# Hazard Mitigation Annual Report

*City of New Orleans, Louisiana*

**2018**


# Orleans Parish, Louisiana

# 2018 Hazard Mitigation Annual Report

# Purpose of the Hazard Mitigation Plan and Annual Report

Hazard mitigation planning provides a mechanism for understanding the risks and vulnerabilities of the City, as well as identifying actions that can reduce future loss of life and property. Hazard mitigation planning is also a federal requirement based upon the Disaster Mitigation Act of 2000, which authorized pre-disaster mitigation planning to reduce and control the cost of disaster assistance. This Act includes a requirement that state and local governments have an approved hazard mitigation plan that is updated every five years in order to apply for and receive federal grant funds through any of the hazard mitigation assistance programs.

The City of New Orleans updated its local multi-hazard mitigation plan in 2015, with formal adoption of the document on August 1, 2016. As part of the ongoing review and documentation process, the Hazard Mitigation (HM) Office prepares annual reports to summarize significant actions and activities that affect both current mitigation project execution and future planning efforts. These reports will be compiled and presented during the next plan update cycle, scheduled to begin in 2020.

# 2018 Summary

- The City was awarded funds through DR4300 to support a Wind Retrofit project at Sarah T. Reed Charter High School in New Orleans East. The project will retrofit the complete building envelop to be resistant to hurricane-force winds.
- In partnership with Sandia National Laboratories and Los Alamos National Laboratories, the City completed the *Grid Analysis and Design for Energy and Infrastructure Resiliency for New Orleans* study, published through the Department of Energy's 2017 Grid Modernization Peer Review Report. As a result of this effort, a more detailed analysis of specific energy nodes is underway to support the development of a pilot microgrid project. Microgrids are localized grids that are able to operate while the main grid is down; they can strengthen grid resilience and help mitigate disturbances, as well as function as a resource for faster response and recovery. Microgrids can also support distributed energy resources including renewable power.
- Construction on the first of several large green infrastructure projects funded through FEMA's DR1603 and DR1607 HMGP programs reached substantial completion at Dillard University. The remaining projects, including Broadmoor, Pontilly, Lakeview and City Park continued through the Phase I design process and were advanced through the Resilience Design Review Committee process at the necessary stages of review by several city agencies. Construction on the Hagan-Lafitte Drainage Improvement project began in late 2018.
- The City continued to utilize Hazard Mitigation Assistance funds to address repetitively flooded properties through residential elevations. Construction activities for properties included in the FY13 Flood Mitigation Assistance (FMA) home elevation project are well underway and the City's application under FY17 FMA was selected for further review by FEMA. Under the FY18 FMA Notice of Funding Opportunity, the City submitted three applications, totaling 44 repetitively flooded properties, including one non-residential structure.
- The City's NOLA Ready public engagement platform launched *Ready for Rain*, a public education campaign designed to increase public awareness of flood risk and flood mitigation strategies.
- The HM Office developed project proposals and submitted grant applications for two Green Infrastructure projects as part of the City's drainage improvement portfolio. The drainage project located at City Park has been approved by FEMA for Phase I design funds, and the drainage improvement project located at the Harmony Oaks Apartments is pending review with LADOTD.
- The HM Office secured HMGP funding under DR 4300 to support outreach resources and development of a flood response plan (FRP). A flood response preparations package is a collection of outreach projects prepared in advance, but not delivered until a flood occurs. These materials will include templates of handouts, mailers and press releases that cover key messages that need to be disseminated before, during, and after a flood. Additionally, through the development of a FRP, the City can be credited up to 50 points under Community Rating System Activity 330.

# Hazard Mitigation Planning Organization

New Orleans Office of Homeland Security and Emergency Preparedness (NOHSEP) is the lead agency charged with developing and implementing the City's Hazard Mitigation Plan. NOHSEP works with several City agencies to implement mitigation projects, including:

- Office of Resilience and Sustainability
- Department of Safety and Permits
- Capital Projects Administration
- Department of Public Works
- New Orleans Health Department
- Information Technology and Innovation
- Property Management
- Parks and Parkways
- Mosquito, Termite and Rodent Control Board

NOHSEP also works with numerous other governmental, academic and non-profit partners to support mitigation planning and implementation, including:

