA) with more projects under construction than ever before. More than $8 billion is currently identified for implementing these projects that are being coordinated at the state and local level. It is imperative in our view that the Louisiana Watershed Initiative and the local entities funded by the effort coordinate their work and projects with the CPRA to ensure their plans are consistent with the state CMP. The LWI action plan is also silent about the overall governance of the effort. Since the watershed initiative must coordinate with the ongoing coastal work, it stands to reason that we need to define geographic extent and the governance of this coordination. In doing so, we can help ensure an efficient and sustained effort to restore the Louisiana coast and protect its people from riverine flooding and storm surge. In terms of the overall process, we would recommend that in each region the initiative specifically provide for and support authentic public engagement (LA-SAFE offers a useful model); that it continually provide full transparency so that residents can have the opportunity to fully understand the risks that need to be managed, as well as the risk management possibilities; and that residents have the opportunity to fully participate in the development of solutions. Those steps will help ensure that the process and decisions will be understood and supported and create the best opportunity for lasting and equitable outcomes. Thank you for your work on this action plan and for consideration of these comments.*

21. **PUBLIC COMMENT:** *Are you working with CPRA's Coastal Masterplan?*

    RESPONSE: The Action Plan explains how the state proposes to spend its CDBG-MIT funds as "Program Areas". Louisiana's proposed Program Areas include:

Programs		
Watershed (Local and Regional) Projects and Programs	$570,666,243	47%
State Projects and Programs	$327,757,590	27%
Non-Federal Cost Share Assistance	$96,988,107	8%
Watershed Monitoring, Mapping, and Modeling	$145,670,040	12%
Administrative Costs	$48,556,680	4%
Watershed Policy, Planning, and Local Capacity Assistance	$24,278,340	2%
Total Allocation	$ 1,213,917,000	100%

The state will administer the funds allocated by the subject Action Plan and subject to OCD discretion and program guidelines for each program. The Action Plan features sections ("The Council on Watershed Management" and "Coordination and Alignment") that speak to OCD's coordination with other state agencies, including CPRA, in the administration of CDBG-MIT funding and long-term resilience efforts.

The Action Plan includes a general breakdown of funding to be allocated to projects and planning as per the guidance in FR-6109-N-02. Eligible project types and program guidance will be issued as each program within this Action Plan is mobilized.

The state began organizing the Louisiana Watershed Initiative before notice of CDBG-Mitigation funding from HUD. The Action Plan lays out how the state is proposing to spend the money, and it is informed by dozens of meetings conducted around the state and attended by hundreds of stakeholders to better understand our challenges and opportunities related to floodplain management. Further, the Action Plan – which must undergo a public comment period – requires HUD approval, and all CDBG-MIT funding utilized in Louisiana must be spent in accordance with the plan and is subject to certifications and compliance monitoring intended to prevent waste, fraud, and abuse and ensure efficient and effective spending.

The state plans to fund 100 million in projects immediately following HUD's approval of the Action Plan, anticipated in spring 2020. After HUD establishes a line of credit with the state, the state has 12 years to spend the CDBG-MIT funds. The Action Plan includes a spending plan that anticipates 50 percent of fund expenditure by year 5 and 100 percent by year 10.

Separate from the administration of the subject Action Plan and CDBG-MIT funding, the Louisiana Watershed Initiative seeks to foster regional governance within watersheds in order to empower local jurisdictions to make collective decisions. To this end, the Council on Watershed Management has adopted Provisional Watershed Regions to enable this work, and aims to continue this regional governance effort far into the future (see "Regional Steering Committees and Coalitions" and "Timeline" sections in Action Plan).

III. MOST IMPACTED AND DISTRESSED (MID) AREAS

Note: The following comments inquire about the ***distribution of funding among MID parishes****, and are grouped and answered collectively below.*

22. **PUBLIC COMMENT:** *Typically, rural Parishes and small municipalities are left out of grant funding or have to contribute up to 25% of the cost of a project. FEMA funds, in a number of cases, are turned back due to the 25% cost share, which they do not have.*
Consideration should be given to restricting the ten (10) "entitlement" Parishes from applying for funding beyond the "entitlement"

funds. On average, simple math yields some $60 million per Parish for the designated Parishes (approx. $600 million divided among the ten (10) Parishes).
The above would allow more rural Parishes to have a chance to actually see some benefit from this one-time program.

23. **PUBLIC COMMENT:** *While the goal of spending half the monies in the 10 HUD-identified mid is a good start – why not guarantee each of the 10 HUD MIDs will benefit from a construction project not just funding. All LA parishes are getting 'funding' since the state is updating its modeling efforts. Since these parishes were severely impacted by the 2016 rains, they should actually have construction dollars. The timing is off. Since the modeling effort will not be completed for several years, how can construction projects be approved? Wouldn't the 'no regrets' projects lend themselves to buyout or elevations and existing studied projects? The impacted areas generally do not have existing studied projects since this type of rainfall was historical. The mitigation and funding should be focused on the type of disaster – inland rainfall. While coastal protection is paramount for this state, it is not the only weather challenge we face. This funding should focus on inland flooding – coastal projects have several funding sources available to them. Inland does not. While the two concerns can be addressed in a project, the focus should be on rainfall impacts and riverine flooding. This is particular for areas that are not tidally impacted. Why has the Louisiana Floodplain Managers Association (LFMA) not been more involved? They are a huge asset for the state and a wealth of knowledge about what actually works. Having representation of your region on the steering committee is a great idea, but should people under the age of 18 be on the committee? This is all being done during the state's election cycle. This has hindered several jurisdictions because elected leaders are transitioning. The timing favors communities where existing leadership remained. New leaders are not even sworn in until January, and projects need to be submitted in December as well as nominations for the steering committees*

24. **PUBLIC COMMENT:** *Mitigation and funding should be focused on the type of disaster. What we have learned in the two flooding events that have driven the creation and movement of the Louisiana Watershed Initiative is that riverine and pluvial flooding have significant impacts worthy of priority funding and should be so stated in the site specific projects. Taking the purpose of the LWI to the next level requires focused and specified funding in these areas with the input of floodplain managers in addition to the the technical expertise of engineers as the foundation.*

25. **PUBLIC COMMENT:** *While the goal of spending half of the money on the 10 HUD - identified mid is a good start, why not make sure that each of the 10 HUD MIDs benefit from a construction project and not just of funds? All parishes in Louisiana are receiving "funding" as the state updates its modeling efforts. Since these parishes have been hit hard by the 2016 rains, they should actually have building dollars. 2. The timing is off. Since the modeling effort will not be completed for several years, how can construction projects be approved? Would not "no regret" projects lend themselves to buyout or elevations and existing studied projects? In general, no project has been studied in the affected areas as this type of precipitation was historic. 3. Mitigation and funding should focus on the type of disaster: inland rains. Although coastal protection is paramount for this state, it is not the only climate challenge we face. This funding should focus on inland floods: coastal projects have several sources of funding. Inland does not. Although both concerns can be addressed in a project, the focus should be on the impacts of rains and river floods. This is particular for areas that are not affected by the tide. 4. Why has the Louisiana Floodplain Managers Association (LFMA) not been more involved? They are a valuable asset to the state and a great knowledge of what really works. 5. Having a representative of your region on the steering committee is a great idea, but should people under the age of 18 serve on the committee? 6. All this is done during the state election cycle. This has hindered many jurisdictions because elected leaders are in transition. The timing is favorable to communities where existing leadership has remained. New leaders are not even sworn in before January, and projects must be submitted in December, as well as nominations for steering committees.*

26. **PUBLIC COMMENT:** *The Federal register establishes 50% of the funds need to be spent in the HUD identified MIDs but the plan does not describe if the state will be working towards an even distribution of the funds to each of the 10 HUD MIDs or since the state identified more MIDs is the goal to spread it around the state with no designated minimums within those areas. Further, the plan emphasizes the state wants to build upon LA SAFE plans so areas like East Baton Rouge, St. Tammany Parish have been studied significantly more than parishes like Acadia or Lafayette (which was identified on Page 22 as information not available in the SHMP) appear to be at a more competitive advantage for receiving funds than the other areas of the state that have not been recently studied by state agencies. The ambiguity of the plan with this respect lends itself to some parishes ability to get the majority of the funds while other parishes continue to be at a disadvantage to address riverine and inland funding.*

27. **PUBLIC COMMENT:** *How will the distribution of funding be determined for the 10 most impacted and distressed parishes?*

28. **PUBLIC COMMENT:** *Who's evaluating proposals to ensure that selected projects impact the 10 MIDs required by HUD?*

29. **PUBLIC COMMENT:** *The Action Plan needs to ensure that it fully aligns with the following statement in the FR notice, which provides a route for expenditure outside of HUD or Grantee defined MID areas and better addresses watershed level thinking beyond conventional political jurisdictions:*

    "Grantee expenditures for eligible mitigation activities outside of the HUD-identified or grantee-identified MID area may be counted toward the MID area expenditure requirements provided that the grantee can demonstrate how the expenditure of CDBG-MIT funds outside of this area will measurably mitigate risks identified within the HUD-identified or grantee identified MID area (e.g., upstream water retention projects to reduce downstream flooding in the HUD-identified MID area)." (FR-6109-N-02-CDBG-Mitigation Notice, pg. 15)

    In short, the FR provides a route for spending outside of HUD or Grantee MID areas, but the Draft Action Plan does not appear to. It would be good to make sure there is as broad alignment as possible between the Action Plan and activities/geographies allowed under the FR notice.

