



# Hazard Mitigation Annual Report

*City of New Orleans, Louisiana*

2019



## 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.

## 2019 Summary

- The HM Office formed a planning committee to begin laying the groundwork for the 2020 update of the City's Hazard Mitigation Plan. The committee is made up of diverse stakeholders from within and outside City government. The HM Office began public engagement around the plan update through a series of focus group meetings and a survey distributed online and through text.
- 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. Through DR4300 the City also received funding for a community education and outreach around flood recovery. This project will develop outreach materials to be ready in the event of a flood to help residents clean up and recover quickly and safely.
- Engineering and Design of several large green infrastructure projects funded through FEMA's DR1603 and DR1607 HMGP programs advanced during this year. The Broadmoor, Pontilly, Lakeview and City Park projects 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 is scheduled to be completed in early 2020.
- 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 awarded. The three elevation grant application the City submitted under the FY18 FMA Notice of Funding Opportunity were identified for further review by FEMA. The City submitted two applications under FY 19 FMA to elevate 62 residential structures.
- The Hazard Mitigation Office began consulting with FEMA and SHPO on a Programmatic Agreement (PA) to expedite historical review of elevation mitigation projects. The draft PA will be available for public review and comment in early-mid 2020. As a historic city, New Orleans' flood risk mitigation program is directly affected by the regulatory review process, and through consultation and advocacy the HM Office is working to promote better efficiency and equity in how FEMA and their partners implement this program.
- The Hazard Mitigation Office continued working with UNO CHART to develop a Repetitive Loss Area Analysis covering the entire city. CHART completed data collection and the city started using the information to plan and design drainage improvement projects.
- NOHSEP completed installation of an Automated Flood Warning System. The system covers 12 frequently flooded underpasses around the city, and provides warnings to motorists of flooded conditions. The sites also collect data on rainfall and water level, which are transmitted to emergency



## Orleans Parish, Louisiana – 2019 Hazard Mitigation Annual Report

managers in real-time.

### 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 Urban Flooding Working Group
- 100 Resilient Cities
- Governor's Office of Homeland Security and Emergency Preparedness



## Orleans Parish, Louisiana – 2019 Hazard Mitigation Annual Report

### Meetings and Engagement Efforts

In 2019, NOHSEP continued to organize and hold quarterly meetings of the Local Emergency Preparedness Committee's Hazard Mitigation Subcommittee. Stakeholder participation in committee meetings expanded as the committee began preparing to update the Hazard Mitigation Plan in 2020. Throughout the year, NOHSEP coordinated presentations from subject matter experts about topics including Climate Change and Resilience, and Sustainable Finance.

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 362 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 on the development of a city-wide Repetitive Loss Area Analysis at the annual Louisiana Floodplain Management Association technical conference; the report from that study is being finalized in the first quarter of 2020. Property-level findings will be integrated with the Ready for Rain website to provide information to residents on their individual flood risk and strategies to manage it.

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 through participation in Strategic Partnership Meetings with USACE, SLFPA-E, SLFPA-W and SWBNO.



Orleans Parish, Louisiana – 2019 Hazard Mitigation Annual Report

## 2019 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 2019. Values for estimated property damage are drawn from the NCDC records or from NFIP claims data. The actual cost of these events is understood to be much higher than these estimates, as uninsured losses, damage to automobiles, loss of revenue, and other impacts are not readily quantified from available data.

Date	Event	Estimate Property Damage
5/12/2019	Flash Flood	\$ 7,600,000
7/10/2019	Flash Flood	\$ 33,400,000
7/10/2019	Tornado	\$ 300,000
7/11/2019	Storm Surge/Tide	\$ 500,000
7/12/2019	Tropical Storm	\$ 600,000
7/20/2019	Flash Flood	\$ 86,000
8/26/2019	Flash Flood	\$ 900,000

Hurricane Barry began as a disorganized low pressure system in the northeast Gulf of Mexico on July 9, 2019. Barry moved westward and strengthened before becoming a weak category 1 hurricane off the central Louisiana coast on July 11. Impacts to the New Orleans area from this weather system included the strong thunderstorms on July 10 that produced heavy rain, flash flooding, and an EF-1 tornado, and coastal flooding in areas outside of the levee protection system.