- Sewerage and Water Board of New Orleans
- New Orleans Redevelopment Authority
- New Orleans Housing Authority
- Orleans Parish School Board
- Port of New Orleans
- University of New Orleans
- Tulane University
- Dillard University
- New Orleans Water Collaborative
- Foundation for Louisiana
- Greater New Orleans Foundation
- Urban Conservancy
- iSeeChange
- Camp Restore
- Green Light
- Harris County Flood Control District
- Sandia National Laboratory
- Jefferson Parish Floodplain Management
- C40 Cities Climate Leadership Group
- 100 Resilient Cities
- Governor's Office of Homeland Security and Emergency Preparedness

## Meeting and Engagement Efforts

In 2018, NOHSEP continued to organize and hold quarterly meetings of the Local Emergency Preparedness Committee's Hazard Mitigation Subcommittee. The Committee's goal is to ensure coordination across agencies and organization on mitigation activities conducted in New Orleans. Principle members of the Hazard Mitigation Subcommittee include: Hazard Mitigation Office, Safety and Permits, the Sewerage and Water Board, Port of New Orleans, the University of New Orleans – CHART program, the New Orleans Water Collaborative and the Foundation for Louisiana.

The Hazard Mitigation Administrator continued to participate as a member on the Resilience Design Review Committee for Green Infrastructure projects. In this capacity, the HM Office added its voice to the review and approval of designs on federally-funded green infrastructure projects to ensure consistency with the goals outlined in the Hazard Mitigation Plan.

NOHSEP and NOLA Ready Partners participated in 354 outreach and engagement events. These events covered topics addressing active shooter situations, hurricane preparedness, storm water management and green infrastructure, home elevation programs, extreme temperature preparedness and actions addressing mosquito-borne diseases.

The HM Office also participated in several local committees and groups focused on strengthening mitigation and resilience efforts. These include the Greater New Orleans Housing Alliance Resiliency Committee, the Water Collaborative of Greater New Orleans, the Port of New Orleans' PIER Plan Stakeholder Panel and the CRS users group for communities around Lake Pontchartrain (FLOAT). The HM Office presented the state-of-the-art Ready for Rain property search tool at the Louisiana Floodplain Management Association Conference. The tool provides New Orleans residents with an easy-to-understand explanation of the flood risk at their home and simple ways they can insure against and mitigate potential flood damage.

The HM Office enhanced its relationship with GOHSEP, FEMA Region VI and DHS. Monthly meetings were held with City, GOHSEP and FEMA staff to provide updates and increase coordination of HMGP projects and lines of communication were established with senior officials across all agencies to improve situational awareness on City priorities and funding opportunities.

The City increased coordination efforts with the State and neighboring communities through participation in the CPRA's Flood Risk and Resilience Capacity and Capability Assessment and Workshops, and the Louisiana Watershed Initiative, led by OCD. City personnel continued to coordinate on regional hurricane risk reduction systems though participation in Strategic Partnership Meetings with USACE, SLFPA-E, SLFPA-W and SWB.

## 2018 Hazard Identification

The following table includes extreme weather events recorded in NOAA's National Climate Data Center (NCDC) database. There were no major disaster declarations in Orleans Parish in 2018.

| DATE | EVENT TYPE | Estimated Property Damage |
|---|---|---|
| 1/11/2018 | Thunderstorm Wind | $ 2,000.00 |
| 1/17/2018 | Winter Weather | $ - |
| 3/11/2018 | Thunderstorm Wind | $ - |
| 5/18/2018 | Thunderstorm Wind | $ 50,000.00 |
| 5/18/2018 | Thunderstorm Wind | $ 1,000.00 |
| 5/18/2018 | Flash Flood | $ - |
| 7/2/2018 | Thunderstorm Wind | $ - |
| 7/3/2018 | Flash Flood | $ - |
| 7/3/2018 | Flash Flood | $ - |
| 8/18/2018 | Flash Flood | $ - |
| 10/15/2018 | Flood | $ - |

## Changes in Vulnerabilities

New Orleans is beginning to experience the impacts of more frequent and severe extreme temperature events associated with a changing climate. The Winter Weather that occurred on and around January 17 highlighted the vulnerability of the City's infrastructure to freezing temperatures and the significant disruptions that can result. Impacts from this event included many private and public water line breaks accompanied by residents running water to prevent frozen pipes which led to system-wide low water pressure, resulting in a boil water advisory. A subsequent major water main break on the West Bank led to a boil water advisory for part of the city that is less accustomed to boil water advisories. The airport lost water pressure and had to contract port-o-lets for passengers that were outside of security checkpoints. These events underscore the urgent need to prioritize maintenance of both the City's water infrastructure and private building stock to be more resilient to extreme temperatures.

