



Hazard Mitigation Annual Report

City of New Orleans, Louisiana

2017



Orleans Parish, Louisiana
2017 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.

2017 Summary

- Entering 2017, the City was managing several residential mitigation projects from funded through DR1603 HMGP, DR1607 HMGP and the Severe Repetitive Loss programs. While many of the individual properties were complete, the overall projects contained outstanding work and progress on several properties was stalled. The HM Office worked closely with FEMA and GOHSEP to implement a completion and closeout strategy for these home elevations projects, which would run into the fall of 2018. Contractual issues were resolved and construction schedules for remaining work were established. By year's end, twelve properties were still under construction and closeout had been requested on roughly half of the outstanding grants.
- Construction at Dillard University began on the first of several large green infrastructure projects funded through FEMA's DR1603 and DR1607 HMGP programs. The remaining 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.
- Through coordination with FEMA and GOHSEP, outstanding disaster and non-disaster grant applications were updated, scope fully developed and projects moved into FEMA's approval queues. These included: FY13 Flood Mitigation Assistance home elevation project, DR1786 wind retrofit and backup generator projects for public facilities, DR4080 community education and outreach project and an amendment to an existing DR 1603 generator project.
- The City continued efforts to maximize opportunities to provide emergency backup power to critical facilities. A permanent backup generator was installed at the Real Time Crime Center, funding was secured to install a permanent generator at the NOHSEP warehouse, and an amendment request was developed and submitted to GOHSEP requesting utilization of remaining fund balance in an existing grant to provide emergency generators at three additional public facilities.
- Efforts to increase stakeholder engagement in mitigation planning were advanced through multiple avenues. The City submitted an application for FY17 Pre-Disaster Mitigation funding to develop a multi-jurisdictional hazard mitigation plan during the next HM Plan update cycle. The LEPC Hazard Mitigation Subcommittee was formed and began quarterly meetings as part of NOHSEP's strategy for collaborative engagement with local agencies and partners.
- The HM Office supported the overhaul of NOLA/Ready, the City's emergency preparedness platform, developing unified messages and aligning emergency preparedness messaging with the work of the Office of Resilience and Sustainability and the City's Community Rating System program. The Office secured HMGP funding under DR 4080 to support outreach staff and development of outreach materials.
- The HM Office worked with Department of Safety and Permits to integrate hazard mitigation activities with the



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Community Rating System (CRS) priorities. Aligning the two programs supports the CRS program mission to lower flood insurance rates through various actions that collectively reduce the risk of flooding. Specific action areas included public outreach (Activity 330), flood warning and response planning (Activity 610), and addressing repetitively flooded properties through residential elevations (Activity 520).

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

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

- Sewerage and Water Board of New Orleans
- 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

Meeting and Engagement Efforts

In 2017, NOHSEP created the Local Emergency Preparedness Committee's Hazard Mitigation Subcommittee and began holding quarterly meetings with a host of local stakeholders. 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 also became a sitting 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



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and members of the HM Office participated in 147 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 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.

2017 Hazard Identification

The following table includes extreme weather events recorded in NOAA's National Climate Data Center (NCDC) database. Only the tornado touch down in New Orleans East on February 7, 2017 resulted in a major disaster declaration (DR4300).

Date	Event Type	Property Damage	Description
1/21/2017	Hail	\$ -	The hail was reported 2 miles west of the Twin Span Bridge on Interstate 10.
2/7/2017	Tornado	\$ -	A tornado touched down just east of the industrial canal and moved northeast into the Evangeline Oaks Subdivision where it quickly strengthened into a multi-vortex EF-2 tornado. In this area, it snapped several power poles and caused significant roof damage to an apartment complex as well as a building similar to an automobile service building. the tornado then turned toward the east and continued to move almost due east through neighborhoods just north of Chef Menteur Blvd. The worst damage was generally along and just north of Grant Street from Read Blvd to Chalmark Dr. In this area, dozens of homes lost all or large portions of their roof structures. Several homes also had numerous collapsed walls. A few two story homes suffered almost complete destruction of the top floor with the exception of one or two interior corner walls. The tornado also bent at least 3 steel electrical transmission poles. The tornado continued moving toward the east, causing damage to the NASA Michoud facility and a few other industrial buildings in the area, and rolling a rail tanker car east of the Michoud Canal. The track is terminated at Lake Borgne, but the tornado likely continued for some time after that over water. Of the 33 injuries, 5-6 of them were considered serious. Maximum estimated wind speeds were around 150 mph. In total, the tornado caused moderate to severe damage to 638 homes, of which around half were considered total losses. At least 40 businesses also suffered moderate to severe damage.
2/7/2017	Hail	\$ -	Ping pong ball sized hail was reported in New Orleans East.