Two notable man-made hazards occurred in 2019. The first was the partial collapse of the Hard Rock Hotel construction site on October 12<sup>th</sup>. The accident resulted in three deaths; two of the bodies were unable to be recovered safely. Following the initial collapse, two towering construction cranes were imploded to prevent further injury. An immediate evacuation area was established. During the crane demolition, that evacuation area grew and was accompanied by a larger shelter indoors area. Once safe, the evacuated area shrunk but still remains in effect for some businesses and residences. Major streets, including part of Rampart and Canal streets, remain closed to traffic. As of this writing, details of a planned demolition of the site are still being coordinated.

The second event involved a ransomware cyberattack on the City's computer networks, which was discovered on the morning of December 13<sup>th</sup>. All City networks were shut down in an effort to contain the virus and limit the impact to sensitive information. While it appears at this time that most if not all information will eventually be recovered, the response and recovery process slowed down functions across city government, and its effects are still being felt in early 2020.



## Changes in Vulnerabilities

In the summer of 2019, the rare co-occurrence of flood conditions on the Mississippi River with an approaching tropical cyclone drew attention to an existing vulnerability, namely the compounded risk of combined natural hazards and the lack of coordinated response plans across federal, state and local governments. 2019 was a record flood year on the Mississippi River, with the river staying above flood stage from February through July. The extended high water necessitated opening the Bonnet Carre spillway twice – the first time in the history of that flood control structure that it was operated twice in the same year. As the river remained above flood stage into hurricane season, the City was presented with the combined threat of a high river and an approaching tropical cyclone. Confusing and sometimes apparently contradictory information from the National Weather Service and Corps of Engineers highlighted the prospect of overtopping or breaching of the Mississippi River levees surge. The lack of standard operating procedures for this combined hazard highlights the need for emergency operation plans to address this combined hazard. Planners should reexamine interagency coordination and river management, including the operation of existing water control structures such as the Bonnet Carre Spillway and the Morganza Floodway.

Although the malware attack of December 2019 caused substantial disruption to operations across City departments, the process of rebuilding the network infrastructure creates an opportunity to apply lessons learned and best practices to reduce vulnerability to similar attacks in the future.

## Changes in Capabilities

The Hazard Mitigation Office completed commissioning of the first phase of an Automated Flood Warning System in August 2019. Located at twelve low-lying underpasses, the system provides real-time warnings to motorists when street flooding occurs. Information is transmitted real-time to a cloud-based software platform, which provides automated alerts and situational awareness to City officials. The City ITI department also established data feeds with the SWBNO's network of rain gauges and the NWS. NOHSEP is coordinating with SWBNO to plan for future expansion of the network of sensors for more comprehensive coverage across the city.

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. Hazard Mitigation staff began developing a Flood Warning and Response Plan and a Drainage System Maintenance Plan. Coordinating CRS program activity across City departments will increase the City's planning and regulatory capabilities, and will also help reduce the cost of flood insurance premiums, which will help keep insurance affordable.

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.



Orleans Parish, Louisiana – 2019 Hazard Mitigation Annual Report

## 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.

<u>No.</u>	<u>Capability</u>	<u>Action Item/ Benefits</u>	<u>2019 Status</u>	<u>Status Summary</u>
1.01	Public Information and Warning	Increase the City's preparedness by becoming StormReady and by pursuing No Adverse Impact	Ongoing	Maintaining StormReady certification
1.02	Mass Care Services	Improve pediatric surge capacity	Not Started	
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	
1.04	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	
1.05	Public Information and Warning	Develop outreach materials regarding post-disaster air quality	Not Started	
1.06	Critical Transportation	Provide shade structures and minimal seating for evacuation pick-up sites.	In Progress	
1.07	Environmental Response/Health and Safety	Mitigate contamination resulting from illegal dumpsites.	In Progress	
1.08	Mass Search and Rescue Operations	Purchase needed equipment for the USAR Team	Ongoing	
1.09	Public Information and Warning	Develop a warning and notification system in the event of sudden river flooding.	Ongoing	Commissioned the AFWS, coordinating with SWB to maintain gauges and share data