Overall temperature averages continue to trend warmer and record extremes temperature days, both highs and lows, resulted in additional stresses to city's population and infrastructure. The heat island effect in the summer and hard freezes in the winter months resulted in property damage and disruption of services in the City and across south Louisiana.

2018 marked another Atlantic hurricane season with above-average activity, recording 15 named storms, including two major hurricanes. Hurricane Florence caused extensive damage in portions of North and South Carolina. Hurricane Michael, at Category 4 intensity, was the strongest hurricane on record to strike the Florida Panhandle. New Orleans was spared any major impacts during the season, however, NOHSEP activated for one event, Tropical Storm Gordon. While no distinct trend in the number or intensity of tropical cyclones has been definitively observed, the annual likelihood of being impacted by a storm remains high. The collective hazards presented by Hurricanes and Tropical Storms remain one of the key threats that the City of New Orleans faces, and a major focus of emergency preparedness efforts.

## Changes in Capabilities

The New Orleans Office of Homeland Security and Emergency Preparedness worked with multiple city departments and numerous local organizations to develop the *Ready for Rain* public outreach program (https://ready.nola.gov/rain-1/) to educate New Orleans residents about local flood risk, flood insurance, and residential mitigation options. Branded under the existing the NOLA Ready emergency preparedness campaign, the project aims to increase the understanding and implementation of flood mitigation interventions across the city, especially green infrastructure, and increase the number of flood insurance penetration levels, especially in the areas of highest risk.

Working with the city's Floodplain Management Office, NOHSEP has engaged in a complete a review of and alignment with the city's Community Rating System (CRS) plan. In addition to updating emergency planning, messaging and mitigation documentation, the HM Office has integrated CRS creditable actions into outreach materials, data collection and analysis, and planning and project development activities.

The Disaster Recovery Reform Act of 2018 was signed into law in October 2018, modifying several sections of the Robert T. Stafford Disaster Relief and Emergency Assistance Act. Included in these changes the establishment of a National Public Infrastructure Pre-disaster Hazard Mitigation assistance program which allows for FEMA to set aside six percent of the annual estimated assistance provided through the Disaster Relief Fund for cost-effective mitigation activities. The proposed program currently sunsets after five years, however, the HM Office will monitor the release of additional guidance regarding the program and application details and incorporate into current mitigation plan and project development efforts.

Working with UNO CHART, the HM Office continued coordinating a one-of-a-kind, city-wide Repetitive Loss Area Analysis. The HM Office also conducted data analysis of repetitive flood loss properties across the City, incorporating new datasets on flood losses, completed mitigation projects and flood insurance program participation from the State and FEMA. Together, these efforts have advanced the City's ability to identify priority areas for future mitigation activities.

The City was awarded a Planning Assistance grant to develop its RESTORE Act Multi-Year Implementation Plan, a key step in accessing funds available to the City through the RESTORE Act, stemming from the Deepwater Horizon Oil Spill settlement. HM Office personnel, along with Office of Resilience and Sustainability, worked with partners to identify priority projects for these dedicated funds that advance the City's resilience goals.

In July 2018, two additional NOHSEP employees completed floodplain management training and obtained Certified Floodplain Manager credentials. This advanced HM Action Item 5.01, to increase the number of CFMs on City Staff.

# Mitigation Actions

The following tables provide a summary of the current status of the mitigation actions outlined in the 2015 Hazard Mitigation Plan. The Actions are organized around the six Goals of the Plan:

1) Reduce Risk and vulnerability to the Human Environment including cultural resources, homeowners, renters, visitors and transient populations;
2) Reduce Risk and Vulnerability to the Built Environment including current and future structures; critical facilities; historical structures; and infrastructure including communications;
3) Reduce Risk and Vulnerability to the Natural Environment including wetland restoration and recognition of New Orleans as a coastal city;
4) Maximize the involvement of Individuals, Businesses, and Groups in Risk Reduction Measures through education/outreach on Hazard Mitigation appropriate to all groups, particularly vulnerable populations;
5) Promote coordination locally, regionally, and nationally including all levels of government, private sector entities, as well as nonprofits and community based organizations;
6) Ensure continuity of operations for local government and businesses, including protection of critical functions, records and cultural assets.