    RESPONSE: As noted in FR-6109-N-02, the subject $1.2B in CDBG funding is required to be spent on mitigation activities and a minimum of 50% of this funding is required to be spent to benefit the HUD-MID parishes. OCD will administer the programs listed in the subject Action Plan and review all projects and programs funded to ensure a distribution of funding consistent with this requirement. It is important to realize that the next flood could be anywhere, and that mitigation activities should anticipate future events that may impact a parish or region that is within a HUD-MID or LA-MID. The inclusion of LA-MIDs in the Action Plan is based on data from damage assessments and declarations making Parishes eligible for FEMA individual assistance or public assistance from the Great Floods of 2016.

Note: The following comments inquire about ***Parishes identified as "HUD-MIDs or LA-MIDs"****, and are grouped and answered collectively below:*

30. **PUBLIC COMMENT:** *Thanks for your time Friday, October 25. My first question Friday was why Concordia Parish was not included in the fund distribution as an impacted and distressed parish since we had five (5) Disaster Declarations from 1999-2019? We are a rural, low-income parish that has major drainage issues, but it appears that the only two disasters that count toward fund distribution are DR-4263 and DR-4277. I do not know for sure what Public Law 115-123 says about fund distribution.*
    If Concordia Parish with five (5) disaster in 20 years cannot receive any project funds what other benefits or services will be available to the parish thru the Louisiana Watershed Initiative? We do have one project we are currently working on that involves drainage thru another parish (Tensas) that also is not included in the Louisiana Watershed Initiatives. This project has no funding at this time. Help is needed in a rural unstaffed parish with drainage issues. Thanks for your support and time.

31. **PUBLIC COMMENT:** T*o Whom It May Concern, As we are aware that the allowable project funds are designated only to parishes with declared disasters in 2016, we would like to point out that Concordia Parish has more frequent declared disasters from flooding than many of the parishes listed as participating parishes in this grant program. What concerns us most is the large majority of water drained from the northern portion of the state (all of which will receive adequate funding to drain floodwaters out of their parishes quicker) will pass beside Concordia Parish.*
    The concern for Concordia Parish is being on the receiving end of these flood waters with no funds to adequately take on additional flood waters. In the event that Concordia Parish experiences heavy rainfall within the parish and North of the parish it will struggle to accommodate the rain event and the increase of flood waters being pushed down from the North.

    Concordia Parish designed and received funding for a $7 million drainage structure to assist the parish in getting flood water out the ring levee which surrounds the parish. Flood control gates will be placed in the Tensas levee (at its natural drainage outlet) to drain

a large portion of the parish an estimated 94% of the year when the Tensas river is at or below forty-five feet gauge level. If the Tensas River experiences a higher level of water it will decrease the effectiveness of the structure this new structure. As you can see, increased flood waters into the Tensas can have major effects on Concordia Parish's ability to mitigate its own frequent flooding. If this structure is not effective due to the investment to push more water onto Concordia Parish by the way of the Tensas River, than $7 million of Federal Funds will have been wasted, and Concordia Parish will still experience frequent flood events with no funds to mitigate the ongoing hazard. We are asking that you please consider Concordia Parish and its flood mitigation projects when planning and funding drainage in northeast LA.

32. **PUBLIC COMMENT:** *Terrebonne Parish is one of the most threatened coastal parishes but is not included in the Louisiana identified MID's. I think this needs to be changed to include Terrebonne Parish in the LA MID's so we can qualify for these funds.*

33. **PUBLIC COMMENT:** *1) Are all Parishes in Louisiana eligible for the $1.2 Bill in CDGB DR funding? Specifically, Terrebonne! 2) What is OCD's definition of a Natural Resources Profession listed in the NOFA for the Steering Committee?*

RESPONSE: State-identified MIDs must have sustained substantial—quantifiable—impacts as a result of the Great Floods of 2016. The 46 parishes proposed as LA-MID areas by Louisiana were determined based on federal disaster declarations and individual assistance or public assistance provided by FEMA associated with the Great Floods of 2016 (DR-4263 and DR-4277). Although some parishes in Louisiana have sustained repeated or severe flood damage from past events, the authorization to propose "grantee-identified MIDs" specifically requires the grantee to demonstrate damage to such areas as a result of DR-4263 or DR-4277.

If the parish provides data that quantifies that it was 'most impacted and distressed' as a result of the 2016 storms, the state is willing to submit such information to HUD for consideration.

IV. MODELING

34. **PUBLIC COMMENT**:
Amite River Basin - This basin needs to be a standalone basin, not mixed with the areas to the east of it. On a population basis, the Amite River Basin encompasses about 20% of the state's population. It should not be comingled/combined with St Tammany and Tangipahoa Parishes/basins, which have not experienced the level of flooding that we here in East Baton Rouge, Livingston, and Ascension Parishes have.
All of the 8 + 1 districts should use the same model. Otherwise there is the risk of lack of consistency in results. Since the Amite River Basin Commission already has a model that the Corps is using, that model should be the one used.
Rainfall data are woefully out of date. Data being used come from David Hershfield's Department of Commerce Technical Paper TP-40 published in 1961, which is based on data available between 1890 and 1958. Since 1973, Baton Rouge annual rainfall amounts are 25% higher than known rain gauge data between 1949 and 1972. First year that rain gauge data were collected for Baton Rouge was 1949. Below is a link to David Hershfield's technical paper.

RESPONSE: Please see responses regarding "Watershed Region 7" included within this document. The state is aware of existing data resources and is utilizing this data to inform the modeling program design, which stresses statewide consistency.

35. **PUBLIC COMMENT:** *How does the plan address NFIP and HM map updates?*

RESPONSE: The state will facilitate alignment with NFIP and hazards mitigation plans, with the aim of maximizing the benefits available through the National Flood Insurance Program and Community Rating System.

Note: The following comments inquire about the ***timeline and use*** *of the "****Watershed Monitoring, Mapping, and Modeling Program****" (Program Area 3) and are grouped and answered collectively below.*

36. **PUBLIC COMMENT:** *What is the time frame for the modeling effort and how long before turning dirt for projects that solve the problem? What is the plan for funding near term projects that have modeling and no adverse impacts upstream or downstream?*

37. **PUBLIC COMMENT:** *We can't leave out the smaller and less populated towns. The money should impact these areas fairly. These meetings are taken over by individual projects. All areas have the same problems as Lafayette. Dredging may need to be done but something must be devised to handle the silt. We need to clear out the lower ends of all the rivers. Will models still be good, 12 years down the road?*

38. **PUBLIC COMMENT:** *Do we have a watershed modeling software that can give us data for each area of our watershed? If so, how do we have access to it and view results as needed. Explain what is a high quality gauge network?*

39. **PUBLIC COMMENT:** *How much time is expected for watershed modeling? Some regions like #7 will need models of various watershed within one region Who will own the gauges installed on rivers by OCD?*

40. **PUBLIC COMMENT:** *Let's not reinvent the wheel. In region 6, 3 models have already been done by ACE. Zero construction projects have been funded when millions of dollars have been spent on modeling.*

41. **PUBLIC COMMENT:** *Dear members and staff of the Louisiana Watershed Initiative Council,*
I am writing to you to comment on the Louisiana Watershed Initiative (LWI) Draft Action Plan for the use of available CDBG funding. These comments represent the views of the Lafourche Basin Levee District (LBLD) and its consultants, GIS Engineering, Burk-Kleinpeter, Inc., and Greenup Industries.
First, we would like to call the LWI's attention to the considerable efforts of many local jurisdictions to advance planning and design of projects that will be eligible for this funding. In LBLD's case, the Upper Barataria Risk Reduction (UBRR) project has been studied for over 20 years, being a legacy project from the Corps of Engineer's Donaldsonville to the Gulf Feasibility study in the late 1990s. Since that time, the Coastal Protection and Restoration Authority (CPRA) and The Water Institute of the Gulf (TWIG) have studied the proposed project extensively during preparation of Louisiana's Comprehensive Master Plan for a Sustainable Coast (more commonly known as "the Master Plan"). Their studies included rigorous modeling efforts and benefit-cost analyses. CPRA ultimately included the project in the 2017 Master Plan with a predicted benefit-cost ratio of 2.3. Page 66 of the draft Action Plan states LWI's intent to "leverage" this type of modeling work, and we urge LWI to take that approach with this project. LBLD has maintained momentum on this project by tasking its consultants to prepare a conceptual design report in 2018 and begin preliminary design of several project features in 2019, with the goal of having "shovel-ready" projects in 2021. We urge the LWI Council and staff to recognize these historical efforts and avoid duplicating past work when evaluating projects with this level of planning and design. Recognizing past planning, modeling, and design efforts will help the LWI Council maintain an aggressive timeline for implementing projects.
Secondly, we would like to commend the LWI's decision to implement "no regrets" projects in Round 1. We urge the LWI to increase the contemplated funding amount in Round 1 above the currently planned $100M. We share Mr. Chip Kline's view, expressed at CPRA's meeting on September 18, 2019, that all projects in the Master Plan should be considered "no regrets" projects due to the extensive evaluation included in the process of developing the Master Plan. Again, leveraging these past efforts, along with LBLD's design efforts, will help the LWI implement projects as quickly as possible and meet its goal of spending 50% of the funds within 6 years. The LWI Council should take advantage of this past work by increasing available funding to projects that have been vetted in the Master Plan.
Thank you for taking these comments into consideration as you finalize the plan and move forward with this important work. We look forward to being a part of these vital efforts to mitigate future flooding in our home State.