Orleans Parish, Louisiana – 2019 Hazard Mitigation Annual Report

1.10	Mass Search and Rescue Operations	Map the interior of critical facilities to assist first responders in the event of an incident	Ongoing	NOHSEP GIS coordinator is leading this effort.
1.11	Public Health, Healthcare, and Medical Services	Obtain a mobile dialysis unit.	Not Started	Passed ordinance to require dialysis clinics to have backup power
1.12	Public Health, Healthcare, and Medical Services	Set up cooling shelters during extreme heat events	Completed	
1.13	Natural and Cultural Resources	Adopt ordinance requiring water saving measures in time of drought	Not Started	
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	This requires federal authorization and funding.
2.02	Community Resilience	Implement pilot reconstruction projects in hazard prone areas to mitigate structures against future damage.	Completed	City continues utilizing HMA grants
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	DU Drainage Improvements completed. Design ongoing on other projects.
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	Improvements continue through JIRR, GRD, and HMGP programs
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	Construction on the funded portions of SELA is largely complete.
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.	In Progress	Design is in progress





Orleans Parish, Louisiana – 2019 Hazard Mitigation Annual Report

		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.		
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	Design is in progress
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	Design is in progress
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	In Progress	Design is in progress



Orleans Parish, Louisiana – 2019 Hazard Mitigation Annual Report

		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.		
2.10	Long-term Vulnerability Reduction	Hagan Lafitte. Study subsidence from groundwater pumping and stabilizing and mitigate chronic flooding by increasing the capacity of subsurface drainage and the daylight flow in canal.	In Progress	Construction began in early 2019 and will extend into 2020.
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	Various projects led by City PDU and SWBNO
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	Wind retrofits in progress for MTCB buildings and NOFD HQ.
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	DPW digitization of historic designs, Sandia microgrid study
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.	Not Started	
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.	Ongoing	HMA Grants
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	Completed	Higher regulatory standards including freeboard were adopted in 2016.
2.17	Public Information and Warning	Continue public information campaign for owners of non-conforming properties.	In Progress	
2.18	Public Information and Warning	Develop a program to promote the purchase of flood insurance.	Ongoing	NOLA Ready, Mayor's PSA



Orleans Parish, Louisiana – 2019 Hazard Mitigation Annual Report

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	HM Office continues to coordinate a home elevation program using FMA grants.
2.20	Risk and Disaster Resilience Assessment	Undergo a Safe Growth Audit to guide post-Katrina redevelopment	Not Started	
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	
2.22	Risk and Disaster Resilience Assessment	Install a system of sensors, including groundwater, that are automated and machine readable.	In Progress	AFWS, coordination with SWBNO and Smart Cities
2.23	Physical Protective Measures	Construct a Flood Wall to protect the Lakefront Airport	Not Started	
2.24	Physical Protective Measures	Install lightning rods to critical facilities	Not Started	
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 Sauvage, the largest urban wildlife refuge in the United States, leading to an increase in the refuge's wildlife and fish habitat	In Progress	Being managed by CPRA
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 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.	Not Started	No longer explicitly identified in the CMP, some components of this project are still being advanced through CWPPRA.



Orleans Parish, Louisiana – 2019 Hazard Mitigation Annual Report

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	
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, welders, surveyors, and a variety of laborers, scientists, and managers.	In Progress	
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	Coordination with CPRA through ORS
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	Advocating with CPRA for funding for additional increments
3.07	Natural and Cultural Resources	Restore protective wetlands near Fort Pike	Not Started	
3.08	Planning	Develop Parish wetlands regulations that provide	Not	



Orleans Parish, Louisiana – 2019 Hazard Mitigation Annual Report

		the intent of the regulation for flood storage.	Started	
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	
4.01	Public Information and Warning	Implement a public education campaign about the Community Rating Systems and ways in which to reduce flood insurance premiums.	In Progress	
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	Ongoing	Ready for Rain
4.03	Public Information and Warning	Document and publicize local success stories.	In Progress	
4.04	Public Information and Warning	Educate the public about storm water management, including their role in keeping drains and culverts clear.	In Progress	Adopt a Catch Basin, NOLA Ready
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	Formed HM Planning Committee for 2020 plan update
4.06	Public Information and Warning	Promote the use of building methods which are hazard resistant and built above the code.	In Progress	
4.07	Operational Coordination	Implement methods to avoid damage caused by un-tethered ships during storms.	Completed	US Coast Guard
4.08	Planning	Explore alternative financing methods to support flood mitigating projects, such as a rebate program	In Progress	
4.09	Risk and Disaster Resilience Assessment	Assist homeowners with soils testing to determine infiltration rates	Not Started	Replaced by groundwater study with Deltares
4.10	Public Information and Warning	Promote greater use of pervious concrete	In Progress	Incorporating pervious paving in City and SWB projects as able.
4.11	Risk and Disaster Resilience Assessment	Assist homeowners with soils testing to determine infiltration rates	Not Started	Soil hydrologic testing is being completed by Deltares and ORS as part of the Gentilly Resilience District pilot
4.12	Risk and Disaster Resilience Assessment	Require mandatory training in floodplain regulations for all building officials.	In Progress	
4.13	Public Information	Annually update, produce, and distribute a	Ongoing	