| No. | Capability | Action Item/ Benefits | Status | Time Frame | Priority Ranking |
|---|---|---|---|---|---|
| 1.01 | Public Information and Warning | Increase the City's preparedness by becoming StormReady and by pursuing No Adverse Impact | In Progress | 1-5 years | High |
| 1.02 | Mass Care Services | Improve pediatric surge capacity | In Progress | 5-10 years | High |
| 1.03 | On-scene Security, Protection and Law Enforcement | Purchase equipment and provide "warm zone" training to protect first responders in the event that they are a target. | Completed | 1-5 years | Medium |
| 1.04 | Public Information and Warning | Education and outreach on sheltering in place in the event of a hazardous materials incident. Ensure that critical facilities have shelter-in-place kits and plans | Completed | 1-5 years | High |
| 1.05 | Public Information and Warning | Develop outreach materials regarding post-disaster air quality | Not Started | 1-5 years | Medium |
| 1.06 | Critical Transportation | Provide shade structures and minimal seating for evacuation pick-up sites. | In Progress | 5-10 years | Medium |
| 1.07 | Environmental Response/Health and Safety | Mitigate contamination resulting from illegal dumpsites. | Not Started | 5-10 years | Low |
| 1.08 | Mass Search and Rescue Operations | Purchase needed equipment for the USAR Team | Completed | 5-10 years | Medium |

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| 1.09 | Public Information and Warning | Develop a warning and notification system in the event of sudden river flooding. | Carried Over with Updates | 5-10 years | High |
| 1.10 | Mass Search and Rescue Operations | Map the interior of critical facilities to assist first responders in the event of an incident. | In Progress | 1-5 years | low |
| 1.11 | Public Health, Healthcare, and Medical Services | Obtain a mobile dialysis unit. | Not Started | 1-5 years | Medium |
| 1.12 | Public Health, Healthcare, and Medical Services | Set up cooling shelters during extreme heat events | Completed | 1-5 years | Medium |
| 1.13 | Natural and Cultural Resources | Adopt ordinance requiring water saving measures in time of drought | Not Started | 1-5 years | Low |

| No. | Capability | Action Item/ Benefits | Status | Time Frame | Priority Ranking |
|---|---|---|---|---|---|
| 2.01 | Risk and Disaster Resilience Assessment | Conduct a feasibility study regarding the use of polders, ring levees, or stepped levees as part of the City's internal flood protection system | Not Started | 10-20 years | Medium |
| 2.02 | Community Resilience | Implement pilot reconstruction projects in hazard prone areas to mitigate structures against future damage. | Completed | 5-10 years | Medium |
| 2.03 | Community Resilience | Improve drainage infrastructure through measures in high flood risk areas including, but not limited to, the upgrade and improvement of culvert design and construction, retention and detention areas | In Progress | 5-10 years | High |
| 2.04 | Long-term Vulnerability Reduction | Citywide Enhancements to Street Drainage. This project will provide $500K-$2 million in green infrastructure enhancement such as curb cutouts, green sidewalks, above and below ground storage tanks, and neutral ground enhancements to the FEMA Recovery Roads pavement restoration and waterline replacement projects and bond funded reconstruction projects in the Gentilly District. This product will benefit the entire city. This product includes a component for groundwater monitoring and sewerage pumping data collection. | In Progress | 5-10 years | High |

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| 2.05 | Long-term Vulnerability Reduction | Continue the Southeast Louisiana (SELA) Drainage program is to reduce flood damages in the City of New Orleans and surrounding parishes. This will be accomplished by constructing new pumping stations and better drainage canals throughout our city. The program was authorized in 1996 by the United States Congress and administered under a project cooperation agreement between the Sewerage and Water Board of New Orleans and the U.S. Army Corps of Engineers. | In Progress | 5-10 years | High |
| 2.06 | Long-term Vulnerability Reduction | St. Roch Streetscape Improvements by the Sewerage and Water Board. The primary problem this activity will address is repetitive flooding. Approximately 540 properties in the area suffer repetitive damage. It will also improve the water quality of Lake Pontchartrain. The project will upgrade drainage ditches as well as provide green infrastructure enhancements to better manage groundwater. There is also a subsidence monitoring component. This project will reduce pressure on the existing piping system. Benefits of this project will include beautification, improved recreational areas, flood mitigation, and social cohesion. | In Progress | 5-10 years | High |
| 2.07 | Long-term Vulnerability Reduction | Mirabeau Water Park. The project will daylight 1/3 flow of neighborhood trunk line into the water park to store/cleanse/alleviate pressure on Pump Station #14 during peak flow periods. This project will address repetitive flood and sending untreated polluted water to Lake Pontchartrain. This project will provide benefits to over 3,000 acres, 3717 homes and businesses. It will provide improved water quality, habitat creation, recreation, and serve as an economic development opportunity. This project will support nearby streetscape enhancements. | In Progress | 5-10 years | High |