42. **PUBLIC COMMENT:** *R. Hampton Peele (LGS) and John Sheehan (LDEQ), the authors of the attached whitepaper entitled National Hydrography Dataset, Watershed Boundary Dataset, NHDPlus, and 3DEP FOR LWI, submit this document during the current LWI Public Review Period for the Watershed Initiative Action Plan, on this day, November 26, 2019. Our hope is to more fully inform the Louisiana Watershed Initiative (LWI) Board, Staff, and Community of the National Hydrography Dataset (NHD), and related datasets, and of their relevance and value, to contribute to LWI in the fulfillment of its*

mission. "These "living" datasets are designed, created, and maintained through state-federal partnerships, to serve as the national standard to meet the needs of a wide variety of users throughout Federal, State, and Local governments and the private sector. The Louisiana Watershed Initiative (LWI) can benefit greatly through the wealth of information contained within these coordinated datasets and their established public-access distribution system, The National Map. As a stakeholder in the quality of these data, LWI is well positioned to contribute to the state-federal partnerships that maintain these data for Louisiana." Whereas, LWI with HUD funding is a new state-federal partnership charged with improving floodplain management in Louisiana; NHD is an existing state-federal partnership charged with maintaining and improving hydrographic GIS data for each and every state in the United States, within standardized seamless datasets. These data are used by the hydrographic community across the country. As the LWI moves forward with its mission, the submitting authors recommend that the current LWI Watershed Initiative Action Plan should be modified to include funding for the Louisiana NHD partners to make editorial updates to the Louisiana NHD and WBD , both before and after any LWI hydrologic modelling results are made available. We appreciate this opportunity to comment on the Watershed Initiative Action Plan and look forward to further discussions with the LWI Board and Staff regarding NHD, WBD, and NHDPlus. Thank you for your consideration.

Note: Refer to ***Attachment No. 1*** *for materials referenced.*

RESPONSE: The state is funding the creation of computer models or "H&H" models to predict the regional flow of water in flood events. This effort, described further in Program Area 3 of the Action Plan, is anticipated to take between eighteen months and three years to complete depending on quality and availability of data and other factors. Modelers for this effort will use all existing data and models so that engineering efforts are not duplicated. Creation of the models will address sub-watersheds within each modeling region. The watershed models will be 'living models' and are a long-term investment that require maintenance, but are able to accommodate changing conditions on an ongoing basis many years into the future. A network of river and rain gauges will be needed to measure rainfall and riverine conditions and ensure accurate model inputs. The state recognizes the importance of collaboration among agencies and levels of government to provide for long-term gauge ownership.

The state intends to invest in effective flood-control projects that benefit both large and small jurisdictions within the watershed regions. One example of this is the Watershed Projects Grant Program: Local and Regional – Round 1, which is a $100 million grant opportunity for locally-proposed, implementation-ready, low-risk/high-impact projects that do not pose potential adverse impacts upstream and downstream. Awards will be determined upon receipt and review of full applications. For additional detail, please see the Round 1 page on the LWI website.

43. **PUBLIC COMMENT:** *Have you considered putting big data in place to manage these models? Are you working with Houston? The watershed doesn't stop at the state line either. What are you doing about that?*

RESPONSE: Storage and maintenance can be a challenge for large-scale computer models, and collaboration will be key to enable the success of this effort. Water does not obey political boundaries, including the borders of the state. The state held an Interstate Summit in 2019 to begin collaborating with our bordering states and cities, like Houston, that have experienced similar flood damages.

44. **PUBLIC COMMENT:** *How will the state align watershed models with DOTD districts?*

RESPONSE: The state plans to align watershed models to HUC-8 watershed boundaries and to 'edge map' the models to ensure they work both together and are independent of each other in order to examine regional impacts across HUC-8 boundaries. This allows the state flexibility to match a variety of district boundaries, including DOTD modeling contract boundaries. DOTD District boundaries are not defined by watershed, so there will not be an exact correlation between the watershed regional boundaries and the DOTD District boundaries.

45. **PUBLIC COMMENT:** *If there is a fair allocation for modeling for each HUC, is there going to be consideration for relief of costs for prior work done, whereas those funds should stay within that HUC? If an entity is chosen to be the facilitator/ coordinator/fiscal agent will they be allowed to be a future project administrator?*

RESPONSE: The state is procuring the development of statewide watershed models and costs are unique to each watershed. Please direct any individual or region-specific questions regarding the Regional Capacity Building Grant Program, which is not part of this Action Plan, to watershed@la.gov.

V. REGIONAL WATERSHED MANAGEMENT AND GOVERNANCE

Note: Some comments below refer to guidance published as part of administration of the Regional Capacity Building Grant Program. This program is featured in Action Plan Amendment No. 11 for the CDBG-DR allocation associated with the Great Floods of 2016, however it is linked to mitigation needs and regional governance, and therefore is highly aligned with the proposed administration of the CDBG-MIT funding.

Specifically, the following comments inquire about ***Regional Steering Committees****,* ***Regional Watershed Coalitions****, (both addressed in the "Regional Steering Committees and Coalitions portion of the Action Plan) and the* ***Regional Capacity Building Grant Program*** *and are grouped and answered collectively below.*

46. **PUBLIC COMMENT:** *Can you clarify what the regional steering committees will entail? Will the public be allowed to participate? Is there an initial funds consideration for critical projects that require immediate short term approval & funding? I'm wondering about distribution of funds to different parishes like, Lafayette, Acadia, Vermilion Parish. How do we compete with Baton Rouge?*

47. **PUBLIC COMMENT:** *My home flooded in 2016 and I have agriculture land that flooded as well. Who's going to manage our specific area region #5? We are going to need a board like structure. How are we going to manage the steering committee members? How does this information get out to public servants but not to the public?*

48. **PUBLIC COMMENT:** *Explain the process and timeline for establishing the "regional government"/decision - making body. Are there legal barriers? How will these entities be monetized?*

49. **PUBLIC COMMENT:** *The most recent flooding had devastating effects on the Casino, which is one of the tribe's major economic drivers in Allen parish. 68% of the people work in the Casino and golf course. How can we be more involved in the decisions being made for the region?*

50. **PUBLIC COMMENT:** *We want to make sure there's not an income provision on the federal money? There is no effort at the parish level to engage municipalities. Will they have a voice in this process? We know that APC is going to be the fiscal agent for this region. It has to be respectful to the citizens of Youngsville. The times of these meeting should also be at times that more people from the public can attend. We want APC to communicate with the municipalities.*

51. **PUBLIC COMMENT:** *Will someone from the community be considered to be a part of the planning area that needs repairs/flooding?*

52. **PUBLIC COMMENT:** *How are the members of the regional steering committee created?*

53. **PUBLIC COMMENT:** *The State Action Plan describes on page 50 the use of a steering committee in each region for stakeholder engagement and feedback from experts in the community. Under separate cover, through the application process of the fiscal agent, a worksheet was provided with the demographics breakdown of the region. It states in the plan that the make up of the*

committee should reflect the demographic diversity and spectrum of interests in the region. The worksheet gives a breakdown of age, gender and race. Of particular interest is the category of 19 and under in which many of the regions have near 25% of the population under 25. In a region with 16 parishes what is the likelihood that a parish wants to submit a delegate 19 and under, will areas be forced to submit delegates under 25 and how strong is the consideration for fulfilling that requirement if the goal is to get experts and professionals?

54. **PUBLIC COMMENT:** *The plan strongly suggests regional coordination, planning and project implementation. Without a regional authority or a regional organization in place, with the difference in local governments of city councils, parish councils, charters and police juries the matching requirements for a regional project will be a challenge. Since the modeling to be performed is scheduled to take at least 3-5 years, shouldn't the plan have more focus on moving towards regional or state management authorities, populated with engineers and scientists with experience and legislative authority to implement projects and funding mechanisms for the match. That would be true regional watershed management similar to what other states like Florida have done. The plan focuses on a great amount of competition for projects which will result in the communities and agencies with existing funding to compete and the smaller and distressed communities to fail to acquire any funding. With government resources working with limited funds, its highly likely that a lower income community is impacting surrounding areas due to the communities lack of funding and even more unlikely that an adjacent community can spend money outside of their jurisdiction regardless of the impact to their community on a project. There are some low income communities that have significant impacts from smaller, high intensity rain events that are impacting the growth of that community. The plan should have some of the funding for local/ regional or state projects that addresses the need and identifies that amount that would be reserved for those areas so they are given some additional assistance and set aside funding so they are not left behind. The plan states as does the federal register the emphasis on the low-income but with all of the other variances and allowances 50% could be spent with an interpretation that it helps the community but it will be at a much lower impact than if the community had the resources of the larger entities.*

55. **PUBLIC COMMENT:** *Concern - Watershed Districts lines do not conform to physical watersheds. This makes it very difficult to align projects in 1 watershed with the bulk of benefits in another watershed. An example is the Bayou Des Glaises Floodgate replacement and drainage canal connecting the bayou to the Atchafalaya River. This area in Avoyelles ended up in District 2 but the great majority of benefits are in District 5. This particular project will benefit 7-8 parishes all in district 5 including 2 of the 10 designated parishes but only 1 in District 2 where none of the 10 designated parishes reside. Per the federal guidelines, the state is required to spend at least 50 percent of the funds to benefit the 10 parishes designated as most impacted and distressed by the 2016 floods: Acadia, Ascension, East Baton Rouge, Lafayette, Livingston, Ouachita, St. Tammany, Tangipahoa, Vermilion and Washington. None of these parishes are in district 2 so minimal funds will be available and this example project will not weigh much with District's 2 steering committee.*
There has been NO opportunity for public to submit candidates for the steering committees. Completed rosters have been sent out for district 5 with already filled out names.
Demographics requirements are suspect particularly regarding age demographics.
Duplication of some expertise should be managed- steering committee vs. project staff
Suggest non-voting technical steering committee members of water experts for steering committee referral. These experts could consult but not vote as they may end up as contractors on some projects.
What about projects that may require work across state lines? Are our neighboring states ready to work with us?
Concern- With 25% already allocated to modeling, planning and administration and 50% for the top 10 parishes will there really be any money left for actual projects in the remaining parishes not in the top 10?
Most projects will require a Front End Engineering (FEL) process to arrive at a reasonably accurate cost estimate so project economics and cost benefits can be done. This FEL process should be followed to allow the project to be accurately scored and budgeted. How do we get the money to do these FEL's ?
Will the steering committees have any input decision making regarding the hiring of the paid staff?
1Who will the paid 2 staff persons report to -the successful fiscal agent? or the steering committee?