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2/7/2017	Thunderstorm Wind	\$ -	A WeatherFlow station at New Orleans Lakefront Airport measured a 67 mph wind gust. The strong winds flipped several light air craft parked at the airport.
6/20/2017	Tropical Storm	\$ -	Tropical Storm Cindy Frequent tropical storm force wind gusts with a few instances of sustained tropical storm force winds were reported at Lakefront Airport KNEW as well as a WeatherFlow site at Lakefront Airport. The highest gust reported was 43 knots at 11:08 pm CST on June 21. The strong winds downed a few trees along Highway 11 between Highway 90 and I-10, and also downed power lines along General Degaulle. At the peak, there were approximately 7100 homes without power.
6/21/2017	Storm Surge/Tide	\$ -	Tropical Storm Cindy. A USGS gauge at the Rigolets reported a maximum water level of 5.42 ft NAVD88 at 6:15 pm CST on the 21st. Farther into Lake Pontchartrain, the National Ocean Service gauge at New Canal (NWCL1) reported a maximum water level of 3.47 ft MHHW at 6:12 pm on the 21st. The reading at New Canal was 3.53 ft above the predicted water level. The elevated water levels resulted in moderate impacts to areas outside of the federal levee system. Low lying roads, including Lakeshore Drive along Lake Pontchartrain and Highway 90 through the Venetian Isles area were inundated with up to 2 feet of water. There were no reports of homes or businesses damaged by the flooding.
8/5/2017	Flash Flood	\$ 5,000,000.00	Thunderstorms repeatedly developed over the same area of New Orleans from the mid afternoon into early evening producing 4 to 9 inches of rain during a 3 to 5 hour period. The rainfall overwhelmed the drainage system leading to widespread and deep street flooding. Many streets were impassable from the Mid City area to just north of the French Quarter and Central Business District, and road and highway underpasses were deeply flooded. Numerous automobiles were also damaged by the flooding. Water entered at least several hundred homes and a number of businesses, with estimates likely to increase as claims are processed.
8/8/2017	Flash Flood	\$ -	Multiple roads were reported flooded around City Park and Lakeview toward the University of New Orleans. The report was relayed by social media.
10/2/2017	Flash Flood	\$ -	Local broadcast media reported cars stalled in flood waters at underpass near Paris Avenue and Gentilly Boulevard.
10/2/2017	Flash Flood	\$ -	Local broadcast media reported cars were stalled in flood waters at the Canal Boulevard Underpass near Homedale Street.



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10/7/2017	Storm Surge/Tide	\$ -	Hurricane Nate. Storm surge of approximately 2 to 4 feet was noted. A USGS gage at the Rigolets had an estimated storm surge of 4.3 ft. Minor impacts due to storm surge were reported. A few low lying roads outside the Federal Risk Reduction System were flooded, primarily in the Venetian Isles and Irish Bayou areas. No homes were impacted.
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Changes in Vulnerabilities

New Orleans is beginning to experience the impacts of more frequent and higher-volume rainfalls associated with a changing climate. The wide-spread flash flooding that occurred on and around August 5, 2017 highlighted the capacity limits of the City’s storm water drainage system and its ability to evacuate the large volume of water that falls at high rates during cloud burst events. These events underscore the urgent need to prioritize maintenance of the City’s existing storm water drainage system and continue to implement new drainage improvement projects including upgrades to the existing grey infrastructure and integration of green infrastructure projects.

The violent spring thunderstorms of 2017 resulted in the City experiencing its first ever touchdown of an EF3 tornado within its populated area. Planning efforts for wind mitigation already account for tropical cyclones and tornados, however, the frequency and intensity of such events is trending higher, driving a need to continued prioritization and education.

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.

2017 was a very active Atlantic hurricane season, recording 17 named storms, 10 hurricanes and 6 major hurricanes. Current damage estimates place the year as the costliest in U.S. history, surpassing the previous record in 2005. New Orleans was spared any major impacts during the season, however, NOHSEP activated for three events: Tropical Storm Cindy, Hurricane Harvey and Hurricane Nate. 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.