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| 2.08 | Long-term Vulnerability Reduction | Mac 35/Hall/Youth Study Center. The base project will be the Willie Hall Playground alone, $2.5 million; the premium version would add the modification to the landscape at the Youth Studies Center to provide an amenity to the community that also improves the retention of storm water in the immediate vicinity. The cost for the premium project would approximate $12 million. This project will remediate and repurpose the location for programmatic recreation and education and the remediation of the soil to reach the aspiration. The project's primary focus will be safety and recreation with the potential of significant storm water management. The project will address storm water management at a nexus of public investment for a school, recreation venue, and youth justice facility (correctional). The population served by the new Mac 35 School, which has a city-wide enrollment, and the immediate community of St Bernard will be affected by this project as a recreational venue, an educational asset, and a storm water detention/retention. The project will also place land into service that was environmentally degraded. | In Progress | 1-5 years | High |
| 2.09 | Long-term Vulnerability Reduction | Pontilly Project. Scattered site green infrastructure interventions including increasing the capacity of and improving flow to the Dwyer canal, vacant lots graded and planted to detain stormwater, bioswales, and curb bumpouts. This project will benefit residents in the Pontchartrain and Gentilly Woods neighborhoods. These projects will decrease flood risk but will also provide recreational space, beautify the neighborhood, rebalance the real estate market by taking surplus properties off the market, improve walkability, and increase community pride. | In Progress | 1-5 years | High |
| 2.10 | Long-term Vulnerability Reduction | Hagan Lafitte. Study subsidence from groundwater pumping and stabilizing | In Progress | 5-10 years | High |

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| | | and mitigate chronic flooding by increasing the capacity of subsurface drainage and the daylight flow in canal. | | | |
| 2.11 | Community Resilience | Install rain gardens and storm water runoff filtration and water retention systems along streets to reduce subsidence and flooding. Develop and advocate the necessary site design and landscape standards for streets, neighborhoods, and building sites. | In Progress | 5-10 years | High |
| 2.12 | Physical Protective Measures | Harden/Retrofit all critical and non-critical existing public facilities, including City Hall, remote sites and all distribution points, and construct future public facilities that are resilient to wind and flooding. Wind hardening projects can include shutters, roof tie downs, etc. Flood protection projects include switches to turn off equipment in the event of flooding and floodproofing. | In Progress | 5-10 years | Medium |
| 2.13 | Community Resilience | Locate electrical and other critical buildout-system hubs and sensitive equipment, along with files and documents, on upper floors; design buildings to minimize threats to people and property. Pursue hardening of power grid infrastructure to minimize impact of power outages. | In Progress | 5-10 years | Medium |
| 2.14 | Long-term Vulnerability Reduction | Pursue an acquisition/buy-out program wherein property owners could elect to move out of high risk area to a lower risk area. | Carried Over | 3-5 years | Medium |
| 2.15 | Community Resilience | Pursue programs to mitigate at-risk structures by physically elevating buildings to or above the Base Flood Elevation (BFE), wet flood proofing, and/or dry floodproofing where appropriate. | In Progress | 3-5 years | Medium |
| 2.16 | Long-term Vulnerability Reduction | Adopt freeboard and other higher regulatory standards such as cumulative substantial damage and requiring non-enclosure agreements. These are adopted through updates to the CZO and the Flooplain Management Ordinance | In Progress | 1-5 years | Medium |