RESPONSE: As noted in the "Regional Steering Committees and Coalitions" section of the Action Plan, the state aims to enable regional watershed management and governance structures in order to enhance the ability of regions to collaborate to consistently (and collectively) raise development standards and mitigate unforeseen negative impacts of potential flood control interventions to neighboring regions. The formation of regional steering committees and coalitions will also provide a

more sustainable institutional basis to improve flood resilience in an ongoing effort that will outlast specific event-related funding allocations.

The state launched the Regional Capacity Building Grant Program in August 2019 with the intent to provide guidance and resources to watershed regions to "stand-up" Regional Steering Committees and eventually to form Watershed Coalitions. This program is also intended to "level the playing field" by ensuring that all jurisdictions, including those with limited technical capacity, are able to participate in the Louisiana Watershed Initiative and benefit from mitigation funding. More information on the Regional Capacity Building Grant Program, including guidance on the formation of Regional Steering Committees can be found here. The Regional Capacity Building Grant Program Notice of Funding Availability includes the following general guidance regarding the formation of Regional Steering Committees:

- **Members should represent a diverse mix of technical (ex: engineer, floodplain manager) and community-oriented representatives and members of these groups should represent specific interests in the area (ex: members of a tribe in the region or community members associated with local environmental conservation or youth mentorship)**
- **Community outreach and public participation is critical to the success of regional watershed management efforts**
- **Local jurisdictions must coordinate to compile a Regional Steering Committee for each region, and should build consensus about the representation needs of the region.**

Regional Steering Committees should be formed by March 2020, and they will represent the region in charting a path toward regional watershed management and governance in a locally-driven process. The state recommends that anyone interested in submitting candidates for a regional steering committee contact their region's fiscal agent or LWI staff via the LWI website.

Please see the section labeled "Administration and Timeline" below for further information on the state's administration of the subject Action Plan, and see the section labeled "Action Plan Programs" to see information related to requirements for the provision of benefits to low- to moderate-income individuals.

VI. PROVISIONAL WATERSHED REGION NO. 4

Note: The following comments relate to matters regarding ***provisional watershed region 4****, and are grouped and responded to collectively below.*

56. **PUBLIC COMMENT:** *I am a resident of Rapides Parish in Central Louisiana. I recently became aware of the watershed initiative by Ms. Melissa Becker from the Rapides Area Planning Commission and have comments for the group. I see that Rapides Parish is part of 4 different watershed districts. I think it would make more sense if Rapides Parish was kept within one of the watershed districts only. I have reviewed other parishes on the map and notice that Rapides parish is the only parish that is part of 4 districts. It is my opinion, as a resident of Rapides Parish, that being part of 4 different watershed districts, the parish would have a reduces chance of qualifying for funding due to dividing the parish into smaller districts resulting in a reduction of population representation in each district vs keeping the parish whole. I ask the members of the watershed committee to consider changing the proposed districts and keep Rapides Parish whole due to population representation. Thank you.*

57. **PUBLIC COMMENT:** *I am a resident of Rapides Parish and I see that Rapides Parish is part of 4 different watershed districts. I think it would make more sense if Rapides Parish was kept within one of the watershed districts only. I have reviewed other parishes on the map and notice that Rapides parish is the only parish that is part of 4 districts. It is my opinion, as a resident of Rapides Parish, that being part of 4 different watershed districts, the parish would have reduced opportunities when it comes time for funding due to dividing the parish into smaller districts resulting in a reduction of population representation in each district vs*

keeping the parish whole. I ask the members of the watershed committee to consider changing the proposed districts and keep Rapides Parish whole due to population representation. Thank you.

RESPONSE: Rapides Parish is within a number of natural watersheds identified by USGS (which are defined by the topography of the ground), including the Lower Red – Ouachita, Louisiana Coastal (which includes the Atchafalaya – Vermilion and the Calcasieu-Mermentau), Texas – Gulf (which includes the Sabine), and Red-Sulphur. In adopting provisional watershed regions, the Council on Watershed Management has considered this existing complex topography and the LWI has created a framework for parishes to coordinate within watershed regions where they have overlapping watersheds or have a shared risk. Please refer to the LWI map here illustrating these boundaries and providing background here for their selection.

VII. PROVISIONAL WATERSHED REGION NO. 7

*Note: The following comments relate to matters regarding **provisional watershed region 7**, and are grouped and responded to collectively below.*

58. **PUBLIC COMMENT:** *I'm concerned about the RSC. I would much rather be in Amite river basin as opposed to Region 7. The RSC must be reformulated. If our model shows negative impacts are we going to be penalized for that?*

59. **PUBLIC COMMENT:** *This is supposed to be a science based approach to watershed management. The Goal is hazard mitigation. The governor has asked to create a process that is science based and not driven by politics. The draft watershed boundaries can be scientifically defended based on hydrology except for region 7. There are several HUC 8 watershed in region 7 that drain to the Maurepas-Ponchartrain system. They are hydrologically distinct! I cant think of a better way to introduce politics into this process than by looping the Amite, Tangipahoa, Tickfaw, and Pearl River basins into one group, The decisions made in each of these watersheds are independent of each other. You don't want to create a system in which certain projects are being voted on by people who are not going to be affected by a project. It's not too late to break region 7 into separate Huc 8's and avoid all of the political challenges the current alignment of region 7 is putting the LWI on a cash course for.*

60. **PUBLIC COMMENT:** *I am sending you a map of Provisional Watershed 7 ---Pontchartrain Basin Watershed--divided into the separate smaller management watersheds of the major rivers draining into Lake Ponchartrain. These watershed units are the logical level watershed to be able to manage, plan a watershed. The Amite River Watershed is the most predominant. I am also sending you a letter with suggestions on how such a system can be set up. Could you include this into the public comment section of the study?*

*Note: Refer to **Attachment No. 2** for materials referenced.*

61. **PUBLIC COMMENT:** *Please see attached comments on the Master Action Plan for the Utilization of Community Development Block Grant Mitigation Funds (CDBG-MIT) on behalf of Ascension Parish Government. Thank you.*

*Note: Refer to **Attachment No. 3** for materials referenced.*

62. **PUBLIC COMMENT:** *A letter was submitted on behalf of the members representing the Amite River and its Basin.*

*Note: Refer to **Attachment No. 4** for materials referenced.*

RESPONSE: The Council on Watershed Management approved provisional watershed boundaries—including Region 7—at their August 2019 meeting with the intent that these would be a starting point for regions to consider and refine over the course of the next year in coordination with the Regional

Steering Committees. The LWI intends to work with Region 7 stakeholders as part of this process to determine the most appropriate long-term boundaries. For more information about the regional steering committee formation, see the Regional Capacity Building Grant Program landing page on watershed.la.gov.

It should be noted that the Amite, Maurepas, Bayou Sara-Thompson, Tickfaw, and Tangipahoa (HUC-8 level) are sub-watersheds within the Lake Maurepas (HUC-6 level) watershed, so under certain conditions, even the Amite River Basin could experience flood-risk impacts from outside of its HUC-8 boundaries. To this end, the LWI has created a framework for parishes to coordinate within watershed regions where they have overlapping watersheds or have a shared risk (ex: upstream impacts coming from Mississippi or a shared coastal threat). Please refer to the LWI map here illustrating these boundaries and providing background here for their selection.

The Council on Watershed Management has reviewed the subject Action Plan and has endorsed its submittal to HUD. The state has hosted four public hearings in accordance with the public notice procedures outlined in FR-6109-N-02. Please see the Louisiana Watershed Initiative website for further detail, including videos of past public hearings and engagement events.

Please see information in the section above titled, "Most Impacted and Distressed (MID) Areas" regarding the inclusion of LA-MIDs in the Action Plan. As noted in FR-6109-N-02, the subject $1.2B in CDBG funding is required to be spent on mitigation activities and a minimum of 50 percent of this funding is required to be spent to benefit the HUD-MID parishes. This does not restrict the amount of funding that ultimately benefits the HUD-MID parishes, and therefore the 50 percent expenditure requirement could be exceeded in areas.

OCD is the administering agency for the subject Action Plan and the associated CDBG-MIT funding. OCD will release specific project criteria and solicitations as each program within this Action Plan is mobilized.