Changes in Capabilities

In July 2017, the city released its Climate Action Plan, Climate Action for a Resilient New Orleans. The Plan outlines a strategy to mitigate the city’s contribution to climate change and adapt to its impacts. The strategy includes specific actions that are consistent with the Hazard Mitigation Plan, such as increasing energy efficiency, investing in preparedness for temperature extremes and taking action to reduce flood risk.

The City has prioritized the development of data monitoring systems to support emergency management activities, resulting in the planned development of flood warning and groundwater monitoring systems. The ALERT Flood Warning System will consist of remote water pressure sensors and rain gauges set to automatically trigger warning beacons when water accumulation occurs at frequently flooded underpasses. The system will also transmit data in real-time to emergency managers, with an additional public facing dashboard to inform the public of hazardous driving conditions. The data from these systems will be collected and analyzed to support future actions and to improve the city’s storm water management activities.



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In 2017, the city developed a Cooperative Endeavor Agreement with the UNO-CHART to conduct the largest Repetitive Loss Area Analysis (RLAA) in the country. A RLAA is a careful examination and mitigation assessment for an area with a high number of repetitive loss properties. The analysis aligns to the city’s Community Rating System (CRS) goals and will provide critical information necessary to homeowners, neighborhood leaders and city officials on flood risk and mitigation opportunities for all parcels located in Orleans Parish.

The City also partnered with the Trust for Public Land to develop a climate-smart cities tool, which is an accessible, on-line, interactive mapping interface providing a variety of climactic and demographic information about Orleans Parish. The tool complements other public outreach efforts led by the city to increase public awareness of climate hazards and understanding of and support for mitigation and adaptation actions.

The New Orleans Office of Homeland Security and Emergency Preparedness worked with multiple city departments and numerous local organizations to develop a public outreach program 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 review of and alignment with the city’s CRS plan. In addition to updating emergency planning, messaging and mitigation documentation, the office has integrated CRS creditable actions into outreach materials, data collection and analysis and project development activities.

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>Status</u>	<u>Time Frame</u>	<u>Priority Ranking</u>
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



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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.	Not Started	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
1.09	Public Information and Warning	Develop a warning and notification system in the event of sudden river flooding.	Not Started	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.	Not Started	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.	In Progress	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	In Progress	5-10 years	High



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		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.			
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	<p>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.</p>	In Progress	1-5 years	High
2.09	Long-term Vulnerability Reduction	<p>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.</p>	In Progress	1-5 years	High
2.10	Long-term Vulnerability Reduction	<p>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.</p>	In Progress	5-10 years	High
2.11	Community Resilience	<p>Install rain gardens and storm water runoff filtration and water retention systems along</p>	In Progress	5-10 years	High



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		streets to reduce subsidence and flooding. Develop and advocate the necessary site design and landscape standards for streets, neighborhoods, and building sites.			
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.	In Progress	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 Floodplain Management Ordinance	In Progress	1-5 years	Medium
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.	In Progress	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



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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.	Not Started	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
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	Not Started	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 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	5-10 years	Medium



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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, welders, surveyors, and a variety of laborers, scientists, and managers.	In Progress	5-10 years	High
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	Not Started	5-10 years	High



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		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.			
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
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	1-5 years	High
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.	Not Started	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	Not Started	1-5 years	High



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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.	Not Started	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
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
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.	In Progress	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



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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	Not Started	1-5 years	Medium
5.06	Planning	Engage with regional hazard mitigation planning efforts. Coordinate with other local plans to ensure consistency and coordinate actions with other parishes.	Not Started	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	Not Started	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.	Not Started	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.	Not Started	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
5.20	Planning	Incorporate climate change impacts into all planning.	In Progress	1-5 years	High



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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.	Not Started	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.	Not Started	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.	Completed	1-5 years	High
6.09	Risk Management for Protection Programs and Activities	Create a one-pager for City staff re: protecting IT equipment	Not Started	1-5 years	High

Ongoing Plan Maintenance

An application to support the development of the 2020 HM Plan update was submitted under the FY17 Pre-Disaster Mitigation funding opportunity and has advanced to final approval stage by FEMA. NOHSEP is continuing to engage with other stakeholders throughout the parish and will encourage them to join in this multi-jurisdictional planning exercise that will enhance coordination of mitigation efforts across the city. The Hazard Mitigation Office will continue to track changes in vulnerabilities, the status of active projects and additional funding opportunities throughout the year and prepare its 2018 annual report in the first quarter of 2019.