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| 2.17 | Public Information and Warning | Continue public information campaign for owners of non-conforming properties. | In Progress | 1-5 years | High |
| 2.18 | Public Information and Warning | Develop a program to promote the purchase of flood insurance. | In Progress | 1-5 years | High |
| 2.19 | Planning | Strengthen existing programs for severe and repetitive loss structures, as well as substantially damaged structures. This includes mitigation actions such as elevation, relocation, retrofitting or flood proofing. | Completed | 1-5 years | High |
| 2.20 | Risk and Disaster Resilience Assessment | Undergo a Safe Growth Audit to guide post-Katrina redevelopment | Not Started | 1-5 years | High |
| 2.21 | Physical Protective Measures | Harden utility services and street infrastructure. Harden all flood protection infrastructure including pump support with alternative energy sources. Establish an implementation plan giving priority to emergency evacuation routes and primary arterials. | In Progress | 5-10 years | High |
| 2.22 | Risk and Disaster Resilience Assessment | Install a system of sensors, including groundwater, that are automated and machine readable. | In Progress | 5-10 years | Medium |
| 2.23 | Physical Protective Measures | Construct a Flood Wall to protect the Lakefront Airport | Not Started | 5-10 years | Medium |
| 2.24 | Physical Protective Measures | Install lightning rods to critical facilities | Not Started | 1-5 years | Low |

| No. | Capability | Action Item/ Benefits | Status | Time Frame | Priority Ranking |
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| 3.01 | Natural and Cultural Resources | The Golden Triangle Marsh Creation Project will build over 600 acres of marsh. The marsh will function as support for the Inner Harbor Navigation Canal – Lake Borgne Surge Barrier increasing flood protection for nearby communities. The Golden Triangle Marsh Creation Project creates marsh within the boundaries of Bayou Savage, the largest urban wildlife refuge in the United States, leading to an increase in the refuge's wildlife and fish habitat | In Progress | 5-10 years | High |
| 3.02 | Natural and Cultural Resources | The Biloxi Marsh Living Shoreline Project. The Biloxi Marshes consist of approximately 49,000 hectares of brackish and salt marshes, which provide important storm buffer for | Not Started | 5-10 years | Medium |

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| | | New Orleans as well as key habitat and ecosystem services. The marshes have been greatly impacted by shoreline erosion from wind-driven waves. The proposed Biloxi Marsh Living Shoreline project, if implemented in the future, would create approximately 47,000 feet of bioengineered oyster barrier reef fringing the marshes, which would reduce shoreline erosion and recession, prevent further marsh degradation, promote community resilience, and enhance local fisheries and oyster production. | | | |
| 3.03 | Operational Coordination | Work with the EPA to develop and implement the Gulf of Mexico Conservation Enhancement Grant Program (GMCEGP), a funding assistance opportunity to enhance private/public partnerships that support land protection and conservation across the Gulf Coast region. This program would be available to land conservation organizations such as land trusts, non-governmental organizations (NGOs), and state land preservation agencies across the Gulf of Mexico region through a competitive grant selection process. Two categories of activities: Category 1 is the solicitation and approval of designs submitted to a competition that EPA will under the program; Category 2 is proposed for potential future funding and would allow for the implementation of the planning project. | Not Started | 5-10 years | Medium |
| 3.04 | Operational Coordination | Gulf of Mexico Habitat Restoration via Conservation Corps Partnership Program to recruit and train local workers in a variety of habitat restoration techniques and provide paid, hands-on work experience in on-the-ground restoration projects. These jobs vary depending upon the scope of the project, but can include operators, machinists, | In Progress | 5-10 years | High |

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| | | welders, surveyors, and a variety of laborers, scientists, and managers. | | | |
| 3.05 | Planning | Create a plan to enhance ecosystem sustainability in the Mississippi River Deltaic Plain without negatively impacting navigation and flood risk management on the Mississippi River. This planning effort would enhance the science developed under the Louisiana Coastal Area (LCA) Mississippi River Hydrodynamic and Delta Management Study (MRHDMS) to form the foundation for any future river management analysis by creating an integrated science-based management strategy for the Lower Mississippi River (LMR) to improve navigation, reduce flood risk, and provide for a more sustainable deltaic ecosystem | In Progress | 5-10 years | Medium |
| 3.06 | Physical Protective Measures | Repair the Orleans Land Bridge Shoreline Protection and Marsh Creation Project (CIAP) to help secure 41,270 linear feet of marine mattress revetments along the Lake Borgne shoreline between Bayou Bienvenue and Alligator Point. This project will help provide flood protection for the Greater New Orleans region. | In Progress | 5-10 years | High |
| 3.07 | Natural and Cultural Resources | Restore protective wetlands near Fort Pike | Not Started | 5-10 years | High |
| 3.08 | Planning | Develop Parish wetlands regulations that provide the intent of the regulation for flood storage. | Not Started | 1-5 years | High |
| 3.09 | Physical Protective Measures | Lake Pontchartrain Fringe Marsh & Shoreline Stabilization. Use methods such as the placement of wave dampening structures to encourage accretion. | Not Started | 5-10 years | High |

| No. | Capability | Action Item/ Benefits | Status | Time Frame | Priority Ranking |
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| 4.01 | Public Information and Warning | Implement a public education campaign about the Community Rating Systems and ways in which | In Progress | 1-5 years | High |