With regards to prior investments by local jurisdictions in modeling and project design, the funding allocated to monitoring, mapping, modeling, planning, and capacity assistance in the subject Action Plan does not negate opportunities for HUD-MID parishes to benefit from CDBG-MIT funding. In fact the grant opportunities originating from the subject action plan can further bolster those existing efforts seen in the Amite basin and can extend their positive impact to other basins impacted by the 2016 floods. The state recognizes the devastation visited upon the Amite River Basin region from the 2016 floods, and seeks to promote watershed planning and future development patterns that prevent such a devastating event in the future. Further, the state recognizes the contribution that the Amite River Basin Commission has made to resilience in the region. The Action Plan does not preclude ARBC from playing a large role in regional governance and mitigation, rather it enables regionally-proposed projects and allocates at least 50 percent of the funding therein to the HUD-MID parishes. It also enables and encourages regional public entities, such as the ARBC to participate in project grant opportunities.

VIII. DEVELOPMENT PATTERNS

NOTE: THE FOLLOWING COMMENTS GENERALLY ADDRESS RECOMMENDATIONS OR CONCERNS WITH DEVELOPMENT PATTERNS IN LOUISIANA AND ARE GROUPED AND ANSWERED COLLECTIVELY BELOW.

63. **PUBLIC COMMENT:** *This is a great start in addressing the challenges facing the state as a result of rising seas and climate change. These changes affect communities and the culture of the state's diverse population, some dating back as far as the state being settled by various Native American tribes. To that end, as we look to have sustainability and resiliency in our communities, what other measures may be deployed to mitigate the blight, abandonment and disinvestment in communities hard hit by flooding. As the final plan is being constructed, some attention should be given to addressing building with materials that can withstand flooding and be relatively simple to dry out, withstand constant rain due to a metal roof. If we continue to use construction techniques that we always have done and address those watershed issues relative to drainage, flood plains and coastal erosion, it will not be the efficient use of the resources being entrusted to the state. Most industries have had disruptors; taxicabs have Uber and Lyft; cable operators have Netflix and Hulu. How we build structures in flood prone areas in particular and resiliency for the climate in general is in dire need of a disruption.*

64. **PUBLIC COMMENT:** *Will additional retention ponds and retention areas be required moving forward prior to approval of additional residential and business developments? We should require developers to implement storm water management solutions so that storm water doesn't end up in the Vermilion. I pray that this money is not misused. It's been 3 times this year that the water surpassed the 100-year flood mark.*

65. **PUBLIC COMMENT:** *St. Tammany Parish development practices enhance the loss of the bottomlands and wetlands through its partners. Buildings/development practices that require the topography to conform to a plan as opposed to a plan conforming to a topography is a formula for disaster. It seems that the extensive use of fill is a major culprit in the problem we see here in St. Tammany. I was waiting to hear that building/development land use practices are at fault as practiced now and that funds need to be contingent upon adapting more sustainable codes and ordinances that protect the public. Presently, such instruments work to benefit developers only!*

66. **PUBLIC COMMENT:** *Is the state going to look at drainage codes and ordinances that are working in other states?*

RESPONSE: There is a clear need for improvements to development patterns in order to prevent the need for repeated mitigation interventions in the future. The subject Action Plan contends that improved planning and consideration of development patterns can help protect the integrity of investments in capital projects to reduce flood risks and that it is important to leverage these investments to produce greater risk reduction (see section titled "Unmet Mitigation Need: Flood-Resilient Development Patterns" in the Action Plan). Development today should not require future correction or flood mitigation project investment that could have been avoided with proper planning. OCD has indicated in the Action Plan that the use of green and blue infrastructure, green building standards, and the use or enhancement of natural floodplain functions are program criteria applicable to projects funded through administration of the subject Action Plan.

The state conducted a comprehensive investigation into existing best practices that other states are using to manage flood risk. The results of these findings are summarized in the Phase I Investigation located in the watershed.la.gov resource library. The state continues to facilitate collaboration among local jurisdictions and across state boundaries in order to promote resilient.

IX. COLLABORATION

67. **PUBLIC COMMENT:** *Once the Action Plan begins to take a formal shape, I would strongly encourage the Louisiana Watershed Initiative to consult with the ISO/Community Rating System Program to ensure that CRS communities get maximum CRS credit for the Plan, as an added benefit to risk reduction. In addition, hydraulic models should be fluid enough to adapt to Risk Rating 2.0 since very little is currently known about these upcoming changes to the NFIP, and how they will affect the relationship between insurance requirements and regulatory (building) requirements.*

RESPONSE: The subject Action Plan identifies critical coordination efforts with the CRS program in the section titled "Technical Assistance: Flood Insurance Affordability and Policy Implementation."

68. **PUBLIC COMMENT:** *Thank you for the opportunity to provide comments on the draft Action Plan. The integrated, regional approach envisioned by the Louisiana Watershed Initiative is laudable and much needed. Moreover, prioritizing resources for regional, trans-jurisdictional partnerships and projects is important to maintain momentum. Those partnerships may be based on cultural or socio-economic relationships rather than ecological ones, thus involving parishes not directly affected by the 2016 floods (for example, the New Orleans Regional Planning Commission includes St. Tammany and Orleans, which share a watershed in Lake Pontchartrain). Where such partnerships are beneficial to achieve the program goals, they should be fostered. The Action Plan rightly acknowledges a warming climate and relative sea-level rise as significant threats to the people of Louisiana. In that spirit, it would be sound to evaluate partnerships and projects on the basis of their capacity to prevent carbon emissions or sequester carbon. For example, projects that reuse and retrofit buildings for flood resilience typically entail far less embedded energy and associated emissions than new construction buildings. Similarly, preserving a growing forest or restoring a wetland can increase carbon sequestration in the landscape while providing flood resilience to developed areas nearby. Finally, a more prominent role for the Louisiana Department of Cultural Resources and Tourism, offices of Archaeology and Historic Preservation can improve the final Action Plan and future funding decisions. Proactive engagement will help to avoid negative impacts to cultural resources and streamline the requisite Section 106 proceedings. Perhaps more importantly, it may serve to identify culturally significant sites in need of protection through flood mitigation. Appropriate flood-proofing of historic structures can and should be a component of the workforce training and job creation programs included in the Action Plan. Thank you for your consideration of these concepts. Please reach out with any questions.*

RESPONSE: Partnerships with relevant state agencies are, and continue to be, a building block of the Louisiana Watershed Initiative.

69. **PUBLIC COMMENT:** *Will Parishes that border other districts and states be permitted to collaborate with those stakeholders to coordinate our efforts?*

RESPONSE: Yes, such coordination is encouraged. The state held an Interstate Summit in June 2019 in Bossier City to collaborate with bordering states. For more information about the summit visit LWI's website here. The state continues to collaborate with our bordering states and cities and encourages local jurisdictions near state boundaries to similarly collaborate with our interstate partners.

NOTE: THE FOLLOWING COMMENTS GENERALLY ADDRESS QUESTIONS REGARDING COLLABORATION WITH THE LAND DEVELOPMENT COMMUNITY, AND ARE GROUPED AND ANSWERED COLLECTIVELY BELOW.

70. **PUBLIC COMMENT:** *I represent one of the many people that was impacted in the 2016 flood. I believe this is a great initiative but I also believe that a 1:30 pm meeting during the work week hinders a lot of people from attending. I would like to ask why wasn't the local news carriers informed of the meetings? I would like to ask will the funds be used in neighborhoods like mine to eliminate future floods. How can local certified neighborhood developers be utilized assist with this watershed initiative since it is neighborhoods?*

71. **PUBLIC COMMENT:** *Members of local Home Builders association throughout LA are in contact with Dr. E. Meselhe (Juliane) with regards to providing professional, academic opinion on mitigating future flooding. He is connecting us to various academia at the universities around the state to engage a cross protection of individuals with regard to drainage/flooding issues. We are happy and willing to continue working alongside these professionals in whatever way we can to develop our community in an efficient, safe manner.*

RESPONSE: Please see the section above titled "Miscellaneous" for information regarding public hearing times and the public comment period. The state encourages local developers to be involved in the regional steering committee process and regional watershed management. For more information, visit the Regional Capacity Building Grant Program landing page.

X. WATERSHED PROJECTS GRANT PROGRAM: LOCAL & REGIONAL – ROUND 1

72. **PUBLIC COMMENT:** *What will constitute a negative impact on a neighboring parish? Will the state take responsibility for the enforcement of this program?*

RESPONSE: Potential negative impacts will be assessed and evaluated on a project-by-project basis.

73. **PUBLIC COMMENT:** *As part of the state's draft planning efforts, documents and white papers were developed that outlined criteria, requirements and specifics related to project criteria and programs. While these documents had very specific criteria, much like that of the NOFA for the 1st round of projects, these documents were not included in the plan. Including these items in the plan would make the plan more transparent and the applicants, stakeholders and citizens would have a better understanding of the plan, expectations and schedule. Had these items not been developed their absence from the plan would be understandable. The plan is more broad and ambiguous, creating the sense that there is time for local and regional input, but the criteria, applications and dates of many of the items identified in the plan have been developed and scheduled with many items ahead of an approved plan. Currently, one can refer to the plan and interpret funding to be attainable by an entity, only to learn in the application that their project doesn't meet the criteria for the first round and the entity will not have access to funding for quite some time. If one doesn't realize all of these documents are out there and cross references the documents, limited funding could be spent planning for projects that have already been decided will not meet the criteria.*

RESPONSE: The subject Action Plan sets forth priorities for the expenditure of the entire CDBG-MIT allocation for Louisiana (approx. $1.2 billion) and, as such, this document does not speak to sub-program level criteria or project types, such as those associated with the Watershed Projects Grant Program: Local & Regional – Round 1 opportunity, which can be found on the Louisiana Watershed Initiative website here.