Orleans Parish, Louisiana – 2019 Hazard Mitigation Annual Report

	and Warning	hurricane awareness brochure that includes hazard information, evacuation information, and mitigation information and distribute to residents and visitors.		
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.	Ongoing	Coordinated by NOLA Ready
4.15	Planning	Evaluate the implementation of voluntary incentive and reward programs that encourage builders and contractors to go beyond minimum requirements.	Not Started	
4.16	Community Resilience	Create a Leadership Development Program for City Resilience.	Not Started	
4.17	Community Resilience	Develop a small business resilience program	In Progress	
4.18	Community Resilience	Establish a resilience Retrofit Program	In Progress	FANO developed a loan product for home rehab and retrofits
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	
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	
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.	Ongoing	
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	
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	HM Office reviewed policies, submitted comments to FEMA, GAO
5.06	Planning	Engage with regional hazard mitigation planning efforts. Coordinate with other local plans to ensure consistency and coordinate actions with other parishes.	Ongoing	Coordinating with neighboring parishes through the Louisiana Watershed Initiative
5.07	Operational Coordination	Engage with regional and statewide efforts for the protection of coastal wetlands – including coordination regarding wetlands policy.	Ongoing	
5.08	Planning	Incorporate hazard mitigation projects into CIP	In Progress	



Orleans Parish, Louisiana – 2019 Hazard Mitigation Annual Report

5.09	Operational Coordination	Strengthen the City's capacity to implement mitigation projects through staffing.	In Progress	
5.10	Intelligence and Information Sharing	Maintain current information on known hazards present in facilities such as refineries, power plants, etc.	Ongoing	
5.11	Intelligence and Information Sharing	Increase coordination with urgent care facilities and community health centers.	In Progress	
5.12	Risk and Disaster Resilience Assessment	Resource type the USAR Team	Not Started	
5.13	Operational Coordination	Coordinate with USACE and SLFPAE regarding the levee system improvements and maintenance.	Ongoing	Strategic Partnership meetings
5.14	Operational Coordination	Support levee maintenance through programs to deal with invasive species.	In Progress	
5.15	Risk and Disaster Resilience Assessment	Establish a Parish capability to review the maintenance and strength levels of the levee system	Not Started	led by SLFPA, CPRA and USACE. USACE Feasibility Study
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	PDA tool
5.17	Operational Coordination	Assist other local agencies with hazard mitigation plans in the implementation of actions from their plans.	In Progress	Developing Multi-Jurisdictional HM Plan, NOHSEP/Port collaboration
5.18	Risk and Disaster Resilience Assessment	Promote Stafford Act and other regulatory changes to strengthen hazard mitigation planning.	In Progress	HM provided comment on BRIC
5.19	Planning	Develop pre-disaster Disaster Recovery Plans	In Progress	
5.20	Planning	Incorporate climate change impacts into all planning.	Ongoing	Coordinated discussion with State Climatologist and City officials/HM stakeholders
6.01	Intelligence and Information Sharing	Set up an Enterprise Data Warehouse to integrate data across City departments.	Not Started	
6.02	Physical Protective Measures	Upgrade, or replace, the Parish EOC.	In Progress	
6.03	Physical Protective Measures	Install emergency generators at all emergency shelters and critical facilities.	In Progress	HMGP funds for XX generators
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	DPW digitization of historic designs



Orleans Parish, Louisiana – 2019 Hazard Mitigation Annual Report

6.05	Supply Chain Integrity and Security	Consolidate public safety warehouses.	In Progress	
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	
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	
6.08	Intelligence and Information Sharing	Improve asset management to assist with the documentation of damages.	In Progress	Property Management and building inspectors using Survey App to improve record keeping.
6.09	Risk Management for Protection Programs and Activities	Create a one-pager for City staff re: protecting IT equipment	In Progress	City implemented required Cyber Security e-training for employees.

## Ongoing Plan Maintenance

In 2020, NOHSEP will conduct stakeholder outreach, coordination and planning for the development of a multi-jurisdictional 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 include updates to hazard profiles, vulnerability assessments, and mitigation strategy in the 2020 Hazard Mitigation Plan.