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| | | to reduce flood insurance premiums. | | | |
| 4.02 | Public Information and Warning | Utilize informational brochures, hold educational events, and utilize social networks to inform the public about risk levels, historic impacts, and Floods, Tropical Cyclones, Storm Surge, Levee Failure, Coastal Erosion, Tornadoes, Hail, Lightning, Winter Storms, Extreme Heat, Drought and Subsidence mitigation - including non-structural measures and alternatives to elevation | In Progress | 1-5 years | Medium |
| 4.03 | Public Information and Warning | Document and publicize local success stories. | In Progress | 1-5 years | High |
| 4.04 | Public Information and Warning | Educate the public about storm water management, including their role in keeping drains and culverts clear. | In Progress | 1-5 years | High |
| 4.05 | Intelligence and Information Sharing | Partner with non-profit organizations, universities, and professional associations to build a strong broad support base to promote non-structural mitigation | In Progress | 1-5 years | High |
| 4.06 | Public Information and Warning | Promote the use of building methods which are hazard resistant and built above the code. | In Progress | 1-5 years | Medium |
| 4.07 | Operational Coordination | Implement methods to avoid damage caused by un-tethered ships during storms. | Not Started | 1-5 years | Medium |
| 4.08 | Planning | Explore alternative financing methods to support flood mitigating projects, such as a rebate program | In Progress | 1-5 years | High |
| 4.09 | Risk and Disaster Resilience Assessment | Assist homeowners with soils testing to determine infiltration rates | Not Started | 1-5 years | Low |
| 4.10 | Public Information and Warning | Promote greater use of pervious concrete | In Progress | 1-5 years | High |
| 4.11 | Risk and Disaster Resilience Assessment | Assist homeowners with soils testing to determine infiltration rates | Not Started | 1-5 years | High |
| 4.12 | Risk and Disaster Resilience Assessment | Require mandatory training in floodplain regulations for all building officials. | In Progress | 1-5 years | High |
| 4.13 | Public Information and Warning | Annually update, produce, and distribute a hurricane awareness brochure that includes hazard information, evacuation information, and mitigation information and distribute to residents and visitors. | In Progress | 1-5 years | High |

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| 4.14 | Public Information and Warning | Provide hazard mitigation information to resource centers throughout the City including information on types of disasters, family disaster plans, business continuity plans, and basic mitigation projects. Give presentations to civic groups, church groups, business groups, etc. | In Progress | 1-5 years | High |
| 4.15 | Planning | Evaluate the implementation of voluntary incentive and reward programs that encourage builders and contractors to go beyond minimum requirements. | Not Started | 1-5 years | Medium |
| 4.16 | Community Resilience | Create a Leadership Development Program for City Resilience. | Not Started | 1-5 years | Medium |
| 4.17 | Community Resilience | Develop a small business resilience program | In Progress | 1-5 years | High |
| 4.18 | Community Resilience | Establish a resilience Retrofit Program | In Progress | 1-5 years | High |

| No. | Capability | Action Item/ Benefits | Status | Time Frame | Priority Ranking |
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| 5.01 | Risk and Disaster Resilience Assessment | Provide training in floodplain management principles for local officials and increase the number of Certified Floodplain Managers on City staff. | In Progress | 1-5 years | Medium |
| 5.02 | Planning | Adopt a new Master Plan, which contains the guiding principles for both public and private development in the Parish, and including the hazard mitigation goals and action plan. | Completed | 1-5 years | High |
| 5.03 | Intelligence and Information Sharing | Maintain a comprehensive GIS database including data on properties, hazard areas, service districts, public works facilities, transportation infrastructure, and vulnerable populations. | In Progress | 1-5 years | High |
| 5.04 | Long-term Vulnerability Reduction | Continue compliance with the NFIP and adopt the revised flood insurance rate maps currently expected to arrive in 2015. | Completed | 1-5 years | Medium |
| 5.05 | Operational Coordination | Support efforts to raise ICC funding cap above $30k or expand the availability of ICC to Repetitive Loss Properties | In Progress | 1-5 years | Medium |