Note: The following comments inquire about ***eligibility and the application process*** *for the Watershed Projects Grant Program: Local & Regional – Round 1 and are grouped and answered collectively below.*

74. **PUBLIC COMMENT:** *I would like to know more about the application process for large regional projects - who is the "applicant" and who pays the match Is there a mechanism for multiple applicants?*

75. **PUBLIC COMMENT:** *The $100,000,000 that will be allocated in the near future how will this be shared? Specifically, for the most impacted or distressed parishes.*
How can we get funding for projects that have already been modeled and that can be done immediately? This takes into account that the project will have no adverse impact upstream or downstream. We need immediate actions!
How will you evaluate areas that are most impacted or distressed but are not low to moderate income as per HUD?
The Acadian Group of the Sierra Club and the Dredge the Vermilion group have studied the watershed for the past 3 years. These gentlemen have spent countless hours researching historical data, analysis of stream gauge data, and analysis of other data provided by governmental entities. They have a written report titled The Courtableau-Teche-Vermilion-Watershed in South Louisiana, Fix our Flooding Problems for the Next 100 Years. You can contact David Dixon at 337-739-9331 or daveralphdixon@gmail.com. Mr. Dixon and others in this group need to be members of the Steering Committee. We are thankful for the efforts of your office in bringing us to this point in your planning structure for the Louisiana Watershed Initiative. We are thankful that the governor has secured the $1.2 Billion. However, if you truly want to make a difference you need to listen to the "experts" that live within the watershed. We have lost trust in public officials and public employees. Our goal is to look to the future for common sense solutions. You can facilitate change in Louisiana please take the challenge.

76. **PUBLIC COMMENT:** *How will the decision making occur for each region? Are we supposed to have a rank of projects? Who do we send them too? How are the decisions going to be made statewide? Is the watershed commission going to decide on this project? What is the measure for impact on another parish?*

77. **PUBLIC COMMENT:** *In connection with the round one funding, can modeling projects be submitted or is this only for actual construction projects?*

RESPONSE: Round 1 of the Local and Regional Watershed Projects Grant Program provides an initial allocation of $100 million for resilience projects and programs in each of Louisiana's eight provisional watershed regions. These should be implementation-ready, low-risk programs and projects that do not negatively affect flood risk or the natural and beneficial function of the floodplain either upstream or downstream; consider flood risks through a watershed-based approach; and incentivize local government entities to organize as regional coalitions. For additional detail, please refer to the program information provided on the Louisiana Watershed Initiative website.

Round 1 is open to any local or regional public entity in Louisiana, as long as it has the authority and jurisdiction to implement, operate and maintain the project. Private entities are not eligible and a single agency must be designated as the lead on the application. Applicants may submit projects for eligible mitigation activities located outside of those areas identified as most impacted and distressed or "MID" in the Action Plan, but must demonstrate how spending CDBG-MIT funds will measurably benefit or mitigate risks within a MID area (e.g., upstream water retention projects that reduce downstream flooding in the MID area). There is no match requirement for Round 1 applications, however the scoring criteria for this program considers leveraged resources and local contributions. The scoring criteria also address benefits to HUD MID and LA MID parishes, as well as benefits to low to moderate income areas.

Eligible projects for Round 1 include public infrastructure improvements, elevations, economic development, voluntary buyouts and housing activities related to resettlement, or other public facilities projects that increase flood resilience on a watershed level. Eligible projects also include floodplain restoration and preservation, flood storage, critical facilities and infrastructure flood mitigation, physical non-structural mitigation, stormwater management with gray/green infrastructure and other innovative or replicable flood control activities. Please refer to Round 1 Policies and Procedures for a description of each project type.

Round 1 is designed to go through one intake process with two opportunities for selection. The phased application process is designed to encourage regional discussion of projects, allow full consideration of a broad array of impactful mitigation activities, and ultimately to focus the detailed level of project formulation only to the most qualified projects that have the highest likelihood of success. The two-tiered selection process allows for a statewide competition for all eligible projects and a successive watershed regional prioritization process within each region. OCD will review Round 1 applications with input from a panel of representatives from the agencies on the Council on Watershed Management (OCD, CPRA, DOTD, LDWF, and GOHSEP). Regional steering committees in each watershed region may select up to $5 million in projects to recommend for funding. These projects will come from submitted applications that meet a minimum threshold score. This regional selection process is contingent upon each region's development of a functional steering committee under the LWI and HUD's approval of the state's proposed selection process.

Note: The following comments inquire about the ***timeline*** *for the Watershed Projects Grant Program: Local & Regional – Round 1, and are grouped and answered collectively below.*

78. **PUBLIC COMMENT:** *Round one projects are to happen to quickly. In watersheds that affect small populations where modeling has never been done there is no time to establish the science. That seems to be a direct contradiction to how the state wants projects to be awarded. Rainfall caused the 16 floods. Priority should be given to inland flooding projects and not costal flooding.*

79. **PUBLIC COMMENT:** *In the Plan it identifies $100 M for Round I projects. The description of the Round I projects on page 53 and the other rounds thereafter is broad and vague with selection criteria. The Round I project funding appears to attainable to local governments and in the planning public meetings the descriptions were vague and the message was encouraging to communities that short term "no regrets" projects would have the ability to be funded. The plan described wanting to incentivize local units to work regionally with watershed based projects, which should be encouraged and expected. However, without the plan being approved a NOFA was distributed regarding the Round I projects in an effort for the state to respond quickly. While the sense of urgency is greatly appreciated, the criteria and requirements for the Round 1 projects stated in the application contradict the plan somewhat. If the plan recognizes very little if any regional planning and projects have been completed in the past, how will a a local community in a distressed area or a local unit/region develop a project that will be high impact low risk, no less than $500k, no more than $5M and be ready for implementation in 120 days from approval with the funding for a match readily available. How do agencies or local units outside of CPRA compete with these requirements? It is more likely that the HUD MIDs manage their finances in such a way that projects are not modeled and designed unless the construction funding has been identified. State agencies like CPRA which has funding to get projects "shovel ready" and the projects are from an approved plan and they have the match available from other funding sources are at an advantage to receive the funding for coastal projects over HUD MID communities that have limited funding that has to be used to design upon award. The criteria and requirements in the plan appear to be more in line with the larger cities and parishes or state agencies that may have a drainage taxes or other funding and less in line with communities that may want to do more than the parish or adjacent parishes can afford to design and put on the shelf to wait for funds.*

RESPONSE: The deadline for submittal of pre-applications for Round 1 funding has been extended to January 17, 2020. The Round 1 program has an ambitious timeline, with the intent to provide citizens with relief from intense and frequent storms and floods as quickly as possible. In Louisiana, we know that the next flood or hurricane may be swiftly approaching, so we should not delay implementing mitigation measures that are proven effective with no negative impact on their surrounding areas. Coincident with the design and launch of the Round 1 process, the state is supporting the implementation of "standup" activities for Regional Steering Committees and regional capacity building funding in each of the eight watershed regions. OCD will also offer TA in each region to assist applicants with determining basic project eligibility and successfully completing the required pre-application. For the full application phase, OCD will offer TA to each region to assist applicants in understanding of the application requirements and to plan for the requirements of project implementation.

XI. LOCATION-SPECIFIC PROJECTS

Note: The following comments inquire about ***location-specific projects*** *or risks not addressed individually in the Action Plan, and are grouped and answered collectively below.*

80. **PUBLIC COMMENT:** *"After the flood of 2016 I started to research flood issues storm water management pervious concrete allows water to flow through it which reduces flash flooding*
practical application Low volume streets, sidewalks, golf cart paths and parking lots. I have visited areas in the Louisiana watershed, Portage, Morganza Spillway, Bonnie Carre spillway, calumet near patterson, portage, port barre, intra-coastal city, Lafayette, New Iberia, Abbeville,
Leonville, Opelousas, Loreauville, Henderson Levee, krotz Springs, Bayou Teche Vermillion River pump station, Melville, the Vermillion River in Lafayette and Live Oak rd. and Hwy 690 south of Abbeville. I measured 5 feet of water 1 Foot of Sediment Northside Landing 4 feet of water 2 feet of sediment beaver park 3 feet of water 2 feet of sediment at Southside park 8 feet of water with high current port barre near the beginning of Bayou Teche 8 feet of water high current 1 Foot of Sediment Leonville 8 feet of water high current 1 Foot of Sediment Arnouldville. I constructed a spillway in my front yard using bricks, shovel and dirt. The

water decreased when I added dirt to the water stream I feel that all parishes near the bayou Teche Vermillion River Watershed can benefit from dredging the Vermillion River it will create a bigger capacity to support all parishes.
I have been involved with Hydrographic Survey projects for the coast guard, Homeland security, NOOA Project National Oceanic and Atmospheric Administration H11622 Dauphin Island Alabama Houma navigation canal, the shipping channel in Cameron La. Hurricanes Katrina and Rita.

81. **PUBLIC COMMENT:** *As a resident of Morgan City, LA, I offer the following comment.*
The locale of Morgan City, LA is one that provides a beneficial and natural function for watershed management. Its location at the base of the Atchafalaya Basin provides the magnitude and impact for floodplain risk management. The locale should be considered as an integral part of the state master plan for research development and floodplain innovation.