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| 5.06 | Planning | Engage with regional hazard mitigation planning efforts. Coordinate with other local plans to ensure consistency and coordinate actions with other parishes. | In Progress | 1-5 years | High |
| 5.07 | Operational Coordination | Engage with regional and statewide efforts for the protection of coastal wetlands – including coordination regarding wetlands policy. | In Progress | 1-5 years | High |
| 5.08 | Planning | Incorporate hazard mitigation projects into CIP | In Progress | 1-5 years | High |
| 5.09 | Operational Coordination | Strengthen the City's capacity to implement mitigation projects through staffing. | In Progress | 1-5 years | High |
| 5.10 | Intelligence and Information Sharing | Maintain current information on known hazards present in facilities such as refineries, power plants, etc. | In Progress | 1-5 years | Medium |
| 5.11 | Intelligence and Information Sharing | Increase coordination with urgent care facilities and community health centers. | In Progress | 1-5 years | High |
| 5.12 | Risk and Disaster Resilience Assessment | Resource type the USAR Team | Not Started | 1-5 years | Low |
| 5.13 | Operational Coordination | Coordinate with USACE and SLFPAE regarding the levee system improvements and maintenance. | In Progress | 1-5 years | Medium |
| 5.14 | Operational Coordination | Support levee maintenance through programs to deal with invasive species. | In Progress | 1-5 years | Low |
| 5.15 | Risk and Disaster Resilience Assessment | Establish a Parish capability to review the maintenance and strength levels of the levee system | Not Started | 1-5 years | Medium |
| 5.16 | Threats and Hazard Identification | Maintain a database of all properties that sustain damage as a result of a hazard, including critical facilities. Include this information as part of the City's GIS database. | In Progress | 1-5 years | Medium |
| 5.17 | Operational Coordination | Assist other local agencies with hazard mitigation plans in the implementation of actions from their plans. | In Progress | 1-5 years | Medium |
| 5.18 | Risk and Disaster Resilience Assessment | Promote Stafford Act and other regulatory changes to strengthen hazard mitigation planning. | In Progress | 1-5 years | High |
| 5.19 | Planning | Develop pre-disaster Disaster Recovery Plans | In Progress | 1-5 years | High |

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| 5.20 | Planning | Incorporate climate change impacts into all planning. | In Progress | 1-5 years | High |

| No. | Capability | Action Item/ Benefits | Status | Time Frame | Priority Ranking |
|---|---|---|---|---|---|
| 6.01 | Intelligence and Information Sharing | Set up an Enterprise Data Warehouse to integrate data across City departments. | In Progress | 1-5 years | High |
| 6.02 | Physical Protective Measures | Upgrade, or replace, the Parish EOC. | In Progress | 5-10 years | Medium |
| 6.03 | Physical Protective Measures | Install emergency generators at all emergency shelters and critical facilities. | In Progress | 1-5 years | High |
| 6.04 | Risk Management for Protection Programs and Activities | Continue to implement improvements to the comprehensive program to protect vital records, to include removing records from low areas, digitizing records, and developing back up data systems. Establish standard operating procedures and controls for these improvements. | In Progress | 1-5 years | High |
| 6.05 | Supply Chain Integrity and Security | Consolidate public safety warehouses. | In Progress | 1-5 years | High |
| 6.06 | Physical Protective Measures | Construct shelters and/or safe rooms for emergency services and emergency service personnel to ensure continued operation of critical services during hazard events. | In Progress | 5-10 years | High |
| 6.07 | Risk Management for Protection Programs and Activities | Upgrade and install Management Information Systems equipment to ensure communication system remains operational during hazard events. | In Progress | 1-5 years | High |
| 6.08 | Intelligence and Information Sharing | Improve asset management to assist with the documentation of damages. | In Progress | 1-5 years | High |
| 6.09 | Risk Management for Protection Programs and Activities | Create a one-pager for City staff re: protecting IT equipment | In Progress | 1-5 years | High |

## Ongoing Plan Maintenance

In 2019, NOHSEP will begin stakeholder outreach, coordination and planning for the 2020 HM Plan update. The Hazard Mitigation Office will continue to track changes in vulnerabilities, the status of active project and additional funding opportunities throughout the year and prepare its 2019 annual report in the first quarter of 2020.