82. **PUBLIC COMMENT:** *Catahoula Parish is very unique place. The Parish has 5 Rivers that flow into the Parish. The Ouachita River headwaters that begins in Southern Arkansas, The Red River that flows from Northeast Texas and Southwest Arkansas, The Tensas River that drains from the West Levee System of the Miss. River west to the Macon Ridge area, The Bouef River that drains from Southeast Arkansas to the Ouachita River north of Harrisonburg, La., The Little River that drains South Central Arkansas through North Central La. Ouachita, Tensas and Little Rivers meet at Jonesville, La. and form the Black River in which flows into the Red River in the southern Part of the Parish. During the 2019 Flood event all 6 rivers reached Flood Stage in very short time. Parts of the Parish stayed at flood stage until late May 2016 in the Parish, due to the fact that there is only one outlet system the Red River that the water can flow out. The reason that the Red River could not drain the River systems from the North part of the State that flow into it, is because the USCOE was diverting water the Miss. River through the Old River Control system into the Atchafalaya River in which slows the the flow of the Red River.*

83. **PUBLIC COMMENT:** *Bayou que de torture and Indian bayou in western Lafayette parish need to be dredged bayou que de torture is silted up and full of beaver dams and log jams areas that have never flooded are starting to flood now all I ever hear on the news is dredge the vermillion but we need help on the western side of the parish. Bayou que de tortue also drains the eastern side of Acadia parish but is the main drainage of Duson and part of Scott la. Please help us get this done thanks*

84. **PUBLIC COMMENT:** *Taken to alleviate flooding within Watershed 5 needs to be concentrated in the dredging of the rivers, bayous and major drainage coulees. Over the past century, industrial agriculture has introduced an abundance of sediment runoff into the localized streams and drainages of the area, subsequently causing siltation of the waterbodies. This has enabled the various drainages from flowing at full capacity, allowing water to back up during rain events, causing flooding of the localized area. The community of Mire LA is a perfect example; the over-whelming majority of the area is NOT in a flood zone, yet every time it gets a major rain event the entire community is under water. This is due to the fact that Bayou Wikoff is silted in and needs to be dredge and the two major drainage coulees that drain Mire needs to be cleaned out and the drainage board doesn't have the funds are manpower to do so. If you really want to fix the flooding issues of Watershed 5 the key is repairing the drainage we already have in place.*

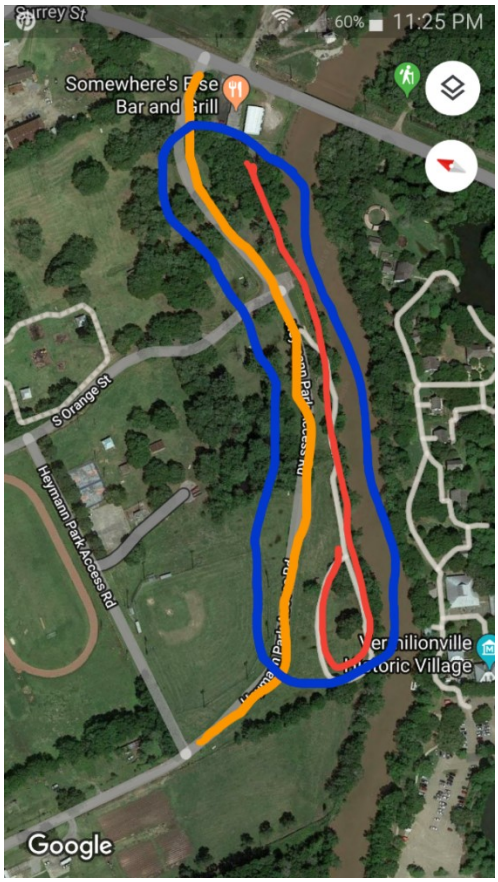
85. **PUBLIC COMMENT:** *I'm apart of Dredge the Vermilion.org. I lived on river for 25 years. The river flooded severely in '93 and during the 2016 flood event, I had 40 inches of water in my house. We've already come close to flooding twice this year. Something changed that's brining more to the river faster and the water is not leaving the river. We have an emergency situation on the river. It's flooded five times this year already. Something is happening here that's causing us to flood must worse. We need to dredge the Vermilion as soon as possible.*

86. **PUBLIC COMMENT:** *How do we make sure all the money doesn't go to Lafayette and BR so it can help small towns like Church Point? Why can't we just dredge the Vermilion?*

87. **PUBLIC COMMENT:** *How will the watershed initiative directly relieve the drainage issues of the town and country area in north Monroe, specifically the Magnolia, Jennifer Lane and Wooddale subdivisions which back up to Bayou Desire. Also the Desire St., 11th St. and areas in downtown Monroe nearest the Pleasant Haven and Grammont areas closest to the public works building suffers horrible drainage and subsequently structural damage. How will this affect this area without harming the nearby train yard? These are both areas of low to moderate income housing and traditionally overlooked. These areas are usually occupied by younger entry level families.*

88. **PUBLIC COMMENT:** *We need new drainage infrastructure in the inner city of Monroe and neighborhoods in the Ouachita Parish as a whole. Is there any funds that can be used for that purpose? Is there funds for someone who is a builder or development/developer and if so how do they get access to those funds? Will it be a grant?*

89. **PUBLIC COMMENT:** *Heyman park In Lafayette Parish, Lafayette, LA: blue area is a known flood zone; orange is a section of permeable Roadway; red is a section of permeable sidewalk*



RESPONSE: The subject Action Plan includes descriptions of the proposed projects and programs to be administered, however this plan does not describe specific projects, such as the projects referenced above. In order to propose a location-specific project for CDBG-MIT funding, a potential applicant would need to submit an application within the context of a grant program. The state will release specific project criteria and solicitations as each program within this Action Plan is mobilized.

XII. GENERAL QUESTIONS

90. **PUBLIC COMMENT:** *Can you please explain what it means to build better to mitigate future disaster?*

RESPONSE: Mitigation is generally defined as taking steps to reduce or eliminate the long-term risk of loss of life, injury, damage to and loss of property, and suffering and hardship, by lessening the impact of future disasters. Building better to mitigate future disasters would include activities such as developing improved subdivision standards, adopting higher building standards, and improving

regional polices that govern where we build and how we build (in order to keep people and property "out of harm's way"). The state intends to work with communities and regions to assist in implementing this task, as appropriate. To learn about more about how the state plans to mitigate future disaster, view the Action Plan at watershed.la.gov.

91. **PUBLIC COMMENT:** *Is there one place that shows the available funds and what they will be allocated for? How will the plan address changes to development? Will there be a way for people to learn about their flood risk?*

RESPONSE: The Action Plan details the state's proposed use of the approximately $1.2 billion in CDBG-MIT funding. Please see the section above labeled as "Administration and Timeline" to see information on program areas within the Action Plan. The Action Plan does emphasize programs that incentivize resilient development and enable widespread flood risk education (see Program Areas 1-4). The state is also working to produce watershed models and flood risk data and to host this information in a publicly accessible format to assist citizens with learning more about their flood risk and facilitating easy access to additional resources.

92. **PUBLIC COMMENT:** *We are appreciative for the opportunity to provide public comments on the Louisiana Watershed Initiative's proposed Action Plan to spend $1.2 billion in Community Development Block Grant Mitigation funds. For background, Restore or Retreat, Inc. is a non-profit coastal advocacy group created by coastal Louisiana residents and stakeholders who recognize the Barataria and Terrebonne basins are the two most rapidly eroding estuaries on earth. Restore or Retreat (ROR) began by bringing together landowners, port commissions, parish governments, restoration advocates, levee experts, business owners and residents together for one purpose: to work daily on the local, state and federal level to implement large-scale restoration projects for our coast. Since 2000, Restore or Retreat has been involved in policy, funding, and public engagement and outreach efforts on various coastal efforts from Coast 2050 to the most recent iteration of the State's Comprehensive Coastal Master Plan. Below, we would like to respectfully provide a few general comments related to the proposed action plan. Adherence to the Coastal Master Plan ROR is proud to participate in the development of Louisiana's Comprehensive Master Plan for a Sustainable Coast (Coastal Master Plan.) In 2012, Restore or Retreat participated in the Framework Development Team of the Coastal Master Plan, and as the 2023 Coastal Master Plan is developed, we serve on the Coastal Advisory Team, as well as the Terrebonne Basin Working Group. We have assisted with outreach and engagement opportunities along the coast in both 2012 and 2017, including the rollout of the Master Plan Data Viewer and host of Community Conversations, which engaged hundreds of residents before the adoption of the 2017 Master Plan. Clearly, we are deeply invested in this science-based document with public input, and implore you to closely coordinate with the development of future efforts. We very much understand and appreciate your work extends beyond the geographic and scientific scope of the Coastal Master Plan; however, it must be known literally hundreds of thousands of hours of time and dollars have been dedicated to engaging folks all across the world on the significance of this plan, and we must not send out contradictory messaging with intended complementary efforts. ROR and fellow NGOs have already received multiple questions from every day citizens who are confused by these parallel efforts, and we stand ready and willing to help educate communities on how these efforts can be both complementary and synergistic to help more coastal citizens embrace the need for a sustainable coast. Additionally, two gubernatorial administrations have issued Executive Orders on adherence to Louisiana's Comprehensive Master Plan for a Sustainable Coast (JBE 2016-9; BJ 08-07.) These executive orders direct all state agencies to carry out their regulatory responsibilities and administer all programs, contracts, grants and other activities in a manner consistent with the Master Plan. All state agency actions should take into account Master Plan features and other non-structural programs and be implemented in a manner which does not adversely affect any Master Plan action. These executive orders are seen as more than just ceremonial as well; it is used in the halls of Congress and elsewhere to provide that Louisiana is coordinating on multiple levels to ensure funding efforts are well-coordinated, and are as efficient as possible. Additionally, guidance for permit consistency with Louisiana's Master Plan for a Sustainable Coast was issued in 2009. This guidance document was developed by the Office of Coastal Management (OCM) to provide a consistent methodology for state employees to apply the enforceable policies and mechanisms to the regulatory and oversight responsibilities in such a way as to fully comply with previous executive orders, as described above. This document also establishes a framework for coordination in the coastal use permitting process based on the nature of the proposed use, its magnitude of anticipated effects and its location with respect to Master Plan features.*

Coastal Financing: Over the next 15 years, billions of dollars will be available for coastal protection and restoration in Louisiana, largely from the Deepwater Horizon global settlement as well as the increase in payments under the Gulf of Mexico Energy Security

Act (GOMESA). Revenue sources associated with these funding streams, however, vary greatly in terms of specific requirements and timelines, so an advanced strategy is needed to best maximize and leverage coastal funding made available. ROR has worked in partnership with the Louisiana Coastal Protection and Restoration Authority through the generous support of national philanthropic partners to develop a financial strategy to best leverage and maximize coastal funding available, and will continue this effort in the near future. This strategy does not include the $1.2 billion provided through these Community Development Block Grant for which we are providing comments for, but it is vital and prudent to coordinate these corresponding funding efforts. Citizens from the bayou to Washington DC and beyond will not understand the nuances of this complex web of vital funding, but it is our responsibility for every person to understand we are coordinating—and not duplicating or conflicting—with these efforts.

Outreach and Engagement: In addition to our above comments related to our willingness to help engage coastal communities on this effort (without compensation), we applaud your effort to translate Action Plan documents into Spanish to increase accessibility. For the 2017 Master Plan, Restore or Retreat researched language assistance, and thanks to a generous grant from the Greater New Orleans Foundation, provided translation services for the Master Plan into three languages, all of which were directed by populations found in communities of coastal Louisiana. Spanish was included, as well as French (100,000 residents) and Vietnamese (29,000 residents.) While these numbers may seem low, Louisiana has the highest and second highest totals for these languages in the United States, respectively, but more importantly, the communities speaking these languages are concentrated in deeply impacted coastal communities which could be most affected by the Action Plan. Previous efforts by the Office of Community Development, Department of Health and Hospitals and other state agencies can provide additional guidance on language assistance standards, as well as community groups and the Greater New Orleans Foundation through their SELA VOICE coalition.

Budget: We have one single question regarding the budget. Will there be an administrative cap in each line item of the CDBG-MIT Program Budget? We understand there is an administrative cost of approximately 4%, but is this directly related to program management? Thank you again for the opportunity to comment on the Action Plan, and ROR looks forward to continuing to work with the State on the implementation of projects to sustain our coast, including OCD on the Louisiana Watershed Initiative. We thank you for your time and consideration of our comments.

RESPONSE: As noted in the Action Plan (section titled "Coordination and Alignment"), the subject Action Plan is consistent with, and not duplicative or in conflict with the CPRA Coastal Master Plan. CPRA, as well as DOTD, LDWF, GOHSEP, and OCD are represented on the Council on Watershed Management, and therefore have had a significant role in drafting the subject Action Plan and will continue to participate in the administration of the plan. Translation standards are outlined in the Language Access Plan on the state's website here. OCD will issue guidance regarding administrative caps for each sub-program within the context of program policy documents and grant agreements.

93. **PUBLIC COMMENT:** *How far are we from 1.5 years ago?*

RESPONSE: The state completed the Phase I Investigation and is now implementing the Louisiana Watershed Initiative. The Action Plan details how the state plans to spend the $1.2b federal allocation. This is substantially ahead of other entities around the country who are eligible for these funds.

94. **PUBLIC COMMENT:** *I'm a part of the 1300 member Atchafalaya Basin Keepers: How will you address lack of enforcement from ACE? We have a masterplan for this region.*

RESPONSE: The state intends to collaborate with stakeholder groups and the U.S. Army Corps of Engineers to improve existing systems management and leverage project benefits to comprehensively address flood risk across the watershed region.

95. **PUBLIC COMMENT:** *Can HUD overpower objections on Dept. Of Interior whereby these people have isolated thousands of acres from our Basin in Avoyelles Parish? So do we feed ducks or flood homes?*

RESPONSE: OCD defers to HUD with regards to federal regulations administered by HUD or the Department of the Interior.

NOTE: THE FOLLOWING COMMENTS GENERALLY ADDRESS QUESTIONS OR CONCERNS SURROUNDING THE TIMELINE FOR ACTION PLAN APPROVAL OR PUBLIC COMMENT PROCEDURES, AND ARE GROUPED ANSWERED COLLECTIVELY BELOW.

96. **PUBLIC COMMENT:** *I believe the timing of this is not advantageous. This is occurring during an election cycle where most communities are in the middle of transitioning periods and the time to review this is limited. Also the LFMA should be more involved as they have more knowledge regarding the issues. It's important that everyone be active in this process, however, serious discussions should be done by informed committees who understand the problems. We need more inland flooding funding, not just coastal erosion which are two entirely separate issues. As usual, we are trying to enact things that have not been fully studied yet, into current construction projects.*

97. **PUBLIC COMMENT:** *The Federal Register requires that a draft plan be submitted by February 3, 2020. As a resident that flooded in 2016, it is greatly appreciated that the state is working hard to submit a plan as soon as possible. However, the draft plan public hearings, comments periods, the fiscal agent application due date and the round 1 project due dates have all been during intense election cycles and with the latest fiscal agent and round 1 application due dates just days before many jurisdictions will have new leaders and directors. The next 4 years of this plan will be implemented under the leadership of those taking office in January 2020. With the due dates identified with efforts ahead of the approved plan and commitments being made by leaders leaving office and in some cases leaders in office that are transitioning out and not focused on the next four years, a consideration should be made with schedule and before submitting the plan so that those coming into office understand the plan and the commitments of the plan, round 1 projects and fiscal agents. At a point where we are almost 3.5 years past the flood, a few additional weeks and coordination with new leadership would not jeopardize any projects or impacts but would go a long way to a successful plan implementation.*

98. **PUBLIC COMMENT:** *The Federal Register requires that a draft plan be submitted by February 3, 2020. However, the draft plan public hearings, comments periods, the fiscal agent application due date and the round 1 project due dates have all been during election cycles and with the latest fiscal agent and round 1 application due dates just days before many jurisdictions will have new leaders and directors. The next 4 years of this plan will be implemented under the leadership of those taking office in January 2020. Therefore, an extension of this due date is requested to provide time for newly elected officials to be advised of the particulars of the program, and to then develop wathershed-community relationships as necessary to identify and implement regional mitigation studies and projects which fulfill the intent of the mitigation grant program.*

99. **PUBLIC COMMENT:** *With due dates on the Fiscal Agent applications as part of the Capacity Building program identified in the State Plan being advertised before the Draft State plan was released for public comments, and only days after the draft plan was released for comment, and the selection of the fiscal agent before the comment period ended along with pre-applications for the Round 1 projects being due before the Plan is approved make it difficult for the plan or the programs in the plan to address public comments. In trying to schedule meetings with numerous parishes the state finalized and identified in a short amount of time prior to the plan being released, work on organizing with a fiscal agent, and trying to identify "shovel ready" projects, many agencies may have found it hard to read the plan, cross reference the plan with documents that could be included in the plan, make public comments, all while meeting deadlines for projects and programs that could have been scheduled after the public comment period for the plan was closed. After the development of the plan, the focus should be the public meetings and the public comments, then proceed to the programs and projects but with a schedule more in line with the approval of the plan from the federal government. If the goal is to get great regional resilient projects, more time spent with planning and working on the identification and development of the best and correct projects, as opposed to, having entities hurry to meet deadlines and then wait on the federal government would be time and money well spent. In planning and implementation on a large scale some things need to be in consecutive order as opposed to concurrent with end goals not approved.*

100. **PUBLIC COMMENT:** *Please hold a town hall after 5:00 pm to allow busy work schedules to attend.*

RESPONSE: Louisiana is in need of expedited mitigation funding, due to our significant flood risk to coastal, inland, and riverine communities. The great floods of 2016 highlighted this need, and it is

clear that investments in mitigation in Louisiana are not keeping pace with our needs. Congress allocated the subject funding in 2018, and HUD published federal guidance for the use of these funds (CDBG-MIT funding of approximately $1.2 billion) in August of 2019. The state intends to provide citizens with relief from intense and frequent storms and floods as quickly as possible. In Louisiana, we know that the next flood or hurricane may be swiftly approaching, so we should not delay implementing mitigation measures. The subject Action Plan details a significant investment in planning and technical assistance to ensure that all eligible jurisdictions (including those with limited technical capacity) are able to benefit from these funds. Please see information on the Regional Capacity Building Grant Program, Phase I report, and Louisiana Watershed Initiative for more information. With regards to the Watershed Projects Grant Program: Local and Regional – Round 1, the state completed 37 technical assistance sessions during the briefings held across Louisiana's eight watershed regions. In response to information provided by the 241 attendees, the state has decided to extend the deadline to Friday, January 17.

The subject Action Plan is informed by dozens of meetings and stakeholder engagement events conducted around the state to better understand our challenges and opportunities related to floodplain management. The state has hosted four public hearings in accordance with the public notice procedures outlined in FR-6109-N-02. Please see the Louisiana Watershed Initiative website for further detail, including videos of past public hearings and engagement events.